DISTRICT AND SCHOOL DATA TEAM TOOLKIT

TOOLS AND RESOURCES TO ENGAGE ALL MEMBERS
OF THE DISTRICT COMMUNITY IN USING MULTIPLE
DATA SOURCES TO CONTINUOUSLY IMPROVE
TEACHING AND LEARNING

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About

The idea of creating a *District and School Data Team Toolkit* was jointly agreed to in 2011 by the Washington School Information Processing Cooperative (WSIPC), the Office of Superintendent of Public Instruction (OSPI), and Public Consulting Group (PCG) to support districts and schools in maximizing the value of available data in a variety of systems to make data-driven decisions that will improve student achievement. In addition to the *District and School Data Team Toolkit,* the project also seeks to help Washington's Educational Service Districts (ESDs) provide capacity building data coaching services to district and school leaders. The overarching goal of this partnership is to develop a data-driven culture among all educators in Washington that seeks to improve teaching and learning for all students.

The *District and School Data Team Toolkit* is designed to help district staff lead all members of the district community in the development and realize a shared vision for data use. Realizing the district-wide vision involves many tasks and types of expertise. Over time, with the assistance of the tools and resources in the *District and School Data Team Toolkit*, the team can engage all members of the district community in using multiple data sources and the inquiry process to continuously improve teaching and learning throughout the state of Washington.

Instrumental in the design and development of this toolkit from PCG were: Robb Geier, Stephen C. Smith, Elizabeth Chmielewski, and Andrew Morton. We would also like to thank members of the WSIPC and OSPI teams, Marty Daybell, Peter Tamayo, Greg Beck, Dan Newell, Sue Furth, and all of the ESD team members who contributed valuable ideas, tools, and resources during the development of the *District and School Data Team Toolkit*.

INTRODUCTION

What is the District and School Data Team Toolkit?

The *District and School Data Team Toolkit* is designed to help district staff lead all members of the district community in the development and realization of a shared vision for data use and the inquiry process.

Ensuring the effective use of inquiry and data district-wide involves many tasks and types of expertise. The first, and most critical task, is to collaboratively develop a widely accepted vision for data use in the district and its schools.

Once the vision has been established, this toolkit can help district staff establish a *district data team*—a cadre of staff that is collectively responsible for the technical, organizational, and substantive aspects of realizing that vision in the district and its individual schools. Members of the district data team work with district and school-level staff to:

- Create and articulate the vision for data use, set and model expectations, and implement and uphold policies for data use in the district.
- Identify data to be collected, manage data infrastructure and access, and design meaningful data displays.
- Select or develop models for inquiry and data use that will be used district-wide and model the inquiry process publicly.
- Provide professional development to support district departments, principals, school data teams, and teachers in their use of data to identify professional development needs.
- Monitor the progress of the district toward achieving its vision for data use and establish the lines of communication necessary for the sharing of results and best practices.

Over time, with the assistance of the tools and resources in the *District and School Data Team Toolkit*, the team can engage all members of the district community in using multiple data sources to continuously improve teaching and learning throughout the district.

Who Should Use This Toolkit?

The *District and School Data Team Toolkit* can be used by district leaders and school leaders interested in supporting data use and the inquiry process in their organizations. The majority of tools and resources contained in this toolkit have utility among any group of educators seeking to improve the use of data and inquiry in their particular context. The toolkit encourages the development of data teams at all levels within the district. The tools are presented in the context of use by the district data team but can readily be adapted for use by school-level, grade-level, or discipline centered data teams.

What is the Conceptual Base?

The research base for the toolkit stems from the Data Use Theory of Action developed by Public Consulting Group.[1] The theory of action depicted in Figure 1 describes three foundational conditions that support the data informed actions that will ultimately impact student outcomes: the usefulness of data, the capacity of stakeholders to use the data, and an organization-wide culture that supports and expects the use of data to inform decisions.
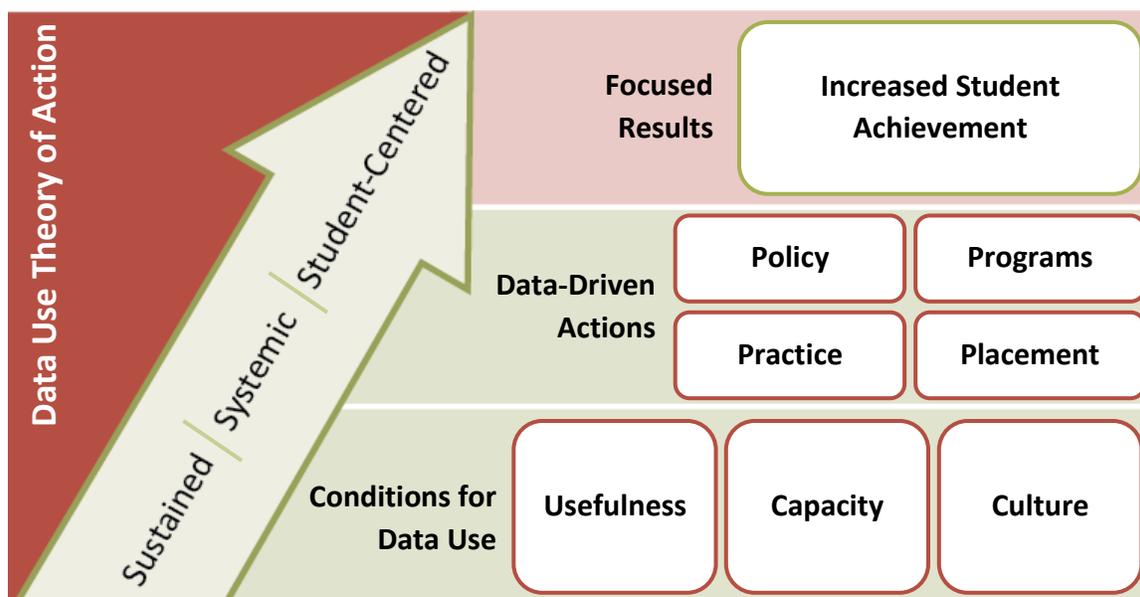

Figure 1. PCG's Data Use Theory of Action   **© 2012 Public Consulting Group, Inc.**

According to the theory of action, if the necessary conditions for data use (data usefulness, data capacity, and data culture) are in place, and data are being used to formulate policy, evaluate and design programs, guide practice, and place students in appropriate instructional settings, then increased student achievement will result. Research also suggests that for data use to have a profound impact on student achievement, it must be sustained over time, take place systemically throughout all levels of the organization, and be *student centered*.

Getting Ready, the first component of the *District and School Data Team Toolkit*, is devoted to supporting the establishment of a district data team and providing guidance for creating school data teams. *Getting Ready* provides tools that enable district data teams to understand their functions; determine current data usefulness, capacity, and culture; and establish a vision for data use. The

premise for this part of the toolkit is built on the idea that, in order for data use to become systemic in any organization, it must be an initiative that is supported by leadership.

Although leadership hierarchies are very similar throughout all school districts, the way leadership is concentrated or shared varies from district to district. Leadership can vary from structured to diffuse and from concentrated at the top of the hierarchy to being shared among all stakeholders. These leadership structures, both formal and informal, must be taken into account as the district moves forward on the journey to build a culture of inquiry and systemic data use. Leadership may be from the bottom up or the top down or something in between. Regardless of where the leadership comes from, the ultimate goal is to establish a culture of inquiry and systemic data use.

What's in the Toolkit?

In addition to *Getting Ready*, the *District and School Data Team Toolkit* has five components that are aligned with the Cycle of Inquiry and Action. This structure makes the toolkit useful as a resource for any team working with data at any point in the inquiry process, while also serving as a model for conducting inquiry from beginning to end.
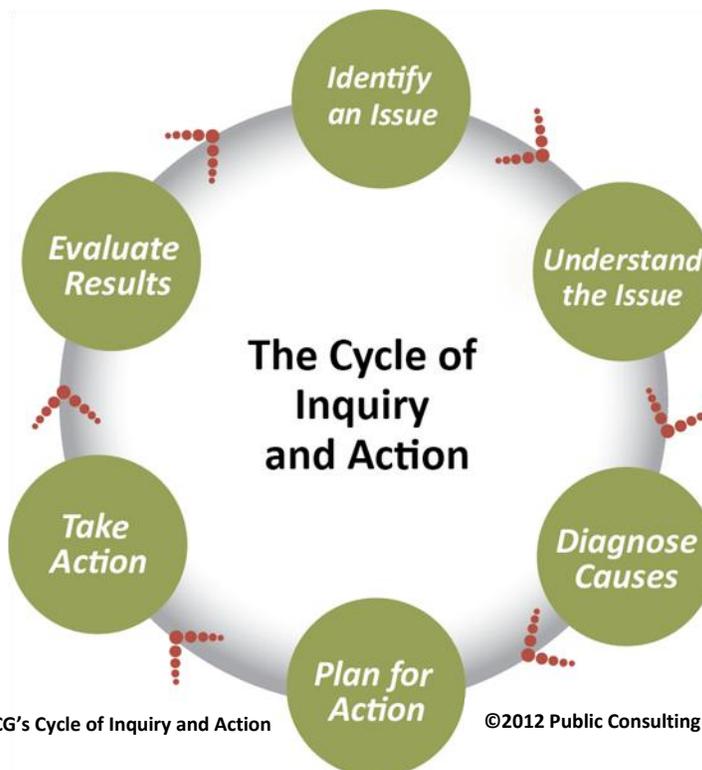

Figure 2. PCG's Cycle of Inquiry and Action   **©2012 Public Consulting Group, Inc.**

- **Identify Issues** helps teams formulate the questions that will drive data collection and analysis that leads to the identification of learner-centered problems. The component includes resources and protocols to help teams clearly articulate questions and identify the data needed to answer them.
- **Understand Issues** moves to the next step in the inquiry process by helping both school and district teams begin to analyze data, generate clarifying questions to focus the inquiry, and identify data needed to dig deeper into the issue and learner-centered problems.
- **Diagnose Causes** guides the process of root cause analysis using data from multiple sources to determine a hypothesized problem of practice that underlies the learner-centered problem. Teams are also encouraged to test their hypothesis about the causes of the issues under investigation by consulting research and best practice literature. By closely examining their hypothesis, teams are able to accurately define the problem being addressed and identify possible solutions. The component also includes guidance for creating effective data displays and data overviews to conduct initial analyses.
- **Plan and Take Action** provides a framework for putting new knowledge to work by developing a logic model and articulating clear measures that will guide and focus action. Once desired outcomes have been clearly delineated, and strategies selected to achieve those outcomes, *Plan and Take Action* helps teams create a plan of action that will move the district/school toward the measurable results. Additionally, *Plan and Take Action* provides guidance to help teams keep the plan alive through the use of implementation indicators and interim benchmarks to provide the basis for formative evaluation and to use data to guide mid-course corrections if necessary.
- **Evaluate Results** extends the formative evaluation conducted during implementation to the summative evaluation of an action plan's outcomes. Teams will use tools and guidance to conduct an evaluation that sums up the gains made through their actions and sets the stage to repeat the inquiry cycle. *Evaluate Results* also emphasizes the need to communicate with stakeholders about the project's outcomes and provides resources to support that communication.

How Should the Toolkit Be Used?

The *District and School Data Team Toolkit* is designed to promote the skills and knowledge necessary to form an effective cadre of district and school-level data teams and build their capacity to effectively use the inquiry process and data to inform decisions. This can be accomplished in many ways. The current state of data use and the unique context of each district will determine how this toolkit will be used most effectively. Remember that the structure of the Cycle of Inquiry and Action makes the toolkit useful as a resource for any team working with data at any point in the inquiry process, while also serving as a model for conducting inquiry from beginning to end. Each component of the toolkit begins with an overview of the step in the cycle of inquiry it details, illustrates where you are in the cycle, and provides a set of outcomes that will be achieved upon completion of the component.

Getting Ready → Identify Issues → Understand Issues → Diagnose Causes → Plan and Take Action → Evaluate Results

Figure 3. Where are we now?

The *District and School Data Team Toolkit* presents concepts and tools in the context of use by a district data team. All of these concepts and tools are completely transferable to school-level data teams and, for that matter, any team that will be using data to support the inquiry process. *Getting Ready* illustrates how the functions of the district data team are transferable to school-level teams. While tools throughout the toolkit are presented in the context of use by the district data team, school-level, grade-level, or discipline-centered data teams can adapt tools for their use.

As detailed previously, leadership structures, both formal and informal, vary greatly across districts. In large districts, the superintendent may depend heavily on a widely representative leadership team or council composed of district-level staff to help with the district's decision-making process. In smaller districts, a central office management team of only a few individuals, each of whom wears many hats, may participate in the decision-making process. In some districts, decisions are made by a small number of central office administrators and in others the leadership may be shared among central office and building-level staff. The size of the district and the leadership structure are two of the context issues that will have a significant influence on how the movement toward inquiry and systemic data use will be realized. The unique characteristics of each district must be considered when deciding how best to use the *District and School Data Team Toolkit*. *Getting Ready* provides additional guidance about addressing district size and leadership structures.

In many districts there are also varying levels of existing data use. The *District and School Data Team Toolkit* is designed to be adaptable to the needs of any district interested in improving the way data are used to drive improved results. Below are three ways in which a district or school might find the toolkit useful to capitalize on current data use or structures that support data use.

- A district leadership team may create the vision for data use and form a district-level data team to take the actions necessary to realize that vision. The district data team would apply the inquiry process to address issues involving the use of data or global teaching and learning issues at the district-level. As the district data team gains confidence in their knowledge and ability to use data, it can then use the *District and School Data Team Toolkit* as a resource to help build school-level teams that would address school-level teaching and learning issues. In a similar fashion, school-level data teams could then build the capacity of all school staff to use data to inform grade-level and classroom decisions.
- A district may have a vision for data use and have data teams in place. In that case, the *District and School Data Team Toolkit* could be used selectively to supplement or reinforce the processes and supports for improving a growing culture of data use. If school-level teams are not in place, the district data team may use this toolkit to facilitate their development.
- A district may not have a formalized district or school-level vision or structures in place to support widespread data use; however, there may be pockets of effective data use at various levels in the organization. These data use pioneers may well have a vision for how they want to use data and may be using data very effectively to inform their decisions. The data coach may use the resources of the *District and School Data Team Toolkit* to extend the capacity of these pioneers and use their efforts as examples of how data can be used throughout the district. Building from the bottom up and capitalizing on this grassroots support for data use can lead to a district vision for data use and the district and school structures – such as a district data team – to help realize the vision.

As any team gains comfort with the tools, resources, and processes in this toolkit, the team can plan ways to share them with other district and school-level teams that need to use the inquiry process and data to inform their decisions.

While each of the components of the *District and School Data Team Toolkit* provides specific tools to implement the steps of the inquiry process, it is important to understand that superimposing a process does not necessarily yield a positive result. A district must be mindful of doing what it can to embed a culture of inquiry and data use that goes beyond technical compliance with processes suggested in the toolkit. Therefore, we encourage you to shape activities and protocols to suit the needs of your particular district, while keeping the goal of the Data Use Theory of Action as your target.

Where Should Our District Begin?

As noted, a district should begin by developing a vision for data use that is widely accepted at all levels of the district. *Getting Ready* provides guidance for creating this vision and will immediately help any organization identify where to focus attention. Whether a district data team has already been formed or not, a good place to begin is with the District Data Team Self-Assessment in *Getting Ready*. It will help you and your leadership team to identify where to begin engaging with the *District and School Data Team Toolkit*.
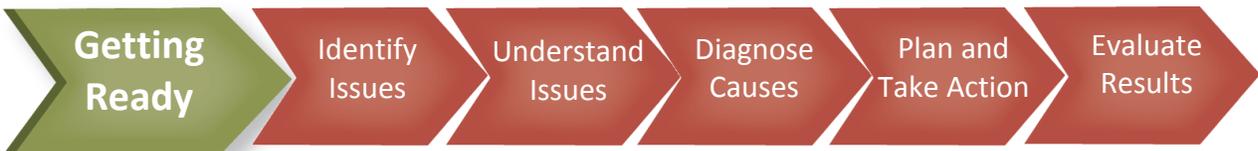
References

[1] Ronka, D., Geier, R., & Marciniak, M. (2010). *A practical framework for building a data-driven district or school: How a focus on data quality, capacity, and culture supports data-driven action to improve student outcomes.* A PCG Education White Paper. Boston: Public Consulting Group. Available online: http://www.publicconsultinggroup.com/education/library/index.html

GETTING READY

As noted in the *Introduction* to the *District and School Data Team Toolkit*, the toolkit contains six components. Each section is aligned with one of the six steps of the Cycle of Inquiry and Action. In *Getting Ready*, conceptual information, tools, and protocols are provided to help district leaders create or refine a vision for data use, form and launch a district data team, assess the status of data use in the district and schools, and identify gaps between the current and desired state (vision for data use). *Getting Ready* also illustrates how the concepts and tools that are presented in the context of use by a district data team can be used to establish and/or support school-level teams. The transferability of concepts and tools will be assumed in the remainder of the toolkit.

Getting Ready	Identify Issues	Understand Issues	Diagnose Causes	Plan and Take Action	Evaluate Results

Upon completion of *Getting Ready*, you will have:

- Drafted a vision for data use across the district
- Established a district data team to drive the work
- Assessed the capacity of the new (or existing) district data team to lead the district toward systemic data use
- Developed the capacity of the district data team to work effectively
- Assessed the current status of data usefulness, capacity, and culture in the district and its schools
- Begun to identify gaps between the current status and the district's vision for data use

Tools

- 1.1: Barriers to Effective Data Use
- 1.2A: Creating a Vision for Data Use
- 1.2B: Future Focus Diagram
- 1.3: Functions Necessary to Support Inquiry and Data Use
- 1.4A: Norm Setting Protocol
- 1.4B: Data Team Meeting Agenda Template
- 1.4C: Data Team Meeting Minutes Template
- 1.4D: Communication Organizer Template
- 1.5: District Data Team Self-Assessment
- 1.6: Managing Change and Understanding Concerns
- 1.7: Data Quality, Capacity, and Culture Self-Assessment
- 1.8: Creating a Data Inventory
- 1.9: District and/or School Data Collection, Storage, and Dissemination Self-Assessment
- 1.10: Team Data Use Practices Inventory

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Supporting Data Use

Using Data

Data-driven decision making has been a focus of attention in education for many years. Yet, many educators are reluctant or even resistant to calls by their leaders to use data and make decisions based on data. In some cases, this is because people have a narrow view of data as simply the reports of standardized test results that annually arrive on their desks and in their inboxes. In other cases, it is because the call for using data is perceived as a call for dramatic changes to the way the business of education has always been conducted.

The *District and School Data Team Toolkit* will help district and school leaders establish or enhance the collaborative processes necessary to create a culture of inquiry designed to meet the needs of today's students. An essential first step in creating this culture is to understand the current perceptions about using data in your district. Debra Ingram (2004)[1] and others uncovered seven barriers to the use of data to improve practice.

Cultural Barriers:

1. Many teachers have developed their own personal metric for judging the effectiveness of their teaching, and often this metric differs from the metrics of external parties (e.g., state accountability systems and school boards).
2. Many teachers and administrators base their decisions on experience, intuition, and anecdotal information (professional judgment), rather than on information that is collected systematically.
3. There is little agreement among stakeholders about which student outcomes are most important and what kinds of data are meaningful.

Technical Barriers:

4. Some teachers disassociate their own performance and that of students, which leads them to overlook useful data.
5. Data that teachers want about what they consider to be really important outcomes are rarely available and usually hard to measure.
6. Schools rarely provide the time needed to collect and analyze data.

Political Barriers:

7. Data have often been used politically, leading to mistrust of data and data avoidance.

As a first step toward building a culture of data use, understanding which of these barriers is most evident in your district can help the district leaders strategize the best way to engage more stakeholders. In tool **1.1 Barriers to Effective Data Use**, you will begin to identify and understand the barriers that may exist in your district and schools.

Barriers to Effective Data Use   **1.1**

A Vision for Data Use

Consider for a moment the state of data use in your own district. Are educators at all levels of the district engaging with data and using data to make decisions for continuous improvement to the degree you would like? It is possible that—despite spending time and effort to deploy benchmark assessments, maintain technology for managing and disseminating data, organize professional development to improve collaboration, and arrange time throughout your district for people to meet and use data—your district might be experiencing uneven levels of data use implementation. This can be symptomatic of a lack of clarity of purpose for using data or, more simply, a general lack of awareness as to why people are being asked to use data or what it should look like when they are doing it well.

The pockets of excellence and cells of resistance are sometimes an indication that the whole school or district community does not fully understand the message behind the rollout of previous initiatives or the merits of a culture of inquiry. Consider this excerpt from Richard Sagor's *How to Conduct Collaborative Action Research* [2] as he explains the concept of cognitive dissonance and how it relates to school improvement efforts.

> *The difficulty is that collaborative change inevitably involves changing the behavior of people who have not been in the research effort. Many people have observed that schools are too slow to change. Why is that?*
>
> *Is it because educators are conservative by nature? Are we lazy? Do we not have students' best interest at heart? The answer is 'no' on all three counts. In fact, I suspect the reason schools are so slow to change is that teachers are, for the most part, already doing what they believe is best for their students.*
>
> *Cognitive dissonance theory tells us that to reduce stress, human beings strive for congruence between their behavior and beliefs (Festinger 1957); therefore, teachers would have to be psychologically unbalanced to deliberately not make changes they believed would benefit their students. The fact is that many teachers have good reason to interpret colleagues' or administrators' calls for change as requests to abandon what's best for their students and instead conduct irresponsible experiments on them. You can hardly fault any teacher for resisting such requests.*

A culture of inquiry means having people within a district who regularly ask questions about what all students should know and be able to do, how best to teach content and skills, and what student demonstrations will be acceptable ways to measure learning. Central to creating a district-wide culture of inquiry like this is the leaders' vision for data use. If you are a district or school leader and have ever faced resistance as Sagor refers to above, there is a good chance those who were reluctant to change did not share your vision.

> *Having a culture of inquiry means having people within a district who regularly ask questions about what all students should know and be able to do, how best to teach content and skills, and what student demonstrations will be acceptable ways to measure learning.*

1.2 Visioning:

- **Creating a Vision for Data Use**
- **Future Focus Diagram**

1.2A
1.2B
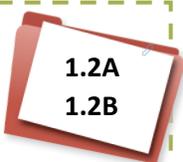
An organizational vision articulates how an imagined future will be different than a present state. Use the protocol in tools **1.2A Creating a Vision for Data Use** or **1.2B Future Focus Diagram** to begin to refine and share your vision. Both of these protocols are opportunities to engage in deep collaboration about what data use can achieve in your district. Tool **1.2B Future Focus Diagram** will also help you map a pathway to your vision. As you prepare to develop your district's vision for data use, consider who else should be involved in the creation process and how you will communicate the vision to gain broad support. Collectively assembling around a common vision is fundamental to the success of the district data team.

The Role of the District Data Team

The *Introduction* shared a theory of action for using data to improve student results. The foundation of the theory of action is that decision makers need to have useful data, the capacities of both time and skill to use the data, and a cultural habit of mind that good decisions are made based on data.

Many districts coordinate the various efforts required to support data use through the construction of a district data team that combines leadership from data managers, instructional leaders, and others. A district data team shares responsibility for establishing the supports necessary for everyone throughout the district to create and sustain a culture of inquiry and data use. To do this, a district data team coordinates or fulfills five essential functions.

Vision and Policy Management	▪ Creates and articulates the vision for data use ▪ Sets and models expectations ▪ Implements and upholds policies for data use in the district
Data Management	▪ Identifies data to be collected ▪ Manages data infrastructure and access ▪ Designs meaningful data displays
Inquiry, Analysis, and Action	▪ Selects or develops models for inquiry and data use that will be used district-wide ▪ Models the inquiry process publicly
Professional Development	▪ Provides training and professional development to support district departments, principals, school data teams, and teachers in their use of data ▪ Uses data to identify professional development needs
Monitoring and Communication	▪ Monitors the progress of the district toward achieving its vision for data use ▪ Establishes the lines of communication necessary for the sharing of results and best practices ▪ Communicates with stakeholders to determine their specific needs for data and training

Figure 1.Five Functions of a District Data Team   **© 2012 Public Consulting Group, Inc.**

Districts must pay equal attention to these five functions, as they provide a solid foundation on which to make data-driven decisions. Some of these functions are probably being addressed very well right now in your district, while others may need more focused attention. The district data team's role is to coordinate efforts across the five functions to ensure that the needs of all stakeholders are met. To gauge how your district is providing support for data usefulness, data capacity, and data culture, use tool **1.3 Functions Necessary to Support Inquiry and Data Use** to assess the current state for each function. This information will be used in **1.5 District Data Team Self-Assessment** to begin to identify priority issues to be addressed by the team.

> **Functions Necessary to Support Inquiry and Data Use**   **1.3**

Data Team Composition

Regardless of the size of any district, the five team functions mentioned earlier must be addressed. If you found that your district is performing many or all of these functions well, you can focus your attention on improving in key areas. Whether to address areas in need of improvement or to ensure that the functions continue to be performed in a coordinated way, it is important to consider establishing a cross-departmental district data team.

The district data team should be led by a *data use champion*, who has the positional authority and credibility to ensure that the work of the team is:

- Supported by the resources necessary to function effectively
- Visible to others in the district
- Acted upon
- Connected to other improvement initiatives

Another critical role on the team is the *data manager*, who has positional authority over the more technical aspects of the team's work, such as:

- Establishing systems to ensure the cleanliness and quality of the data
- Integrating different data systems
- Ensuring all users are using the same data dictionary and terminology

> *The district data team should be led by a data use champion, who has the positional authority and credibility to ensure that the work of the team is:*
>
> - *Supported by the resources necessary to function effectively*
> - *Visible to others in the district*
> - *Acted upon*
> - *Connected to other improvement initiatives*

Other members of the team should include district-level staff that have responsibility for general and special education student services, curriculum and assessment, and elementary and secondary education. In any given district, of course, responsibilities for these areas may be held by a small or large number of people. The most effective district data teams have members who want to support the inquiry process through the use of data and are broadly representative from a district perspective.

Some essential questions to consider when organizing and determining members of a district data team include:

- Who currently has the responsibility for leading and supporting data use in your district?
- Who has a solid understanding of programs, initiatives, and other efforts taking place across the district?
- Who at the district level shares a deep commitment to improving the learning of all students and the practice of all adults involved in their education?

It is also critical that the superintendent shows support for the inquiry process and the work of the district data team by modeling data use and visibly responding to the needs of the team.

Launching the District Data Team

An effective district data team has the same requirements as any other collaborative workgroup. The team will need to establish group norms and a meeting schedule that is appropriate to the level of work required to address gaps that may exist in the performance of the five functions. In addition, specific actions to be taken as the team is formed include the following.

1. **Obtain** clearly stated and visible support from the superintendent – in both written and oral communications.
2. **Meet** with district administrators to clarify the purpose of the initiative, how it relates to the district's mission and goals, the role of the data team, and the team's decision-making authority.
3. **Establish** clear relationships and lines of communication among the data team and other teams at the district and building levels (e.g., district leadership team, school improvement teams, departmental teams, grade-level teams, or professional development teams).
4. **Organize** itself to do the work by:
   - Agreeing to always set an agenda for team meetings
   - Establishing group norms and using protocols to structure conversations
   - Expecting members to work between meetings to complete tasks
   - Understanding that there will be a learning curve for the team and that the team shouldn't address too many issues at the outset
   - Agreeing to delegate tasks and expect timely completion
5. **Provide** adequate time for the team to understand, develop, and complete its work. Time is the dearest resource in a school or district, and insufficient time will sorely limit the team's effectiveness.

   - Sufficient time to share information, generate understanding, determine next steps
   - Uninterrupted, protected time for collaboration, in addition to time for capacity building, professional development, and collaboration with the school-level data teams (more time will be necessary during the launching phase than in subsequent phases).

The Functioning District Data Team

Getting Started

The district data team has been established, staffed, and is now ready to get to work. The first order of business for the team should be the review of the first few tools in *Getting Ready*. If any members of the team have not previously participated, the review will ensure that all members of the team share the same broad understanding of the current culture of data use and vision for the future. They will refine the vision for using data, while gaining full support from the district data team both individually and as a group.

Organizing the Team to do Its Work

Successful district data teams, and all teams for that matter, function best when they take deliberate actions to organize to do their work and to promote interpersonal relationships among team members. Just because a team has been formed doesn't mean that the members will be able to work cooperatively toward the desired end. It takes deliberate action, hard work, and determination to produce an effective team. Many effective teams have employed the following strategies to promote their success.

> *It takes deliberate action, hard work, and determination to produce an effective team.*

- Collaboratively developing *team norms* to codify team expectations around task completion, team processes, and interpersonal interactions. Having a mutually agreed upon statement of how the team and its members will conduct their business can prevent or mediate conflicts that may arise over time.
- Producing an *agenda* well in advance of each meeting that clearly delineates the date, time, and location of the meeting, as well as subjects to be addressed, timelines, work to be done prior to the meeting, resources to bring to the meeting, specific responsibilities of team members, and desired outcomes of the meeting.
- Recording *meeting notes* that are promptly and broadly distributed after the conclusion of the meeting. The notes should list meeting date, time, location, and participants, as well as topics discussed, decisions made, and action items to be completed prior to the next meeting.
- Communicating the team's activities broadly among stakeholders in the district and schools will build support for the culture of inquiry and data use. A *communication organizer* will help the district data team communicate effectively.

Tool **1.4A Norm Setting Protocol** will help the team articulate and agree on ways of working together in order to foster risk-tasking and effective communication during difficult conversations. The templates for the tools **1.4B Data Team Meeting Agenda Template** and **1.4C Data Team Meeting Minutes**

1.4: Team Organization

- **Norm Setting Protocol**
- **Data Team Meeting Agenda Template**
- **Data Team Meeting Minutes Template**
- **Communication Organizer Template**

1.4A, 1.4B, 1.4C, 1.4D

Template provide models for agendas and capturing meeting minutes in order to assure productivity and high-quality communication during and after meetings. Tool **1.4D Communication Organizer Template** will further support this communication.

These tools are provided as suggested resources, but you may have existing tools in your district for setting norms, creating agendas, and recording meeting minutes. If these tools are already commonly used by other teams in your district, the district data team should use them. If these tools don't already exist, the district data team should use the tools provided here and adapt them to fit the needs of the team over time.

Data Team Self Assessment

Now that your team is up and running and has adopted helpful organization and communication processes and tools, it is a good time to assess the current status of how your team is prepared to coordinate or discharge the five functions (Figure 1 on page 4). Tool **1.5 District Data Team Self-Assessment** will help you assess your data team in each of

District Data Team Self-Assessment   **1.5**

the areas of functionality and identify priority functions to be addressed. It is strongly recommended that district data team members work together to complete the self-assessment in order to build capacity as a team.

Managing the Change Process

Earlier you may have used tools **1.1 Barriers to Effective Data Use** or **1.2B Future Focus Diagram** to reflect on barriers to data use that may exist in your district. As noted during our discussion of the need for a vision for data use, these barriers are often symptoms of something else. Richard Sagor[3] suggests that some resistance may stem from the fact that people in your district are already doing what they believe is best for students. Teachers and other district personnel may be slow to adopt a new initiative because they cannot see how it would benefit their students or others for whom they are responsible. They may also feel a sense of anxiety or fear if they are being asked to approach their work differently than they have in the past.

> *Teachers and other district personnel may be slow to adopt a new initiative because they cannot see how it would benefit their students or others for whom they are responsible.*

When presenting an initiative to create a culture of data use to inform educational decision making, leaders must be prepared to manage the resistance to change that will naturally occur. The data team and all leaders must acknowledge that reluctance and resistance are natural reactions to change and that, as leaders, they have the power and responsibility to address any concerns or resistance that occurs.

Hall and Loucks[4] developed the Concerns-Based Adoption Model (CBAM) to describe how educators react and progress through adaptive change processes. The model describes seven stages of concern (table 1) that are usually observable among groups of people who have been asked to make significant changes to their normal practices. More information about CBAM can be found in the References and Resources listed at the end of this component.

Stage	General Concern	Observable Behaviors
Awareness	What is this change I've been hearing about?	Expressions of surprise and sometimes disbelief that a change has been initiated.
Information	Tell me everything I need to know.	Direct questions about the reasons behind the change, and what they are being asked to do differently.
Personal	What does this mean for me?	Expressions of confusion about the change and what it will mean personally for them.
Management	How will I manage all of this?	Expressions of frustration about the change with an underlying feeling that this change is another thing added to their already full plate.
Consequence	What will happen if I do implement the change? What will happen if I don't?	Behaviors and expressions of potential resistance to implementing the change with possible underlying concerns similar to those in the personal and management stages.
Collaboration	How can we help each other through the change?	Expressions of acceptance of the change being called for and a willingness to work with others as they try it out.
Refocusing	How can I make it even better?	Behaviors and expressions that indicate a person understands the big picture and has ideas about how to make additional improvements.

Table 1. The Seven Stages of Concern

When a call for change is presented to a given group of people, many, and sometimes all, of these stages of concern can be observed. As a leader who is initiating the change, it is important to think about how both the whole group and individuals will initially react to the change. This helps leaders thoughtfully prepare initial communication about what changes are being called for and prepare to address ongoing concerns during the adaptive change process.

Tool **1.6 Managing Change and Understanding Concerns** will help you think about how to address these concerns with reinforcing communication and leadership.

Managing Change and Understanding Concerns

1.6

Conducting a Data Use Needs Assessment

Taking Stock of Current Data Usefulness, Capacity, and Culture

As discussed earlier, decision makers at all levels of a learning community need to have quality data, the capacities of both time and skill to use the data, and a cultural habit of mind that good decisions are based on data. Let's explore these conditions for data use[5] a little further so we can understand their importance.

Figure 2. Conditions for Data Use (Adapted with permission)

Data Usefulness

Without useful data, stakeholder groups can lose faith in the value of data and become discouraged. At worst, educators can use poor data—data that are old, that are not disaggregated, or that are presented in confusing or inaccurate ways—and draw false conclusions about district, school, or student needs. This can result in actions driven by wrong information or poor interpretations that can actually cause harm. It is important for districts and schools to put safeguards in place to ensure the usefulness of the data. Access to useful data can lead to greater levels of data use and ultimately to improved student outcomes. The usefulness of data increases by:

- Using *multiple measures* to ensure relevance and the ability to triangulate from more than one data set
- Making sure data are *well organized* and presented in *data displays* that are easy to interpret
- Using *accurate data* that have been standardized and cleansed
- Making data available to stakeholder groups *before the data shelf life has expired*
- *Disaggregating* data for analysis across multiple factors

Data Capacity

Data capacity is the next condition for data use. Without the capacity to access, understand, and use the available data, no amount of data (highly useable or not) will lead to meaningful data use. Data capacity includes:

- *Organizational factors* such as team structures and time to analyze data, collaboratively develop norms, and clearly define roles and responsibilities that support data use
- *Technology* that can integrate data from multiple sources

- *Data accessibility* that allows multiple users to have access to data in *formats that are easy to interpret*
- *Data literacy* and *assessment literacy* skills so data consumers know how to analyze multiple types of data and properly interpret results

Schools and districts can improve data capacity by ensuring there is adequate professional development on how to analyze and interpret test results, setting aside time for instructional and administrative teams to meet and discuss data, and establishing processes and procedures for accessing relevant data.

Data Culture

A culture of data use can only develop if data usefulness and capacity are in place. A strong data culture results when an organization believes in continuous improvement and regularly puts that belief into practice. Schools and districts that have a strong data culture emphasize collaboration as a keystone for success, and they empower teachers and administrators to make decisions for which they are held accountable. Elements of a strong data culture include:

- *Commitment* from all stakeholder groups to make better use of data
- A clearly articulated *vision* for data use
- *Beliefs* about the efficacy of teaching and the value of data in improving teaching and learning
- *Accountability* for results coupled with *empowering* teachers to make instructional changes
- *Modeling of data use* by school and district leaders
- Commitment to making *ongoing instructional and programmatic* improvements
- A culture of *collaboration* at all levels

Data Usefulness, Capacity, and Culture Self-Assessment   **1.7**   Use tool **1.7 Data Usefulness, Capacity, and Culture Self-Assessment**

to gather the perceptions of district and school stakeholders about the usability of data available to them, their capacity to act on those data, and their attitude and the attitudes of their colleagues and the organization to use data to inform all of the district's decisions**.**

Data Collection, Storage, and Dissemination

The data team can inventory the type of data available in its district and/or school(s), the format in which the data are provided, and how the data are currently used. By conducting the inventory, the data team can begin to paint a picture of the data resources that are currently available, how the data are being used, and what additional data might better support inquiry.

For the available data to further the inquiry process, they must be complete, accurate, and timely. While the quality of the data is also an important issue to explore, the collection and distribution tools and processes need to be efficient and effective to ensure that quality data are available and useful. Use tool **1.8 Creating a Data Inventory** to develop a list of the data

Creating a Data Inventory   **1.8**

reporting tools and assessments available in your district and/or school(s).

A wide ranging group of people are responsible for data collection throughout your district. The National Forum on Education Statistics has produced a *Guide to Building a Culture of Quality Data* that is referenced in the Resources and References section at the end of *Getting Ready*. You may want to refer to this guide and the data quality training modules available from the Office of the Superintendent of Public Instruction (OSPI) to address issues of data quality.

The data team can contribute to the effective collection and distribution of data by continually monitoring the needs of the district; the effectiveness of the tools in place for data collection, storage, and dissemination; and the training of those who are responsible for data collection and input.   One of the most important things that members of the team can do is listen and respond to the needs of the staff in charge of the data collection process. Tool **1.9 District and/or School Data Collection,**

District and/or School Data Collection, Storage, and Dissemination Self-Assessment

1.9

Storage, and Dissemination Self-Assessment can help the data team gather information about the utility of the tools users are employing to access data.

Identifying Teams and Assessing Their Data Use Practices

There are teams of educators throughout your district and schools working together with students, participating in professional development activities, or collaboratively solving problems. Each of these teams should be using data to inform their decisions wherever possible. Tool **1.10 Team Data Use Practices Inventory** provides the data team with an inventory of the teams that are currently functioning within the district and/or school and documents insight into each teams' data use practices. This information will help the data team get an

Team Data Use Practices Inventory

1.10

even broader picture of the current state of data use in the district and schools and will contribute to the accurate identification of gaps between the current state and the district's vision for data use.

Completing the Needs Assessment

By taking stock of the current state of data use in the district and schools, the district data team has amassed a large amount of information about data usefulness, capacity, and culture. Now the challenge is to make meaning from all of the information that the team has gathered.

The first step in the analysis of data is factual observation. The next step is making inferences that are based on those factual observations. We'll dig deeper into this process as you progress through the *District and School Data Team Toolkit*, but you'll begin by making some observations and related inferences from the aggregate responses to tool **1.7 Data Usefulness, Capacity, and Culture Self-**

Assessment. Use your initial analysis of those data and other information gained through the needs assessment process to identify one or two significant issues to address.

Once the team has reached agreement on inferences that point to strengths and areas of need, it can repeat the process using the data gathered from the other needs assessment tools. The team should look at the remaining needs assessment data through the lens of the district vision for data use and the strengths and needs areas identified through review of the Data Usefulness, Capacity, and Culture Self Assessment results.

The analysis of the data collected through each of the tools will provide the district data team with considerable insight into the critical components that underlie the district's vision for data use. When this analysis is complete, the team is in a position to compare the current state to the vision of data use and to state its findings. These findings will set the stage for the identification of data use issues that the team will begin to address in the next component of the *District and School Data Team Toolkit*.

School Data Teams

As noted in the *Introduction* to the *District and School Data Team Toolkit*, the concepts and tools are presented in the context of use by a district data team, but are completely transferable to school-level, grade-level, or discipline-centered teams that use data to support the inquiry process. This transferability is illustrated below in the description of the formation and functioning of a school data team. Transferability of concepts and tools will be assumed in the balance of the *District and School Data Team Toolkit*.

School data teams are commonplace in many districts. The information in this section will help strengthen any school data team and can be used to expand those practices to more schools in a district. If school data teams don't already exist in your district, getting them up and running is a task of the district data team. As noted above, all of the content of the *District and School Data Team Toolkit* can be applied directly to creating, launching, and supporting building-level teams.

Where the district data team's five functions focus on district-wide support for inquiry and the use of data, the school data team has similar functions, but they are focused on building-level data use and inquiry into teaching and learning at the grade and classroom levels.

	District Data Teams	School Data Teams
Vision and Policy Management	Articulate the vision for data use, set and model expectations, and implement and uphold policies for data use in the district.	Articulate the vision for data use in the context of their unique school setting, model district-wide expectations for data use, and formulate school-based policies that are consistent with those of the district.
Data Management	Identify data to be collected, manage data infrastructure and access, and design meaningful data displays.	Manage the collection of school-based data and work with the district data team to ensure that relevant data are available to support the inquiry process at the building level.
Inquiry, Analysis, and Action	Develop focusing questions and analyze data to make district-wide decisions about curriculum, staffing, resources, and professional development.	Develop focusing questions and analyze data to make school-based decisions about curriculum, instruction, and assessment.
Professional Development	Provide training and professional development to support district departments, principals, school data teams, and teachers to use data.	Build the capacity of all school staff to collaboratively use data and the inquiry process to improve teaching and learning at the school, grade, and classroom levels.
Monitoring and Communication	Monitor the school-level use of data, as well as goals and action plans to identify trends and patterns, while also communicating district-level focusing questions and findings throughout the district.	Work with the district data team on monitoring the results of the school improvement plan and other school-based interventions and on district-level focusing questions.

Table 2. Five Functions of District and School Data Teams Comparison

Establishing School Data Teams

The process of creating a school data team is similar to that used to create the district data team. Because the district has created a vision and expectations for inquiry and data use district-wide and has begun to put structures in place to support the vision (such as the district data team), creating school data teams should be relatively easy. The district data team can work with the principal and leadership team in each school to discuss the function and composition of the school-based team. The tool **1.3 Functions Necessary to Support Inquiry and Data Use** that was used at the district level can be modified (see Table 2 on page 14 for a district and/school function comparison) for use in defining building-level functions and determining data team composition.

As with the district-level team, it is critical to have visible support of the school's principal and leadership team. It is also important to have a data champion who will chair the school data team.

It is important to think strategically about who will be on the school data team and why. The following questions will be helpful, as they were at the district level, in making these decisions:
- Who currently has the responsibility for leading and supporting data use in your school?
- Who has a solid understanding of programs, initiatives, and efforts taking place across the district?
- Who, at the school-level, shares a deep commitment to improving the learning of all students and the practice of all adults involved in their education?

As with the district data team, the most effective school data teams have members who want to support the inquiry process through the use of data and are broadly representative of school staff and programs. The school data team must be led by a *data champion*. This is often the building principal or assistant principal for instruction. Whoever leads the team should have the positional authority and credibility to ensure that:
- The school data team has the resources and support necessary to function effectively
- The work of the school data team is understood and visible to others in the building
- The work of the team will be acted upon

The team may also have a *data manager* who is in charge of the more technical aspects of the work at the building level, such as:
- Coordinating data use across grade levels
- Establishing systems to ensure the cleanliness and quality of the data consistent with district policies and practices
- Working with the district data team to integrate school and district data systems as necessary

A school data team of three to five members will most likely be sufficient. Specific membership should be determined within the context of the local setting, and with guidance from the district data team. Members might include:
- Data champion (chairperson)
- Principal or assistant principal
- School-level data manager
- Special education coordinator and/or guidance counselor
- Department heads and/or lead teachers
- Literacy and mathematics coaches
- Teachers

Launching the School Data Team

To launch the school data team, the district data team should address many of same things that were addressed when its team was formed:

1. **Obtain** clearly stated and visible support from the principal in both written and oral communications.
2. **Meet** with all school staff to clarify the purpose of the initiative, how it relates to the district's mission and goals, the role of the data team, and the team's decision making authority.
3. **Establish** clear relationships and lines of communication among the data team and other teams in the school (e.g., school leadership team, school improvement teams, departmental teams, grade-level teams, or professional development teams).
4. **Organize** the school data team to do the work by:
   - Agreeing to always set an agenda for team meetings that clearly delineates intended outcomes or products expected as a result of the meeting
   - Establishing group norms and using protocols to structure conversations
   - Understanding that there will be a learning curve for the team and that the team shouldn't address too many issues at the outset
   - Agreeing to delegate tasks and expect timely completion
   - Expecting members to work between meetings to complete tasks
5. **Build** the school data team's capacity before building the capacity of teachers and school-level teams. The school data team should:
   - Continue to build shared values and refine a common vision for the inquiry process and data use at the school, grade, and classroom levels
   - Participate in ongoing professional development activities to build its capacity to use data and function constructively as a team
6. **Provide** adequate time for the team to understand, develop, and complete its work. Time is the dearest resource in a school or district, and insufficient time will sorely limit the team's effectiveness. Data teams will need:
   - Sufficient time to share information, generate understanding, determine next steps
   - Uninterrupted, protected time for collaboration, in addition to time for capacity building, professional development, and collaboration with the school-level data teams (more time will be necessary during the launching phase than in subsequent phases).

The Functioning School Data Team

Organizing the Team to do Its Work

Once the school data team has been established, staffed, and is ready to get to work, it is important to attend to organizational matters. Successful school data teams function best when they take deliberate actions to organize their work and to promote interpersonal relationships among team members. Just because a team has been formed doesn't mean that the members will be able to work cooperatively toward the desired end. It takes deliberate action, hard work, and determination to produce an effective team. The district data team benefited from getting organized. Their lessons learned and tools they used (**1.4 Team Organization**) can be shared with the school-level teams and adapted to meet building level needs.

- Collaboratively developing *team norms* to codify team expectations around task completion, team processes, and interpersonal interactions. Having a mutually agreed upon statement of how the team and its members will conduct their business can prevent or mediate conflicts that may arise over time.
- Producing an *agenda* well in advance of each meeting that clearly delineates the date, time, and location of the meeting, as well as subjects to be addressed, timelines, work to be done prior to the meeting, resources to bring to the meeting, specific responsibilities of team members, and desired outcomes of the meeting.
- Recording *meeting notes* that are promptly and broadly distributed after the conclusion of the meeting. The notes should list meeting date, time, location, and participants, as well as topics discussed, decisions made, and action items to be completed prior to the next meeting.
- Communicating the team's activities broadly among stakeholders in the team's school to build support for the culture of inquiry and data use. A *communication organizer* will help the school data team communicate effectively.

Monitoring the School Data Team's Function

The district data team has helped to create the school-level teams and now has the responsibility to support their work and help them grow. The district data team should develop a system to maintain communication with the school-level team to monitor how the teams are discharging their functions and to ensure that the school data teams are provided the support they need to be successful.

Summary

We have discussed the value of a vision statement for data use and provided guidance on how to create or refine one. Communicating that vision for how the district and schools will use data to make decisions is key to success in using inquiry processes outlined in the remainder of the *District and School Data Team Toolkit*.

We explored the role and functions of a data team in setting the course for data use and supporting the creation of a culture of inquiry. To do this, the data team must first become an effective and efficient group that understands the change process and is prepared to manage change as it does its work.

To build a culture of inquiry and data use, the district data team needs to take stock of the current state of data usefulness, capacity, and culture in the district and schools. In order to help understand current usefulness, capacity, and culture, the team should also inventory its available data, determine data collection and distribution tools, and identify the data use practices that are presently used by teams within the district. By comparing current state with the desired end state as described in the vision for data use, the data team will be able to point to gaps that suggest where the team needs to focus its efforts as it begins the journey toward inquiry and systemic data use.

Once the team has effectively communicated the vision and identified existing gaps, it is ready to move on to *Identify Issues* in the *District and School Data Team Toolkit* and begin identifying issues that the team will start to address through the inquiry process.

References

[1] Ingram, D. S. (2004). Accountability policies and teacher decision making: Barriers to the use of data to improve practice. *Teachers College Record, 106*(6), 1258–1287.

[2] Sagor, R. (1992). *How to Conduct Collaborative Action Research.* Alexandria, VA: Association for Supervision and Curriculum Development (ASCD).

[3] Ibid.

[4] Hall, G. & Loucks, S. (1979). *Implementing innovations in schools: A concerns-based approach.* Austin, TX: Research and Development Center for Teacher Education, University of Texas.

[5] Ronka, D, R. Geier, and M. Marciniak. (2010*). A Practical Framework for Building a Data-Driven District or School: How a Focus on Data Quality, Capacity, and Culture Supports Data-Driven Action to Improve Student Outcomes.* Boston, MA: Public Consulting Group.

Resources

- *Guide to Building a Culture of Quality Data* (http://nces.ed.gov/forum/pub_2005801.asp) Developed by the National Forum on Education Statistics' Data Quality Task Force, this guide aims to provide schools and educational professionals with the tools and knowledge they need to improve data quality and data entry in support of a culture of quality data.
- "CBAM Brings Order to the Tornado of Change," by Susan Loucks-Horsley and Donald L. Horsley. *JSD*, Fall 1998, pp. 17–20.
  This article by the developers of the Concerns Based Adoption Model presents more information about why addressing the concerns of teachers through the change process is vital to engaging them in positive change. For Learning Forward members, the article is available here. http://www.learningforward.org/news/issueDetails.cfm?issueID=68.

1.1 – Barriers to Effective Data Use
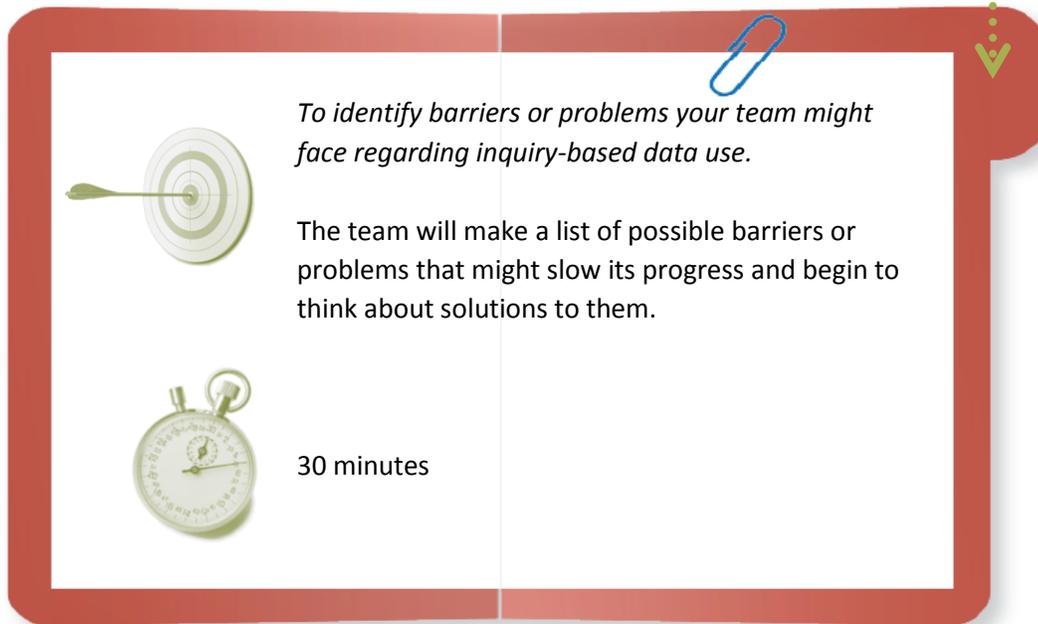
To identify barriers or problems your team might face regarding inquiry-based data use.

The team will make a list of possible barriers or problems that might slow its progress and begin to think about solutions to them.

30 minutes

Directions:

1. As a team, brainstorm a list of the barriers the district currently faces in creating and/or maintaining a culture of inquiry and data use. Reach agreement on the barriers and list them in the template on page 22.

2. Using the information in *Getting Ready* about the types of barriers as defined by Debra Ingram [1], classify each barrier that you have identified as cultural, technical, or political.

3. Identify which barriers, if overcome, would result in the greatest shift toward an embedded culture of inquiry and data use. Rank order these barriers with 1 being the most significant barrier. As you move forward with your work as a data team, keep these barriers in mind and keep them handy. You will want to refer back to these as you work through later tools in *Getting Ready* and prepare to take actions to address your barriers.

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[1] Ingram, D. S. (2004). Accountability policies and teacher decision making: Barriers to the use of data to improve practice. *Teachers College Record, 106*(6), 1258–1287.

1.1

Barriers to Effective Data Use

Barrier	Cultural, Technical, or Political	Most Significant Barriers

1.2A

1.2A – Creating a Vision for Data Use
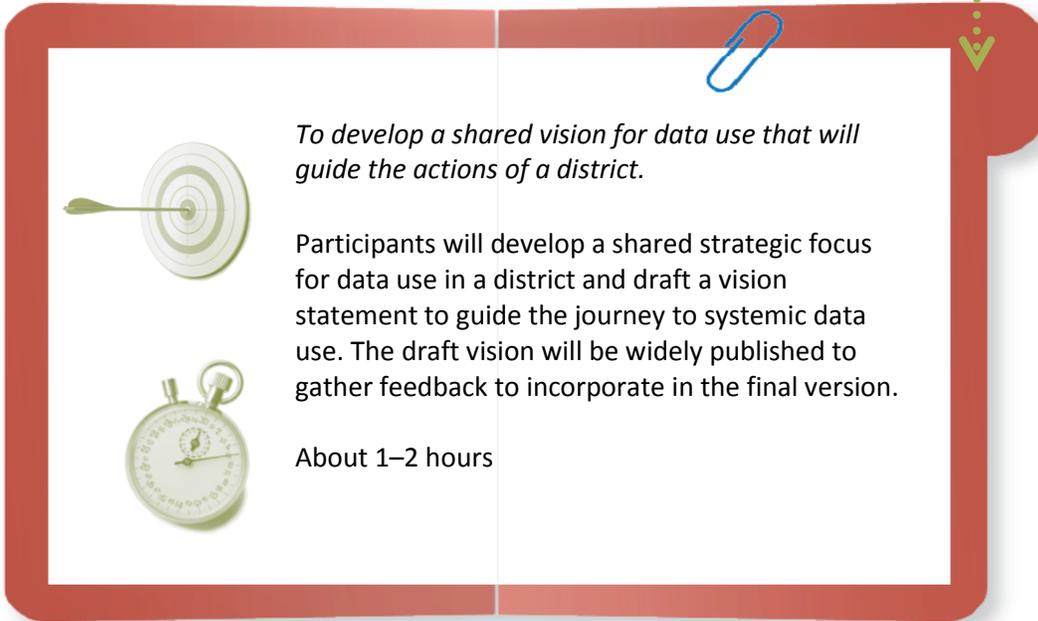
To develop a shared vision for data use that will guide the actions of a district.

Participants will develop a shared strategic focus for data use in a district and draft a vision statement to guide the journey to systemic data use. The draft vision will be widely published to gather feedback to incorporate in the final version.

About 1–2 hours

This tool[2] will be most effective if a broadly representative group of district and school-level staff participate. It is critical, however, that district leaders (both formal and informal) participate and are committed to this process.

Directions:

Part 1: Finding a Shared Strategic Focus

A vision statement looks to the future and defines a desired end state. The vision describes what your district would look like if all of your best ideas were realized. The purpose of this activity is to begin to articulate a vision for a district's or school's use of data by developing a shared strategic focus which will then be articulated in a succinct draft vision for data use.

1. Take about five minutes on your own to write your idea of what the ideal use of data in the district or school would be. Think about these questions as you draft your vision:

   - What do you want the future of data use in the district to look like?
   - What data use practices are needed to fulfill the district's mission?
   - What organizational structures need to be in place to make effective data use possible?

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[2] Portions of this protocol were developed within the DATAUSE project (Using Data for Improving School and Student Performance) by the consortium of partners including: Public Consulting Group, University of Twente (the Netherlands), Institute of Information Management Bremen GmbH (Germany), Modern Didactics Center (Lithuania) and Specialist Schools and Academies Trust (UK). For more information on the project please visit: www.datauseproject.eu

2. After you have drafted your statement, dissect it into its major component ideas. Write each idea on a separate sticky note.

   Example:

   Idea for ideal data use = High quality data are collected and disseminated to appropriate stakeholders in a timely manner so that all decisions can be informed by data.
   Dissection (one per sticky note)
   - High quality data are needed.
   - All stakeholders need the capacity to analyze data.
   - An organizational structure is in place for collection and dissemination.
   - There is an organizational expectation that all decisions are informed by data.

3. Post your component ideas, along with those of your colleagues, on one large piece of chart paper. With your colleagues, sort all of the ideas so that similar ideas are grouped together. Sets and sub-sets of ideas will emerge through this process.

4. Discuss and arrange the notes until all team members are satisfied with the groupings. Give each grouping a descriptive title such as "informed decision making".

5. As a group, review the assembled statements and add any key ideas that seem to be missing. Reach consensus on any ideas that should be removed.

6. What remains on the chart paper is an outline of a shared strategic focus. The diagram outlines priority areas and is beginning to paint a picture of what systemic data use in the school would look like (e.g., your desired end state).

Part 2: Act on the Shared Strategic Focus

1. If your district already has a vision statement that includes data use:

   - Compare it to the shared strategic focus that was just created. Determine if the existing vision is in alignment with the shared strategic focus. If it is not aligned, consider whether it is the existing vision or the strategic focus that needs revising.
   - Reach consensus on the changes that need to be made and delegate several members of the team to make the revisions for review.
   - Develop a plan to gather feedback from stakeholders on the draft of the revised vision statement.

2. If the district does not have an existing vision statement which includes data use, move on to Part 3 of this activity.

Part 3: Develop a Vision Statement

1. Writing a succinct, meaningful, vision statement by committee is virtually impossible. It is, however, not only possible, but desirable to have a group provide input on the content of the statement and delegate one or two team members to draft the statement. The following steps will help each team member use the shared strategic focus to contribute to the draft vision statement.

2. The facilitator should write the following sentence starter on a new piece of chart paper:

Our district will "*accomplish*" by "*methods or strategies*" that will be used to achieve the vision.

For example: use data to…; collect and analyze data to…; create a culture of data use; support the use of data by all staff members; inform all decisions with data; allocate resources based on analysis of relevant data.

For example: creating school data teams; collecting and disseminating high-quality data in a timely manner; supporting data use to inform all decisions.

Example of a Completed Statement:

Our district will *use data to inform all decisions* by *collecting and disseminating high-quality data to all stakeholders in a timely manner*.

3. Each member of the team should use the sentence starter as a guide to help them write a draft vision statement that incorporates the team's *shared strategic focus* on a piece of chart paper.
4. As a team, review the statements. Look for opportunities to combine similar ideas and identify unique ideas.
5. Merge all of the ideas into a clear statement of your district's vision for data use. The statement may be multifaceted or bulleted, but it should include the essential elements of the original sentence starter:

   - Accomplishments or end states
   - Methods or strategies that will be used to achieve the vision

6. Delegate several people to refine the statement and bring it back to the full team at a subsequent meeting for review. At that meeting, ensure that the draft statement captures the team's priorities and vision for data use in the district.

Part 4: Follow-Up Activities

1. Once the team has reached consensus on a succinct vision statement, develop a memo to all stakeholders sharing the vision and the rationale for its development. Solicit feedback on the vision from stakeholders. Consider presenting it at faculty meetings in schools and within department meetings in the district office. Sharing your new vision through personal communication and in open forums will return excellent feedback and help to expand the vision's support district-wide.
2. Refine the vision statement based on stakeholder feedback.
3. Take the refined vision statement to the district's governing body for adoption.

1.2B – Future Focus Diagram
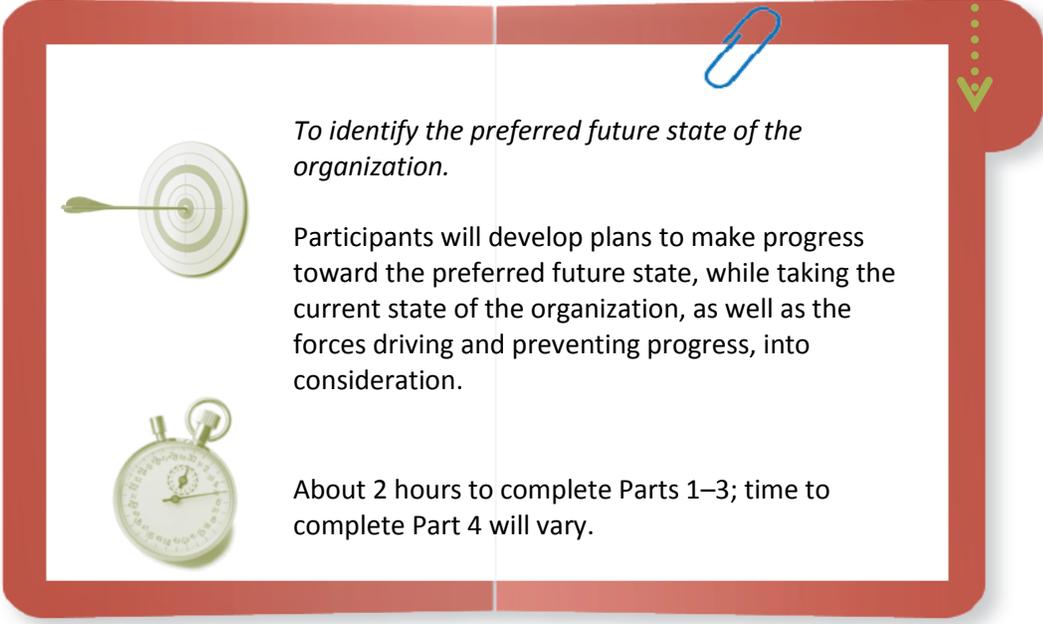
To identify the preferred future state of the organization.

Participants will develop plans to make progress toward the preferred future state, while taking the current state of the organization, as well as the forces driving and preventing progress, into consideration.

About 2 hours to complete Parts 1–3; time to complete Part 4 will vary.

This series of tools[3] is designed to help members of an organization collaboratively envision the future, as well as identify enabling conditions and barriers on the path to that future. The tool has been customized to address the future state of a culture of inquiry and systemic data use in your district. This is a highly collaborative process and may take several meetings of your team to complete.

Directions:

Part 1: Imagine the Future

1. Each member of the team should take a few minutes to jot down on a sticky note, one idea per note, their image of what a preferred future culture of inquiry and systemic data use would look like in their district.
2. As a team, take turns sharing your individual ideas. Post each idea on chart paper.
3. Again as a team, consider all of the ideas that have been posted. Arrange similar ideas into groups on the chart paper and eliminate duplicates.
4. Reach consensus on a title that describes the ideas in each group. These may be thought of as the attributes of a culture of inquiry and systemic data use.
5. Prioritize the groups from the most important attribute of a culture of inquiry and systemic data use to the least.

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[3]Adapted from Quality in Education, Inc.

1.2B

Part 2: Describing the Current Status of Inquiry and Data Use in the District

1. Write each of the attributes identified in Part 1 on a separate sheet of chart paper.
2. Brainstorm the current status of each of the attributes. Be as specific as possible and give examples.
3. Reach consensus on the status of each attribute and develop a summary statement that describes that status. Record the statement on the chart paper for each attribute.

Part 3: Identifying Factors Driving and Preventing Progress toward the Preferred Future State

1. Review the attributes of the preferred future state of inquiry and systemic data use (identified in Part 1) and the current status of each attribute that you identified in Part 2.
2. Recreate the Force Field Analysis Template (page 29) on a piece of chart paper.

   - Start with the driving forces column and brainstorm the forces that support or encourage movement toward the preferred future state of inquiry and systemic data use. List these on the chart paper template.
   - Next, repeat the brainstorming process for the forces that are preventing or restricting movement to the preferred future state.
   - Review the items listed in the driving and preventing forces columns. Reach consensus on the significant driving and preventing forces and eliminate insignificant forces from the Force Field Template.

3. The team has now created a listing of those variables that may be involved in the shift to the envisioned culture of inquiry and systemic data use

Part 4: Summarizing Results

1. The team has collaboratively described its vision of the preferred future culture of inquiry and systemic data use. It has described the attributes of this preferred state and has collaboratively assessed the current status of each attribute. The team has also identified variables in the district that may support or impede reaching the preferred future state. Assign a team member to summarize the results of the work done in Parts 1–3 of this activity on the *Preferred Future State Summary Template* (page 30)*.
2. Distribute the *Preferred Future State Summary* broadly to gather feedback from all stakeholders on the validity of the team's identification of the preferred future state, supports, and impediments.
3. Incorporate the feedback that you receive and publish a final version of the *Preferred Future State Summary*.

Force Field Analysis Template

Preferred Future State:

Driving Forces	Preventing Forces

Preferred Future State Summary Template

Forces driving us toward the preferred future

Preferred Future

Pathway to the

Preferred Future

Current Situation

Forces **preventing** us from moving towards our preferred future

1.3
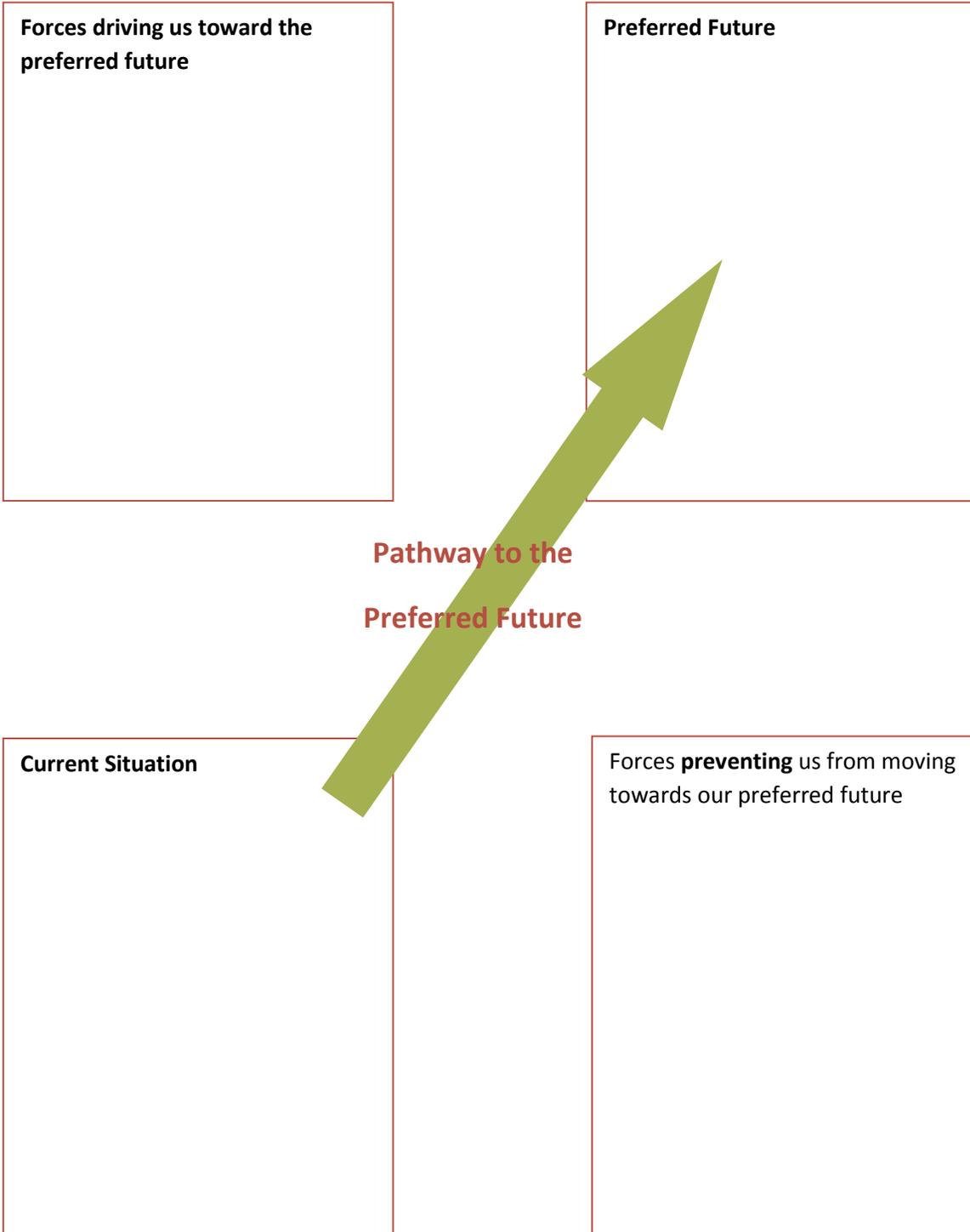
1.3 – Functions Necessary to Support Inquiry and Data Use
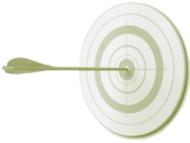
To understand the role and functions your district data team fulfills to support a culture of data use.

Team members will review how the functions that must be accomplished in a district to support inquiry and data use are currently discharged. The activity will help the data team understand its role in coordinating and supporting the discharge of these functions.

1 to 1 ½ hours

Vision and Policy Management	▪ Creates and articulates the vision for data use ▪ Sets and models expectations ▪ Implements and upholds policies for data use in the district
Data Management	▪ Identifies data to be collected ▪ Manages data infrastructure and access ▪ Designs meaningful data displays
Inquiry, Analysis, and Action	▪ Selects or develops models for inquiry and data use that will be used district-wide ▪ Models the inquiry process publicly
Professional Development	▪ Provides training and professional development to support district departments, principals, school data teams, and teachers in their use of data ▪ Uses data to identify professional development needs
Monitoring and Communication	▪ Monitors the progress of the district toward achieving its vision for data use ▪ Establishes the lines of communication necessary for the sharing of results and best practices ▪ Communicates with stakeholders to determine their specific needs for data and training

Figure 3. Five Functions of a District Data Team   © 2012. Public Consulting

1.3

Directions:

Part 1: Functions Currently Being Performed

1. Label five sheets of chart paper with the following headings (one heading per sheet).

   - Vision and Policy Management
   - Data Management
   - Inquiry, Analysis, and Action
   - Professional Development
   - Monitoring and Communication

2. Provide each member of the team with 10–20 sticky notes and ask them to brainstorm existing initiatives, programs, and other actions that are currently active in the district and fall within any of the functions recorded on the chart papers. Allow individuals 5 to 10 minutes to reflect and record their thoughts on the sticky notes.

3. After the team has had enough time to reflect, ask each member to place their sticky notes on the chart papers under the appropriate headings. Next, consolidate your impressions of how the five functions are currently being performed in your district.

4. Begin with any one of the five functions by having a facilitator read each of the sticky notes one at a time. During this process, try to group similar ideas and sort them into logical groupings. (You may find it helpful to refer to the indicators for each of the five functions in the table on the previous page for possible groupings).

5. As the team completes the sorting, determine which ideas indicate that the function (or some portion of the function) is being performed well. Your team may also identify actions or issues that could be addressed better than they are now. Record both types of reflections on the chart paper large enough for everyone to see.

6. Continue this process with each piece of chart paper to consolidate the team's reflections about each function.

Part 2: Discussion Questions

1. Appoint a note taker and a time keeper. Reflect on the results of the brainstorm by discussing for 5 to 10 minutes each of the questions on page 33.

2. When the team is finished, the note taker should distribute the notes to all team members. These notes will be useful when the team assesses its execution of the five functions.

Data Team Functions Discussion Questions

1. Which function appears to have the strongest indication that it is being performed fully? What is the evidence?

2. Which function is currently showing the least indication that it is being performed fully? What is the evidence? What are the barriers that need to be addressed so the district can use data effectively and efficiently?

3. Which functions should be given the highest priority for the coming year given the district's vision for data use?

4. Which of these functions are dependent on cross-departmental cooperation? (Note which departments).

5. Which functions are currently being performed exclusively within one department? (Note which departments).

6. If the data team is going to coordinate or perform each of these functions as well as possible, who does the team need to have as members? (Identify by name and/or role).

1.4A – Norm Setting Protocol
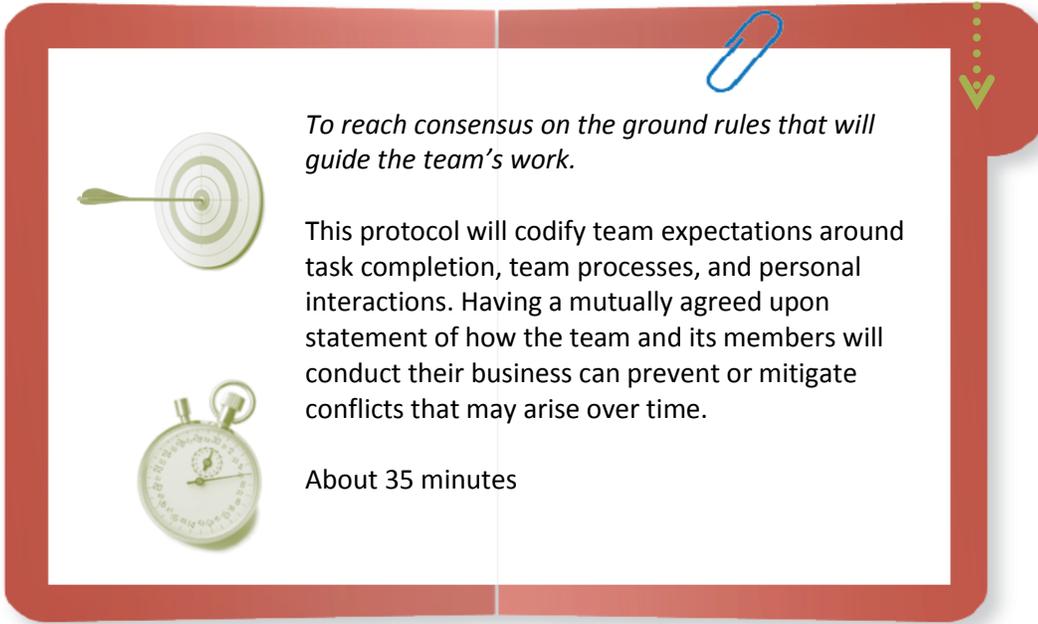
To reach consensus on the ground rules that will guide the team's work.

This protocol will codify team expectations around task completion, team processes, and personal interactions. Having a mutually agreed upon statement of how the team and its members will conduct their business can prevent or mitigate conflicts that may arise over time.

About 35 minutes

Successful data teams function best when they take deliberate actions to organize to do their work and to promote interpersonal relationships among team members. To set the foundation for effective team work, collaborate to establish a set of team norms that will foster productive communication during challenging conversations.

Directions:

Part 1: Establishing Norms

Appoint a facilitator, a note taker, and a time-keeper for this protocol. The facilitator should follow the guidelines below to help the team develop a set of norms that will be followed in all meetings.

1. Explain that norms are guidelines for an interaction or meeting and can include both processes (e.g., start and end on time) and content (e.g., taking risks with our questions and ideas).
2. Ask each person to individually write a response to the following question on a sticky note: *In order to work together to reach our vision for data use, what norms will guide us?* Record each norm on a separate sticky note.
3. Ask each team member to place the norms that they developed on a sheet of chart paper. Group similar norms together on the chart paper.
4. Facilitate a review of the norms by the entire group. You might do this by asking if the group has questions about or oppositions to any of the listed norms. The team may need to rephrase or reframe norms to pose them in a way that everyone is comfortable with.
5. Revise the norms as necessary during the discussion to develop a list of norms that will govern the behavior of the team and its members going forward.

1.4A

Part 2: Using the Norms

Norms are only valuable if they remain relevant. The team can do this by regularly referencing them and holding each other accountable for upholding them. The following actions can be taken as part of the data team's efforts to keep the norms operative among the team.

- Include the list of norms on every printed agenda.
- Build in time at the end of each meeting or at periodic times in the year to reflect on the extent to which the team is upholding norms, and whether any norms need to be added, modified, or removed.
- Appoint a rotating norm minder for each meeting. The norm minder will watch any violations of the norms and report them to the group. If you do this, be sure to agree on appropriate ways the norm minder will report violations (e.g., holding up a sign when a violation occurs, recording them and reading them at the end of the meeting, keeping a score card).

1.4B – Data Team Meeting Agenda Template

To increase the efficiency and effectiveness of team meetings.

The **Data Team Meeting Agenda Template** will facilitate the creation of agendas.

About 30 minutes to review and adapt as necessary
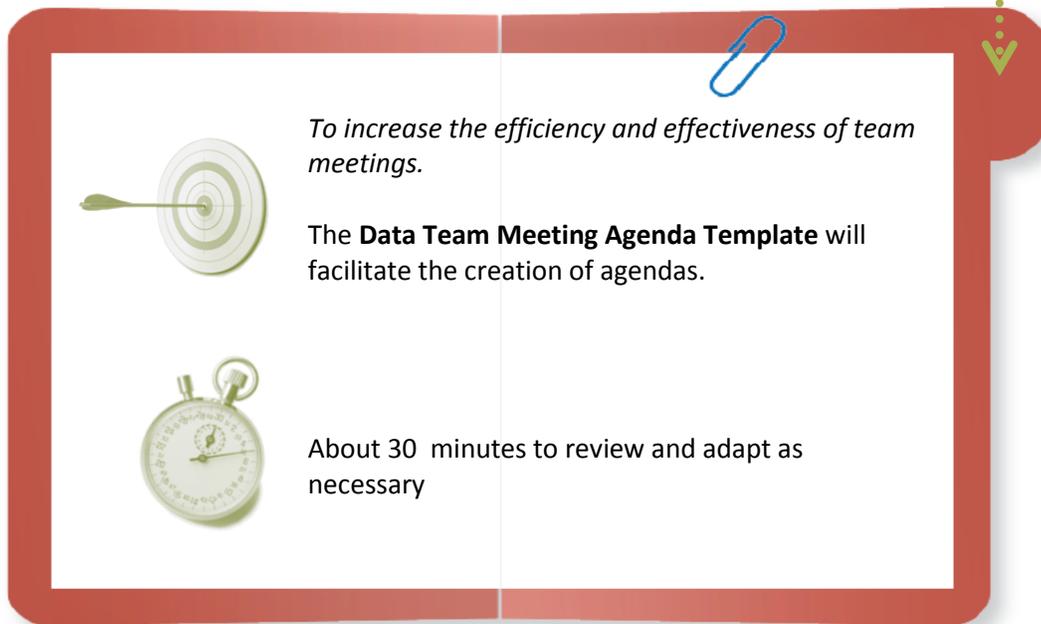
Directions:

An agenda should be completed before each meeting and distributed to all team members prior to the meeting. Use the template on page 38 as a guide.

1. As a team, review the elements of the **Data Team Meeting Agenda Template.**
2. Reach consensus on any modifications that should be made to the template to best fit your local situation.
3. Appoint a team member to modify the template if necessary and make the revised version available to all team members.

1.4B

Data Team Meeting Agenda Template

Location:	
Meeting Date:	

Agenda		
Time Allocated	**Subject**	**Person Responsible**

Resources	
Items/Resources to Bring to Meeting	**Items/Resources to Be Distributed at Meeting**

Data Team Norms

1.4C

1.4C – Data Team Meeting Minutes Template

To record and communicate data team business

The **Data Team Meeting Minutes Template** will facilitate the document the business conducted by the data team and facilitate communication with stakeholders.

30 minutes to review and adapt as necessary

Directions:

Notes should be taken at each meeting and distributed to all team members shortly thereafter. Use the template on page 40 as a guide.

1. As a team, review the elements of the **Data Team Meeting Minutes Template**.
2. Reach consensus on any modifications that should be made to the template to best fit your local situation.

3. Appoint a team member to modify the template if necessary and make the revised version available to all team members.
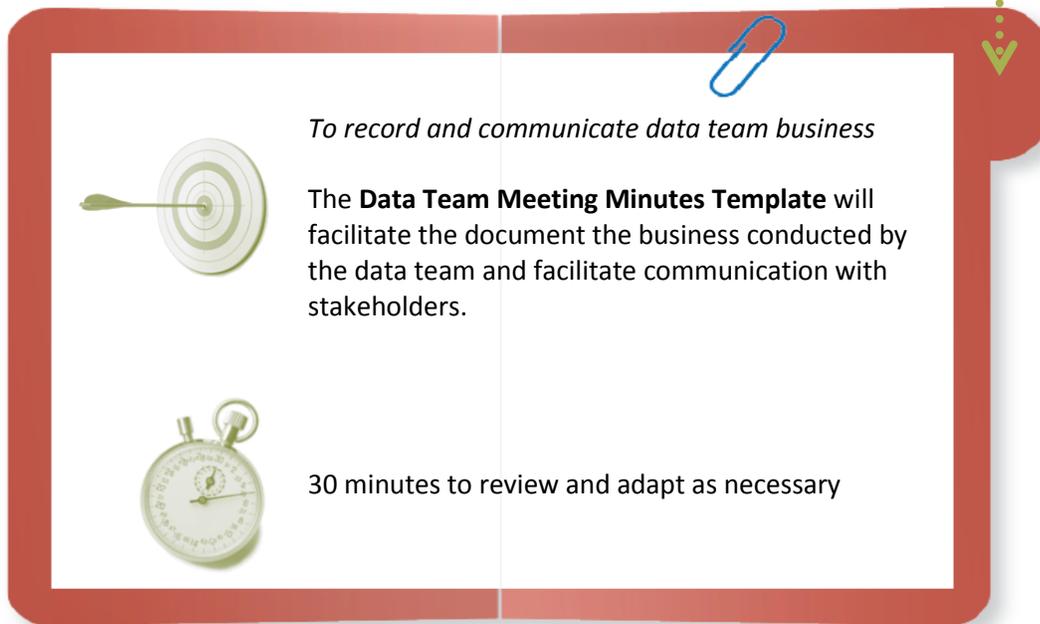
Data Team Meeting Minutes Template

Location	
Meeting Date	
Submitted by (name)	
Submitted date	

Name	Role

Agenda Item	

Discussion Notes:

Action Step	Person Responsible	Timeline

1.4C

Agenda Item	
Discussion Notes:	

Action Step	Person Responsible	Timeline

Agenda Item	
Discussion Notes:	

Action Step	Person Responsible	Timeline

Insert additional agenda items as needed.

1.4D

1.4D – Communication Organizer Template

To identify key messages and the audience they need to be communicated to.

The **Communication Organizer Template** will facilitate the identification of key messages that need to be communicated to stakeholders and help the team develop that communication.

30 minutes to review and revise as necessary
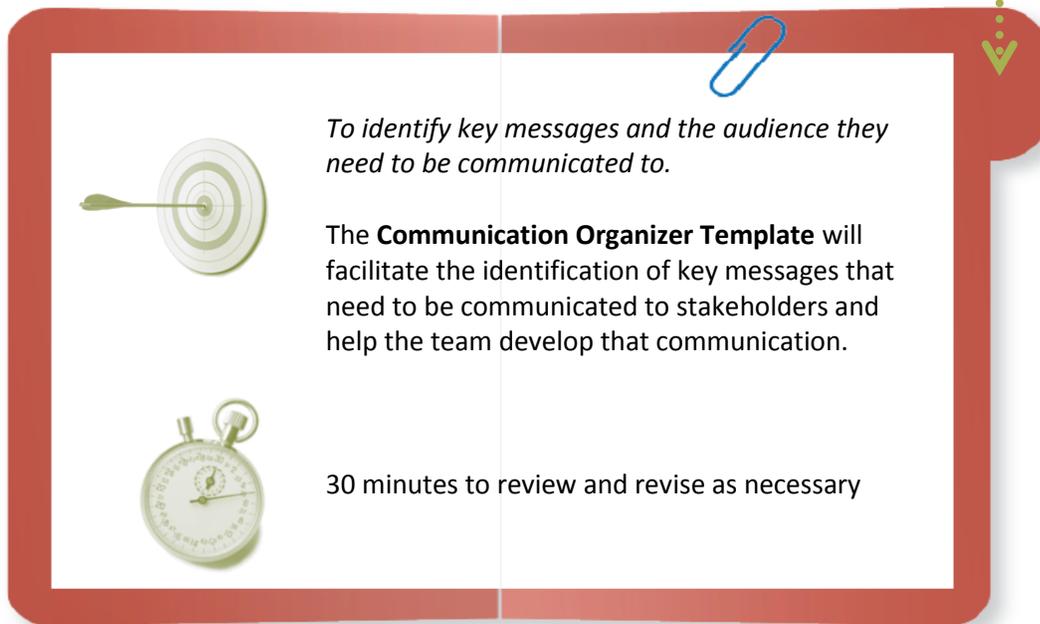
Directions:

The template on page 44 can be used whenever the team needs to communicate a message to stakeholders.

1. As a team, review the elements of the **Communication Organizer Template.**
2. Reach consensus on any modifications that should be made to the template to best fit your local situation.
3. Appoint a team member to modify the template if necessary and make the revised version available to all team members.

1.4D

Communication Organizer Template

Finding or message to be communicated:

Audience (check all that apply):			
☐ School board	☐ School faculty	☐ Students	☐ Parents
☐ Other:			

What does the audience need to know? List items for each audience identified.

How do we anticipate the audience will react? List items for each audience identified.

What would we like the audience to do with the information? List items for each audience identified.

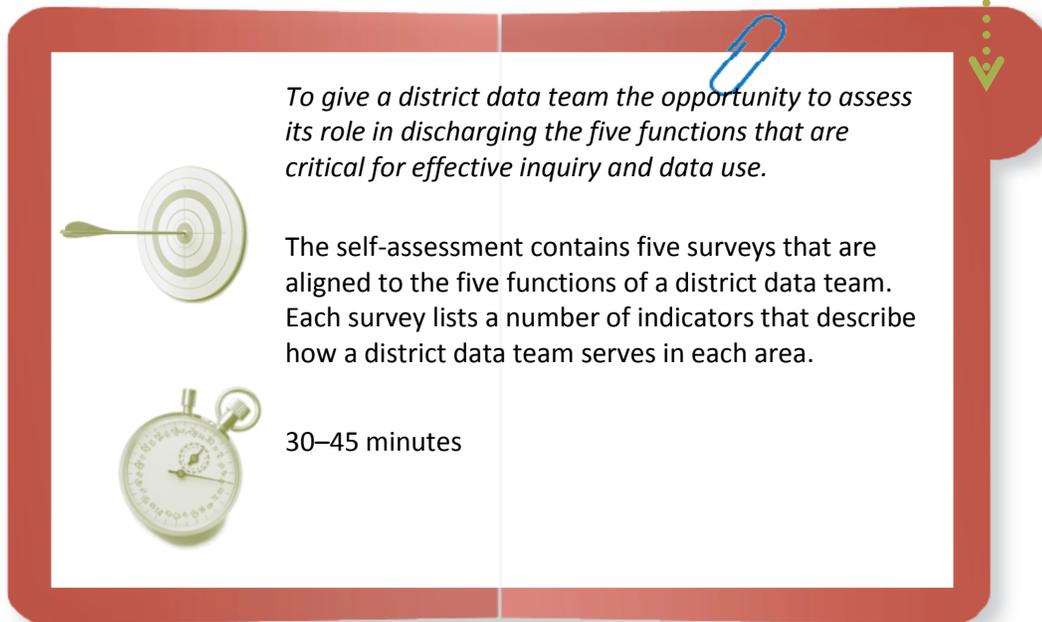| **Mode of Communication (check all that apply):**			
☐ Written report	☐ Website	☐ Email	☐ Presentation
☐ Data wall displays	☐ Informal communication	☐ Other:	

Communication timeline:	**Person or team responsible for communication:**

1.5 – District Data Team Self-Assessment

To give a district data team the opportunity to assess its role in discharging the five functions that are critical for effective inquiry and data use.

The self-assessment contains five surveys that are aligned to the five functions of a district data team. Each survey lists a number of indicators that describe how a district data team serves in each area.

30–45 minutes

This survey will yield the most information if a district data team completes it as a group. To do so, follow the instructions below. The notes that were generated during tool **1.3 Functions Necessary to Support Inquiry and Data Use** will be helpful to use while completing the assessment.

Directions:

Part 1: Preparing

1. Several days prior to a meeting of the district data team, print each page of this self-assessment (including the rubric on the following page) and provide a full copy to each member of the group.

2. In preparation for meeting, each member of the team should individually complete the survey, assigning a rating from the rubric to each indicator.

1.5

Part 2: Completing the Assessment

1. As a team, discuss each page of the survey and agree on a rating for each indicator. It is not necessarily best to average the individual scores to get this final rating. If responses among individuals vary widely, engage in a discussion about which rating best represents the level of practice. This discussion can help the team begin the hard work of developing a common understanding of the work.

2. As a team, reach consensus on the evidence that supports the level at which each function is currently being accomplished. Those areas with relatively little evidence that the function is currently being discharged will be priority issues for the district data team to address in *Identify Issues*, the next component of this toolkit.

Rubric for Assessing Each Indicator	
No Knowledge	Respondent/team has no knowledge about this indicator and cannot provide a judgment about its existence in the district.
No Evidence	There is no evidence that this indicator is in place within the district.
Some Evidence	There is some evidence of this indicator in the district, but the evidence indicates that the practice is far from standard procedure and has clear room for improvement in both quality and frequency.
Clear Evidence	This indicator has clear evidence of existence in the district and is consistently practiced in many places. There is room for improvement in either quality or frequency.
Fully Developed	This indicator is evident in a variety of ways throughout the district. The practice described is clearly a part of the district culture and the way people operate within the district.

1.5

Vision and Policy Management

The district data team has played a significant role in the development of the district's vision for data use and has gathered support for that vision from all stakeholders. The team has developed and promulgated policies that formalize the district's expectations for the use of data and the inquiry process throughout the district and schools.

Rating Scale: NK=No Knowledge about this Indicator; NE=No Evidence; SE=Some Evidence; CE=Clear Evidence; FD=Fully Developed

Indicators	NK	NE	SE	CE	FD
The district data team has worked with district leadership to develop a written vision for data use that aligns with and furthers the wider district mission and vision.					
The vision for data use was created with input from stakeholders.					
The district data team has communicated the vision for data use widely within the district and schools.					
District and school stakeholders understand the vision for data use.					
District and school stakeholders support the vision for data use.					
The district data team models expectations for data use as expressed in the vision.					
The vision is supported by district policies and published expectations that support the use of inquiry and data for instructional, school, and district improvement.					
The district data team communicates and supports the district's policies for data use with district and school stakeholders.					

1.5

Data Management

The district data team shares responsibility with the information technology (IT) staff to ensure that complete, accurate, and relevant data are provided to district and school staff in a timely manner to support the inquiry process and fulfill the district's vision for data use. The team continually seeks feedback and information from data consumers in the district to ensure that the data needed to support the inquiry process are available in user friendly formats that are accessible to those who need the data to inform their decisions.

Rating Scale: NK=No Knowledge about this Indicator; NE=No Evidence; SE=Some Evidence; CE=Clear Evidence; FD=Fully Developed

Indicators	NK	NE	SE	CE	FD
The district data team has established a cooperative relationship with the IT department and shares the responsibility for managing the district's and schools' data.					
The district data team effectively coordinates the efforts of those who collect and manage data and those who are the consumers of the data.					
The district data team has inventoried the data currently available in the district and schools and has shared this information with district and school staff.					
The district data team, in collaboration with the IT department, has put systems in place to ensure the collection, storage, and dissemination in a timely manner of quality data.					
The district data team, in collaboration with the IT department, has provided the systems to ensure that appropriate stakeholders have access to relevant data.					
The district data team has created, published, and continually updated as appropriate a data dissemination schedule or similar document that includes information about when various data are updated and available, as well as expected uses of each data set.					
The district data team has the capacity to design and create meaningful data displays to support staff members as they engage in the inquiry process.					

1.5

Inquiry, Analysis, and Action

The district data team has played a central role in selecting or adapting an inquiry model that will be most effective at each level of the organization. The team provides professional development and other supports to help school teams initiate the inquiry process and coaches the teams through the model's phases as necessary. The district data team demonstrates the use of the inquiry model in all of its investigations.

Rating Scale: NK=No Knowledge about this Indicator; NE=No Evidence; SE=Some Evidence; CE=Clear Evidence; FD=Fully Developed

Indicators	NK	NE	SE	CE	FD
The district data team has collaborated with district and school leaders to select or create an inquiry model to be used universally in the district and schools.					
The district data team has coached district and school staff in the use of the selected inquiry model.					
The district data team uses the selected inquiry model to support its investigation of district and school issues pertaining to data use.					
The district data team uses the selected inquiry model to support its investigation of district and school teaching and learning issues.					
The district data team coaches school teams as they develop progress indicators and use these indicators to monitor/evaluate the impact of their action plans.					

1.5

Professional Development

The district data team plans and conducts professional development activities that build the capacity of staff at all levels to effectively use data. Team members extend the effect of these activities by serving as data coaches who present embedded professional development for groups that are conducting specific investigations. The team also works with those responsible for professional development in the district to use data to inform decisions about the type of training that would be most helpful for the staff and to evaluate the impact of those trainings.

Rating Scale: NK=No Knowledge about this Indicator; NE=No Evidence; SE=Some Evidence; CE=Clear Evidence; FD=Fully Developed

Indicators	NK	NE	SE	CE	FD
The district data team has organized professional development activities to build the team's own capacity to effectively use data and the inquiry process.					
The district data team has created and delivered professional development activities to build the capacity of district and school-level staff to effectively use data.					
Certain staff in the district have been trained as data coaches to help all school teams use data effectively.					
The district data team has created and delivered professional development activities to build the capacity of district and school-level staff to effectively use the inquiry process.					
The district data team has collaborated with district and school personnel who are responsible for planning and executing professional development activities for the staff to identify relevant activities through the analysis of student performance data.					
The district data team has collaborated with district and school personnel who are responsible for planning and executing professional development activities to determine the effectiveness of these activities.					

1.5

Monitoring and Communication

The district data team supports communication that fosters learning and collaboration, while at the same time provides monitoring to ensure that people have the right data, tools, and support to do their work. The team uses monitoring information to periodically review what is and isn't working and makes adjustments to policies, technologies, data collection, assessments, and professional development as necessary to continue the district's progression toward its vision.

Rating Scale: NK=No Knowledge about this Indicator; NE=No Evidence; SE=Some Evidence; CE=Clear Evidence; FD=Fully Developed

Indicators	NK	NE	SE	CE	FD
The district data team has an established communication plan or similar documentation and processes to facilitate communication about data needs and data use training within the district and school communities.					
The district data team has made the vision for data use available to all members of the community and has communicated the importance of the vision and the positive effect that the use of data and the inquiry process will have in the district and schools.					
The district data team has developed and implemented systems to promote sharing of best data use and inquiry practices among all members of the district and school communities.					
The district data team has established benchmarks and implementation indicators to monitor the progress toward the realization of the vision for data use.					
The district data team assesses the progress toward realization of the vision for data use and publishes an annual progress report.					
The district data team monitors the data use and inquiry practices that are being implemented by all teams at the district and school levels.					
The district data team monitors the availability and accessibility of relevant data and data analysis tools and systems to support district and school level inquiry.					

1.6

1.6 – Managing Change and Understanding Concerns

To enable the data team and others to gain a better understanding about its concerns and the concerns of other staff as the change to a culture of inquiry and data use is established.

In this activity, the team will review common concerns associated with change and brainstorm ways to mitigate concerns related to the implementation of the Cycle of Inquiry and Action.

30–45 minutes

While this tool is a good faith effort to take into account the concerns of stakeholder, there is no way to fully understand their concerns without asking them directly. A data team may choose to follow this protocol on its own, or the team may choose to engage different stakeholders in the process through surveys or focus groups. While the former approach may take less time, the latter could generate valuable perspectives and ideas that the team may not think of on its own, as well as have the added benefit of providing individuals with a forum to voice their concerns and thereby feel more invested in the process.

Hall and Loucks[4] developed the Concerns-Based Adoption Model (CBAM), a well-researched model that describes how people develop as they approach calls for change. This activity is grounded in this model and will help the team explore the stages of concern that people typically experience as they adopt change.

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[4] Adapted from Hall, G. & Loucks, S. (1979). Implementing innovations in schools: A concerns-based approach. Austin, TX: Research and Development Center for Teacher Education, University of Texas.

Directions:

Part 1: Identifying Changes

1. As a team, identify a change that your data team is planning to make to improve data use. Write it on a piece of chart paper.

2. Identify the stakeholders who will likely be impacted by the change.

3. Individually review the seven stages of concern that individuals commonly experience in response to a change effort. Record specific concerns the various stakeholders may have for each of the stages on the *Identifying and Prioritizing Concerns Template* on page 55.

4. After members of the team have identified potential concerns, record everyone's responses for each of the stages on the chart paper below where you have written the contemplated change. If several team members have identified the same concern, indicate this by putting multiple checks next to the identified concern.

Part 2: Prioritizing Concerns

1. As a team, reach consensus on which concerns are most important for the data team to address as it pursues its work. In doing this, the team might consider the following questions:

   - Which stage, as a whole, best represents the likely reaction of the entire group of impacted staff?
   - Which concerns does the data team have the greatest ability to address?
   - Which concerns will be the most challenging for the data team to address?

2. Rank order the concerns on the chart paper. Each member should list the priority concerns in their *Mitigating the Impact of Concerns Template* on page 56.

3. Brainstorm ways to mitigate the prioritized concerns. Record the suggested strategies on a new sheet of chart paper and in the *Mitigating the Impact of Concerns Template*.

1.6

Identifying and Prioritizing Concerns Template

Stage	General Concern	Stakeholder Group(s)	Likely Specific Concerns by Stakeholder Group
Awareness	What is this change I've been hearing about?		
Information	Tell me everything I need to know.		
Personal	What does this mean for me?		
Management	How will I manage all of this?		
Consequence	What will happen if I do implement the change? What will happen if I don't?		
Collaboration	How can we help each other through the change?		
Refocusing	How can I make it even better?		

1.6

MITIGATING THE IMPACT OF CONCERNS TEMPLATE

Prioritized Concerns	Strategies for Mitigation or Resolution
1	
2	
3	
4	
5	
6	
7	

1.7 – Data Usefulness, Capacity, and Culture Self-Assessment
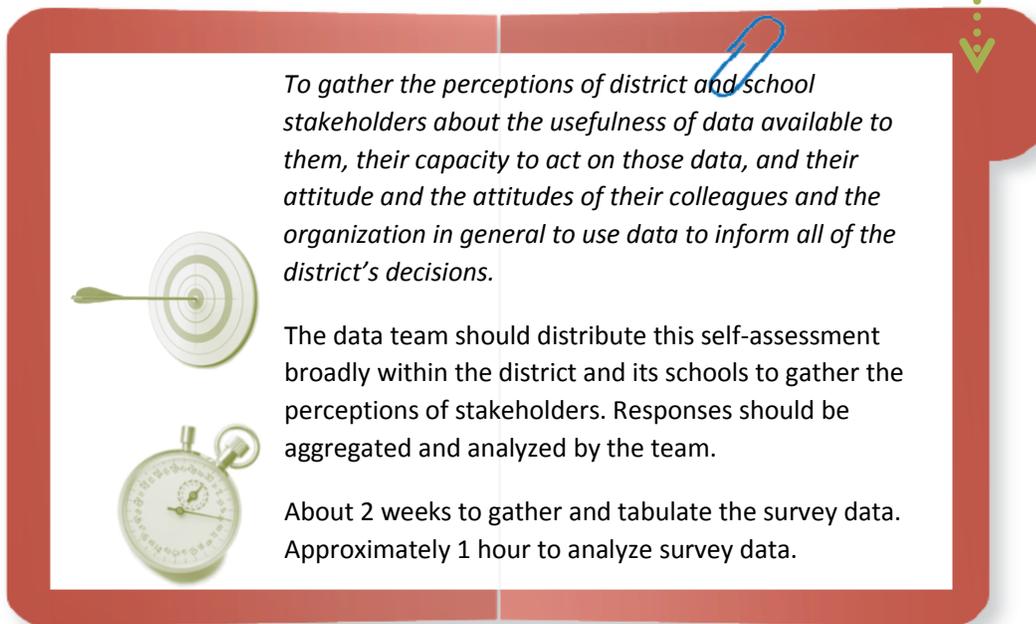
To gather the perceptions of district and school stakeholders about the usefulness of data available to them, their capacity to act on those data, and their attitude and the attitudes of their colleagues and the organization in general to use data to inform all of the district's decisions.

The data team should distribute this self-assessment broadly within the district and its schools to gather the perceptions of stakeholders. Responses should be aggregated and analyzed by the team.

About 2 weeks to gather and tabulate the survey data. Approximately 1 hour to analyze survey data.

Complete the survey, which is designed to gauge the perspective of data users about the usefulness of the data they have access to, the capacity they have to use those data, and the strength of the overall data use culture.

Directions:

Part 1: Completing the Survey

1. Prior to a meeting of the full data team, team members should individually indicate their agreement with each statement in the Data Usefulness, Capacity, and Culture Self-Assessment (page 59). Think about each statement in the context of your whole district practice.
2. To gather a broader perspective, consider developing a cover memo for the Data Usefulness, Capacity, and Culture Self-Assessment and distribute the self-assessment broadly among stakeholders in the district and schools. The cover memo should indicate that the data team is soliciting broad-based input on the current state of inquiry and data use practices in the district and schools and needs stakeholder feedback. Also note that the results of the assessment will be shared once they have been tabulated and analyzed. Distribute the self-assessment and state a clear return date (about five work days is appropriate).
3. When all of the completed assessments have been returned, tabulate the number of responses in each column for each statement and provide a copy of the tabulated results to each district data team member. Make a note of any indicator for which the entire team marked "Don't Know" so you can investigate it later.

Part 2: Analyzing the Data

1. Appoint a facilitator and note taker.
2. Provide 5 to 10 minutes for each member of the team to review the tabulated survey results individually. You can also distribute the data to team members prior to the meeting and ask them to review the data and record observations ahead of time.
3. Take turns reporting observations about one of the statements in the table. Observations should be facts or evidence that can be readily seen in the data and stated without interpretation. Use a sentence starter like one of the following to keep the observations factual: "I see…," "I observe…," or "I notice…"

   - Record these observations on a piece of chart paper or using a computer and projection device so that all members can see.
   - As a team, respond to each of the following discussion questions. The note taker should record the team's responses on a new piece of chart paper.
     - Out of the three categories, which is our highest area of need? When you think about our district, does this match your gut feeling? Why or why not?
     - Within the highest need category(ies), where specifically do we have the greatest need? Does this match your gut feeling? Why or why not?
     - Out of the three categories, where are our strengths? When you think about our district, does this match your gut feeling? Why or why not?
     - Within our highest strength category(ies), where specifically are we the strongest? Does this match your gut feeling? Why or why not?
     - Look across categories. What patterns do you see?
     - Again, looking across categories, do you see any possible cause and effect relationships? (e.g., a need in one area that might be the cause of a need in another area).

Part 3: Summarize Your Findings

Based on your collective analysis of the *Data Usefulness, Capacity, and Culture Self-Assessment* results and your individual perceptions, reach consensus as a team on three strong characteristics and three characteristics in need of improvement and complete the *Summary of Findings* (page 62). The information gained through the self-assessment will help the team complete a needs assessment later in *Getting Ready* and identify priority issues in *Identify Issues*.

Data Usefulness, Capacity, and Culture Self-Assessment

Place a check mark in the appropriate column to indicate the strength of your agreement or disagreement with each statement. Think about each statement in the context of your whole districts practice.

1. Data Usefulness	Need		Strength		
	Strongly Disagree	**Disagree**	**Agree**	**Strongly Agree**	**Don't Know**
1.1 Timely Data: Data are disseminated as soon as they are available.					
1.2 Responsiveness: When staff members request data, they receive it promptly and in a usable format.					
1.3 Accurate Data: The staff in my district has confidence that the data we are provided are accurate.					
1.4 Relevant Data: We have access to data that are relevant to the critical educational issues in my district.					
1.5 Comprehensive & Complete Data: There are no holes in the data that we are provided.					
1.6 Data Integration: Data are sufficiently integrated so that we are able to combine multiple data sets for analysis, such as test results with educational program information.					
1.7 Data Management Procedures: It is clear what data we have access to, when the data are available throughout the year, and what is supposed to be done with the data.					

| 2. Data Capacity	Need		Strength		
	Strongly Disagree	Disagree	Agree	Strongly Agree	Don't Know
2.1 Team Structures: We have an established data team at my district.					
2.2 Leadership Structures: There is a data leader identified in my district.					
2.3 Time: There is regularly scheduled time to engage in collaborative data analysis and interpretation.					
2.4 Tools: Our staff have access to and know how to use data analysis tools.					
2.5 Requesting Data: Our staff know the process for requesting data.					
2.6 Question Formulation: We know how to formulate questions about significant educational issues in our district.					
2.7 Data Literacy: Our staff are comfortable using key assessment, statistic, and other data use terms and concepts.					
2.8 Action Planning: Our district identifies data-driven goals and develops and implements action plans to accomplish those goals.					

1.7

3. Data Culture	Need		Strength		
	Strongly Disagree	Disagree	Agree	Strongly Agree	Don't Know
3.1 Stakeholder Commitment: There is commitment by all key stakeholders to make effective use of data.					
3.2 Accountability: There are clear expectations and people are held accountable for the use of data at the district, school, and classroom level.					
3.3 Desire to Collaborate: Collaboration amongst staff is highly valued in my district.					
3.4 Leadership: District leaders model data-driven decision making as a key part of their roles and responsibilities.					
3.5 Trust: Administrators and teachers believe that data will be used to improve teaching and learning and not to punish educators.					
3.6 Beliefs about Data: The staff believe that data can and should be used to inform instruction.					
3.7 Beliefs about Instruction: Teachers are willing to change their instruction based on data about student learning.					
3.8 Continual Improvement: Our staff uses the inquiry process to make ongoing improvements in teaching and learning.					
3.9 Monitor Implementation: All action plans contain a data based monitoring component.					

1.7

Summary of Findings

Strengths	Areas for Improvement

1.8 – Creating a Data Inventory
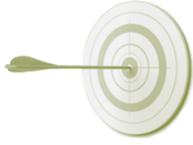
To identify and describe existing data and data systems

The Data Inventory will help the team catalogue the extant data in the district and schools to facilitate its use in the inquiry process.

15 minutes to introduce

Data Inventory

District/School Name: _____   **Your Name:** _____

Date: _____

Part 1: Data Systems

1. Complete the table below to develop a list of the data systems in use in your district. For each system identify:

a. **System Name:** Write the name of the system or software being described.
b. **Type of Data:** Describe the types of data captured by the system (e.g., attendance, discipline, course grades).
c. **Reporting Features:** Describe any reporting features the system has (e.g., ad hoc, one-click, predefined).
d. **Users:** Describe who has access to the system (e.g., principals, secretaries, teachers).
e. **Additional Notes:** Add any additional information about the system you would like to record.

The table below contains information about state data systems that may be available to users in your district. Please add additional rows as necessary to capture ALL data systems in use in your district.

System Name	Type of Data	Reporting Features	Users	Additional Notes
Washington Education Data Support System (WEDSS)	• Attendance • Demographics • Discipline • Grades • Graduation Rate • OSPI Report Card • Programs • Schedules	• Pre-defined, User-defined, Ad-hoc	• Administrators	
Comprehensive Education Data And Research System (CEDARS)	• Dropout Rates • Enrollment • Student Enrollment • Teacher Certification • Vocational Education	• Pre-Defined	• Administrators • Business Manager • Secretaries	

System Name	Type of Data	Reporting Features	Users	Additional Notes
Bilingual Database	• Bilingual Program (e.g., professional development, bilingual students)	• Pre-Defined	• Bilingual Director	

Part 2: Assessments

1. Complete the table below to develop a list of the assessments in use in your district. For each system identify:

a. **Assessment:** Enter the name of the assessment.
b. **Grade Levels Administered:** Record the grade levels in which the assessment is given.
c. **Content/Subject Area(s):** Record the subject areas that the assessment measures (e.g., mathematics, reading, writing).
d. **Date Test Data Are Available:** List the date (or dates) when the data are available to use.
e. **Students Assessed:** List the populations of students assessed (e.g., all students, special education, English language learners).
f. **Current Data Use:** Describe how the data are currently used (e.g., setting school improvement goals, placing students in intervention programs). List as many uses as you are aware of.

The table below contains information about assessments that may be used in your district. Please add additional rows as necessary to capture ALL assessments in use in your district.

Assessment	Grade Levels Administered	Content/Subject Area(s)	Date Test Administered /Data are Available	Students Assessed	Current Data Use
Measurements of Student Progress (MSP)	Grades 3–8	• Reading, writing, math, science	Spring 2012 Testing Windows	All students in grades 3–8, unless they are taking an alternative assessment, as written in their IEP	Assesses student proficiency
High School Proficiency Exam (HSPE)	Grades 10–12	• Reading and writing	2012 administration: March 13–14 (writing) and March 15 (reading). Results available in early June 2012.	All students at some point in grades 10–12, unless they are taking a state approved alternative assessment	State exit examination

1.8

Assessment	Grade Levels Administered	Content/Subject Area(s)	Date Test Administered /Data are Available	Students Assessed	Current Data Use
End-of-Course Assessments (EOC)	EOC exams are given to students in grades 7–12	• Algebra 1 • Geometry • Integrated Math 1 • Integrated Math 2 • Biology	The math and biology end-of-course exams are given in the last three weeks of the school year Each district sets its own EOC testing dates	All students in grades 7–12 starting Algebra 1, Integrated Math 1 and Geometry, Integrated Math 2, or Biology. No new exams until 2017.	Classes of 2013 and 2014 must pass one math EOC exam Class of 2015 must pass two math EOC assessments and one biology EOC exam.
Washington Alternate Assessment System (WAAS)	Grades 3–8, 10	• Reading • Writing • Math • Science	Variable based on pathway	Students with special needs	Provides a variety of alternative pathways for students to fulfill state assessment and graduation requirements
Second Grade Fluency and Accuracy Assessment	Grade 2	• Reading	Beginning of Grade 2	All grade 2 students	Assesses grade level oral reading skills
Washington English Language Proficiency Assessment (WELPA)	All	• English • Reading • Writing • Speaking • Listening	Annual (February/March)	English language learners	Initial placement in English Language Development (ELD) programs Annual assessment of progress

1.8

Assessment	Grade Levels Administered	Content/Subject Area(s)	Date Test Administered /Data are Available	Students Assessed	Current Use of the Data
National Assessment of Educational Progress (NAEP)	Grades 4, 8, and 12	• Math • Reading • Science • Writing • Arts • Civics • Economics • Geography • U.S. history	Every two years	Sample of 4th and 8th graders	Federal requirement for Title I districts Compare performance across states
Washington Kindergarten Inventory of Skills (WaKIDS)	Kindergarten	Provides data about social/emotional, cognitive, language/literacy, and physical development	Administered at the beginning of each school year	Optional for state-funded full-day kindergarten classrooms in 2011–2012 and mandatory in 2012–2013 and beyond	Facilitates alignment between practices of early learning professionals and kindergarten teachers to support smooth transitions for children. Offers a statewide snapshot of where children in Washington are in their development at the start of kindergarten.

Part 3: Data Not Currently Collected

Are there any other types of data that you, or others who you have spoken with, would like to see collected and used to improve instruction? If so, list them and their potential use below.

Additional Data	Potential Use	How Might We Collect the Data?	Who Will Be Responsible for Collection?

Part 4: Discussion Questions

As a team, consider these discussion questions related to each inventory component.

Data Systems

1. Which are not used to inform decisions about curriculum, instruction, and/or student placement?
2. Which produce helpful output such as attendance and demographic reports? Which do not produce helpful reports?
3. How might the systems be improved to support inquiry and data use?

Assessments

1. Which assessments are not used to inform decisions about curriculum, instruction, and/or student placement?
2. Looking across the currently administered assessments, are there assessments that provide essentially the same information about students? If so, is this additional information beneficial?
3. Are there assessments in place that provide longitudinal data that can track the growth of same student cohorts?
4. What assessments might be added to enhance the inquiry process or deleted to increase instructional time?

Additional Data Needed (Next Steps)

1. Which of the identified additional data are currently critical to support the inquiry process?
2. Who needs to be involved in the decision to collect these data?
3. Develop a plan that involves the critical stakeholders and will expedite the collection of these critical data elements.

1.9

1.9 – District and/or School Data Collection, Storage, and Dissemination Self-Assessment
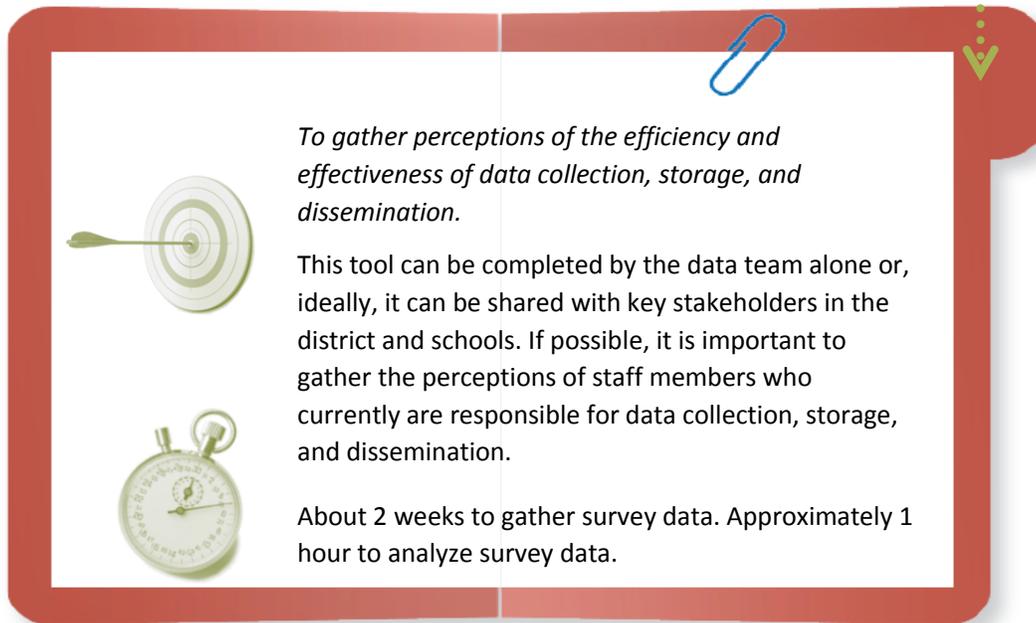
To gather perceptions of the efficiency and effectiveness of data collection, storage, and dissemination.

This tool can be completed by the data team alone or, ideally, it can be shared with key stakeholders in the district and schools. If possible, it is important to gather the perceptions of staff members who currently are responsible for data collection, storage, and dissemination.

About 2 weeks to gather survey data. Approximately 1 hour to analyze survey data.

Directions:

1. As a data team, review the statements in the Data Collection, Storage, and Dissemination Self-Assessment on page 72 and determine if it should be completed only by your team or by staff members throughout the district. More information can be gathered if the self-assessment is completed by more staff members. Staff members who have the responsibility for the collection, storage, and dissemination of data are obvious choices. Teachers and administrators may also provide information that will be useful as you assess the current state of data collection, storage, and dissemination.

2. Develop a cover memo that communicates the purpose of the self-assessment communicates, how it fits with the team's need to assess the current state of data use in the district, and provides directions for the completion of the self-assessment, which include how and when to return the self-assessment to the team for analysis.

3. When the self-assessments have been returned, tabulate the results by recording the number of responses at each rating level for each item on a blank survey form. Highlight the rating with the greatest number of responses for each item. The aggregate results will be used with the results from the other needs assessment tools as the team paints a picture of the current state of data use.

4. If the team has decided not to involve other staff members, react as a team to each of the items on the survey and reach consensus on the rating for that item. The completed consensus survey can be used just like the aggregate results described in #3 above.

Data Collection, Storage, and Dissemination Self-Assessment

This survey is designed to gather your perception of the efficiency and effectiveness of data collection, storage, and dissemination in your district and/or school. Please share your perceptions by indicating your degree of agreement with the following statements.

Statements About Data Collection	Strongly Disagree	Disagree	Agree	Strongly Agree	Don't Know
1. Policies and protocols are in place to guide data collection in the district.					
2. A schedule is in place that indicates when various data elements should be collected.					
3. There are staff members charged with collecting data.					
4. Staff charged with collecting the data have a clear understanding of what the data will be used for.					
5. Staff charged with collecting the data know the protocols for inputting the data (e.g., field names and locations).					
6. Staff charged with collecting the data are provided with an environment that promotes the accurate input of data (e.g., free of distractions, no conflicting tasks).					
7. Staff charged with collecting data have adequate time to complete their tasks.					
8. Staff charged with collecting data have been trained in data input techniques and data use concepts.					
9. Appropriate hardware is available to expedite the collection of data.					
10. Appropriate software applications are available to facilitate the collection of data.					
11. Protocols are in place to monitor the accuracy and completeness of the data inputted.					

1.9

Statements About Data Collection	Strongly Disagree	Disagree	Agree	Strongly Agree	Don't Know
12. Staff charged with collecting data adhere to district guidelines for recording data.					
13. Local, state, and federal confidentiality regulations and policies are followed by those responsible for collecting data.					
14. Systems are in place to ensure that complete and accurate data are recorded.					
15. Staff that are responsible for data collection are included in establishing data collection protocols and policies.					
16. Staff charged with the collection of data are consulted to determine changes that need to be made to improve data collection processes (e.g., accuracy, security, utility, timeliness).					
Statements About Data Storage	**Strongly Disagree**	**Disagree**	**Agree**	**Strongly Agree**	**Don't Know**
1. Data are added to the student information system in a timely manner.					
2. Data stored in the student information system can be easily uploaded to the data warehouse.					
3. Data from various sources can easily be uploaded to the central district storage medium.					
4. Web-based applications are in place to facilitate the uploading of data to the central district storage medium.					
5. Data are archived to provide the basis for longitudinal analysis.					

1.9

Statements About Data Dissemination	Strongly Disagree	Disagree	Agree	Strongly Agree	Don't Know
1. Data can easily be retrieved from the student information system and/or data warehouse to provide reports that answer specific questions.					
2. A system exists to facilitate the acquisition of data by staff to answer questions to improve teaching and learning.					
3. Reports are routinely generated and disseminated to key staff to answer questions related to improving teaching and learning.					
4. Staff members know how to access data that they need to answer questions to improve teaching and learning.					
5. Reports generated through the district data information systems are easy for staff to understand.					
6. Reports are disseminated in a timely manner.					

1.10

1.10 – Team Data Use Practices Inventory
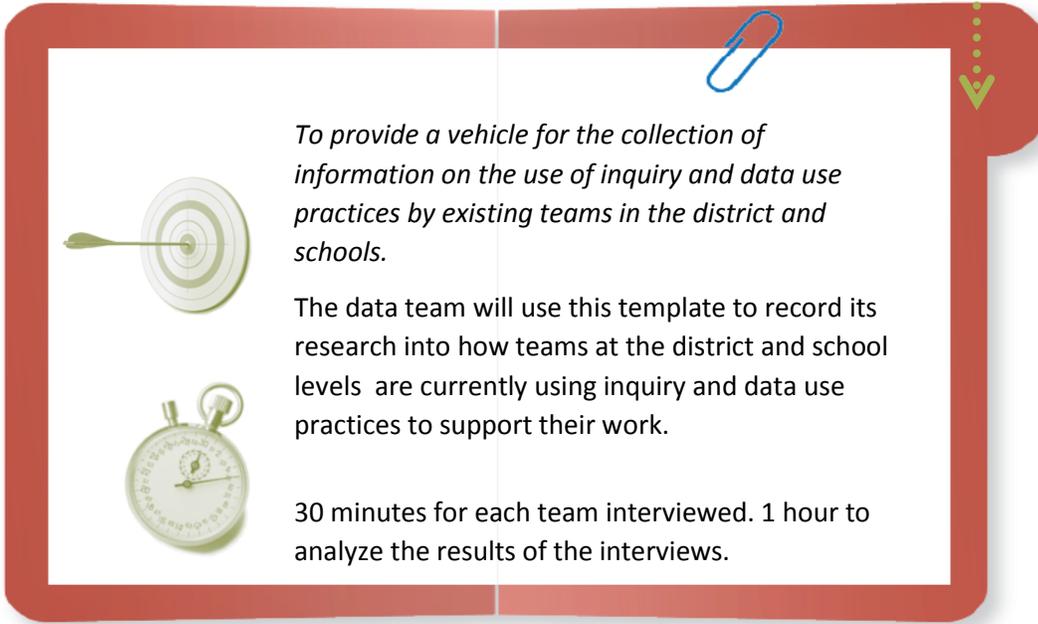
To provide a vehicle for the collection of information on the use of inquiry and data use practices by existing teams in the district and schools.

The data team will use this template to record its research into how teams at the district and school levels are currently using inquiry and data use practices to support their work.

30 minutes for each team interviewed. 1 hour to analyze the results of the interviews.

Directions:

1. A team is defined as a group of people who meet regularly to accomplish a specific purpose/function. Make a list of the teams who regularly use data in your district or school.
2. Once you have identified the teams, interview each team to determine its commitment to the inquiry or data use practices that appear on the *Inventory of Teams' Use of Inquiry and Data Use Practices Survey* on page 76. Use a scale of 1 (never use the practice) to 4 (always use the practice) to rate the practices for each team. Place the rating number in the team column next to each practice heading. In some cases, a given inquiry or data use practice may not be appropriate for the team—indicate this by recording N/A (not applicable) in the appropriate cell.
3. Use a new copy of the survey for each team you interview. When the interviews are complete, consider aggregating the data for analysis using a blank copy of the template, but also keep the individual records.
4. Finally, distribute copies of the surveys to each member of the data team. As a team, analyze the data that you have collected by responding to the *Team Data Use Practices Discussion Questions* on page 77.

1.10

Inventory of Team's Use of Inquiry and Data Use Practices

Team: _____

Team Members Interviewed:_____

Data Team Interviewer:_____

Inquiry and Data Use Practices	Rating			
	1	2	3	4
1. There is regularly scheduled time to engage in collaborative data analysis and interpretation.				
2. Our team has access to complete, accurate, and timely data to inform our decisions.				
3. Our team has access to and knows how to use data analysis tools.				
4. We know how to formulate questions about key educational issues.				
5. Our team is comfortable using key assessment, statistic, and other data use terms and concepts.				
6. Our team analyzes district or school trends and patterns to inform decisions.				
7. We identify data-driven goals and develop and implement action plans to accomplish those goals.				
8. There is commitment by all team members to make effective use of data.				
9. Team members believe that data can and should be used to inform instruction.				
10. Our team monitors the progress of individual students.				
11. Team members are open to changing their instruction based on data about student learning.				
12. Our team is committed to using the inquiry process to make ongoing program and instructional decisions.				
13. Our team uses data on student outcomes to inform decisions about instructional practices.				
Additional comments:				

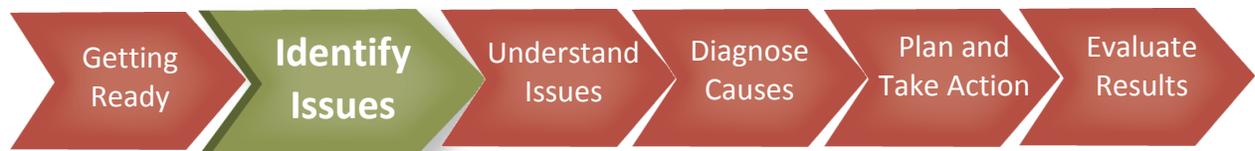## Team Data Use Practices Discussion Questions

1. What do the data say about the frequency of use of each practice across all of the teams? Are there practices that most teams do or do not employ?

2. Are there certain teams that frequently use many of the inquiry and data use practices? If so, is there something about each of these teams that may promote the use of these practices?

3. Are there certain teams that generally don't employ inquiry and data use practices? If so, is there something about each of these teams that may be a barrier to the use of these practices?

4. How can the data team help district or school teams increase their use of inquiry and data use practices? Can those teams that use these practices frequently help to build the capacity of those that don't?

5. Which teams should receive priority attention from the data team to build their capacity to use inquiry and data use practices?

IDENTIFY ISSUES

Introduction – Where are we now?

In *Getting Ready*, you laid the foundation to support the work of the data team as it moves forward in establishing or strengthening a culture of inquiry and data use in the district. You developed a vision for data use with broad input from stakeholders throughout the district. The data team assessed the current state of data use, compared the findings to the vision, and identified gaps to be addressed as the district moves toward the systemic use of data and the inquiry process.

In *Identify Issues*, the data team will begin to formally use the Cycle of Inquiry and Action by identifying issues to investigate. The analysis of the current state of data use conducted as part of *Getting Ready* will provide good information to begin identifying issues related to data use and building a culture of inquiry in the district. In *Identify Issues*, the data team will identify additional issues to be investigated at the district or building level and will learn how to formulate questions to focus these investigations. The team will learn data use terms and concepts and will explore the types of data available to answer their focusing questions.

Getting Ready → **Identify Issues** → Understand Issues → Diagnose Causes → Plan and Take Action → Evaluate Results

Upon completion of *Identify Issues*, you will have:

- Identified a significant data use, teaching and learning, or resource allocation issue to investigate
- Developed a question(s) to focus the investigation of that issue
- Identified and planned for the collection of data related to your focusing question(s)
- Built your understanding of data use terms, concepts, and the types of data that can be used to support the inquiry process

Tools

- 2.1: Identifying and Prioritizing Significant Issues
- 2.2: Developing Focusing Questions to Initiate Inquiry
- 2.3: Identifying and Locating Relevant Data
- 2.4: Developing a Common Understanding of Data Use Terms and Concepts

Formulate Questions that Help Define the Inquiry

What Makes a Good Issue to Investigate?

*The **first** attribute of a good issue for a district or school to investigate is one that is under their direct control.*

*The **second** attribute of a good issue is that it is significant in terms of helping students.*

The world is full of issues, but there are only certain issues that are appropriate for districts and schools to investigate. Although educators' involvement with and influence on their students will likely have long-term tertiary affects on world peace, the economy, or health care, these are not issues that are under the direct control of the district or school. The first attribute of a good issue for a district or school to investigate is one that is under their direct control. There are many issues under the direct control of a district or school that are important to the operation of the organization, but they do not have an immediate and significant impact on outcomes for students. The second attribute of a good issue is that it is significant in terms of helping students.

Identifying significant issues and asking important questions about those issues focuses the investigation. Beyond that, however, asking questions that count in the mind of district and school stakeholders will motivate them to participate in the investigation and act upon its results. The article *Answering the Questions That Count* (included in the Resources section of *Identify Issues* on page 12), provides an overview of this approach to data use and provides relevant examples of how asking questions that count can motivate staff and produce data-based results.

Identify a Priority Issue to Investigate

The work completed by the data team with the information gathered through analysis of data during *Getting Ready* resulted in the identification of some gaps between the current state of data use and the vision for data use. These gaps represent issues that can be addressed through the inquiry process. Closing these gaps will increase the effectiveness of data use in the district and will therefore help students.

Like the gaps that exist between the current state and the vision for data use, there are likely to be gaps between the vision for teaching and learning and the current state of teaching and learning in the district. These gaps also point to important issues that should be addressed through the Cycle of Inquiry and Action.

Some major issues are *not* under the direct control of the district or school. They represent the context that needs to be considered by the district and schools as they investigate issues over which they *do* have influence. In some cases, context issues like those listed in Table 1 on pages 3–4 can result in blaming and frustration. Therefore, if investigating issues of context, keep the focus on understanding existing conditions in an effort to change what is in the district's control.

Examples of Issues Commonly Investigated	
Population Issues	
Enrollment	• How have the demographic characteristics of the district's students changed over the past five years?
Incoming Students	• What does the 8th grade performance of the incoming 9th graders tell us about adjustments that need to be made in 9th grade programs and instructional practices? • Do we have the right procedures in place to welcome new students into our schools?
Transfers	• What do we know about why students leave our schools?
Special Populations	• *Special Education:* What are the characteristics and performance levels of students who are receiving special education services? What are the characteristics of students who have exited special education services? What services are we providing to address the needs of these students? • *English Language Learners (ELLs):* Are ELLs who have been in the district for at least three years meeting grade level expectations in English language arts? Math? How are students being prepared for success within and after the ELL program? • *Low Socioeconomic Students:* What is the relationship between economic status and daily attendance? Achievement? What supports are we providing to engage these students and prepare them for success? • *High Mobility:* What is the relationship between years in district and performance on the Measurements of Student Progress (MSP) assessment? How are we supporting new students during their first days and weeks in our schools? • *Adjudicated and Truant:* What is the relationship between truancy and in school disciplinary infractions?
Achievement Issues	
Cohort Progress	• How has the same student cohort performed on the MSP assessment in math over time?
Course Grades	• What is the relationship between course grades and assessment performance?
Credits Earned	• Which of our students are not on track to graduate on time?
Assessment Performance	• Are performance gaps between various subgroups decreasing over time?
Graduation Rate	• What are the characteristics and performance of students who did not graduate?

Instructional Issues	
Instructional Practices	• What instructional practices have shown evidence of success over time?
Intervention	• How are struggling students identified for additional instruction, mentoring, and support?
Differentiation	• How are students' strengths identified to facilitate increased progress?
Time	• Is instructional time prioritized appropriately?
Assessment	• Are formative assessments used to differentiate instruction?
Engagement Issues	
Dropout/ Transferred Out	• What are the characteristics and performance levels of students who leave the district (transfer out or drop out)?
Attendance	• What are the characteristics of students who have the highest and lowest rates of absenteeism?
Retention	• What are the characteristics and performance of students who are retained?
Resource Allocation Issues	
Staffing	• What is the relationship between class size and student performance on the MSP assessment?
Professional Development	• Based on student achievement data, what topics should be an integral part of our professional development program this year?
Program Evaluation	• Is the funding provided for the special education program sufficient to meet state mandates? • Based on school-wide data relative to student progress, how and what curriculum should we adopt?
Supplies and Capital Equipment	• Are laboratory facilities in physical science adequate to provide the instruction to meet the common core standards?

Table 1. Examples of Issues Commonly Investigated

Tool **2.1 Identifying and Prioritizing Significant Issues** is a collaborative protocol that will help your team agree on the issues to investigate and help you begin to shape your inquiry.

| **Identifying and Prioritizing Significant Issues** | **2.1** |

## What Type of Data Should Be Used?

For educational professionals, the concept of data can bring to mind visions of numbers and student assessments. Data, however, is a much broader term and can refer to any factual information or body of proof that serves to drive reasoning, discussions, or calculations.[1]

Data teams have a responsibility to collect data from a wide range of sources to ensure that they thoroughly understand the quality of teaching and learning in classrooms, schools, and the district as a whole. Tapping a variety of data sources to help answer questions further ensures that the team's inferences and conclusions are valid. In using multiple data sources, teams may find themselves comparing similar data sets (e.g., results from different types of assessments) or comparing distinctly different data (e.g., comparing student achievement to the length of time the student has been in a district). The process of relating multiple sources of data is often referred to as triangulation. Triangulation of educational data sources can more accurately diagnose a teaching and learning problem and point to a possible solution.

> *The process of relating multiple sources of data is often referred to as **triangulation**. Triangulation of educational data sources can more accurately diagnose a teaching and learning problem and point to a possible solution.*

In her book *Data Analysis for Continuous School Improvement*, Victoria Bernhardt[2] identifies four primary domains of data: student outcomes, demographics, perceptions, and school (or district) processes. Figure 1 on page 6 highlights the fact that student achievement data provide only one view of the work of a district. The data team must also analyze data related to processes such as hiring, procurement, and even facilities maintenance, as well as stakeholders' perceptions. Analyzing data from various domains enables teams to gain new insight on the district support needed to take teaching and learning to the next level. This may mean looking for data in forms other than numbers that can be easily counted, and also considering data generated by what one sees (such as observations and classroom visits) or hears (such as through stakeholder surveys and focus groups).

Figure 1 also describes the interaction of data from the four primary domains and the kinds of questions that can be asked through their intersections.
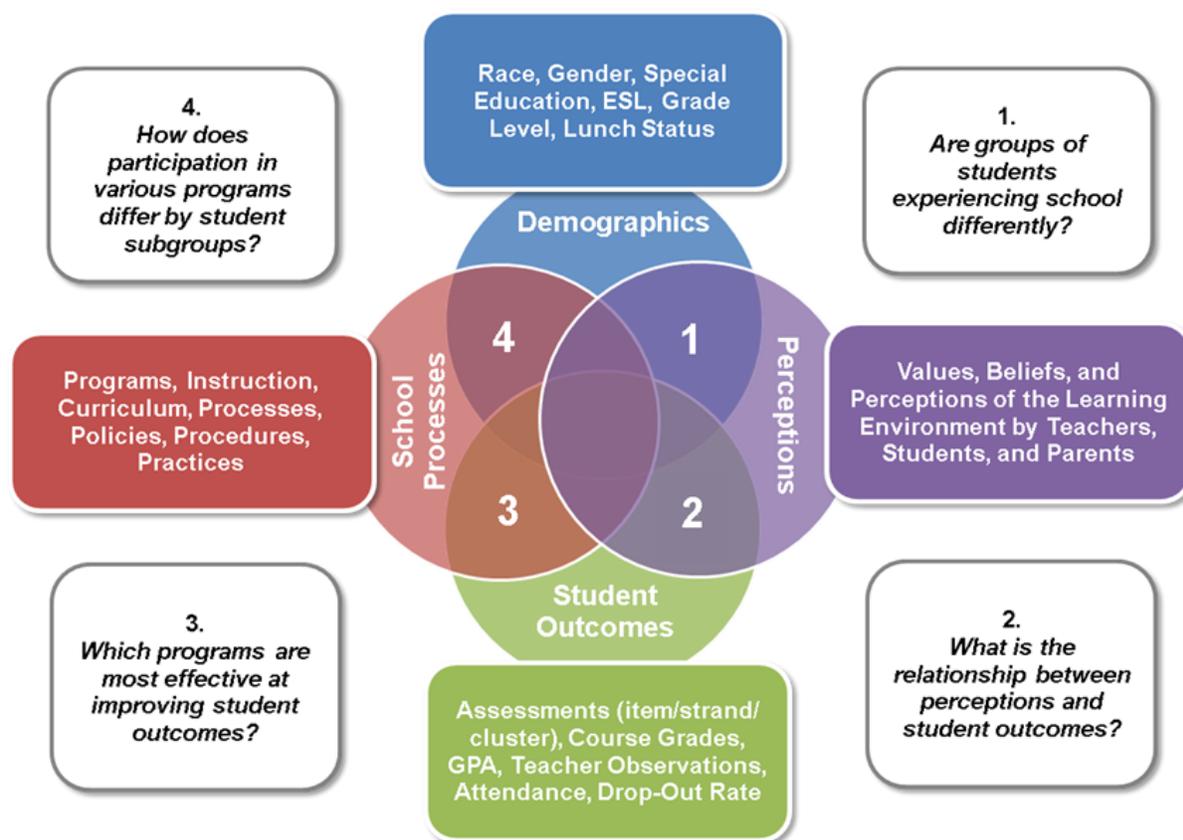
Adapted from Bernhardt, V. L. (2004). *Data Analysis for Continuous School Improvement.* Larchmont: Eye on Education.

Figure 1. Multiple Types of Data

It is important to note that, of these four domains, only one can be directly affected by a data team (or anyone else, for that matter), and that is **processes**. It is only by changing the way adults interact and conduct business—the processes of a district or a school— that a district can hope to shift the evidence it sees in the realms of demographics, perceptions, and student outcomes.

> *It is only by changing the way adults interact and conduct business—the **processes** of a district or a school—that a district can hope to shift the evidence it sees in the realms of demographics, perceptions, and student outcomes.*

Not All Data Are Created Equal

If districts and schools are to make sound decisions based on data, those data must be high quality. As a minimum, they must be accurate, secure, useful, and timely. Districts and schools are busy places and the collection of high-quality data are not always a priority. This situation can be exacerbated if data collectors lack understanding of the importance of the data and how the data will be used. Teachers, secretaries, administrators, and support personnel are all collectors of some form of data that can and should support decision making. Everyone needs to understand their responsibility to collect quality data. If decision makers, be they classroom teachers or the superintendent of schools, feel that they

cannot rely on the accuracy, completeness, and freshness of the data they need to make decisions, they will not likely turn to the data to inform their decisions.

This fact is recognized at the national and state levels. Given the current emphasis on data-based decision making, national and state leaders have promoted the collection and use of high-quality data by schools and districts. Nationally, the Data Quality Campaign is working with state policymakers to help design and build systems to ensure that educators at all levels have high-quality data to inform their decisions. The National Forum on Education Statistics has also developed materials to help educators develop a culture of data quality (included in the Resources section in *Identify Issues* on page 12). In the state of Washington, the Office of the Superintendent of Public Instruction (OSPI) commissioned the development of a data quality training program that will help local staff responsible for data collection and submission to the state better understand what data are collected, why the data are collected, how the data are used, what reports are generated from the data, and ways to ensure that the data submitted are of high quality.

Formulating Questions from Identified Priority Issues

Educators are inquisitive—driven by their observations, experiences, gut, and, hopefully, data—and often inquire about the state of their district, schools, and students. The challenge is often for educators to channel these motivations and curiosity into meaningful questions that, through analysis and action, have the potential to improve teaching, increase learning, fine tune resource allocation, and promote systemic data use.

As with the identification of a significant issue to investigate, the questions developed to focus the inquiry must relate to something that the district and schools have direct control over and which, if answered, will have a significant impact.

The team identified and prioritized significant issues over which the system has control in **2.1 Identifying and Prioritizing Significant Issues**. Now it is time to generate broad questions that will guide the team as it begins the inquiry process. We refer to these questions as *focusing questions* because they provide a lens through which the team can view the data that need to be collected and analyzed to address the issue that the team has identified. Through the analysis of these data, the team will discover other questions, known as *clarifying questions*, which must be answered in order to further the inquiry and dig deeper to identify the root causes of the issue that needs to be addressed**.**

Figure 2 on page 8 graphically represents the relationship between focusing questions, data analysis, and clarifying questions.

Focusing Question

What are the characteristics and performance levels of students who do not graduate with their 9th grade cohort?

Data Analysis

Clarifying Questions

- Which of the characteristics are most commonly held by students who do not graduate with their cohort?
- What was the 9th grade performance of students who did not graduate with their cohort?
- What percentage of the cohort did graduate, but required more than the normal four years?
- What are the characteristics and performance levels of students who graduated in more than the normal four years?
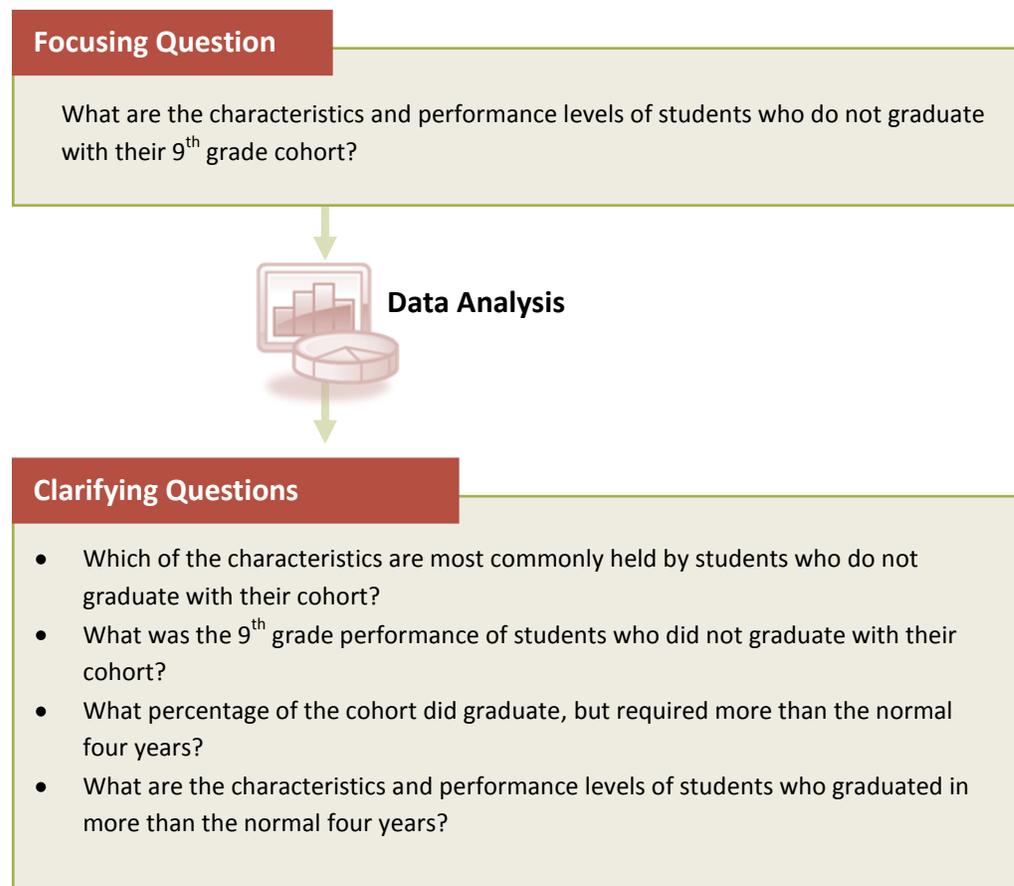
Figure 2. Focusing and Clarifying Questions

Although these are the types of questions that will be investigated through the inquiry process, there are other questions that can be answered to put these researchable questions in the appropriate context. These questions don't relate to factors that the district or school can directly influence, but by answering the questions the team can develop a better understanding of their students' situations. This deeper understanding places the focusing and clarifying questions in context. Context questions that will be helpful might involve demographics, socioeconomic status, special population status, homelessness, family status, and other external factors.

The examples in figure 2 and Table 2 on page 9 illustrate focusing and clarifying questions that can be used to extend the investigation of an issue. The team should review and discuss these questions as a way to build their understanding of the relationship among issues, focusing questions, and clarifying questions. Tool **2.2 Developing Focusing Questions to Initiate Inquiry** will enable the team to draw upon its understanding of focusing

Developing Focusing Questions to Initiate Inquiry

2.2

questions to develop questions that will focus the collection and analysis of data related to the priority issue selected through **2.1 Identifying and Prioritizing Significant Issues**.

The examples in Table 2 illustrate a number of broad issue areas and related questions for each.

Issues	Examples of Focusing and Clarifying Questions
Population Issues: High Mobility	*Focusing Question* How does movement of students into and out of the district or across schools affect student performance? *Clarifying Questions* • What are the characteristics of students who enter the district at each grade level (e.g., demographics and prior program support)? • How does new student performance compare to that of returning students? • What is the attendance and assessment profile of new students?
Achievement Issue: Cohort Progress	*Focusing Question* How have our students performed over time? *Clarifying Questions* • What was the performance of students within each demographic group, school, and program over time? • How did students who performed at each level on the grade 8 assessment perform the next year? To what extent did students improve their performance by one level? More than one level? • What differences do we see in strand performance as students move through grade levels?
Instructional Issue: Differentiation	*Focusing Question* How are students' strengths identified to facilitate increased progress? *Clarifying Questions* • What systems have been developed to identify students' areas of strength? • Have the gifted and talented activities improved the performance of students with identified strengths?
Engagement Issue: Dropout/ Transferred out	*Focusing Question* What are the characteristics and performance levels of students who leave (transfer or drop out) the district? *Clarifying Questions* • What groups had the highest percent of dropouts? What schools? • Where are our transfer students going?
Resource Allocation: Professional Development	*Focusing Question* Based on student achievement data, what are the topics we should incorporate in our professional development program this year? *Clarifying Questions* • What do student achievement measures tell us about areas for improvement? • What is the match between teacher preparation and identified areas of need among our students?

Table 2. Examples of Focusing and Clarifying Questions

Once the team has reached agreement on the question(s) that it will use to focus its investigation of the identified priority issue, the team will need to identify and locate the relevant data for analysis. Use tool **2.3 Identifying and Locating Relevant Data** to prepare for data collection.

> **Identifying and Locating Relevant Data**   **2.3**

Developing the Capacity to Effectively Analyze Data: Data Literacy 101

At this point, the data team has set the stage for the investigation of its identified priority issue. The team has identified and refined a focusing question to guide the collection of relevant data and has located and collected the data that are needed to begin the inquiry. To increase the effectiveness of the analysis of these data, it will be helpful for the team to ensure that team members have a common understanding of data use terms and concepts.

Tool **2.4 Developing a Common Understanding of Data Use Terms and Concepts** will provide each team member the opportunity to rate his/her understanding of data use terms, and subsequently work as a group to collaboratively build the team's knowledge and foster a collective understanding of terminology and concepts across the team. A Glossary of Data Use Terms and Concepts (located in Appendix A) is provided as a reference to support the team's data literacy development.

> **Developing a Common Understanding of Data Use Terms and Concepts**   **2.4**

Summary

Identify Issues has helped the data team identify and begin the investigation of a significant priority issue in its district. The team has developed a focusing question to guide the collection and analysis of relevant data and has built a common understanding of data use terms and concepts to support them as they conduct the analysis.

Next, *Understand Issues* will provide a structure to support the analysis of the data the team has collected and will extend the team's data literacy and its capacity to deepen the investigation of the identified issue.

References

[1] http://www.merriam-webster.com/dictionary/data. (October 19, 2011).

[2] Bernhardt, V. L. (2004). *Data Analysis for Continuous School Improvement.* Larchmont: Eye on Education.

Resources

- *Data Quality Campaign: Using Data to Improve Student Achievement*.
  http://www.dataqualitycampaign.org/
- Data Quality Campaign. (2011). Using Data to Improve Teacher Effectiveness: A Primer for State Policymakers. *http://www.dataqualitycampaign.org/files/DQC-TE-primer-July6-low-res.pdf*. This primer from the Data Quality Campaign discusses various ways data quality intersects with data use and the important impact it can have on teacher evaluation. It will provide your team a foundation for assessing data quality.
- National Forum on Education Statistics. (2004). *Forum Guide to Building a Culture of Quality Data: A School and District Resource*. U.S. Department of Education. Washington, DC: National Center for Education Statistics. http://nces.ed.gov/pubs2005/2005801.pdf The National Form provides a good overview of establishing a culture of data use. It provides a particularly helpful description of the role of central office, school board, and building-level staff in the process.
- National Forum on Education Statistics. (2007). *Forum Curriculum for Improving Education Data: A Resource for Local Education Agencies.* U.S. Department of Education. Washington, DC: National Center for Education Statistics. http://nces.ed.gov/pubs2007/2007808.pdf
- Ronka, D., Lachat, M. A., Slaughter, R., & Meltzer, J. (2008, December/January 2009). Answering the Questions that Count. *Educational Leadership, 66*(4), 18–24. http://www.ascd.org/publications/educational_leadership/dec08/vol66/num04/Answering_the_Questions_That_Count.aspx   This article illustrates how examining student data through the lens of pressing questions can mobilize staff, promote data literacy, and help raise student achievement.

2.1 – Identifying and Prioritizing Significant Issues
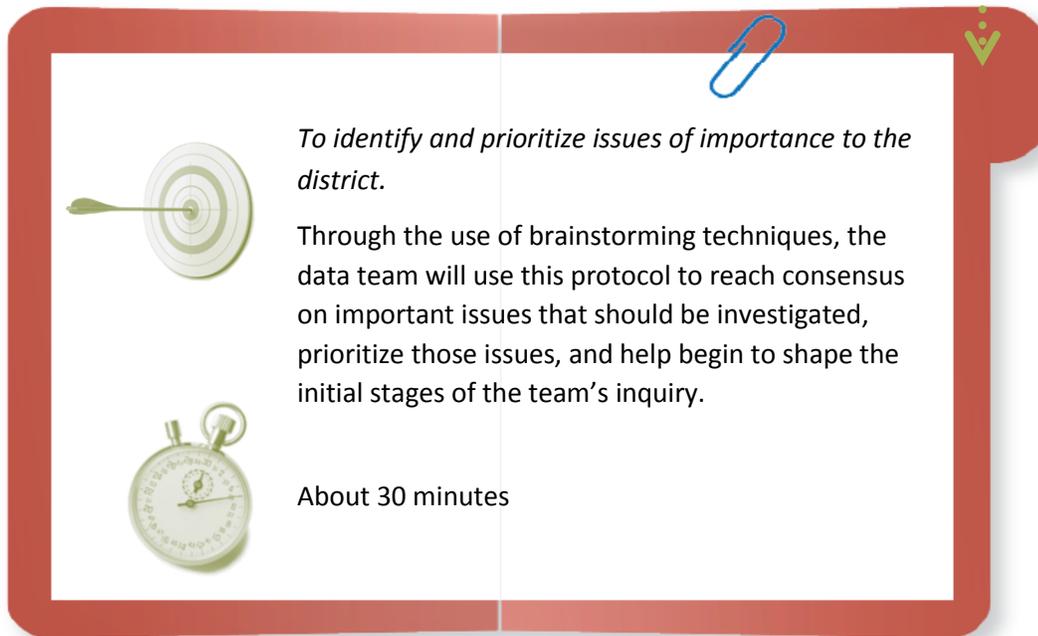
To identify and prioritize issues of importance to the district.

Through the use of brainstorming techniques, the data team will use this protocol to reach consensus on important issues that should be investigated, prioritize those issues, and help begin to shape the initial stages of the team's inquiry.

About 30 minutes

Directions:

1. As a team, brainstorm issues that could be the focus of your inquiry. Capture these issues on chart paper. You may want to refer to pages 3–4 in the *Identify Issues* handbook for examples of significant district issues and related questions.
2. As a team, reach consensus on the three top priority issues and circle them on the chart paper. From these three, choose the highest priority issue. This issue will guide the initial stage of your inquiry. Although the team will focus on one priority issue at this time, other issues that have been identified can be investigated as the inquiry progresses.
3. Record all of the issues that the team has suggested in the team meeting minutes for future use.

2.2

2.2 – Developing Focusing Questions to Initiate Inquiry

To identify and prioritize focusing questions to initiate the inquiry process.

Through the use of brainstorming techniques similar to those used in tool **2.1 Identifying and Prioritizing Significant Issues**, the data team will use this protocol to develop and prioritize questions that will focus the collection and analysis of data related to their priority issue.

About 30 minutes

Directions:

1. Write the issue that the team identified in tool **2.1 Identifying and Prioritizing Significant Issues** at the top of a piece of chart paper. It can be formulated as either a statement or question.
2. As a team, brainstorm questions that stem from the issue statement/question. Capture these questions on chart paper. All items should be phrased as questions and relate to the *Identify Issues* phase of the inquiry process. Circle your top three priority questions. From these three, choose the highest priority question. This question will guide the initial stage of your inquiry. Although the team will focus on one priority question at this time, other questions that have been identified can be investigated as the inquiry progresses.
3. Record all of the questions that the team has suggested in the team meeting minutes for future use.
4. When the team is finished, record the priority focusing question on a new sheet of chart paper for use in tool **2.3 Identifying and Locating Relevant Data**.

2.3

2.3 – Identifying and Locating Relevant Data
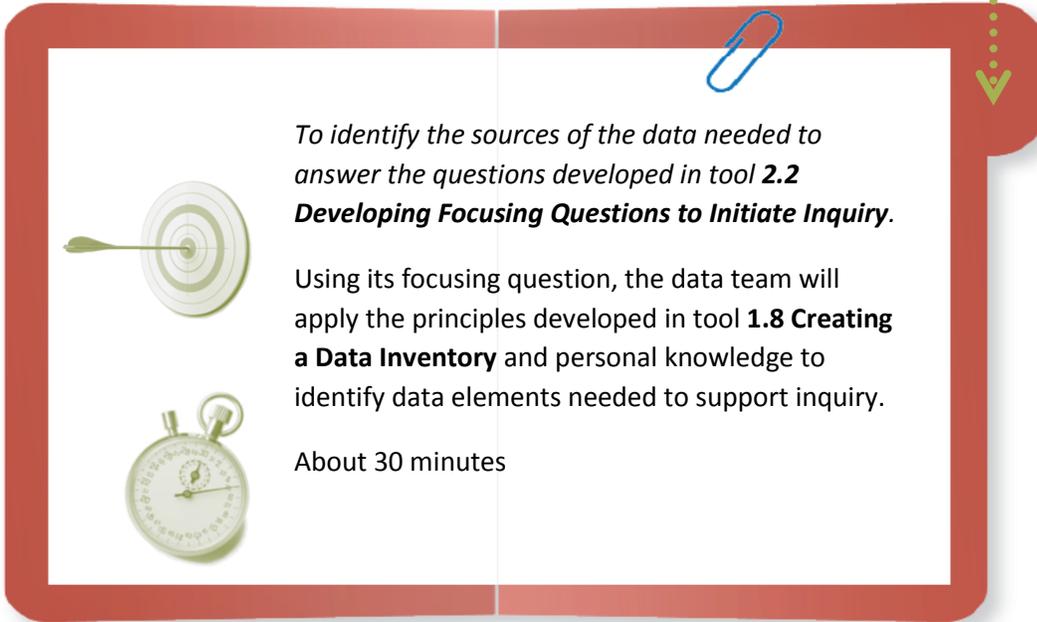
*To identify the sources of the data needed to answer the questions developed in tool **2.2 Developing Focusing Questions to Initiate Inquiry**.*

Using its focusing question, the data team will apply the principles developed in tool **1.8 Creating a Data Inventory** and personal knowledge to identify data elements needed to support inquiry.

About 30 minutes

Directions:

1. Copy the question that you indentified in tool **2.2 Developing Focusing Questions to Initiate Inquiry** to a sheet of chart paper if you have not already done so and to the *Identifying and Locating Data Sources Template* on the page 18.

2. Working together, brainstorm the data elements needed to address the focusing question. Record your ideas on the chart paper below the question. Be as specific as possible about the type of data needed. For instance, rather than saying *state assessment results,* say *2011 Grade 10 WASL-Math disaggregated by NCLB subgroups*.

3. Reach consensus on data elements needed to address the question and record them in the *Identifying and Locating Data Sources Template*.

4. As a team, decide where each of the data elements is stored and who can provide access to the data. Record the information in the template.

5. Determine and record in the template when the data will be collected and who will be responsible for the collection.

2.3

Identifying and Locating Data Sources Template

Focusing Question				
Data Element	**Stored Where**	**Provided Access by Whom**	**Collected by Whom**	**Collected By When**

2.4

2.4 – Developing a Common Understanding of Data Use Terms and Concepts

To develop a shared understanding of common data use terminology and concepts.

You will have the opportunity to rate your individual understanding of common data use terms and concepts and then, as a team, confirm or improve your understanding.

About 30 minutes

Directions:

Part 1: Individual Rating

1. Use the following three-point rating scale to assess your own level of understanding of the terminology and concepts listed in the left column of the *Data Use Terms and Concepts Table*[1] on page 21.

Rating Scale	
3	I have a solid understanding of this term and could explain it to someone else.
2	I have heard of this term, but could not explain it to someone else.
1	I have never heard of this term.

---

[1] Portions of this protocol were developed within the DATAUSE project (Using Data for Improving School and Student Performance) by the consortium of partners including: Public Consulting Group, University of Twente (the Netherlands), Institute of Information Management Bremen GmbH (Germany), Modern Didactics Center (Lithuania) and Specialist Schools and Academies Trust (UK). For more information on the project please visit: www.datauseproject.eu

2. Each team member should turn to the table of data use terms and concepts on page 21 and individually rate their current understanding of each term or concept using the rating scale.

Part 2: Group Rating

1. As a team, compare your individual responses for each of the terms or concepts one at a time.

   - Put a check mark (✔) next to any term or concept that everyone rated as a 3. Since all of your team members have a solid understanding of these terms or concepts, you won't need to spend additional time addressing these items.
   - Put an asterisk (*) next to any term or concept rated as a 3 by any team member, but with mixed ratings by other team members.
   - Put a question mark (?) next to any term or concept that no one has rated as a 3.

2. If a term or concept is well understood by a few of your team members, but not all, (noted with an asterisk) have a member who rated their understanding as a 3 explain the term or concept to the group.

3. For those terms or concepts that were assigned a "?," use the Glossary of Data Use Terms and Concepts (located in Appendix A) to build the team's shared understanding. Make a note of any additional questions that you may have regarding these terms or concepts.

Data Use Terms and Concepts Table

Data Use Terms and Concepts	Your Rating	Group Rating
Aggregation		
Alignment		
Average		
Causation		
Correlation		
Disaggregation		
Data types:		
Assessment data		
Input data		
Interview data		
Observational data		
Output data		
Process data		
Survey data		
Deviation		
Frequencies:		
Absolute frequency		
Relative frequency		
Inference		
Mean		
Median		
Population		
Raw score		
Reliability		
Sample		
Scaled Score		
Standard Error of Measurement (SEM)		
Triangulation		
Validity		

UNDERSTAND ISSUES

Introduction – Where are we now?

In *Identify Issues*, the data team began to formally use the Cycle of Inquiry and Action by identifying issues to be investigated and by formulating questions to guide the inquiry. The team expanded its data literacy and discussed the attributes of data that will be useful to extend the inquiry. This set the stage for digging deeper into the issue identified in *Understand Issues*.

In *Understand Issues,* the team will move the inquiry forward by looking closely at the data collected to answer the focusing questions. The team will learn to cull the high-level data relevant to the focusing questions from all the available data and how to display these data in a format that will facilitate preliminary analysis. Through this high level analysis, the team will begin to identify the story that the data have to tell, as well as refine its capacity to display the data in a way that will best communicate the story to the audience that is able to take action on the identified issue.

Getting Ready	Identify Issues	**Understand Issues**	Diagnose Causes	Plan and Take Action	Evaluate Results

Upon completion of *Understand Issues*, you will have:

- Reviewed the data identified and collected in *Identify Issues* to gather the most relevant data from all of the data collected
- Learned the basics of data display theory
- Learned the attributes of good data displays
- Identified and critiqued the usefulness of data displays currently available in the district
- Constructed data displays that communicate the story the data set tells about your focusing question and the priority issue
- Designed a data overview that will engage an appropriate audience in the investigation of the priority issue

Tools

- 3.1: Attributes of a Good Data Display
- 3.2: Inventory and Critique of Existing Data Displays
- 3.3: Building Data Displays Protocol
- 3.4: Observations versus Inferences
- 3.5A: Data Analysis Protocol
- 3.5B: Data Carousel Protocol
- 3.5C: Placemat Protocol
- 3.6: Data Overview Protocol

WSIPC™

Digging Deeper into the Questions to Extend the Inquiry

Issues, Questions, and Relevant Data

In *Identify Issues*, the team selected a priority issue and developed focusing questions to guide the identification and collection of data that would address these questions. This is an important first step in the inquiry process because it enables the investigators to chart a path through the maze of data to the data relevant to their issue. Take some time as a team to review the work that you did with tools **2.1 Identifying and Prioritizing Significant Issues**, **2.2 Developing Focusing Questions to Initiate Inquiry**, and **2.3 Identifying and Locating Relevant Data**. The work that the team did in these activities will provide the raw material (issues, questions, and data) to get the team started on its quest to extend the inquiry and develop a deeper understanding of the issue. If the team has not identified an issue or has not developed clarifying questions, revisit *Identify Issues*. Clearly identified issues and focusing questions are the precursors to effective data analysis.

> Clearly identified issues and focusing questions are the precursors to effective data analysis.

The identification of a priority issue and focusing questions will also help the team identify others who may collaborate in the inquiry process. Involving others with expertise and interest in the priority issue will help clarify the issue, support meaningful analysis of relevant data, and map an effective action plan. For instance, the data team may have identified inconsistencies in math performance across the elementary grades as a priority issue to be investigated. To meaningfully conduct an inquiry into this issue, math teachers should collaborate with the data team from the early stages of the process and should play a major role in the action planning process. Tool **3.6 Data Overview Protocol** introduced later in *Understand Issues* will help the data team engage others at the beginning of the collaborative inquiry process and will set the stage for their involvement in the action planning and implementation steps of the Cycle of Inquiry and Action.

Displaying the Collected Data

Data specific to the issue are likely to be located alongside a large amount of unrelated data. A focusing question helps to sort out the most useful data. The relevant data can then be displayed in a format that facilitates analysis. Once the data have been analyzed and the story contained in the data discovered, a representation of the data can be created that effectively communicates the story to those who need to act. Let's take some time to think about how data can be represented to facilitate analysis and communicate a story.

In this *District and School Data Team Toolkit*, we will refer to any representation of data as a data display. Data can be presented in many types of displays including tables, charts, maps, and graphs. We see data displays every day in the media, journals, annual reports, and textbooks. Edward Tufte, Stephen Few, and others have written extensively about the history of displaying data and the creation of data displays that communicate effectively. We encourage you to review their publications (included in the Resources section on page 29) to gain greater insight into how data displays can be used, and misused, to convey the story told by data. As you will learn from these readings, many displays are well done, while others can be misleading. Displays that don't facilitate analysis or accurately communicate

the data's story can lead us to erroneous conclusions. It is critical that we display the data related to our priority issue in a format that accurately communicates the factual information that the data hold and illuminates relationships inherent in the data.

Types of Data Displays

In this *District and School Data Team Toolkit*, we will discuss the most common data displays that are used to represent district and school-level data, as well as what these data displays are able to communicate. Examples of these displays are presented below. As mentioned earlier, data teams are encouraged to consult the resources listed at the end of this component to gain a deeper understanding of data displays and of which type of data display meets your needs. For example, Choosing a Good Chart which is included in the Resources on page 29 provides a graphic organizer that fosters thought related to what display is appropriate by asking the question: What would you like to show?

Table

A table is the most commonly used method for displaying data. Tables are particularly useful for the organization of data for initial review and to begin the data analysis process. A significant amount of data, presented in tabular format, can be collected to identify and isolate the data most relevant to the priority issue and the focusing question. Tables often accompany other types of data displays, such as clustered bar charts, to explicitly state the data upon which the chart is based. These tables often contain additional data that further explain the basic story illustrated by the data display.

Hidden Valley School District 2010-2011
MSP/HSPE Percent Meeting State Standard by Subject
All Students

Grade Level	Reading	Math	Writing	Science
3rd Grade (N=322)	73.1%	61.6%		
4th Grade (N=325)	67.3%	59.3%	61.4%	
5th Grade (N=335)	67.7%	61.3%		55.7%
6th Grade (N=330)	70.6%	58.8%		
7th Grade (N=334)	56.5%	57.0%	71.0%	
8th Grade (N=313)	68.7%	50.4%		61.6%
10th Grade (N=409)	82.6%	See EOC below	86.3%	49.9%

Grade Level [1]	EOC Math Year 1	EOC Math Year 2
All Grades	64.3%	73.5%

Figure 1. Table, Adapted from *OSPI School and District Report Card*[2]

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[1] End of course exams (EOC) are given in any grade in which the course is offered.
[2] Similar reports for districts and schools can be found at http://reportcard.ospi.k12.wa.us/summary.aspx?year=2010-11

Tabular data can be used to begin the investigation into questions such as:

- What percentage of students at each grade level met the state standard in each subject tested this year?
- How did the percentage of students in special populations who met the standard compare to the representation of each special population in the total population?
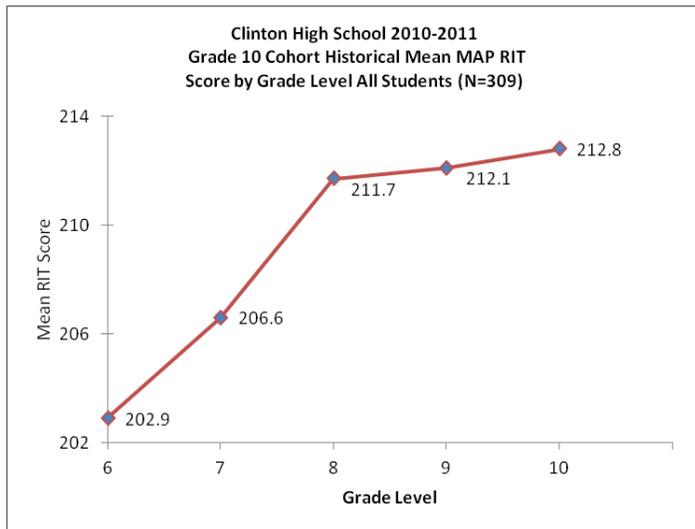
Line Chart

Figure 2. Line Chart

A line chart is used to represent continuous data. The values that are on this line are discrete data points. The line connecting these points represents predicted values that would be obtained if additional measurements were made. Line charts are frequently used to represent time series data. A line chart can help answer questions such as:

- How did the mean RIT score change across grades 6 through 10 for the 2011 cohort of 10th grade students?
- Which month of the year requires the greatest attention regarding absenteeism?

Multiline Chart

A multiline chart is similar to a clustered bar chart, except that the data are represented with lines rather than bars. As with the single line chart, this line chart must represent continuous data.

A multiline chart can help answer questions like:

- How did the average growth of students at each grade level compare to the projected average growth for that grade?
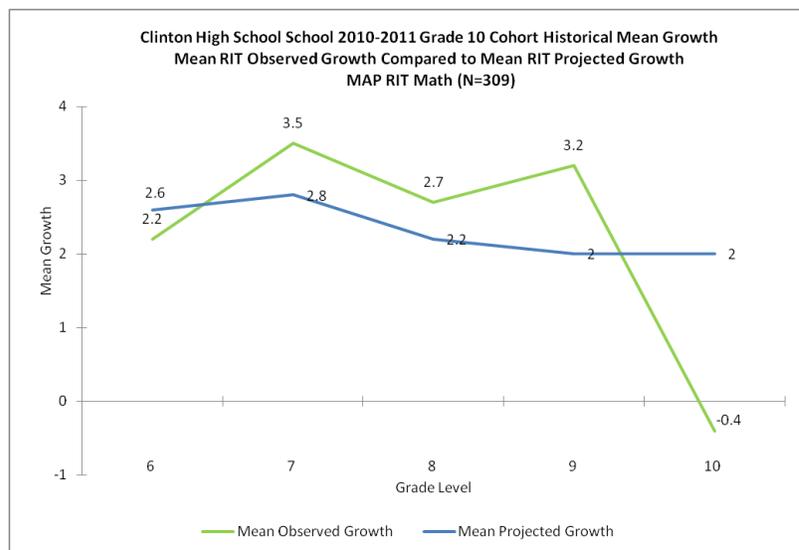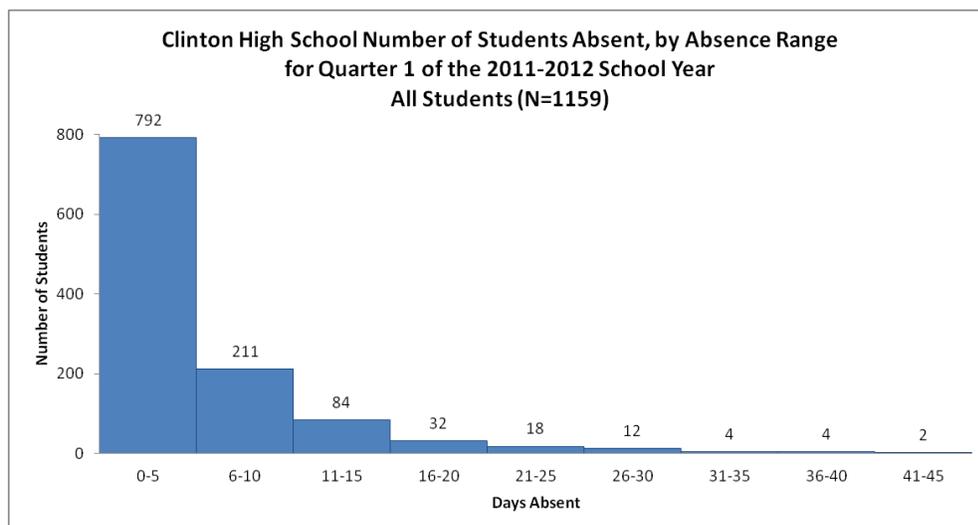

Figure 3. Multiline Chart

Histogram

A histogram shows a frequency distribution for a single variable. Each bar displays the results for an individual sub-category. A histogram can answer a question such as:

- What was the frequency of student absences during quarter one of the 2011-2012 school year?

Clinton High School Number of Students Absent, by Absence Range for Quarter 1 of the 2011-2012 School Year All Students (N=1159)

Bar Chart

A bar chart also shows a frequency distribution for a single variable on a specific measure for a category or a subset of a category (e.g., students and grade levels). Each bar displays the results for an individual sub-category. A bar chart can answer questions such as:

- How do the results for one subgroup compare to those of other subgroups?

- At which grade levels are we weakest in supporting our students' learning?

- Which grade levels should receive initial targeted allocations of additional resources to support student learning?

> **Frequency Distribution:** *The number of cases at a given data point, such as the number of students who scored at level 4 on the MSP assessment.*

Bar charts can represent data either vertically or horizontally. Qualitative data, such as that gathered from a survey, are often quantified and represented graphically. In Figure 5, the mean value for weighted responses to each survey question was calculated and the means represented in the data display. This type of display may answer the following questions:

- Which statements about engagement with school did respondents, on average, react most positively toward?
- What do the average responses suggest as issues for further investigation?
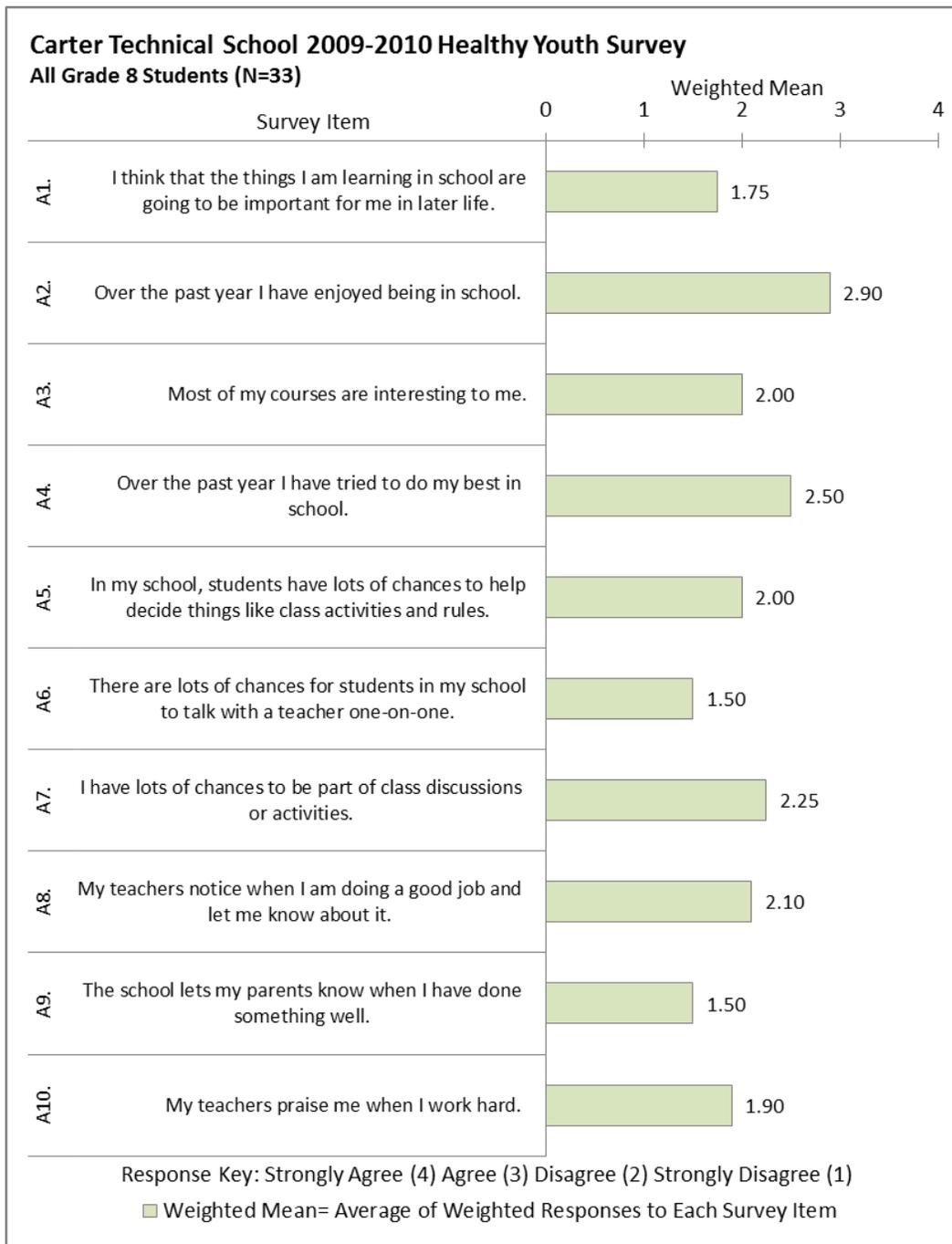
Carter Technical School 2009-2010 Healthy Youth Survey
All Grade 8 Students (N=33)

Weighted Mean

	Survey Item	Weighted Mean
A1.	I think that the things I am learning in school are going to be important for me in later life.	1.75
A2.	Over the past year I have enjoyed being in school.	2.90
A3.	Most of my courses are interesting to me.	2.00
A4.	Over the past year I have tried to do my best in school.	2.50
A5.	In my school, students have lots of chances to help decide things like class activities and rules.	2.00
A6.	There are lots of chances for students in my school to talk with a teacher one-on-one.	1.50
A7.	I have lots of chances to be part of class discussions or activities.	2.25
A8.	My teachers notice when I am doing a good job and let me know about it.	2.10
A9.	The school lets my parents know when I have done something well.	1.50
A10.	My teachers praise me when I work hard.	1.90

Response Key: Strongly Agree (4) Agree (3) Disagree (2) Strongly Disagree (1)

☐ Weighted Mean= Average of Weighted Responses to Each Survey Item

Figure 5. Bar Chart

Clustered Bar Chart

A clustered bar chart allows you to represent data that have been disaggregated by more than one category or subcategory. For example, you would use a clustered bar chart to look at performance across years for subgroups of students (e.g., gender, special programs) or across grades. A clustered bar chart can answer questions such as:
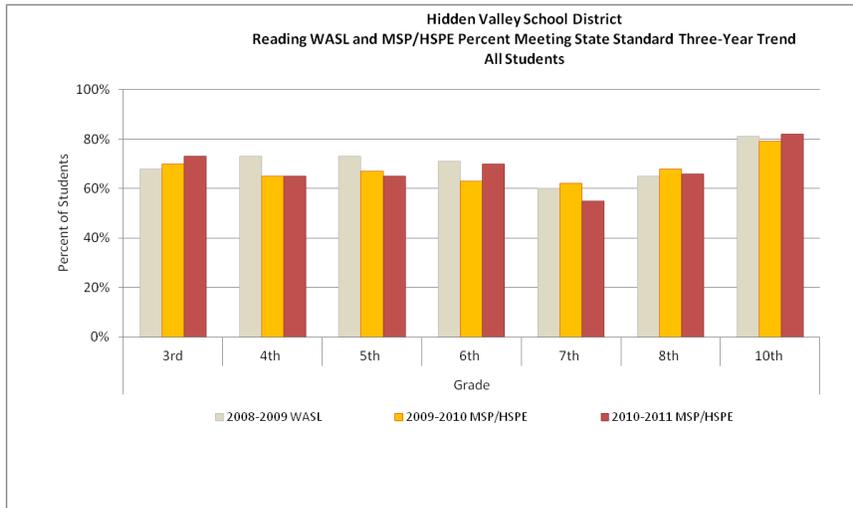

Figure 6. Clustered Bar Chart

- How did student achievement on the MSP or HSPE at each grade level change over the past 3 years?
- Did males perform as well as females in mathematics and science?
- What was the performance of our minority students across subject areas?
- What subject areas showed the greatest need for improvement?

Stacked Bar Chart

A stacked bar chart allows you to see the data for a given category (year in this example), as well as the distribution of another category within the first category (performance in this example). You can use a 100% stacked column chart, such as the chart displayed in Figure 7, when you have three or more data series and you want to emphasize the contributions to the whole.

Like a histogram, a stacked bar chart can be oriented on the vertical or horizontal axis.

Either form of stacked bar chart can help answer questions such as:

- How has the distribution of performance levels changed over the past three test administrations?
- Which tier level has the highest concentration of lower-performing students?
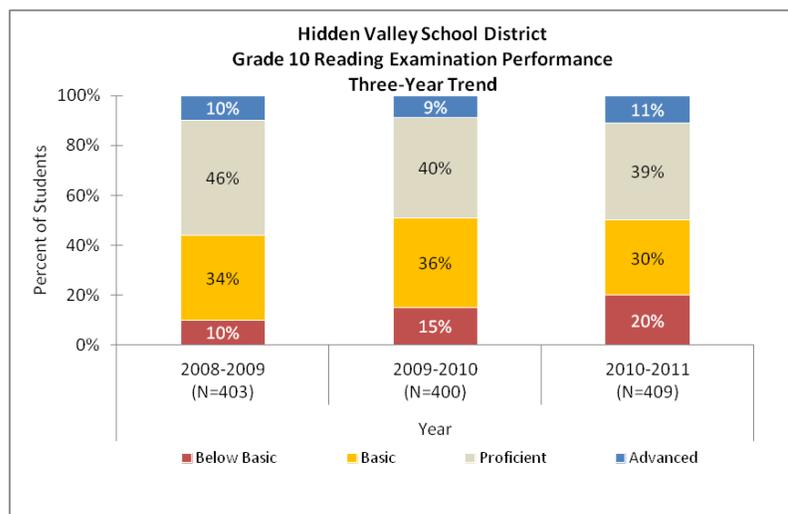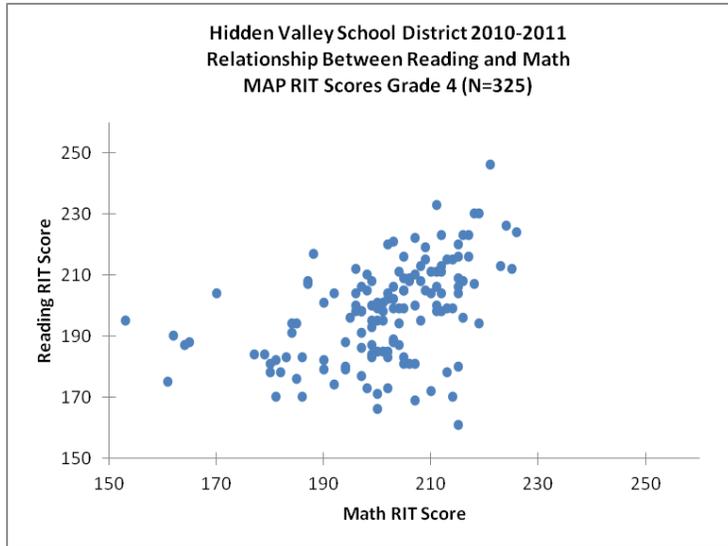

Figure 7. Stacked Bar Chart

Figure 8. Scatter Chart

Scatter Chart

A scatter chart allows you to look at the relationship between two different measures using the X and Y axes. The first measure is represented on the Y axis, and the second measure is represented on the X axis. In the sample display, each point represents one student.

A best fit line can be statistically determined from the individual data points in a scatter plot to illustrate a trend in the data.

A scatter chart can help answer questions such as:

- What is the relationship between a student's reading and math RIT scores on the MAP assessment?
- Which students are outliers who score high on one assessment, but low on the second assessment?

Pie Chart

A pie chart shows part-to-whole relationships. Pie charts show the relative distribution of performance for a specific population across performance categories which sum to 100%.

Pie charts can answer a question such as:

- What was the relative distribution of students across performance levels for a specific test?
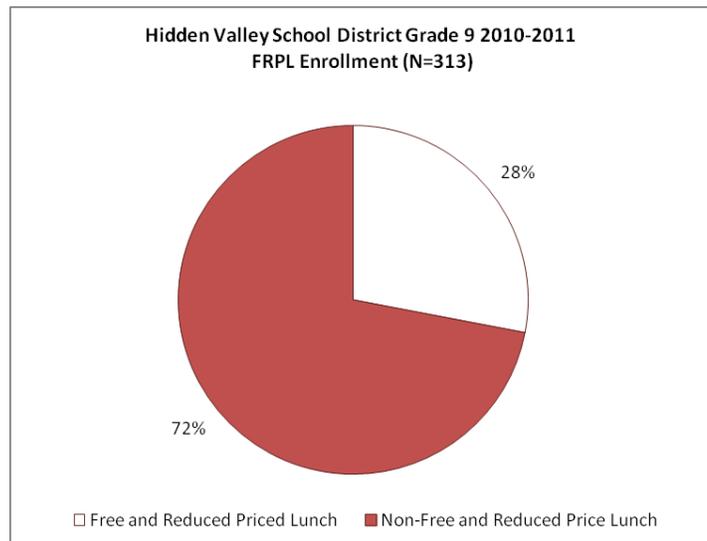

Figure 9. Pie Chart

Radar Chart (or Spider Graph)

A radar chart, also known as a spider chart or a star chart because of its appearance, plots the values of several measures along a separate axis that starts in the center of the chart and ends on the outer ring. This makes it possible to compare data across measures. Data that are consistent across all of the measures will be displayed in a near circle. Data that are higher in some measures than others will be displayed in a more free form shape.

A radar chart can help answer questions such as:

- Which district data team function do our teachers perceive as our greatest strength?

- How does student performance on one core standard of a test compare to several other standards?

For additional information about creating user-friendly and informative data displays, see the resources described in the Resources section of *Understand Issues* on page 29.
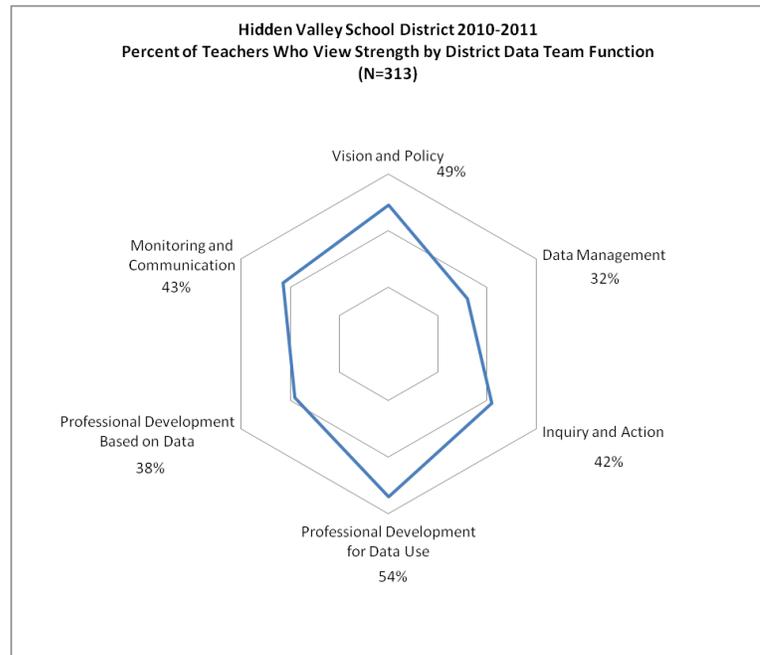

Figure 10. Radar Chart

Dynamic Displays

Any number of recent student information systems, data warehouses, and other applications enable the user to manipulate data and generate displays on the fly. These displays can be analyzed and new displays generated to answer clarifying questions that are raised. This dynamic functionality provides an excellent support for the data analysis process and enables a data team to rapidly move forward with the inquiry if the required data are housed in the system. The application DataDirector, which is used in many districts in the state of Washington, is an example of an application that supports dynamic display generation.
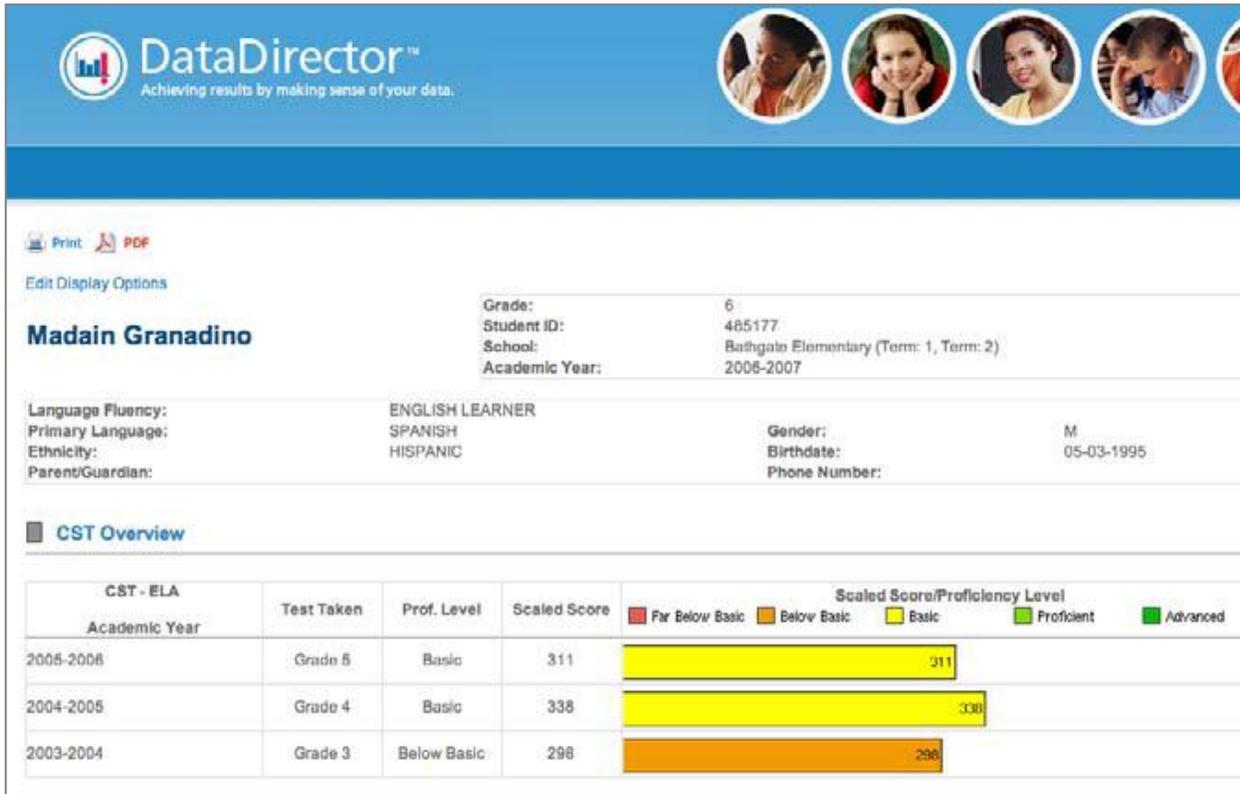

Figure 11. Data Director Dashboard

Dashboards

A number of data systems are incorporating the idea of a data dashboard showing multiple data displays organized around key questions or key performance indicators. These displays can be thought of as executive summaries showing the current status of a variety of data in an easy to understand interface similar to the dashboard in your car. The individual data displays within the dashboard are frequently dynamic, offering click through functionality to dig deeper into the particular key performance indicator.
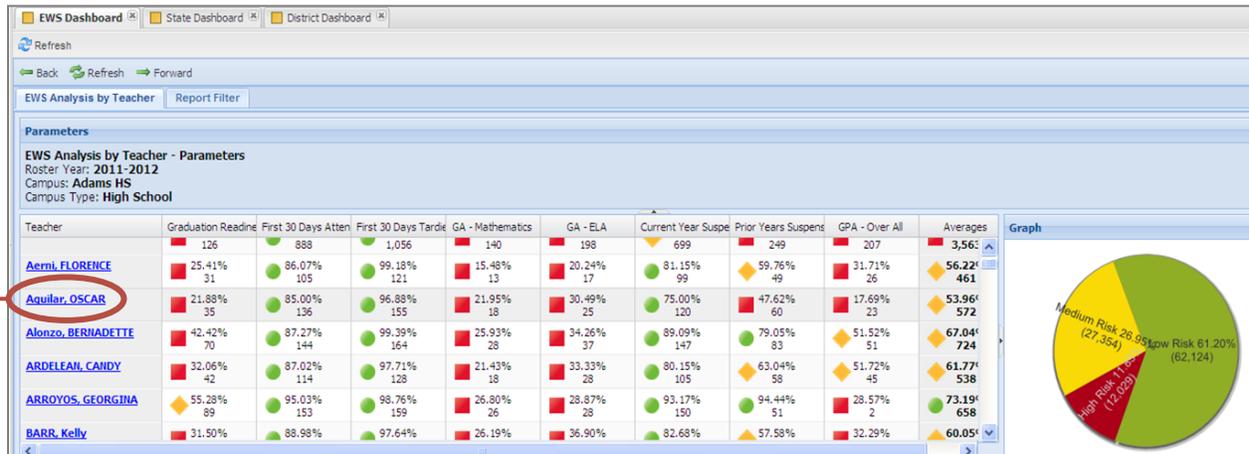

Figure 12. Early Warning System Dashboard, School Level View by Teacher
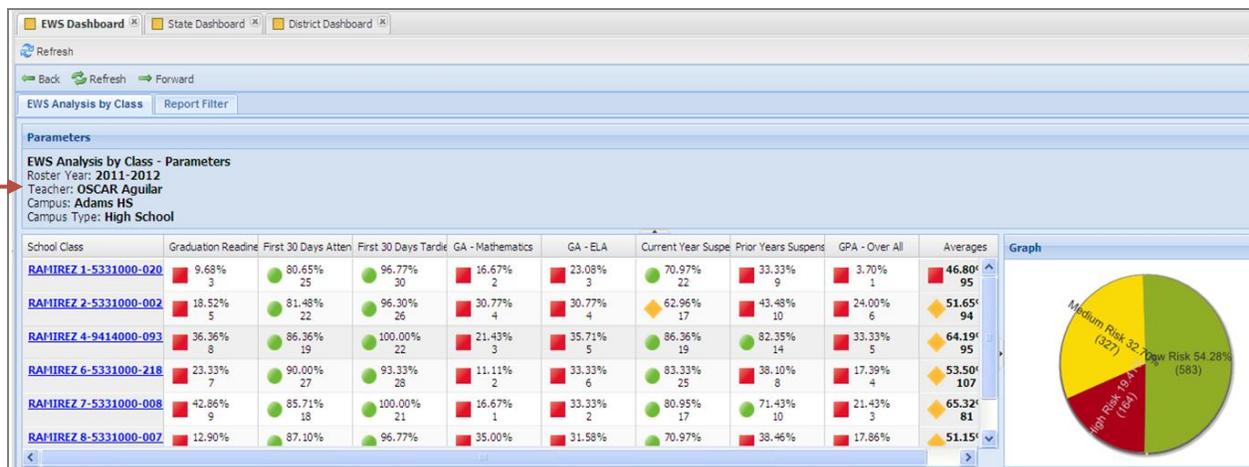
Drill Down

Figure 13. Early Warning System Dashboard, Teacher Level View by Student

Attributes of a Good Data Display

A good data display should:

- *Have an informative title that describes the population, date data were gathered, and variables displayed*
- *Have accurately labeled axis (graph) or columns and rows (table)*
- *Contain the size of the population as a whole and subpopulations (N = population and n = sample)*
- *Include an easy to understand key to shapes, shading, and colors used in the display*
- *Include dates for all data points, if applicable*
- *Be uncluttered (i.e., free of unnecessary detail and extraneous features)*
- *Be in a format (e.g., graph, table, map) appropriate for the story told*
- *Facilitate analysis and the discovery of relationships within the data*
- *Effectively communicate the story or message*

As we have discussed, there are a number of ways to display the data visually. The type of data displays used for presentation is important, as it can foster effective communication of your message. Remember, our goal is to represent the data related to our focusing question and issue in such a way that it facilitates analysis and accurately communicates the story that the data hold. As you select a type of data display and construct it, you must take into account the attributes of a good data display.

Listed here are attributes of high-quality data displays that help improve analysis by ensuring clarity and completeness. If a data display is missing important information, such as axis labels or population sizes, the viewer will be distracted by questions regarding the missing information and potentially not understand how the display communicates the story you are trying to tell. The last two items on the list are the most significant attributes of a good data display. If the data can be analyzed, the story is told. When the story is told, the message is delivered and understood, which speaks to the quality of the data display.

Tool **3.1 Attributes of a Good Data Display** provides an opportunity for the team to collaboratively analyze the quality of a data display and suggest ways to improve its ability to facilitate analysis and accurately communicate the story told by the data.

Attributes of a Good Data Display   **3.1**

Now that the team is conversant with the attributes of a good data display, you can put what you have learned to work by critiquing data displays that are currently being used in your district. Tool **3.2 Inventory and Critique of Existing Data Displays** provides a template for the identification of extant data displays, as well as guidance to help the team assess the usefulness of the displays. By

Inventory and Critique of Existing Data Displays	**3.2**

using its knowledge about the attributes of a good data display, the team will be able to suggest ways to increase the usefulness of the identified displays. The team may want to use tool **1.3D Communication Organizer Template** to disseminate their suggestions.

Building an Effective Data Display

As in developing sound lesson plans, the construction of a good data display begins with a clear understanding of what it is being created for. Will it be used as an initial high-level look at data to facilitate analysis, or will it be created to communicate the story that has been discovered in the data? Unfortunately, a clear understanding of the desired outcome does not always guide the construction of the data display. This, in the best case, produces data displays that are confusing and in the worse case, produces data displays that lead to erroneous conclusions and actions.

A simple table is often the data display of choice when preparing data for initial analysis. Here the purpose is to separate the data related to the focusing question from all of the other data in the database. The table may then give rise to other types of data displays to further the analysis as relationships in the data are discovered and different ways to visualize the data are needed. Once the initial analysis is complete and the preliminary story in the data discovered, it is time to build data displays that will communicate the story to the appropriate audience. First, the story or message to be communicated must be clearly articulated. Then, the medium (data display type) that will best communicate the story should be selected.

Tool **3.3 Building Data Displays Protocol** provides guidance that will help the data team construct data displays that are consistent with the basics of data display

Building Data Displays Protocol	**3.3**

development and contain the attributes of a good data display. This tool should be used after the team has completed tool **2.3 Identifying and Locating Relevant Data.**

Analyzing Data

Good data analysis uncovers the story to be told by data. Data analysis should be a collaborative effort that involves data team members and other stakeholders. Collaboration among stakeholders with knowledge and interest in the priority issue will provide the context to promote effective data analysis.

The data analysis process starts with a clear understanding of the issue and focusing question that will guide the inquiry. With those in mind, we can take a hard, objective look at the data that are directly related to the focusing question. Our thoughtful, objective observations can give rise to reasoned inferences that may lead to more questions or to tentative conclusions. The process is iterative, as shown in Figure 14.
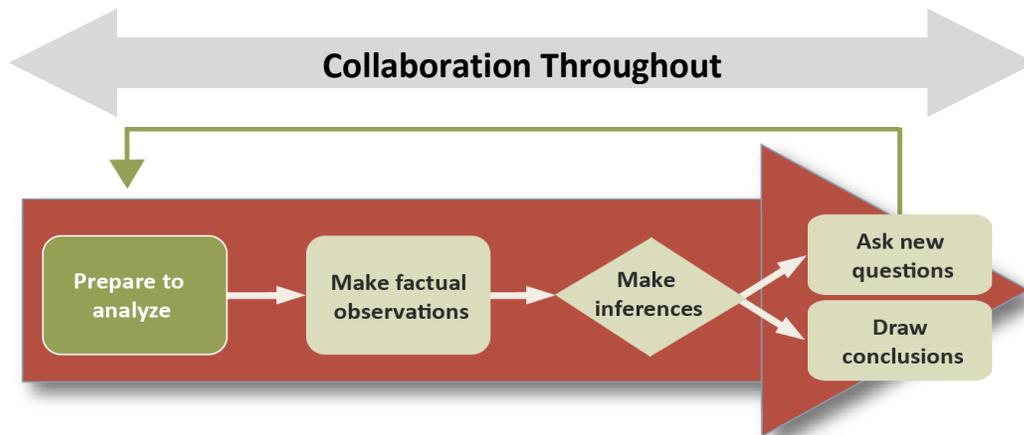

Figure 14. Data Analysis Process   **©2010 Public Consulting Group, Inc.**

The data analysis process works equally well on quantitative data (numbers) *or* qualitative data (perceptions, themes, attitudes, beliefs)*.* The descriptions of the process that appear below show how it can be used with both quantitative and qualitative data. An illustrative example from the Hidden Valley School District is used in each case.

Quantitative Data Analysis

In addition to articulating a clear question to be investigated, preparing to analyze often involves organizing the data. This step can be performed in a number of ways depending on where the data are located. For instance, the data you need may be located among other data in a large spreadsheet, or the data may be available in a data

At Hidden Valley

The Hidden Valley District Data Team, working with the district's leadership team, identified high school completion as a priority issue in the district. To guide its inquiry into the large amount of data related to this issue, the data team posed the following focusing question:

What was the dropout[3] rate at each grade level in grades 7-12 for each of the Hidden Valley secondary schools in 2009 –2010?

The team then consulted OSPI resources and identified a large amount of data related to the issue. The data they identified were displayed in an Excel workbook at the state level and for each district and school. Data were also provided for a number of student populations. (See Figures 15 and 16.)

warehouse or other reporting tool. In any case, the exact data you need frequently needs further preparation or organization in order to address your question.

Statewide Graduation and Dropout Results, School Year 2009-10

Student Category	Net students served in grade*						Number of dropouts in grade**						
	7	8	9	10	11	12	7	8	9	10	11	12	
All Students	78353	78379	86726	82011	81372	70684	533	827	2948	2922	3772	5139	
American Indian	2043	2045	2213	2044	2019	1655	24	31	139	153	211	248	
Asian/Pacific Islander	7022	6878	7339	7365	7053	6133	34	66	217	181	196	280	0.
Asian	6399	6262	6693	6717	6494	5723	32	49	169	141	150	217	0.
Pacific Islander	623	616	646	648	559	410	2	17	48	40	46	63	0
Black	4429	4416	5300	4736	4255	3366	58	109	306	250	295	348	!
Hispanic	12449	11933	13389	11524	10429	7651	114	223	710	596	671	738	0.
White	50209	50936	54757	54095	55564	48982	278	379	1414	1624	2291	3262	0.0
MultiRacial or Not Provided	2201	2171	3728	2247	2052	2897	25	19	162	118	108	263	1.1%
Limited English Proficient	4591	3759	4363	3630	2936	1631	34	83	262	220	212	245	0.7%
Low Income	34524	33103	35579	31061	28262	21609	282	435	1418	1312	1628	2114	0.8%
Special Education	9567	9123	9429	8560	8422	5673	53	86	304	333	454	566	0.6
Migrant	1453	1299	1654	1449	1213	965	7	23	82	72	63	77	0.5%
504	1473	1552	1741	1794	1668	1383	13	7	13	34	47	77	0.9%
Foster Care	25	41	25	23	21	10	0	1	2	1	2	2	0.0%
Foster Care - W DSHS Students	303	321	327	326	299	99	3	9	19	21	34	20	1.0%
Female	38104	38016	41970	39993	39635	35307	246	372	1365	1318	1655	2173	0.6%
Male	40249	40363	44756	42018	41737	35377	287	455	1583	1604	2117	2966	0.7%

Asian PacIslander / Black / Hispanic / White / LimitedEng / SpecialEd / LowIncome / Migrant / Female / Male / 504 Plan / FosterCare / **State** /

Figure 15. Sample Statewide-Level Data

Statewide Graduation and Dropout Results by District and School 2009-10

Dist	District	Bldg	Building	Net students served			
				7	8	9	10
14005	Aberdeen	3857	Harbor High School	0	0	28	41
14005	Aberdeen	3476	J M Weatherwax High School	0	0	274	244
14005	Aberdeen	2305	Miller Junior High	251	256	0	0
21226	Adna	2441	Adna Middle/High School	42	47	41	50
22017	Almira	2860	Almira Elementary School	16	19	0	0
29103	Anacortes	2467	Anacortes High School	0	8	205	197
29103	Anacortes	2707	Anacortes Middle School	211	207	0	0
29103	Anacortes	5176	Cap Sante High School	0	0	2	1

All Students / AmIndian / Asian / PacIslander / Asian PacIslander / Black / Hispanic / White / LimitedEng / SpecialEd / LowIncome / Migrant / Female / Ma

Figure 16. Statewide Graduation and Dropout Results, School Year 2009-10

The actual workbook that the data team consulted can be accessed at:
http://www.k12.wa.us/DataAdmin/default.aspx#dropoutgrad

Hidden Valley School District: 2009-10 Number of Students and Dropout Rates, Grades 7-12 (All Students)

District	Bldg	Building	Net students served in grade						Number of dropouts in grade						Dropout rate in grade					
			7	8	9	10	11	12	7	8	9	10	11	12	7	8	9	10	11	12
Hidden Valley	54322	Bush Middle School	172	150	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%	0%	0%	0%	0%
Hidden Valley	54323	Reagan Middle School	131	130	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%	0%	0%	0%	0%
Hidden Valley	54321	Clinton High School	0	0	248	309	311	253	0	0	0	0	4	4	0%	0%	0.0%	0.0%	1.3%	1.6%
Hidden Valley	54324	Carter Technical School	31	33	39	100	119	82	9	23	11	18	19	12	29.0%	69.7%	28.2%	18.0%	16.0%	14.6%

Figure 17. Hidden Valley School District, 2009-10 Number of Students and Dropout Rates. Grades 7-12 (All Students)

Make factual observations

An observation is a factual interpretation or statement about specific information, or numerical relationships between ideas, patterns, and trends. We say factual observation because observations can be colored by assumptions and biases; in the data analysis process, it is critical to make observations that are free of assumptions and biases. An observation captures an unarguable fact. While it is very tempting to make inferences (conjectures, tentative conclusions) before taking a hard and disciplined look at the data at face value and making factual observations. Jumping to conclusions like this will often lead to actions that are based on false assumptions or insufficient information. It is critical that the data team, or any group participating in the data analysis process, first reach consensus on the factual observations that can be made about the displayed data.
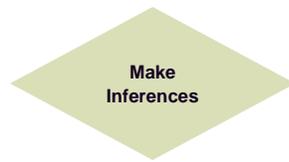
Make Inferences

Once we have a clear picture of the factual story told by the data, we need to move on to making inferences that may explain what the data are telling us. The inferences (conjectures, tentative conclusions) must logically flow from the objective observations made by the team. However, there may not be sufficient evidence to support them as conclusions. Therefore, the initial inferences generally lead to the formulation of new questions that will point to additional data that need to be collected and analyzed to test or support the inferences.

At Hidden Valley

After reaching consensus on the factual observations that can be made from the data displayed in Figure 17, the data team began to make meaning of the data by trying to explain why the data say what they do. The inferences made by the team reflect the meaning that they are making from the data. Some of the inferences the team made from the observations presented on page 16 are listed below.

- *Students who are at risk of dropping out of school are transferred to Carter Tech.*
- *Dropout rate at Carter Tech decreases from grade 9 to grade 12 because those who are likely to drop out do so at an early grade level.*
- *Carter Tech enrolls a greater proportion of at-risk populations than does Clinton High School (minorities; students with disabilities; low income).*
- *Clinton High School has more programs that help at-risk students be successful than does Carter Tech.*
- *Grade 8 students at Carter Tech have been retained in previous grades and are over-age for their grade and may drop out at age 16.*

Can you add to the list?

Ask new questions

As mentioned, inferences will generally lead to more questions and data collection before a conclusion can be drawn. If this is the case, Steps 1–3 of the data analysis process should be repeated until all stakeholders feel there is sufficient evidence to allow them to pose a tentative conclusion about the priority issue.

At Hidden Valley

After reaching consensus on the inferences that logically flowed from the factual observations they made about the data related to their focusing question, the data team felt that more questions needed to be asked and more data collected and analyzed before it could reach a tentative conclusion about the issue of high school completion in the Hidden Valley School District. To better explain the dropout rates by grade level that the team observed, they asked the following clarifying questions:

- *Were students who dropped out of Carter Tech previously enrolled at Clinton?*
- *Did the prior performance of students who dropped out of Carter Tech differ from that of students who did not drop out?*
- *Did the percentage of at-risk students at Carter Tech change from grade 9 to grade 12? How did the percentage of minority, students with disabilities, low income, and other special population students compare between Carter Tech and Clinton High School at each grade level?*
- *What programs existed at Carter Tech and Clinton High School to address the needs of high-risk students?*
- *What percentage of Carter Tech 8th grade students who dropped out were retained in previous grades?*
- *What percentage of Carter Tech 8th grade students who dropped out were over age for their grade? How did this compare to students who did not drop out?*
- *How did students who dropped out of Carter Tech perceive their elementary and middle school experience?*
- *How did students who dropped out of Carter Tech perceive their opportunities for success in high school?*

Can you think of additional questions to further the inquiry?

Draw conclusions

Once sufficient data have been collected and analyzed, a tentative conclusion can be drawn. We say tentative because this conclusion is likely to be strong enough to frame the problem and to begin root cause analysis (discussed in *Diagnose Causes*), but it may be revised as the inquiry process continues.

At Hidden Valley

The data team gathered and analyzed data related to the clarifying questions they posed. The data they analyzed provided evidence that a significant proportion of the middle school and Clinton High School students who were classified as at-risk transferred to Carter Tech even though Clinton High School had a number of programs that were shown to be effective in helping at-risk students meet graduation requirements. The data also showed that most of the at-risk students were members of special populations and that the percentage of these populations at Carter Tech was much higher than at Clinton High School. Further, the data also revealed that the majority of Carter Tech students who left school at the end of eighth grade had previously been retained and were over-age for the eighth grade.

The information the data team gleaned from the data was very helpful since it gave insight into the characteristics of the dropout population and some patterns in dropout behavior, but the data did not provide a single cause that resulted in the high dropout rate at Carter Tech. The next component, Diagnose Causes, will help the data team frame the "dropout problem at Carter Tech" and discover the possible cause(s).

Qualitative Data Analysis

As detailed above, initial inferences frequently lead to the formulation of new questions. These new questions usually require data teams to collect and analyze additional data—either quantitative or qualitative in nature. Collecting and analyzing qualitative data provides teams with information that cannot be gleaned from outcome data alone and which strengthens the inquiry by using multiple sources of data, as described in *Identify Issues*. The data analysis process works equally well for the analysis of quantitative and qualitative data. You may consult the *Resources* section on page 29 for several resources that will help you analyze qualitative data.

> **Prepare to Analyze**

Since qualitative data are often recorded in narrative form, preparing the data to be analyzed requires organizing the material. For example, if you have collected a number of surveys or conducted a number of interviews, you may wish to pull out responses to only those questions directly related to the focusing question. In a close-ended survey, responses may be organized for analysis by converting qualitative data to quantitative data by tallying item responses and expressing the aggregate as a mean. Narrative or open-ended survey data may be organized by having multiple readers critically review the responses and identify prevalent themes for further analysis.

As you organize your data for analysis, you may discover that your data do not fully address the focusing or clarifying question(s). The team should identify the gaps in the data to determine stakeholders from whom to seek additional information and develop collection instruments (e.g., interview or focus group protocols, observation protocols, surveys) as appropriate.

At Hidden Valley

While the Hidden Valley district data team made several inferences from the data set, the data also generated additional questions:

- *What school-level factors might lead students to drop out?*
- *What prevention programs does Hidden Valley have in place to support students who are at risk of dropping out?*
- *What strategies do these prevention programs use?*

Hidden Valley School District administers the Healthy Youth Survey annually, which includes questions related to student engagement. The data team pulled the questions related to student engagement and determined mean responses based on the survey scale (1 = Strongly Disagree to 4 = Strongly Agree). While incorporating the student voice was critical to the investigation, the data team noted that they only had partial data related to the questions posed above. Therefore, the team developed both an interview protocol and a survey for teachers and administrators familiar with the district's current dropout prevention programs. The survey included a mix of closed- and open-ended questions that were carefully constructed to address aspects of the clarifying questions.

Make factual observations

After the team collects and organizes the data needed to answer the questions under investigation, they can make observations. In the case of closed-ended survey responses, such as in Figure 18 below, you can observe the strength of respondents' agreement with a particular statement or statements.
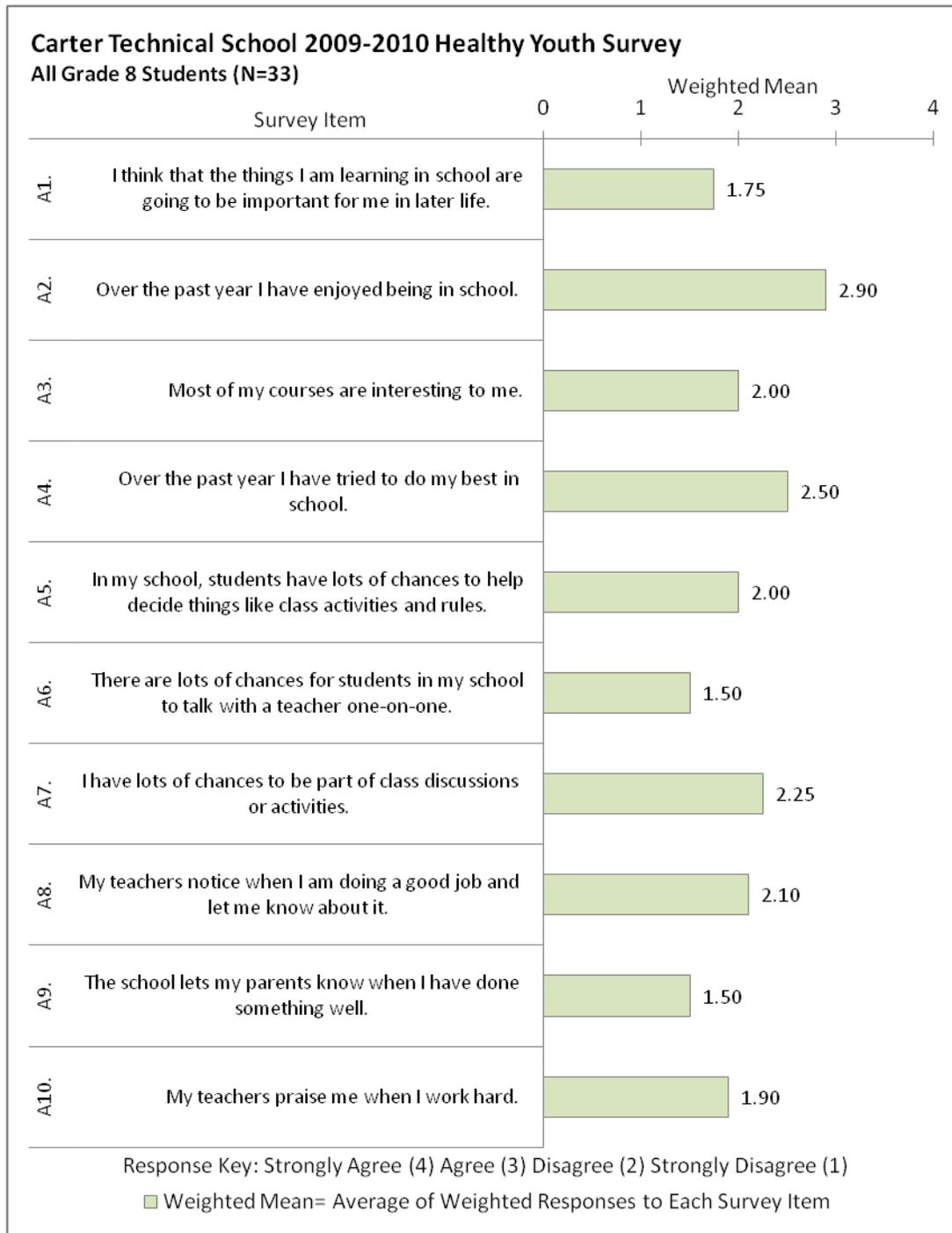
Carter Technical School 2009-2010 Healthy Youth Survey
All Grade 8 Students (N=33)

	Survey Item	Weighted Mean
A1.	I think that the things I am learning in school are going to be important for me in later life.	1.75
A2.	Over the past year I have enjoyed being in school.	2.90
A3.	Most of my courses are interesting to me.	2.00
A4.	Over the past year I have tried to do my best in school.	2.50
A5.	In my school, students have lots of chances to help decide things like class activities and rules.	2.00
A6.	There are lots of chances for students in my school to talk with a teacher one-on-one.	1.50
A7.	I have lots of chances to be part of class discussions or activities.	2.25
A8.	My teachers notice when I am doing a good job and let me know about it.	2.10
A9.	The school lets my parents know when I have done something well.	1.50
A10.	My teachers praise me when I work hard.	1.90

Response Key: Strongly Agree (4) Agree (3) Disagree (2) Strongly Disagree (1)
☐ Weighted Mean= Average of Weighted Responses to Each Survey Item

Figure 18. Hidden Valley High School 2009-2010 Healthy Youth Survey

At Hidden Valley

The district data team examined the questions related to student engagement in the Healthy Youth Survey, as these items are linked to dropout prevention. Some of the observations that they made for Carter Tech are listed below.

- *The mean response for students at Carter Tech who think the things they are learning in school are going to be important for them in later life was 1.75.*
- *Students' mean response regarding the belief that there are a lot of chances for students in their school to talk with a teacher one-to-one was 1.50.*
- *The survey asked students to comment on whether their teachers notice when they are doing a good job and let them know about it – the mean response rate was 2.10. The response was more negative when asked if the school lets their parents know when they have done something well (mean response rate of 1.50).*

Can you add to the list?

Ultimately, when qualitative data are prepared for analysis, themes are identified and the data are grouped within these themes. When first making observations about interview or open-ended survey responses, you start with the themes that were developed when the initial data were organized. The original material is then coded by theme and the actual narrative responses regrouped within these themes. This process is called coding.   Observations made about the coded groups will expose the major and minor topics, as well as the frequency with which a given topic appears in the qualitative data set.

> *When qualitative data are prepared for analysis, themes are identified and the data are grouped within these themes. This process is called coding.*

Observations can be summarized in a number of ways. A common approach is to use a table that displays the number of interviewees or respondents who brought up a particular topic or idea. Observations can also be summarized in a narrative report, which provides vignettes or exemplary quotations from the interview or survey data.

At Hidden Valley

After conducting interviews with administrators and teachers, the data team was interested in the prevalence of particular strategies employed in the three dropout intervention programs in use in the district. They coded the responses from teachers and administrators to particular interview questions about strategies and developed a matrix to show which strategies were in use by each program. Based on the matrix, they were able to make the following observations:

- *All three programs overlap in some of the core strategies used, but Program B employs the most varied strategies.*
- *Only two of the programs focus on supporting students through transitions.*
- *Only one program includes professional development opportunities for teachers.*

Can you add to the list?

Strategies	Program A	Program B	Program C
Advocating for student needs	X	X	X
Case management/service coordination		X	X
Credit recovery	X	X	
Engaging and supporting families		X	X
Instructional technologies	X		
Monitoring attendance	X	X	X
Out-of-school support	X	X	X
Personalized instruction	X	X	X
Professional development		X	
School to work focus/career education	X		
Social and emotional transition support		X	X
Transforming the school environment		X	

Figure 19. Core Dropout Prevention Strategies in use in Hidden Valley School District, 2010-2011

Make Inferences

As in the analysis of quantitative data, it is critical that the data team draw upon the multiple sources of data to reach consensus about the story being told. To facilitate the development of inferences, the team should reexamine what each survey item or question is intended to measure. The team should also discuss both the extent to which various stakeholders agree with one another and the extent to which the survey, interview, and observation data coalesce. Triangulating data in this way will reveal disparities that require further investigation or will support the data team's inferences.

At Hidden Valley

The district data team discussed the various data sources, which included student surveys, administrator/teacher surveys, and administrator/teacher focus groups. The team made inferences related to the student and administrator/teacher data, which in certain cases highlighted the disparities between the district's staff and students.

- *Although Programs B and C affirmed that they engage families, the mean response for Carter Tech students suggested that students didn't feel that the school let their parents know when they have done something well.*
- *The mean response for Carter Tech students who thought there were a lot of chances for students in their schools to talk with teachers one-on-one was 1.50, whereas Programs A, B, and C stated that personalized attention was a key tenet of their program.*
- *Only Program A focused on career education; the scarcity of programs that have a school-to-work focus was similarly noted by students, as the mean response for Carter Tech students who thought that the things they are learning in school were going to be important for them later in life was 1.75.*

Can you add to the list?

Ask new questions

As was the case with our analysis of quantitative data, the team's inferences will typically lead to more questions and ultimately to tentative conclusions. The stages of preparation, observation, and inference will likely have to be revisited until you have as much detail as possible to fully understand the issue under investigation.

Draw conclusions

At Hidden Valley

The district data team gathered and analyzed data related to the clarifying questions they posed. The survey and interview data allowed the team to ask clarifying questions and repeat the data analysis process. Specifically, they sought to answer why staff and student answers diverged.

- *What are the structures in place to communicate program characteristics to students?*
- *How well developed are the programs at different sites?*
- *What was the origin of each program?*
- *Why does each site have one or more programs?*

Can you think of additional questions to further the inquiry?

After the data team conducts additional investigations, tentative conclusions can be drawn in the same way they can using quantitative data. These tentative conclusions will be further explored by teams, as they begin to dig deeper into the origins of the identified problems.

At Hidden Valley

Ultimately, the team was able to draw tentative conclusions about the problem underlying the issue under study.

- *Overall, the district staff and students did not have a shared understanding of what dropout prevention services are available.*
- *Overall, the district lacked a cohesive approach to dropout prevention and students were experiencing different interventions with different emphases at different sites.*

Conducting Data Analysis

The first step in data analysis is to make observations about what the data appear to say. If your team needs support distinguishing observations and inferences, Tool **3.4 Observations versus Inferences** can provide your team with practice making this distinction in advance of conducting data analysis.

Observations versus Inferences   **3.4**

Three data analysis tools are provided in the *District and School Data Team Toolkit*. The data team should select the tool that it feels will work best given the context of the data analysis task: **3.5A Data Analysis Protocol**, **3.5B Data Carousel Protocol**, or **3.5C Placemat Protocol**. Each of these protocols provides a structured approach to the

3.5 Data Analysis:
- **Data Analysis Protocol**
- **Data Carousel Protocol**
- **Placemat Protocol**

3.5A, 3.5B, 3.5C

analysis of data and can be used with any data set. The *Carousel Protocol* works particularly well when a large group is involved and when the focus of the data analysis is on the school improvement process. The *Placemat Protocol* is intended to be used with a full school faculty that will work in small, heterogeneous groups. The *Data Analysis Protocol* works best with smaller groups and helps these groups think about tentative conclusions about what the data say.

Engaging Others in the Inquiry: The Data Overview

Once your data team has conducted a preliminary analysis of the data related to the focusing question, the group of stakeholders who need to act upon what the team has learned will become obvious. The team's next task will be the development of a presentation of the data that will engage this audience in moving the inquiry forward.

The data overview is a structured process that will help data teams present data about a focusing question to an appropriate audience in a format that will engage them in the data analysis process and promote their buy-in. One data overview presentation may be sufficient to move the inquiry into the action planning stage, but it is more likely that several presentations will need to be conducted to help the audience mine all the relevant data and form tentative conclusions. These tentative conclusions will point the way toward thoughtful action planning.

The flow of a typical data overview meeting is depicted in Figure 20. In the meeting, the data team will present the question under investigation and the data they have analyzed to date to an audience that can help further the inquiry. A school data team could use a data overview to present findings from an analysis of recently released state test scores to faculty to engage the entire school in the process of identifying priority areas of focus for the school year. Alternately, as in the case of the Hidden Valley district data team, a team could use a data overview as a tool to engage each of the secondary school's improvement teams in discussions about students at risk of dropping out.
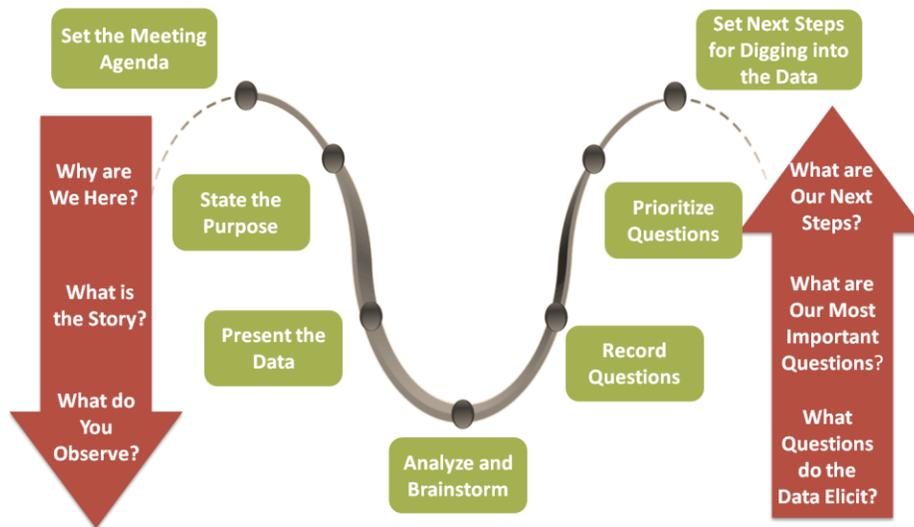

Figure 20. Data Overview Meeting   **©2010 Public Consulting Group, Inc.**

Tool **3.6 Data Overview Protocol** provides information and tools that will guide the data team as they construct a data overview presentation. The protocol can be used with any audience and question under investigation. One of the data analysis protocols (**3.5A–C**) and **3.1 Attributes of a Data Display** will be used in the construction of the data overview.

Data Overview Protocol   **3.6**

Summary

Understand Issues has helped the data team dig more deeply into the issue that was identified in *Identify Issues* of the *District and School Data Team Toolkit*. The team learned about the structure and functions of good data displays and practiced constructing displays. It also identified extant data displays, critiqued them, and offered suggestions for improvement where appropriate.

Further, *Understand Issues* introduced the team to the data analysis process and provided practice in using this process to dig into the data related to a focusing question. The team also learned the structure and function of a data overview presentation that can be used to engage an appropriate audience in the inquiry process.

The concepts, skills, and tools presented in *Understand Issues* lay the foundations for the extension of the inquiry in *Diagnose Causes.* The team will dig deeper into the issue that they now have a firm understanding of how to discover the cause(s) of the learner-centered problem.

Resources

- Abela, A. (2006). Choosing a Good Chart. *The Extreme Presentation (TM) Method*. http://extremepresentation.typepad.com/blog/2006/09/choosing_a_good.html This link takes you to the Extreme presentations homepage and information on how to choose a good chart that will stimulate action. Digging deeper into this site will provide information on the 10 step method that can be used to design effective presentations.
- Color Scheme Designer. http://colorschemedesigner.com/ This takes you to design tools which can also take your base color and suggest others that would be appropriate.
- Few, S. (2004). *Eenie, Meenie, Minie, Moe: Selecting the Right Graph for Your Message.* http://www.perceptualedge.com/articles/ie/the_right_graph.pdf. This series on effective data presentation is about building a solid conceptual foundation for all of your presentations
- Few, S. *Table and Graph Design for Enlightening Communication*. *National Center for Education Statistics.* http://nces.ed.gov/forum/pdf/NCES_table_design.pdf. This PowerPoint presentation discusses the history of effectively telling the story that numbers hold and provides insights into how to construct graphics that convey these stories.
- Graphical Display of Qualitative Data. http://cs.uni.edu/~campbell/stat/cba1.html This is a short description of how categorical data that can't be represented with numbers, such as color and size, can be displayed graphically.
- Institute of Education Sciences. National Forum on Education Statistics. *National Center for Education Statistics.* http://nces.ed.gov/forum/publications.asp. The National Forum on Education Statistics develops free resources on a variety of issues that affect schools, school districts, and state education agencies. Each publication is based on extensive, objective research and the collective experience and expertise of a wide variety of education professionals
- Miles, M.B. (1994). *Qualitative Data Analysis: An Expanded Sourcebook* (2nd Edition). Thousand Oaks: Sage. This is a comprehensive sourcebook to support the qualitative researcher.
- Perceptual Edge. *Graph Design I.Q. Test.* http://www.perceptualedge.com/files/GraphDesignIQ.html. This is an engaging, brief online "quiz" to assess one's understanding of graph design. It motivates one to learn more about this subject.
- Rasch Measurement Transactions. *Learning from Qualitative Data Analysis.* http://www.rasch.org/rmt/rmt91a.htm   A model for data analysis is presented that is equally applicable to quantitative and qualitative research.
- Slone, D.J. (2009). Visualizing Qualitative Information. *The Qualitative Report, 14(3)*, 489–497. http://www.nova.edu/ssss/QR/QR14-3/slone.pdf Qualitative researchers have the formidable task of capturing, sorting, analyzing, interpreting, and sharing qualitative data. With the help of qualitative software described in this article, they have succeeded in capturing, recording, and sorting information.
- Sorceforge. http://sourceforge.net/ This link can offer some ideas for better color schemes when preparing a data displays.
- The Pell Institute and Pathways to College Network. Analyze Qualitative Data. *Evaluation Toolkit.* http://toolkit.pellinstitute.org/evaluation-guide/analyze/analyze-qualitative-data/
- Tufte, E. R. (2009). *The Visual Display of Quantitative Information.* Cheshire: Graphics Press LLC. Part of a 5 book series this beautifully illustrated book looks at what makes a graphic presentation communicate. Tufte is known for his dislike of PowerPoint presentations and his support for including multiple types of data in a display.

3.1 – Attributes of a Good Data Display
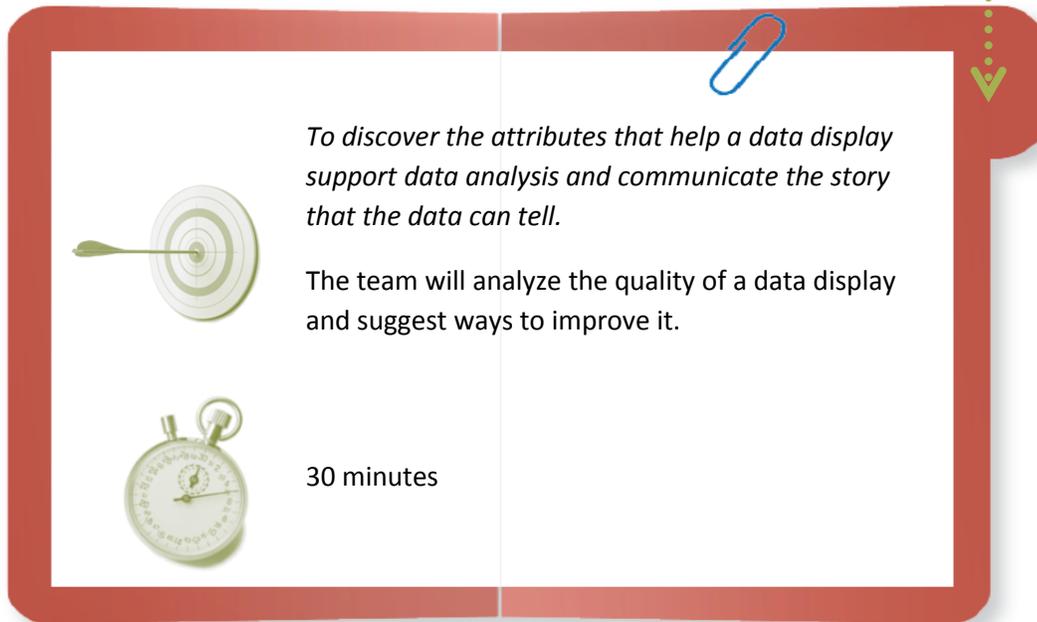
To discover the attributes that help a data display support data analysis and communicate the story that the data can tell.

The team will analyze the quality of a data display and suggest ways to improve it.

30 minutes

Directions:

1. Individually review Figure 21 and think about what should be added to the display to promote analysis of the data. Think about what information one would need to interpret the data beyond the data elements themselves (e.g., assessment type, date, population size). Record your suggestions directly on the display.
2. With your team, share ideas about how the basic display could be enhanced. Make a list using chart paper identifying information that should be added, deleted, or modified.
3. Consult the *Data Display Quality Checklist* on page 33 of this tool to compare your team's list of changes to the basic attributes of a good data display. The *Data Display Quality Checklist* should be used whenever the data team creates a new display. When the team has reached consensus on an improved data display, compare your display with the *Example of a Good Data Display* on page 34.
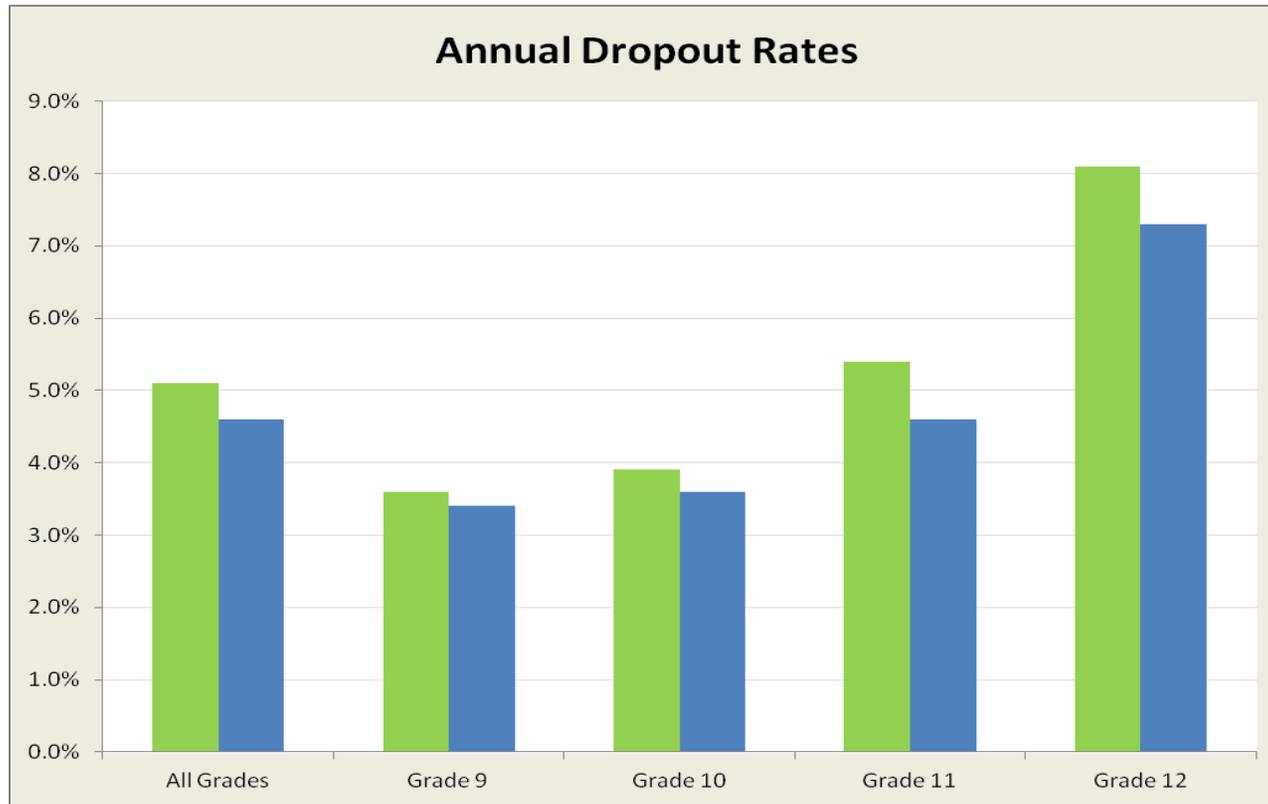
3.1

Example of a Bad Data Display

Annual Dropout Rates

Figure 21. Example of a Bad Data Display

Data Display Quality Checklist

Attributes	Attribute Present (Y/N)	Comments
Structural Components:		
Title is informative.		
All axes are labeled.		
Population size is noted.		
If data are presented as percentages, the numbers used to calculate the percentages are also provided.		
All variables are identified and labels provided.		
Dates for data points are provided if applicable.		
A key exists that identifies all symbols, shading, color, etc.		
Functional Components:		
The display is uncluttered and free of unnecessary detail and extraneous features.		
The display uses an appropriate chart style (e.g., pie chart, clustered bar chart, stacked bar chart).		
The display communicates the story the author wants to tell.		

Example of a Good Data Display

Fantasy High School Annual Dropout Rates by Grad Level (2008-2009 and 2009-2010)
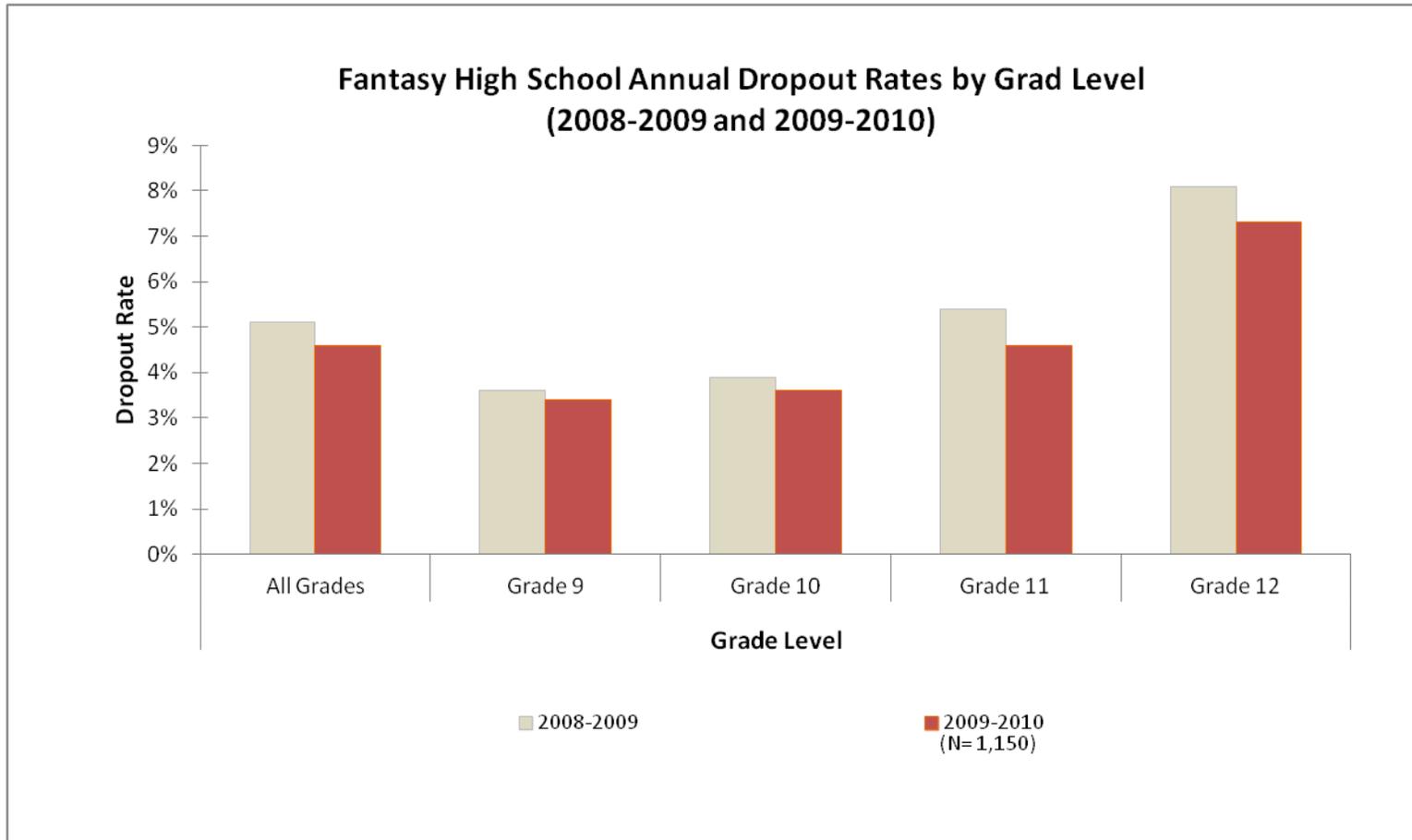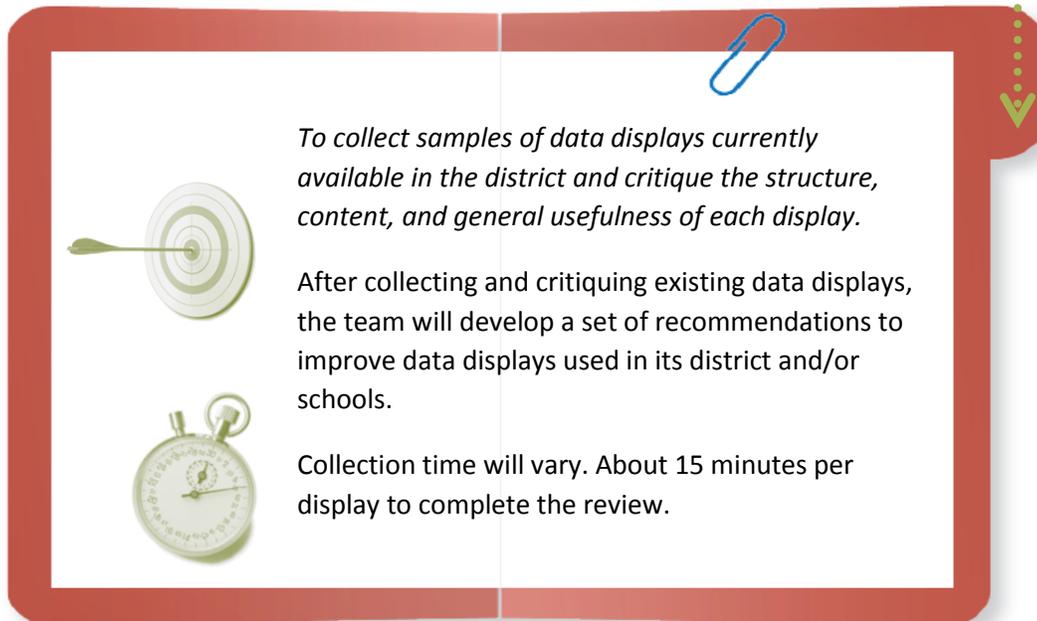

Figure 22. Example of a Good Data Display

3.2 – Inventory and Critique of Existing Data Displays

To collect samples of data displays currently available in the district and critique the structure, content, and general usefulness of each display.

After collecting and critiquing existing data displays, the team will develop a set of recommendations to improve data displays used in its district and/or schools.

Collection time will vary. About 15 minutes per display to complete the review.
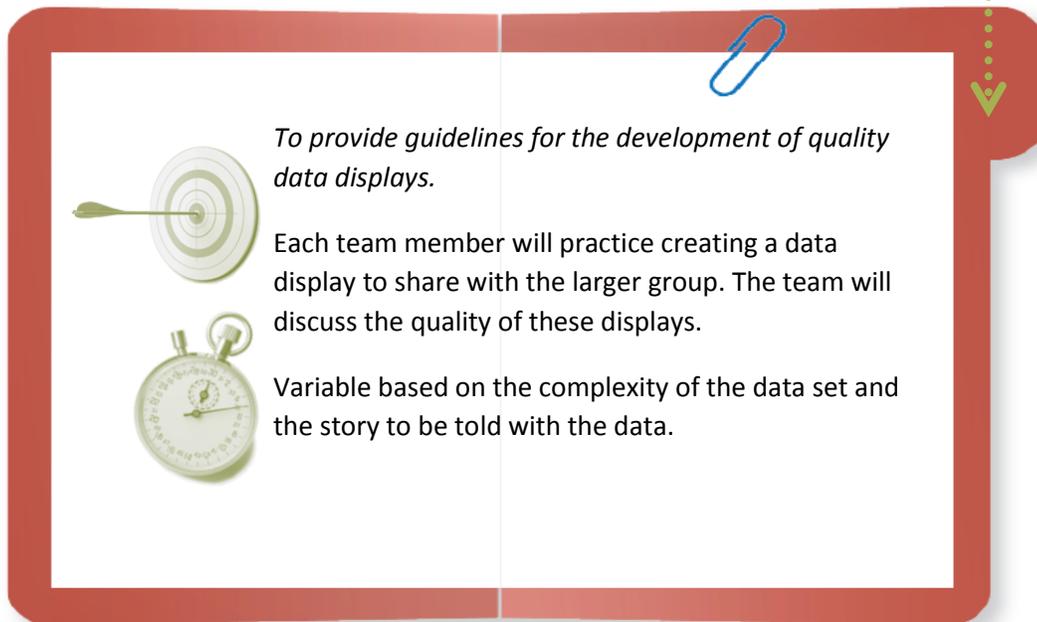
Directions:

Part 1: Collecting Data Displays

1. As a data team, brainstorm a list of the data displays that are currently in use by data consumers in your district. These may be produced locally from your student information system or data warehouse or may come from external sources such as OSPI or commercial test publishers.
2. Consider providing the list to central office staff, principals, and IT staff so they can add any missing displays to the list and note where they are located.
3. When the list is complete, group the displays by category (content or purpose), (e.g., assessment reports, grade reports, population reports, discipline reports, accountability reports). Assign a data team member to each of the categories. Each individual data team member should collect a representative sample of various types of data displays in the category they are responsible for.

Part 2: Critiquing Data Displays

1. Prior to meeting as a team, data team members should individually complete the *Data Display Inventory and Critique Template* on page 36 for each of the data displays in the category that they are responsible for.
2. When all of the critique templates are complete, each data team member should present their findings to the team. As a team, identify displays that can be improved and plan to make the enhancements.
3. Use the **1.4D Communication Organizer Template** introduced in *Getting Ready* to create a report to all central office administrators, IT staff, and principals that lists the data displays, the team's assessment of each display's usefulness, and recommendations for improvements.

3.2

Data Display Inventory and Critique Template

Data Display	Category	Perceived Usefulness	Recommended Improvements

Usefulness Scale: V= Very Useful; U= Useful; NI= Needs Improvement; I= Irrelevant (no longer needed)

3.3 – Building Data Displays Protocol

To provide guidelines for the development of quality data displays.

Each team member will practice creating a data display to share with the larger group. The team will discuss the quality of these displays.

Variable based on the complexity of the data set and the story to be told with the data.

This protocol will guide the collaborative development of data displays to address an identified focusing question with high-level data. Additional data displays can be created with more fine grained data to answer clarifying questions as the inquiry is extended. The basic concepts in this protocol can also be used by individuals to build data displays.

This protocol is to be used after teams use tool **2.3 Identifying and Locating Relevant Data** has been used to gather appropriate data to address the focusing question.

Directions:

Part 1: Making Factual Observations

1. Post the focusing question on a piece of chart paper for all data team members to see.
2. Distribute high-level district data such as MSP/HSPE/AYP reports that relate to the focusing question. Each team member should identify the specific data that relate to the focusing question. The data necessary to answer the focusing question may be a portion of one report or may need to be calculated by combining information from multiple reports.
3. As a team, brainstorm and record on your chart paper the data elements that specifically address the focusing question. Again, as a team, brainstorm and list on chart paper factual observations about what the identified data elements appear to say.

3.3

Part 2: Creating Data Displays

1. Each member of the team should now sketch on their own piece of chart paper a data display that illustrates what he/she thinks are the most important observations that relate to the focusing question. Be sure to make your sketch large enough so that all data team members will be able to see it. Refer to the types of data displays described on pages 3–11 in the *Understand Issues* handbook and tool **3.1 Attributes of a Good Data Display** for guidance regarding the construction of data displays. Post the data displays for the whole data team to review.

2. Each member should now answer the following questions on a separate sheet of chart paper.
   - Why did you choose this display type?
   - What story do you want to tell with the display?
   - What clarifying questions do the display elicits for you?

3. Number the data displays to identify them later.

Part 3: Assessing Data Displays

1. Post the data displays so that the whole data team can see them.
2. Each team member should present his or her data display to the balance of the team. If the team is larger than 3–4 people, you should consider breaking it into smaller groups.
3. Each presenter should ask group members what they see in the data (observations, not inferences). Presenters should record observations on chart paper for each display. Then each member should explain to the group:
   - Why did they choose a particular display type?
   - What story did they want to tell with the display that they selected?
   - What clarifying questions did the display elicit for him/her?
4. After each presentation, each person (including the presenter) should fill out a *Data Display Quality Checklist* (located in tool **3.1 Attributes of a Good Data Display**) for each data display.
5. Repeat this process until all team members have presented their displays.
6. When all of the displays have been presented, each team member should answer the following question: *How do the sketches compare?*

Part 4: Team Discussion

1. Regroup as a full team. Review the feedback on each data display. Spend about 5–10 minutes digesting and summarizing the feedback. Note common themes across data displays.
2. Discuss the various sketches team members created and reach agreement on the data displays that best communicate the story to be told about the data.

Alternative Approach

1. Have team members work in pairs to collaboratively develop each data display.
2. Often there is more than one story to be told by a set of data. See how many different, valid, and interesting stories can be told using different data displays.

3.4 Observations versus Inferences
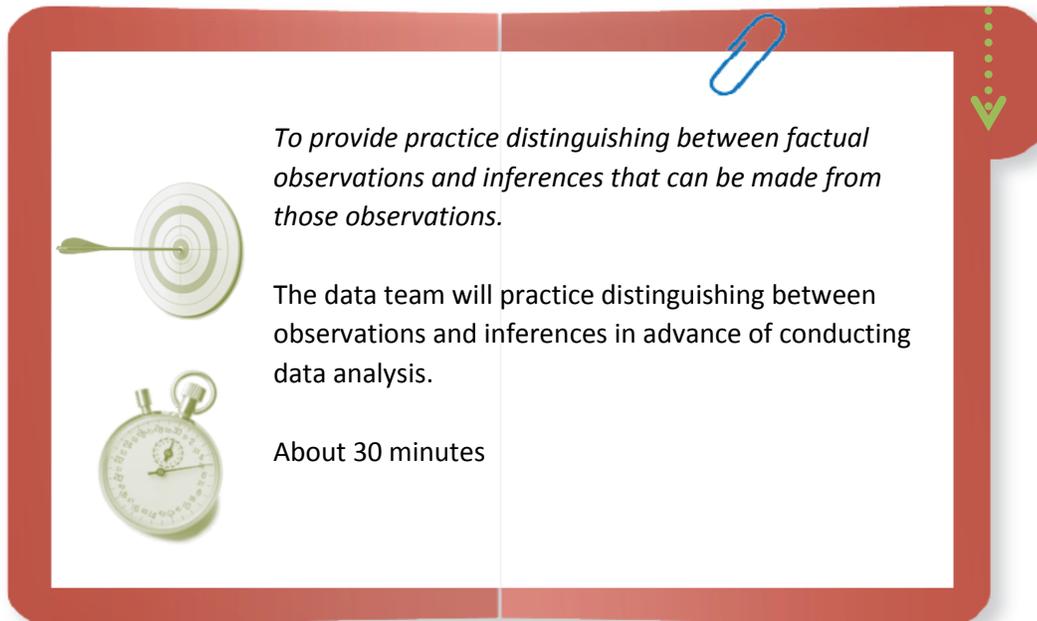
To provide practice distinguishing between factual observations and inferences that can be made from those observations.

The data team will practice distinguishing between observations and inferences in advance of conducting data analysis.

About 30 minutes

The first step in the data analysis process is to make observations about what the data appear to say. These observations must be factual, that is, not colored by assumptions or biases. Assumptions and biases that prevent making factual observations can make one jump to conclusions or make erroneous judgments that are not grounded in evidence. In practice it is not easy to put one's assumptions and biases aside when analyzing data. Understanding that assumptions and biases exist will, however, promote the formation of factual observations and contribute to effective data analysis. With practice, making factual observations becomes easier.

Once these facts have been established, one can begin to make inferences-conclusions or opinions that are based on these known facts or evidence-that might explain why the data say what they do. These inferences must be grounded in the observations and logically flow from them. Well crafted inferences will begin to tell the story held by the data. As with factual observations, making valid inferences becomes easier with practice.

Directions:

1. Each data team member should review a data display and the accompanying table that lists statements about the data.
2. After reviewing the data, put a check mark in the appropriate column of the table below each display to indicate if each statement is:
   - A factual observation
   - An inference that can be supported by factual observations
   - A statement that is not grounded in the evidence provided in the data display
3. Record the reason for your decision in the last column for each statement.
4. As a data team, share your reactions to the statements associated with the first data display and reach consensus regarding the best answer.
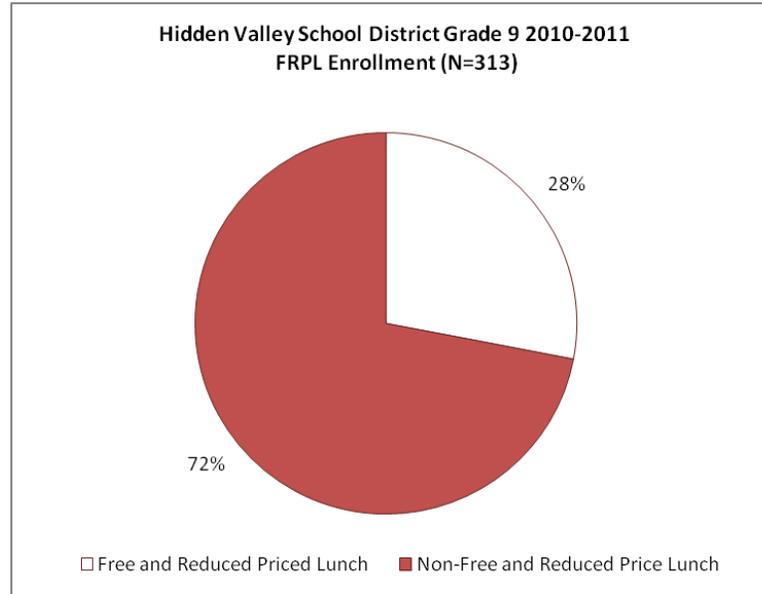5. Repeat this process for each of the remaining data displays.

Figure 23. Hidden Valley School District Grade 9 2010-2011 FRPL Enrollment

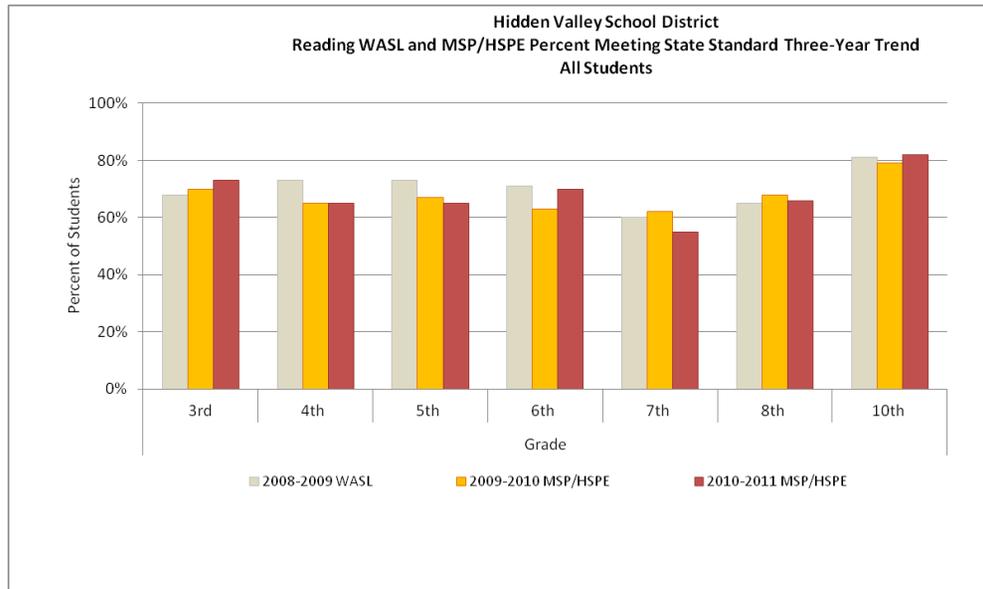| Hidden Valley School District Free and Reduced Price Lunch Enrollment				
Statement	Factual Observation	Supported Inference	Not Supported Inference	Reason
The majority of students in the Hidden Valley School District are from middle economic class families.				
More minority students are enrolled in the FRPL program than white students in Hidden Valley.				
About one quarter of the students in the Hidden Valley School District were enrolled in the FRPL program in 2010-11.				

Figure 24. Hidden Valley School District Reading WASL and MSP/HSPE Percent Meeting State Standard Three Year Trend

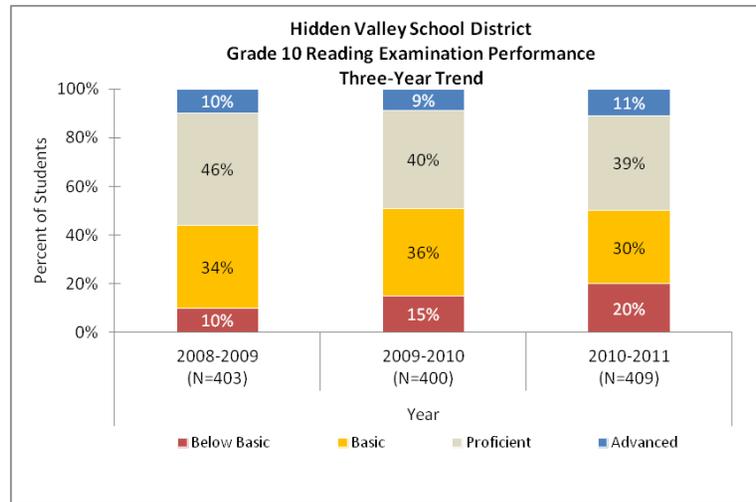| Hidden Valley School District Reading WASL and MSP/HSPE Percent Meeting State Standard				
Statement	Factual Observation	Supported Inference	Not Supported Inference	Reason
The grade 10 HSPE is an easier test than the MSP given in grades 3–8.				
Third grade students scored slightly better each year on the WASL or MSP exam.				
A larger percentage of 10th grade students met the standard each year than those in any other grade.				

Figure 25. Hidden Valley School District Grade 10 Reading Examination Performance Three Year Trend

Hidden Valley School District Grade 10 Reading Examination Performance				
Statement	**Factual Observation**	**Supported Inference**	**Not Supported Inference**	**Reason**
The percentage of students scoring in the Advance range stayed relatively constant over the three years, while the percentage of student who scored below the proficient level increased.				
The percentage of students scoring at the Below Basic level increased each year.				
A remedial reading program needs to be instituted at the high school.				
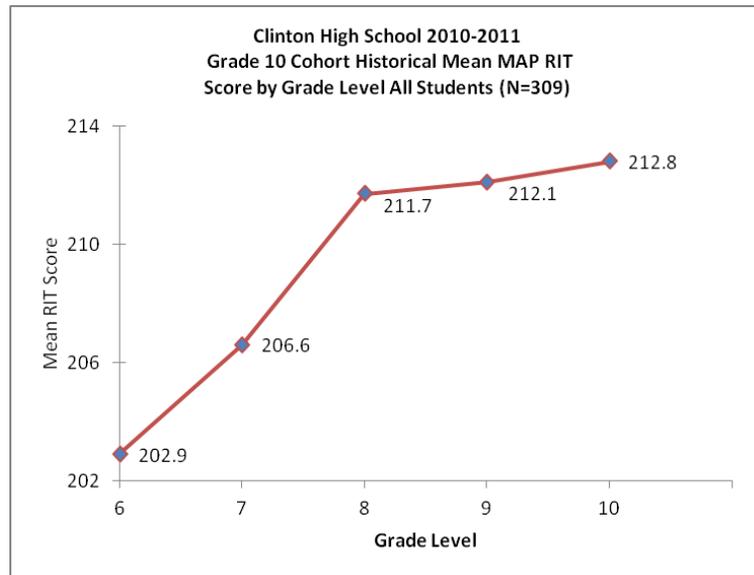
Figure 26. Clinton High School 2010-2011 Grade 10 Cohort Historical Mean MAP RIT Score by Grade Level

Clinton High School 2010-2011 Grade 10 Cohort Historical Mean MAP RIT Score by Grade Level				
Statement	**Factual Observation**	**Supported Inference**	**Not Supported Inference**	**Reason**
The mean RIT score for the grade 10 cohort increased at each grade level.				
The grade 10 cohort learned less in high school than in elementary school.				
The MAP test in grades 3–8 is less challenging than in grades 9 and 10.				

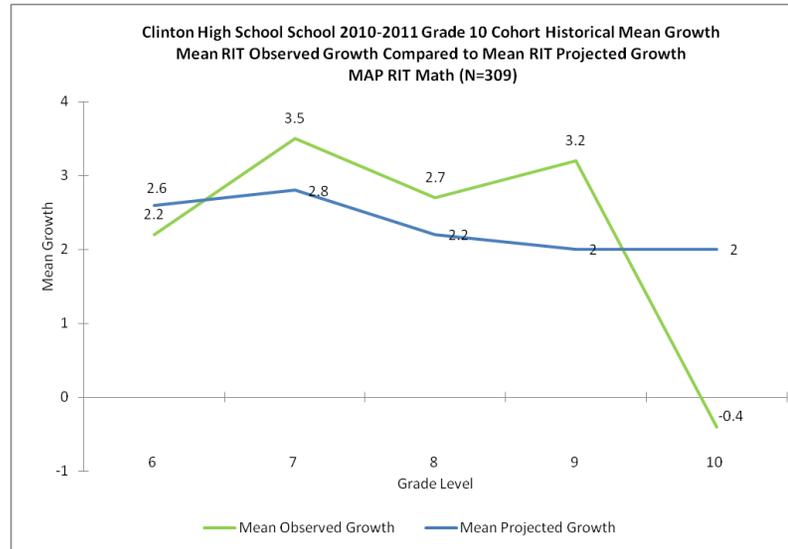**Figure 27. Clinton High School 2010-2011 Grade 10 Cohort Historical Mean Observed Growth Compared to Mean RIT Projected Growth MAP RIT Math**

Clinton High School 2010-2011 Grade 10 Cohort Historical Mean Observed Growth Compared to Mean RIT Projected Growth MAP RIT Math				
Statement	**Factual Observation**	**Supported Inference**	**Not Supported Inference**	**Reason**
With the exception of the grade 10 mean growth score, the Clinton High School grade 10 cohort outperformed the projected mean growth in RIT score.				
The projected rate of growth decreases from grade 7 to grade 10.				
The grade 10 MAP math test is not aligned with the grade 10 Clinton High School math curriculum.				
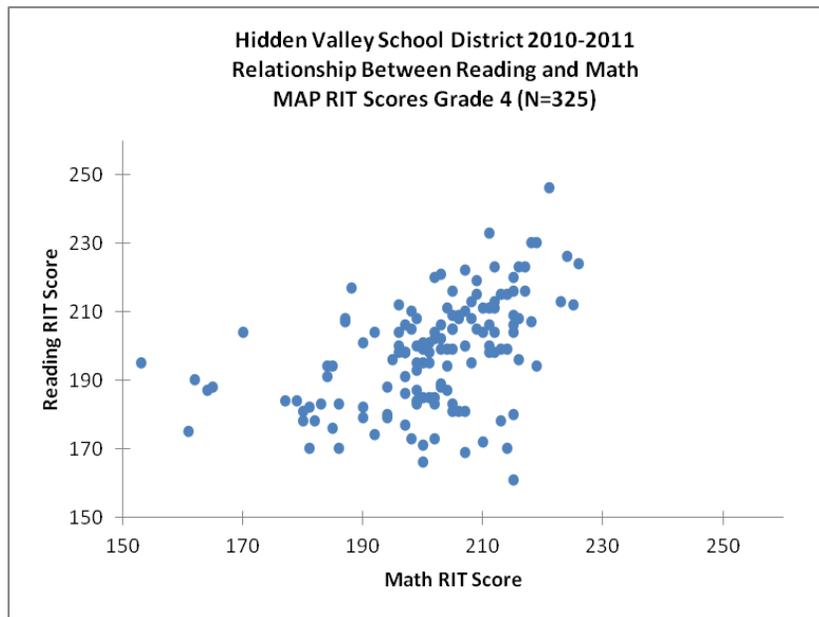
Figure 28. Hidden Valley School District 2010-2011 Relationship Between Reading and Math MAP RIT Scores Grade 4

Hidden Valley School District 2010-2011 Relationship Between Reading and Math MAP RIT Scores Grade 4				
Statement	**Factual Observation**	**Supported Inference**	**Not Supported Inference**	**Reason**
There is a positive relationship between a 4th grade student's math and reading MAP RIT scores.				
A number of students with low math RIT scores have relatively high reading RIT scores.				
The student with the highest reading MAP RIT score does not have the highest math MAP RIT score.				

3.5A – Data Analysis Protocol
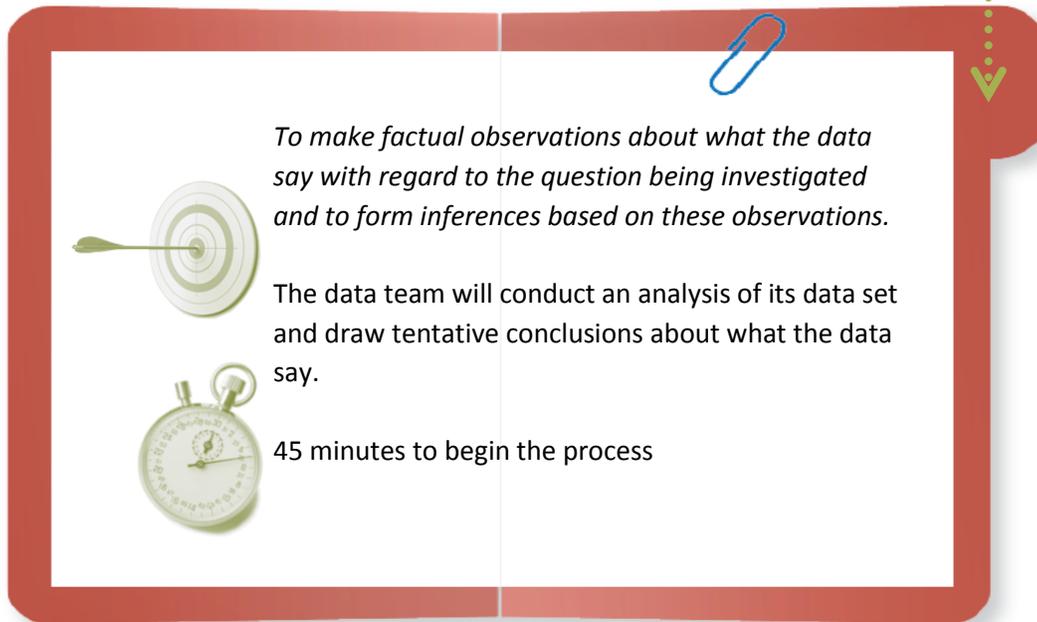
To make factual observations about what the data say with regard to the question being investigated and to form inferences based on these observations.
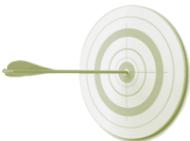
The data team will conduct an analysis of its data set and draw tentative conclusions about what the data say.

45 minutes to begin the process

Directions:

Part 1: Preparing for Analysis

1. Appoint a note taker for this protocol and record the question that you are investigating on the *Data Analysis Template* (page 50) and on a piece of chart paper. If you are working with a team that has limited experience collaboratively analyzing data, you may find it helpful to review the example analysis on pages 13–24 in the *Understand Issues* handbook.
2. Gather the data set(s) and data displays that relate to the question under investigation and make them available to all team members.

Part 2: Making Observations

1. During the observation step, concentrate on making objective observations about what is in the data. Do not attempt to make judgments about *why* the data may appear as they do. For an example of this step, see pages 16 and 21 in the *Understand Issues* handbook.
2. Using the data set(s) and display(s) provided, take turns making factual observations about what the data say. The note taker will record the observations under the question on the chart paper.

3. When expressing your observation, you might use sentence starters such as: "I see…," "I observe…," and "I notice…" Stay away from making inferences. Discuss only the facts at this stage of the process. If you catch yourself using the terms "however," "because," or "therefore," stop and return to the sentence starters suggested above. It is okay to make observations that are based on the observations made by other team members. The following questions will help you probe for deeper analysis:

- How do the data sets compare to each other?
- What are the commonalities among a given data set?
- What patterns or similarities are evident across different data sets?
- What inconsistencies or discrepancies (if any) are evident?
- Is there anything you expected to see but don't?
- What is not represented in the data?
- What questions do the data raise?

4. The note taker will record your observations under the question on the chart paper. You should record the observations on your *Data Analysis Template* (page 50).

Part 3: Making Inferences

1. Your team will carefully work to make meaning from the data and your observations. Remember that inferences you are making need to be based on the evidence you observed in the data. For an example list of inferences, see pages 17 and 24 in the *Understand Issues* handbook.

2. When all observations have been made, review them as a team. Code or group the observations into categories of findings. Think about the following questions while organizing the observations.

- What assumptions might be underneath what you are noticing in the data?
- What clues help explain why a certain population is meeting or missing targets?
- What areas in the data stand out as needing further explanation? Why?
- What patterns or themes do you see in the observations?
- Which of these observations are most relevant and important to your inquiry? Why?

3. As a team, review the categorized findings. Make a list of what the team can now infer about the focusing question. The note taker should record the list on chart paper. When the list is complete, record what the team can infer on the *Data Analysis Template*. The inferences made by the team will help clearly identify the direction for further inquiry.

3.5A

Step 4: Asking Clarifying Questions or Drawing Tentative Conclusions

1. More often than not, your team will end this protocol with a new set of questions to investigate. The data needed to extend the inquiry may be readily accessible or the set of questions may require a new round of data collection and organization. For an example of how analysis yields new questions, see pages 18 and 25 of *Understand Issues.*

2. The inferences that the team has generated are likely to raise more questions that need to be answered to support the inferences before a tentative conclusion can be made. If this is the case, generate questions as you did in too **2.2 Developing Focusing Questions to Initiate Inquiry** by following the steps below.

   • Brainstorm questions that arise from the observations and inferences the team has made about the initial data set. Record these questions on chart paper.

   • From this group of questions, identify the questions that must be answered before any tentative conclusions about the problem that underlies the priority issue can be made. Record them on a new sheet of chart paper, leaving room next to each question to record more information. Also record the questions on the *Data Analysis Template*.

   • The clarifying questions the team has identified may be answered using the data already collected and displayed. It is more likely, however, that new data will need to be identified, collected, displayed, and analyzed. For each of the clarifying questions, brainstorm the data needed and record the data element(s) next to each question on the chart paper.

   • Complete the *Data Identification, Collection, and Display Template: Clarifying Questions* on page 51 to organize the next phase of your work.

   • Build data displays as appropriate to facilitate analysis of the newly acquired data.

3. As noted in *Understand Issues*, the data analysis process is iterative. Repeat the steps of this protocol to analyze the newly collected data.

4. Repeat the data analysis process until the team is confident that it can draw a tentative conclusion from its observations and inferences.

3.5A

Data Analysis Template

Question:

Observations (Without judgment, what do you see?):

Inferences (What can the team now infer about the focusing question?):

Clarifying Questions or Tentative Conclusions

Data Identification, Collection, and Display Template: Clarifying Questions

Clarifying Questions	Data Needed	Data Source

3.5B – Data Carousel Protocol

To make factual observations about what the data say with regard to the nine characteristics of high-performing schools.

The data team will conduct analysis related to the nine characteristics of high performing schools.

About 2 hours

Directions:

Part 1: Preparing for Analysis

1. List each of the nine characteristics of high-performing schools on a separate piece of chart paper[3]. The nine characteristics are: clear and shared vision; high standards and expectations; effective school leadership; supportive learning environment; high levels of community and parent Involvement; high levels of collaboration and communication; frequent monitoring of teaching and learning; curriculum, instruction, and assessment aligned to state standards; and focused professional development. On each of the nine chart papers, list the four data domains described by Victoria Bernhardt: demographic; perception; student outcomes; school processes. Please see page 6 in *Identify Issues* handbook for more detail on Bernhardt's four data domains.

2. Identify and build data displays for at least two data sets for each of the nine characteristics. Data should be chosen from as many of the four data domains as possible.

3. Display the chosen data, arranged by domain, on each of the nine characteristics charts large enough so the data can be read easily by all participants.

4. Place three pieces of chart paper under the displayed data on the original chart paper. Label one "strengths", another "concerns", and the third "additional information needed".

---

[3] Adapted from Quality in Education, Inc.

5. Break the participants into nine groups and assign a color to each of the groups.
   - If the activity is being done with a school or district group, the groups should be cross departmental, cross grade level, and/or cross function.
   - Each group should designate a facilitator and a recorder.
6. Provide one or two color markers that match the assigned color for each group. Markers should travel with the group.
7. Ensure enough room space to display the nine pieces of chart paper so they are spread out. A gym works well for this activity.

Part 2: Conducting Data Analysis

1. Each group should select one of the characteristics of high performing schools as a starting point. Each group will visit each characteristic station and analyze the data presented at that station.
   - The facilitator will lead their group in making objective observations about what the data say and will record these narrative observation using their appropriately colored marker on the chart paper at the station. Narrative statements should be simple and communicate a single idea related to the given characteristic.
   - The statements should be short and easy to read.
   - Each narrative observation should be able to stand alone. For instance: "From 1999 to 2002, girls scored higher than boys on the math portion of the 4th grade MSP assessment."
   - Use statements such as "seventh grade reading achievement o4ththe MSP increased by 34 percentage points between 2002 and 2003," not "the new reading program contributed to a 34 point increase in reading scores between 2002 and 2003."
2. Each group should visit all of the characteristics stations, repeating this process at each station until they have returned to the station they began with.
3. At their initial station, the group should review all of the factual observations that have been made by each of the groups about the data related to that characteristic of high performing schools.
4. Each group should reach consensus, based on all of the observations, on what the data say about the characteristic at their station.
5. Once consensus has been reached, the recorder should write a succinct summary on the chart paper at the station and present the group's analysis to the larger team.

3.5C – Placemat Protocol
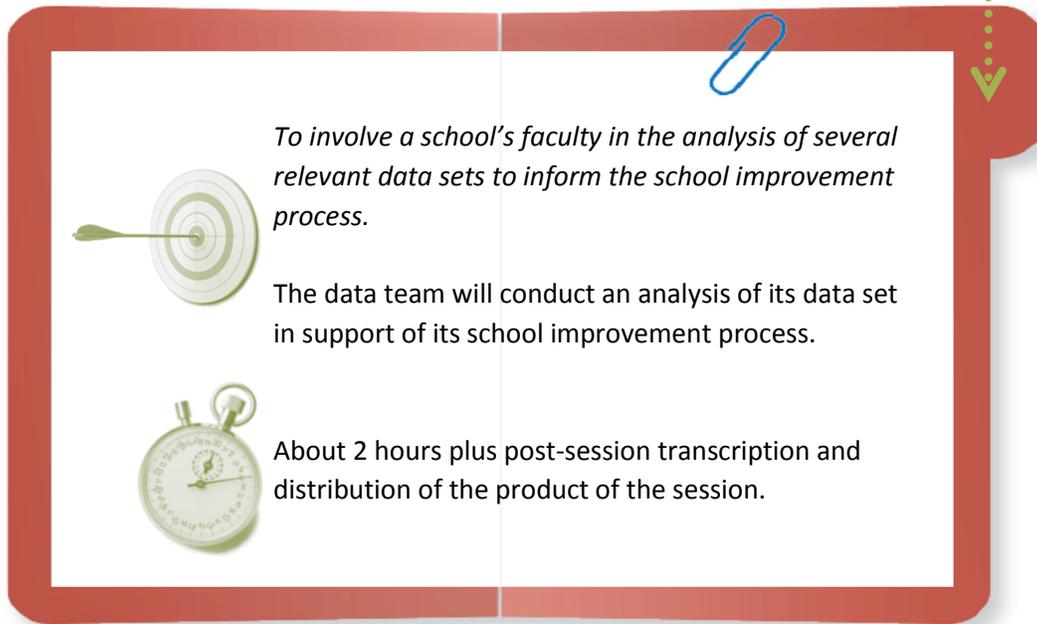
To involve a school's faculty in the analysis of several relevant data sets to inform the school improvement process.

The data team will conduct an analysis of its data set in support of its school improvement process.

About 2 hours plus post-session transcription and distribution of the product of the session.

Directions:

Part 1: Preparing for Analysis

1. Organize participants into small groups of 3–5 individuals. Groups should be as heterogeneous as possible (e.g., across disciplines and grade levels).
2. Gather several data sets/data displays that relate to the priority issue being addressed or general displays of interest if a priority issue has not been identified. These might include:
   - Statewide test results
   - Formative assessment data
   - Attendance data
   - Suspension data
   - Class/course success rates (percentage of students passing and failing)
   - Class/course mark comparisons (distribution of students by mark – A, B, C, D, F)

   Ideally, data sets would:
   - Have a number of series of years of information showing trends over time
   - Show how the school compares to the district or other like schools in the district
   - Compare results by a few student attributes (e.g., gender, special education status, race).
3. Produce one data set with multiple copies per group.
4. Select a room with enough tables so that there is one group at each table.

5. Provide a printed placemat for each table (11"x17" size will work, but poster-sized paper is better). The *Placemat Record Sheet* is provided on page 58 and asks the questions:
   - What are the positives? What are the negatives?
   - What surprises did you find in the data (both positive and negative)?
   - What do you now know that you didn't know prior to the analysis?
   - What questions arise from this analysis (anything that will require further study)?
   - What questions should we address next?

6. Provide pens/markers to write on the placemats. Ideally, each group should have a different color marker and there should be at least three markers per group. The markers will travel with the group to identify the placemat comments made by each group.

Step 2: Conducting the Analysis

1. Place a data set, placemat, and pens/markers at each table. All of these items except the markers are intended to remain at the table for the entire exercise.

2. One group should sit at each of the tables.

3. On each table, each group will find a data set that shows current and past data for their school. You will also find a placemat record sheet. For the entire session, all the items at the table (with the exception of your group's colored marker) will remain at the table.

4. As a group, members will look at the data for 1–2 minutes without any discussion. After the 2 minutes, the group should discuss the five questions on the placemat record sheet. During the discussion, the group should record its answers to these questions on the placemat. Anyone can write on the placemat at any time and, in fact, group members might sometimes do so simultaneously. Allow approximately 10 minutes for this step.

5. Once completed, groups will rotate to the next data set and repeat this process. Each group's findings will be recorded on the same record sheet as the previous group(s). In this way, you will see the work of the group(s) before you and can add to their thinking. Each group's comments will be indicated by their color.

6. When each group has reviewed all the data sets, the team will collectively review what was found.

7. The previous exercise will take about 15 minutes to complete the first time. Each subsequent analysis will likely take less time. Facilitators are urged to circulate from table to table to participate in or listen to the discussions and conversations. Probing questions can be asked or detail provided as to the meaning of the actual data set. It is recommended that the principal not participate in providing content for the placemat. The facilitator can adjust the time required based on the richness and direction of the discussions at each table.

8. After the placemat has been completed, groups will rotate to the next data set and repeat the process. Remind participants that they must leave both the data set and placemat at the table. At the new table, groups will consider the new data set and review the work of the previous group(s) before adding to the placemat in the manner described above.

9. Rotations will occur until the groups arrive back at their original table.

10. Provide some time for the group to review and discuss all of the comments/statements made on the placemat at their original table.

11. Have each group report on what the general findings were for the data set at that table as captured in the placemat record sheet.

Part 3: Completing Next Steps

1. The next step for the principal or facilitator is to collect all of the placemats and to have the information from them recorded in a more shareable format.

2. Once completed, it is recommended that this information be shared back to staff for further comment, additions, or corrections. This activity has engaged the entire staff in considering and analyzing the data, recommending additional data to bring forward, and suggesting possible strategies that may be used to address the priority issue or issues that are discovered through the analysis process.

3. Tool **1.4D Communication Organizer Template** will be useful to help the principal or data team summarize and communicate the results to all stakeholders.
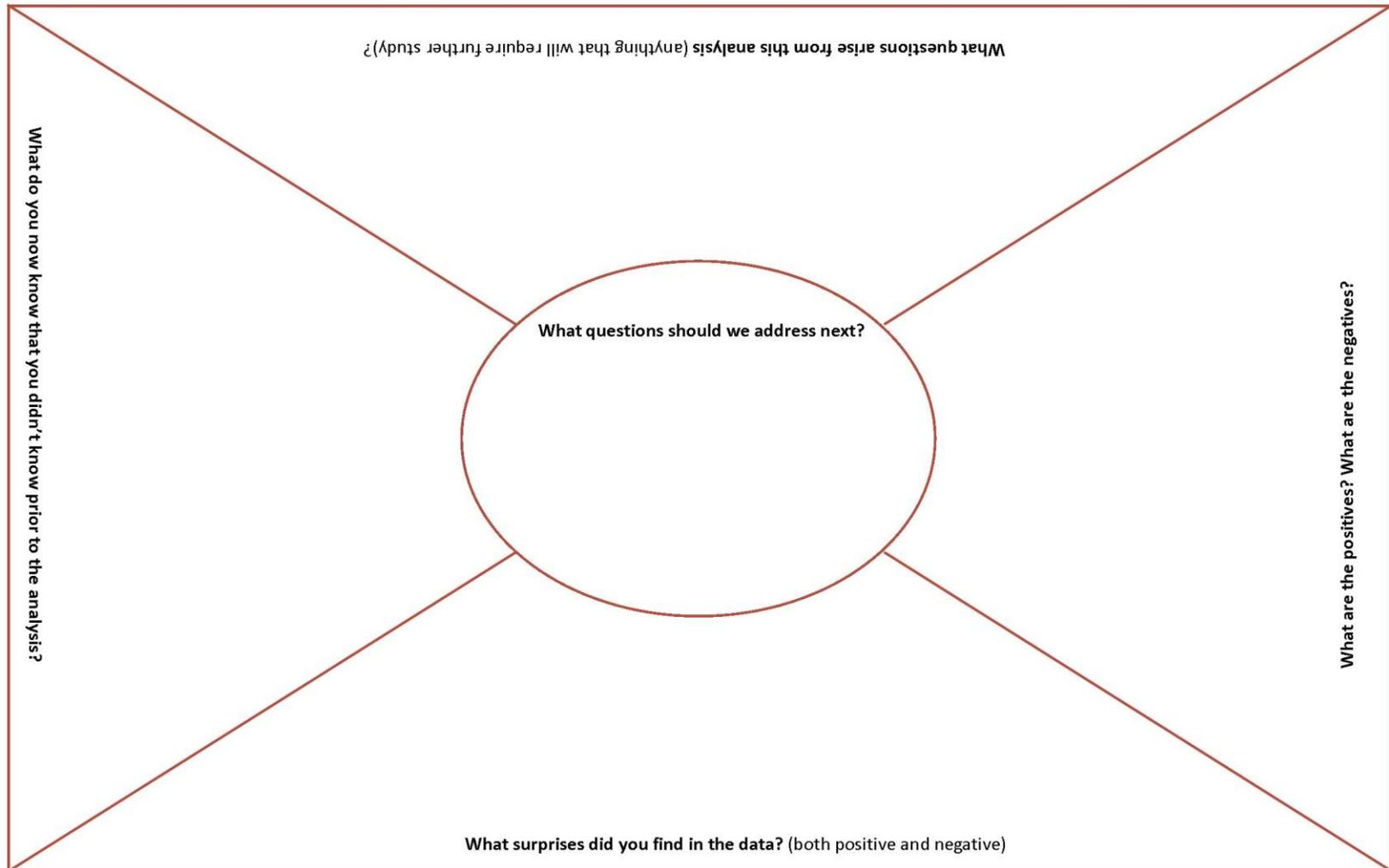
3.5C

Placemat Record Sheet

What questions arise from this analysis (anything that will require further study)?

What do you now know that you didn't know prior to the analysis?

What questions should we address next?

What are the positives? What are the negatives?

What surprises did you find in the data? (both positive and negative)

3.6 – Data Overview Protocol
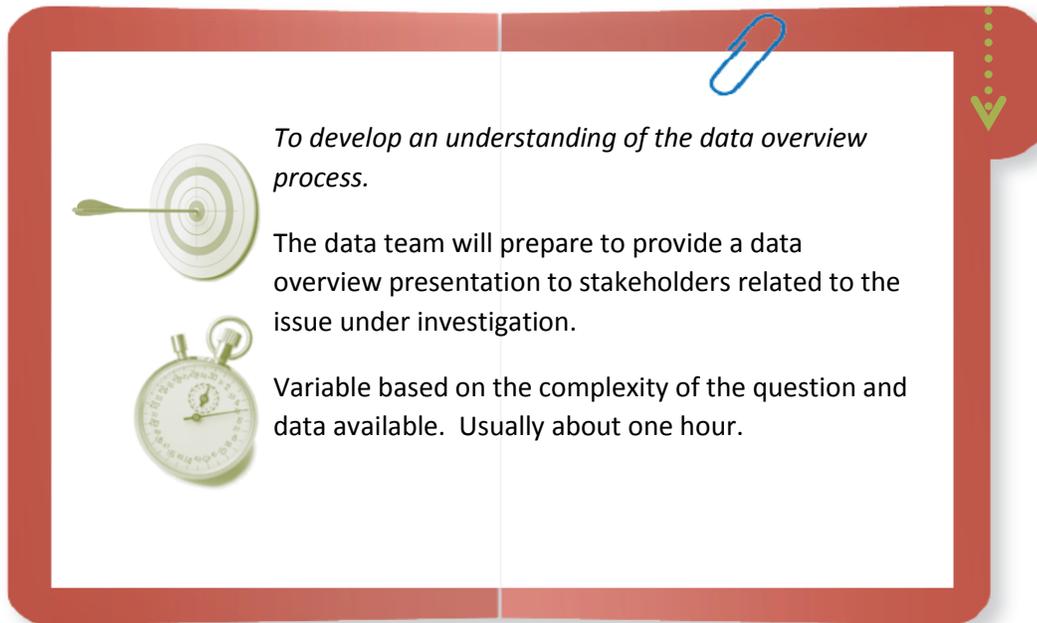
To develop an understanding of the data overview process.

The data team will prepare to provide a data overview presentation to stakeholders related to the issue under investigation.

Variable based on the complexity of the question and data available. Usually about one hour.

Directions:

1. Collect the data needed to address the focusing or clarifying question under investigation.
2. Construct a preliminary data display or displays that cull the salient data from all other data in the data source(s).
3. Use one of the data analysis protocols (**3.5A Data Analysis Protocol**, **3.5B Data Carousel Protocol**, or **3.5C Placemat Protocol**) to do a preliminary analysis of the data.
4. Identify the audience that the data overview will be presented to.
5. Determine the story about the data that you want to convey to the audience.
6. Construct data displays that are consistent with the attributes of a good data display. See tool **3.1 Attributes of a Good Data Display** and page 12 of the *Understand Issues* handbook to illustrate the story.
7. Complete the *Data Overview Development Template* (page 60) to draft the overview.
8. Prepare a PowerPoint (or similar presentation medium) presentation using the data displays and the *Outline of a Data Overview Presentation* (page 61) and the *Data Overview Checklist* (page 64) as your guides. As detailed in the outline, the *Data Analysis Brainstorming Protocol* (page 62) and *Data Analysis Template* (page 63) should be used during the overview.

Data Overview Development Template

Issue that Started the Investigation:	
Question Being Investigated:	
Data Needed to Address the Question:	Data Elements: Source: Who will collect:
Preliminary Data Display to Cull the Appropriate Data:	Sketch the display(s).
Audience:	
Data Display(s) to be Used:	Sketch the display(s).
Agenda for the Data Overview Presentation:	

3.6

Outline of a Data Overview Presentation

1. Introduce agenda
    a. Purpose for conducting the overview
    b. Introduce data displays
    c. Collaborative data analysis process
    d. Brainstorming session
    e. Results of the brainstorming session
    f. Next steps

2. Purpose for conducting the overview
    a. Introduce the issue that prompted the investigation
    b. Introduce the question(s) to be investigated
    c. Engage the target audience in the analysis process
    d. Secure buy-in from the target audience to extend the inquiry

3. Introduce data displays
    a. Provide large copies or individual copies for brainstorming groups
    b. Orient audience to the structure of the data displays

4. Collaborative data analysis process
    a. Introduce the data analysis process to the audience
    b. Provide copies of the *Data Analysis Brainstorming Protocol* and *Data Analysis Template* to each participant

5. Brainstorming session
    a. Explain that the purpose of the brainstorming session is to involve the audience in the inqury process
    b. Review the *Data Analysis Brainstorming Protocol*
    c. Note desired outcomes for the session
        i. Observations
        ii. Inferences or explanations
        iii. Clarifying questions and additional data needed to extend the inquiry
    d. Form groups of 4–5 members of the audience
    e. If possible, have a data team member with each group
    f. Note the time allocated for the brainstorming activity

6. Results of the brainstorming session
    a. Observations
    b. Inferences/problems evident from the data
    c. Clarifying questions and additional data needed to extend the inquiry
    d. Tentative conclusions (if sufficient data)

7. Next steps
    a. How will the data needed to address clarifying questions be gathered?
    b. Data team will collect data and prepare data displays for analysis
    c. Develop an action plan if there are no additional questions to be answered
    d. Establish next meeting date, time, location, and who should participate

3.6

Data Analysis Brainstorming Protocol

Purpose	To make factual observations, inferences, and generate clarifying questions related to the issue being investigated.
Analyzing the Data	1. Form groups of 3–5 members. Select a note taker to record your work on chart paper. 2. Write the question being investigated on a sheet of chart paper and on your individual *Data Analysis Worksheet*. 3. Review the data displays provided by your data team. 4. Brainstorm factual observation about the data presented in the display. Pay particular attention to what the data say about relationships and trends. Record them on the chart paper. 5. As a group, reach consensus on what the data say. Record these observations on your *Data Analysis Template*. 6. Brainstorm inferences or hypotheses that may explain what you observed in the data. Record them on chart paper. 7. As a group, reach consensus on what may be significant explanations. Record them on your *Data Analysis Template*.
Extending the Inquiry	1. Given the explanations that you have posed, are there questions that need to be answered to support or test your explanations? 2. Brainstorm these questions and record them on chart paper. 3. Reach consensus on the questions that need to be answered to extend the inquiry. Record them on your *Data Analysis Template*. 4. What data need to be collected and analyzed to answer these questions? Record them on the chart next to each question and on your *Data Analysis Template*.
Reporting Out	1. As a group, identify your most important observation, your inference from this observation, and any clarifying questions that flow from the inference or explanation of your observation. 2. Share this information with the group as a whole. 3. Provide the data team with a copy of your *Data Analysis Template* so that the team can prepare the next data overview meeting where the inquiry will be extended.
Time	About 1 hour

3.6

Data Analysis Worksheet

Question:

Observations (Without judgment, what do you see?):

Inferences or Explanations (What can you now infer about the question?):

Clarifying Questions, or Tentative Conclussions

3.6

Data Overview Checklist

Format & Structure	Y/N
Does your data overview:	
Identify the audience that will participate in the overview?	
Have a purpose?	
Have an agenda?	
Contain data displays driven by a focusing question?	
Include a structured brainstorming session?	
Identify next steps?	
Have a format and structure that will result in specific outcomes to move the inquiry forward?	
Agenda	**Y/N**
Does your agenda:	
State the purpose of the data overview session?	
List the data displays to be reviewed?	
List the steps in the brainstorming process?	
Include identifying next steps?	
Data Displays	**Y/N**
Do the data displays:	
Contain the attributes of a good data display?	
Appear free of unnecessary detail and extraneous features?	
Use the most appropriate chart style to display the data?	
Tell the story that you want to convey about the data?	

3.6

Brainstorming	Y/N
Will the structure of the brainstorming activity result in:	
The identification of issues evident in the data?	
The identified issues being listed in priority order?	
The formulation of hypotheses to explain the problem?	
Clarifying questions to further direct the inquiry?	
The identification of additional data needed and potential data sources?	
Next Steps	**Y/N**
Do the identified next steps:	
Logically follow from the outcomes of the brainstorming session?	
Contain action items?	
State the date and time of the next meeting?	
Identify the audience and/or participants in the next meeting?	

DIAGNOSE CAUSES

Introduction – Where are we now?

In *Understand Issues,* the team moved the inquiry forward by looking closely at the data collected to answer the focusing questions. The team learned to cull the high-level data relevant to the focusing questions from all the available data and how to display these data in a format that would facilitate preliminary analysis. Through making factual observations about this high-level data, the team began to identify the story in the data and to make inferences that would lead to more questions or tentative conclusions and explanations about the data's story. The team also learned how to present the data to relevant audiences in a way that would engage the audience in the inquiry process and promote their involvement in identifying problems and solutions. The team learned a great deal about the issue, but has not yet determined the inherent problem(s) or underlying causes that contribute to the problem(s).

In *Diagnose Causes,* the team will build on the work done in *Understand Issues* to clearly identify and articulate the major, evidence-based problem behind the issue under investigation and then unravel the causes of that problem. The team will gather additional data to verify the causes, refine the cause statement as necessary based on evidence, and build its knowledge base about the cause(s). With a well-researched and stated cause in hand, the team will be able to move forward with the identification of strategies to address the problem and develop an action plan for the implementation of those strategies.

Getting Ready	Identify Issues	Understand Issues	**Diagnose Causes**	Plan and Take Action	Evaluate Results

Upon completion of *Diagnose Causes*, you will have:

- Identified and clearly stated the learner-centered problem(s) that underlie the priority issue
- Identified the problem(s) of practice that contribute to the learner-centered problem
- Built your collective knowledge base about the learner-centered problem and problem(s) of practice
- Set the stage for actions to address the identified problem

Tools

- 4.1: Writing Problem Statements
- 4.2A: Why? Why? Why? Protocol
- 4.2B: 20 Reasons Protocol
- 4.2C: Fishbone Analysis Protocol
- 4.3A: Determining Significance and Control
- 4.3B: Interrelationship Protocol
- 4.4: Identifying, Collecting, and Displaying Data to Test the Potential Cause
- 4.5: Testing the Cause
- 4.6: Identifying the Problem(s) of Practice
- 4.7: Building Your Knowledge Base
- 4.8: Consulting Your Colleagues

WSIPC™

The Learner-Centered Problem

Identifying and Accurately Stating the Problem

In the previous components of this toolkit, concepts and tools enabled the data team to identify a priority issue that is under the district or school's control and needs to be addressed if the district or school will continue to improve. Underlying that issue is a learner-centered problem or several related problems that must be addressed. Until the problem is identified and clearly articulated, meaningful action to resolve the issue will not happen or, if action is taken, it may be misdirected.

The data analysis conducted helped the data team understand the issue and uncover the preliminary story the data held. The observations and inferences made during analysis helped the team develop tentative conclusions or explanations for why the data said what they did. These explanations point to the learner-centered problem that underlies the issue.

At Hidden Valley

The Hidden Valley District Data Team made observations and inferences from the dropout data and discovered a learner-centered problem: Carter Teach has a large percentage of students who leave school before entering high school. Their clear, succinct statement of this problem set the stage for the analysis of the cause of that problem.

As the team moves the inquiry process forward, it is critical for all stakeholders to have a common understanding of the problem. The analysis of data described in *Identify Issues* and *Understand Issues* laid the foundation for this common understanding. If not enough data were gathered and analyzed to support a common understanding of the problem, then more clarifying questions need to be asked, and more data need to be collected and analyzed. Once sufficient data have been analyzed for stakeholders to reach agreement on the nature of the problem, it is important to develop a succinct problem statement that accurately conveys the common understanding of the problem.

Tool **4.1 Writing Problem Statements** provides an example of how a problem statement can be developed and gives the team guidance as it constructs a problem statement related to its priority issue.

Writing Problem Statements   **4.1**

Uncovering the Cause of the Learner-Centered Problem

What is Root Cause Analysis?

In simplest terms, a root cause is an underlying factor or condition that creates a problem and which, if addressed, would eliminate or dramatically reduce the problem. A root cause analysis protocol can help a group with widely varying opinions on the reason that a problem exists narrow the field of contributing factors until it agrees on which one(s) will yield the biggest bang for the buck if acted upon. This is obviously a critical step prior to researching and selecting strategies to address the problem. A treatment can't be prescribed until an accurate diagnosis of the root cause of the problem is made.

As an example, in technical and mechanical systems, diagnosing a root cause is an essential part of the troubleshooting process before beginning work. If a person's computer won't boot up in the morning, a problem exists. There are a number of potential causes of that problem. The help desk agent can suggest likely causes and then collect and analyze data to test the validity of suggested causes.

Problem: The computer won't boot up.	
Possible Causes:	**Tests:**
1. The computer is not plugged in.	✓ Check the power cable.
2. The power cable is connected, but power is not reaching the system.	✓ Inspect the power cable and power cable connections for wear or damage. ✓ Replace the power cable with one that is known to be working. ✓ Plug a lamp into the same wall socket to verify power is coming from the wall.
3. Power supply unit is defective.	✓ Remove the power supply unit from the computer and test.

Table 1. Diagnosing a Root Cause

The resolution to the original problem may be as simple as switching out a defective power cable or using a different outlet, or as costly and expensive as replacing an internal power unit. The important idea, though, is that knowing which course of action to take depends on the technician's ability to systematically look beyond the originally stated problem to identify, from a number of possible causes, the root cause of the problem.

Identifying a Root Cause in Education

In education, because we are dealing with very complex systems of interactions between people, determining the root cause of a problem is much more difficult than with mechanical systems. Students are all different and each is impacted by a wide variety of factors. Adults in the district and school are also very different and are impacted by a whole set of other factors. Both students and adults work within a complex system—the institution—that is itself impacted by a wide variety of factors. Many of these influencing factors are interrelated, making the situation even more complex. Given this complexity, we might be tempted to throw up our hands and admit that we can't identify the true, or

root, cause of the problems that we have identified. This is not an option if we are to serve our students well. We must understand and accept the complexity of the environment in which we are working and do our best to make sense out of that complexity. As you make sense out of the complex student, adult, and institution system, the biggest threats to effective root cause identification will be not listening to all opinions and not thoughtfully reflecting on all suggested causes.

At Hidden Valley

Once the Hidden Valley Data Team had crafted a clear and succinct problem statement, they were able to employ protocols that would help them discover the likely cause behind the problem – the root cause. There were a number of protocols available to the data team. The team chose tool **4.2B 20 reasons protocol** to help them discover the root cause of the underlying problem.

In addition to the complexity of the educational environment, getting to the root cause of a problem is difficult because the people engaged in addressing the problem tend to have strong beliefs about problems in their district and how they should be solved. These beliefs are influenced by personal values, political issues, opinions about strategies tried in the past, and many other factors. For this reason there will be many, possibly divergent, opinions about the cause of the problem.

Tools **4.2A Why? Why? Why? Protocol**; **4.2B 20 Reasons Protocol**; and **4.2C Fishbone Analysis Protocol** provide several ways to get all ideas about possible causes on the table. Using these tools, the team will reach consensus on the most significant causes. **4.2A Why? Why? Why?** is quite straight forward. Examples have been included, based

4.2 Root Cause Analysis:

- **Why? Why? Why? Protocol**
- **20 Reasons Protocol**
- **Fishbone Analysis Protocol**

4.2A, 4.2B, 4.2C

on the Hidden Valley Scenario, to help the team use tools **4.2B 20 Reasons Protocol** and **4.2C Fishbone Analysis Protocol**.

At the start of the inquiry process, the team first identified a priority issue that needed to be addressed to provide better outcomes for students. They then reached consensus on the significance of the issue (is the issue one that, if appropriately addressed, will improve outcomes for students?), and the degree of control that the district and/or school has to address that issue. As the team works to identify the cause(s) that contribute to the priority issue, the questions of significance and control must continue to be addressed.

While seeking the cause of the learner-centered problem, the team should discuss significance and control of various possible causes. Consideration of these factors is particularly important when groups are having difficulty agreeing on causes and which should be addressed first. These difficulties are common and expected.

At Hidden Valley

Tool 4.2A **Why? Why? Why? Protocol** provided the structure to support the Hidden Valley Data Team as it brainstormed possible causes of the learner-centered problem. As might be expected, there were many differences in opinion among the team members. To address these differences, the team used the Significance and Control Matrix to help them decide on the most feasible cause(s). Once the team reached consensus on the possible causes that should appear in Quadrant 1 of the matrix, they used the Interrelationship Protocol to determine the relationship among these causes and which

As causes are suggested, each can be placed on the continua of significance and control. The causes that are placed in Quadrant I (high significance, high control) are those that should be addressed first since the district or school has the greatest influence over these causes and, if resolved, the greatest impact on student outcomes will be achieved. The causes that fall into Quadrant IV (low significance, low control) are not all that significant and the district has little control over them.

Significance and Control Matrix

High Control ⟷ Low Control

Quadrant I (High Significance)
- Overage for grade
- Retention policies
- Lack of academic support for at-risk students
- Lack of appropriate guidance services
- Low student engagement with school
- No opportunities for credit recovery

Quadrant II
- Parents were poor role models for students
- Parents weren't capable of providing academic support for children
- Cultural factors did not support the importance of education

Quadrant III
- Inadequate facilities at Carter Tech
- Transfer policies

Quadrant IV (Low Significance)
- Low income status
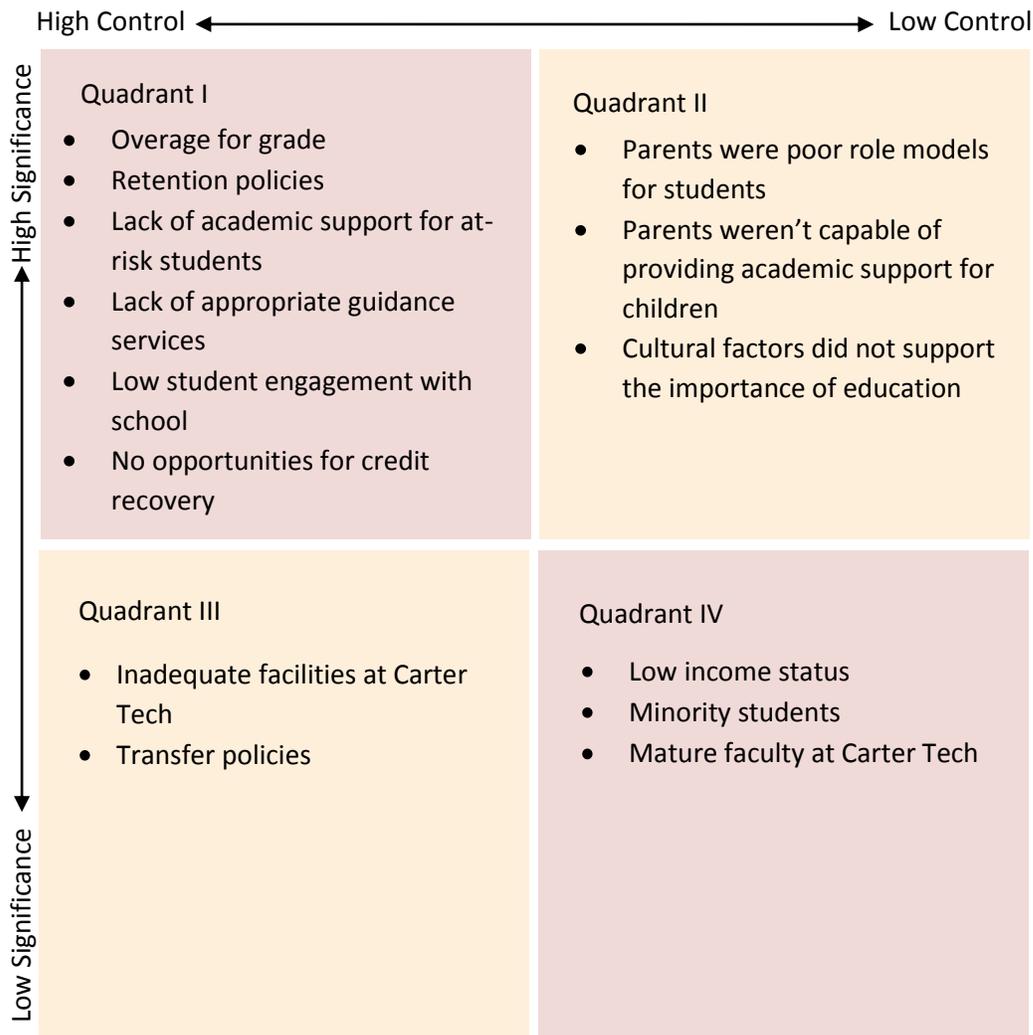- Minority students
- Mature faculty at Carter Tech

Figure 1. Charting Significance and Control

Tool **4.3A Determining Significance and Control** will support your team in determining the level of control that the district or school has over a given cause—and will serve your team particularly well if you are having difficulty reaching consensus on which

4.3 Prioritizing Causes:

- **Determining Significance and Control**
- **Interrelationship Protocol**

4.3A
4.3B

cause to act upon. Tool **4.3B Interrelationship Protocol** will also support the team in its decision making process. By discussing the relationships among causes and the relative influence of one cause on another, the team will be better able to prioritize the causes. An example, based on the Hidden Valley Scenario, appears in **4.3A Determining Significance and Control** and a more generalized example of the Interrelationship Protocol appears in **4.3B Interrelationship Protocol**.

Determining the Validity of the Cause

Once the team reaches consensus on a significant cause that is under the control of the district or school to address, it is important to gather evidence to support that decision. If the team is not careful, it can unwittingly reinforce false perceptions and negative stereotypes. Team members should constantly ask each other "How do we know?" Without a self-check against valid evidence, the causes the team identifies to target may not be deemed credible by stakeholders. Existing data that relate to the identified problem can be reanalyzed in light of the significant cause, or new data may need to be collected, displayed, and analyzed to determine if there is sufficient evidence to support the identified cause of the learner-centered problem.

Tools **4.4 Identifying, Collecting, and Displaying Data to Test the Potential Cause** and **4.5 Testing the Cause** provide guidance for the team as it identifies, collects, and displays any

- **Identifying, Collecting, and Displaying Data to Test the Potential Cause**
- **Testing the Cause**

4.4, 4.5

additional data needed and to test the validity of the identified causes.

At Hidden Valley

The Hidden Valley Data Team agreed that a feasible cause was: Students who have been retained one or more times in previous grades (K–7) are over age for grade 8 and, in fact, many have reached the legal age to leave school. These students see leaving school and entering the work force as a viable alternative to completing high school.

Before immediately moving to address the cause they decided to collect more data to test their idea.

The Hidden Valley Data Team identified and collected data on student engagement from the annual Healthy Youth Survey. They tabulated the data and displayed the weighted mean for each item as a bar chart. They also gathered demographic data on the 8th grade population over time and displayed the age distribution and retention history of all students and those who left school. Their analysis of these displays indicated that the target population was in fact generally over age for their grade, had been retained, and lacked engagement with school. These analyses supported the team's identified root cause.

The Problem of Practice

What is a Problem of Practice?

Ultimately, regardless of the specific nature of the problem, it is the adults in the district who create and maintain learning opportunities for the students they serve. The outcomes that students experience, therefore, are determined by the practices of adults in the district. We operationally define practices as systems, relationships, instruction, learning environments, and resources. Outcomes for students

> *It is the adults in the district who create and maintain learning opportunities for the students they serve. The outcomes that students experience, therefore, are determined by the practices of adults in the district.*

can't be changed without changing these practices. All of these practices are under the control of the adults, so it is to the adults that we must look to if we are to improve outcomes for students.

As was the case with the identification of the cause, the identification of problems of practice is equally complex and influenced by the same factors such as strong beliefs, personal values, and opinions about strategies. Again, the team needs to get all opinions on the table and reflect upon these opinions before reaching consensus on practices that contribute to the cause of the identified learner-centered problem.

Accurately Stating the Problem of Practice

At Hidden Valley

Armed with evidence that they have identified a feasible cause, the Hidden Valley Data Team moved forward to determine a problem of practice that resulted in a root cause. The team used tool **4.6 Identify the Problem(s) of Practice** resulting with:

"Retention with lack of academic support and counseling."

Because there will likely be many views about the identified problem of practice, it is important for the team to be precise in how the problem is stated. All team members need to be on the same page and have a common understanding of the problem of practice as stated.

Tool **4.6 Identifying the Problem(s) of Practice** guides the team through the

brainstorming activity that leads to problem identification and the clear statement of the problem of practice. An example, based on the Hidden Valley Scenario is included in tool 4.6.

Identifying the Problem(s) of Practice   **4.6**

Building Your Knowledge Base

Research and Practice Literature

Once the cause and problem of practice have been identified and agreed upon, it will be tempting to immediately take action to address them. But before moving on, it is important to begin making connections to research and local knowledge, looking outward for information that might be helpful in deepening the team's understanding of the problem of practice. Searching the research and practice literature, summarizing existing knowledge, and discussing this information as a team will not only broaden your understanding of the cause and problem of practice, but also begin to suggest ways to address them both.

At Hidden Valley

The Hidden Valley Data Team now has an evidence supported cause and a fairly clear idea of the problem of practice that underlies it. To effectively design and implement strategies that address the problem of practice, the team decided to consult the research literature and their colleagues to determine what best practices would be appropriate to implement. They also hoped to gather historic perspective and local insight into the root cause and the problem of practice by consulting with their colleagues in the district.

When consulting research, the team should be mindful that the internet makes it much easier to connect to a wide range of publications on education topics. However, not all publications cite credible research or proven best practices. The team has a responsibility to ensure that the information it uses is credible, and as such, should look for information from reputable independent sources. The Education Service Centers (ESDs) in Washington have gathered credible information on a wide range of education issues. The ESDs are a good place for teams to start their quest for knowledge about the problem of practice that they have identified.

Tool **4.7 Building Your Knowledge Base** will help the team locate research and practice literature to further their knowledge. It also provides a structure to facilitate the research and reporting process.

Building Your Knowledge Base   **4.7**

Consulting Your Colleagues

In education, ideas presented by those beyond our institution are often considered more credible than those generated by our colleagues. However, much can be learned about the issue under study by consulting with stakeholders whose local knowledge can provide excellent insight into the cause and problem of practice. Colleagues can provide historic information about initiatives and strategies that have been successful in the past, as well as those that have not. They can inform the team regarding effective practices that would address the cause and problem of practice and alert them to those that have been tried without success. They can also help the team catalogue initiatives currently in place so that new initiatives will complement, rather than duplicate, these efforts.

The team might also consider engaging those stakeholders most directly involved with the identified problem of practice through a modified data overview (see tool **3.6 Data Overview Protocol**). In doing so, the team presents the data which led to the identification of the problem of practice, and gains the knowledge and support of the stakeholder as the team moves forward to address the problem of practice.

Tool **4.8 Consulting Your Colleagues** provides a planning template that the team can use to identify local sources of information about the problem of practice.

| Consulting Your Colleagues | **4.8** |

Summary

To this point in the Cycle of Inquiry and Action, the team has identified a significant issue and its underlying learner-centered problem. They have narrowed the problem based on analysis of data and have created a succinct problem statement to direct further inquiry. The team members have increased their understanding of the problem through research and have discovered the cause(s) of the learner-centered problem. Through brainstorming and consultation with stakeholders, the team has identified a problem of practice associated with the issue and is now ready to address that problem.

The stage is now set to take action. *Plan and Take Action* and *Evaluate Results* will provide concepts and tools to help the data team engage stakeholders in the planning, implementation, monitoring, and evaluation of an initiative to address the issue.

Resources

- Bernhardt, V.L. (1999). *The School Portfolio: A Comprehensive Framework for School Improvement.* Larchmont, NY: Eye on Education. The framework provides a structure through which district and school staff can purposefully use data to inform school improvement decisions.

- Bernhardt, V.L. (1998). *Data Analysis for Comprehensive School Improvement.* Larchmont, NY: Eye on Education. This is not a statistics text. It takes data from real schools and demonstrates how powerful data analyses emerge logically. It shows how to gain answers to questions to understand current and future impact.

- Hess, R. T., & Robbins, P. (2012). *The Data Toolkit: Ten Tools for Supporting School Improvement.* Thousand Oaks, CA: Corwin. The Data Toolkit provides practical insights and practical strategies to facilitate effective teaching and learning. It supports educators in analyzing data in a way that will empower high-quality decision making related to curriculum, instruction, and assessment.

- Love, N. et. al. (2008). The Data Coach's Guide to Improving Learning for all Students. Thousand Oaks, CA: Corwin Press. A comprehensive guide that includes theory, protocols, and materials to support a data coach in his/her work with school and district personnel.

- Love, N. (2002). Using Data/Getting Results: A Practical Guide for School Improvement in Mathematics and Science. Norwood, MA: Christopher Gordon Publishers, Inc. Comment from a user of this resource: "… is a guidebook that allows a learning community to investigate their strengths, question their practice, and improve instruction. The CD-ROM that accompanies the book is loaded with planning and data templates that are user-friendly and guide educators through progress towards standards-based learning."

4.1 – Writing Problem Statements
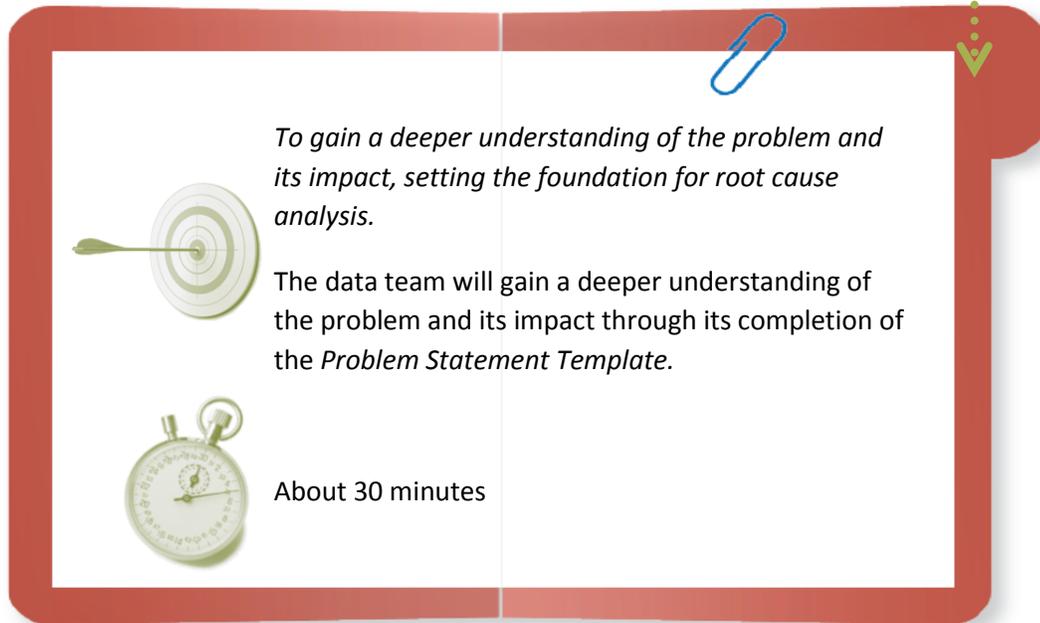
To gain a deeper understanding of the problem and its impact, setting the foundation for root cause analysis.

The data team will gain a deeper understanding of the problem and its impact through its completion of the *Problem Statement Template.*

About 30 minutes

Directions:

Part 1: Reviewing an Example

1. Page 13 of this tool contains a completed example of a *Problem Statement Template*, which is based on the Hidden Valley School District dropout scenario described in the *Understand Issues* handbook. As a team, review this example to become familiar with the finished product that you will produce for your identified issue.

Part 2: Drafting a Problem Statement

1. On the Problem Statement Template (page 14), state the original issue being investigated in the first box. Then, work through the boxes from top to bottom to develop the final statement by identifying:

   - Focusing question
   - The people affected
   - What the data say about the focusing question
   - The inferences generated from what the data say

2. Draft a problem statement.

Part 3: Generating Questions

1. Once the problem statement has been drafted, it may be obvious that other questions need to be answered, additional data collected, and further analysis conducted to frame the problem. If that is the case, the following steps, similar to those used in the question formulation and data collection tools in *Identify Issues* (tools **2.2 Developing Focusing Questions to Initiate Inquiry** and **2.3 Identifying and Locating Relevant Data**) should be used to identify the clarifying questions and the data needed to address them.

2. Brainstorm questions that arise from the draft problem statement that the team has formulated. Record these questions on chart paper.

3. From this group of questions, identify the questions that must be answered before a final problem statement can be created. Record them on a new sheet of chart paper, leaving room next to each question to record the data needed to answer each question.

4. The clarifying questions the team has identified may be answered using the data already collected and displayed. It is more likely, however, that new data will need to be identified, collected, displayed, and analyzed. For each of the clarifying questions that the team has identified as critical to the investigation, brainstorm additional data elements that need to be collected and record them next to each clarifying question on the chart paper. When consensus has been reached on the data needed, complete the *Data Identification, Collection, and Display Template: clarifying Questions* on page 15.

5. Once the data have been collected and displayed, repeat the data analysis process introduced in tools **3.5 Data Analysis (3.5A Data Analysis Protocol, 3.5B Data Carousel Protocol,** or **3.5C Placemat Protocol**) until the team feels ready to formulate a final problem statement.

6. Adjust the final problem statement, if necessary, after you complete the analysis.

4.1

Problem Statement Example

Initial broad issue	*The Hidden Valley leadership team identified high school completion as a priority issue in the district.*
Focusing question	*What was the dropout rate at each grade level in grades 7–12 for each of the Hidden Valley secondary schools in 2009–2010?*
Who is affected by this issue?	*Hidden Valley secondary school students (grades 7–12)*
What do the data say about the focusing question?	• *The majority of dropouts are coming from Carter Tech.* • *There are less than half as many students enrolled in Carter Tech (grades 7–12) as there are in Clinton High School (grades 9–12).* • *There are only 4 students identified as dropouts at Clinton High School.* • *The largest percentage of dropouts at Carter Tech is in grade 8.* • *The dropout rate decreases from grade 9 to grade 12 at Carter.*
What are inferences regarding this issue?	• *Students who are at risk of dropping out of school are transferred to Carter Tech.* • *Dropout rate at Carter Tech decreases from grade 9 to grade 12 because those who are likely to drop out do so at an early grade level.* • *Carter Tech enrolls a greater proportion of at risk populations than does Clinton High School (minorities; students with disabilities; low income).* • *Clinton High School has more programs that help at risk students be successful than does Carter Tech.* • *Grade 8 students at Carter Tech have been retained in previous grades and are overage for their grade and may drop out at 16.*
Draft problem statement	Carter Tech has a large percentage of students who leave school before entering high school.

Problem Statement Template

Initial broad issue	
Focusing question	
Who is affected by this issue?	
What do the data say about the focusing question?	
What are inferences regarding this issue?	
Draft problem statement	

4.1

Data Identification, Collection, and Display Template: Clarifying Questions

Clarifying Questions	Data Needed	Data Source

4.2A

4.2A – Why? Why? Why? Protocol
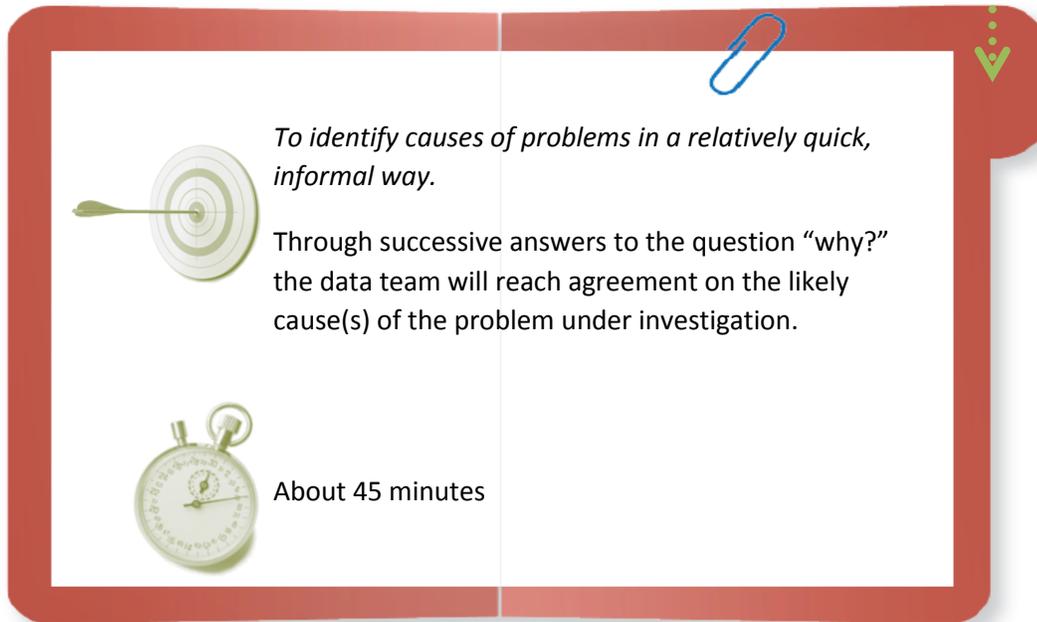
To identify causes of problems in a relatively quick, informal way.

Through successive answers to the question "why?" the data team will reach agreement on the likely cause(s) of the problem under investigation.

About 45 minutes

Identifying causes in education rarely results in a single factor being identified that can easily be resolved. Protocols such as this one help a group of educators collaboratively discuss the most likely root causes of the problem under investigation. This discussion will help the team come to agreement about what is the most significant factor within the district's and/or school's control to address.

Directions:

Part 1: Identifying Plausible Causes

1. Write the evidence-based problem developed in tool **4.1 Writing Problem Statements** on chart paper.
2. Each member of the team will then write one or more responses to the question: "why might this be happening?" Each response should be written on a separate sticky note.
3. Place the sticky notes in a row across the chart paper under the problem. Discuss the responses and eliminate any that duplicate the same basic idea. Add any that appear to be missing.
4. Rank-order the ideas from most plausible causes to least plausible. As you do this, think about factors that are under the district's/school's control and which, if addressed, will solve the identified problem. If the team has difficulty determining significance and control, they may want to consult tool 4.3A Determining Significance and Control that is designed to help the team determine which causes are most significant AND most influenced by the district or school. This should be done after all potential causes have been suggested.

Part 2: Discuss Why

1. For the most plausible reason, again write possible explanations of why this is happening on sticky notes. Place these in a row below the most plausible cause. You can revisit the other reasons later.
2. Again, rank-order the causes. Review all of the causes that you have associated with the initial, most plausible cause, and reach consensus on what the team believes to be the most likely cause.
3. The next step is to gather and analyze data to test the cause to ensure that it is valid (**4.4 Identifying**, **Collecting, and Displaying Data to Test the Cause** and **4.5 Testing the Cause**).

4.2B

4.2B – 20 Reasons Protocol

To identify causes of problems.

The data team will brainstorm 20 reasons why a problem might be occurring in order to come to agreement about what the most likely cause of the problem may be.

About 45 minutes
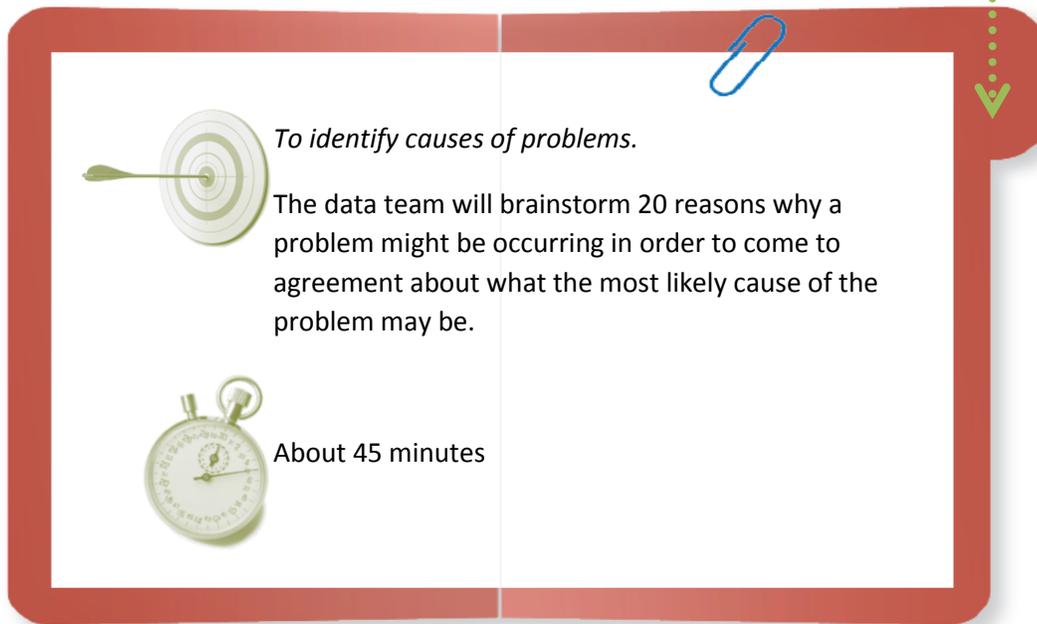
When using this tool, a data team will often disagree about why the given problem exists. During the brainstorming portion of the process, it is important to follow brainstorming norms. These norms will enable all participants to express their views without value judgments being made by others. When all of the 20 reasons have been recorded, the group can reflect and debate the various cause suggestions and reach consensus on the most likely cause.

Directions:

Part 1: Reviewing an Example

1. Review the example of the *20 Reasons Template* (page 21) so that each team member understands the desired outcome.

Part 2: Identifying 20 Reasons

1. Recreate the *20 Reasons Template* on chart paper and assign a recorder to capture the reasons suggested by the team. If you prefer, you can instead set up a computer and projector to display the *20 Reasons Template* (page 22) and to record the reasons suggested by the team.
2. Each data team member should record the problem being investigated on his/her copy of the *20 Reasons Template*.

3. As a team, brainstorm reasons that might explain why the problem exists. During the brainstorming session, no judgment should be made about any of the suggested reasons. However, the facilitator must remind team members to suggest only significant reasons that are within the control of the district. If the team has difficulty determining significance and control, it may want to consult tool **4.3A Determining Significance and Control** that is designed to help the team determine which causes are most significant and most influenced by the district or school. This should be done after all potential causes have been suggested.

4. It may be helpful for each team member to suggest a reason in turn. The note taker should capture each reason on the *20 Reasons Template* (computer or chart paper). Getting to 20 reasons is often difficult, but the team should persist. It is the last few reasons that often get to the heart of the problem.

Part 3: Reaching Consensus the Most Likely Cause

1. When 20 reasons have been suggested, the team should take several minutes to individually reflect on all of the suggestions. Each team member should identify the reason that he or she feels is the likely cause of the problem.

2. In turn, each team member should identify the reason that he or she believes is the cause of the problem and justify his or her choice. The note taker should put a check by each reason so identified. If the same reason is identified by several team members, multiple check marks should be made next to the reason.

3. As a team, discuss the reasons with check marks and reach consensus on the cause of the problem. It is possible that a given problem may have multiple causes. If the team's consensus is that several reasons explain the cause of the problem, try to prioritize them or describe their relationship to each other.

4. The next step in the process is to identify, collect, and analyze data that will provide evidence that the identified cause(s) is valid. Tools **4.4 Identifying, Collecting, and Displaying Data to Test the Potential Cause** and **4.5 Testing the Cause** can be used to complete the verification of the most likely cause of the learner-centered problem.

4.2B

20 Reasons Example

Problem: Carter Tech has a large percentage of students who leave school before entering high school.

#	Possible Explanation	Root Cause?
1	Retention in the primary and intermediate grades	
2	At-risk students are not identified in elementary school.	
3	No targeted counseling for students who have been retained	
4	No academic support provided to at-risk students	
5	Clinton counselors advise at-risk students to leave Clinton High School and enroll at Carter Tech	
6	No career education in grades 7 and 8 that supports the need for high school completion	
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		

4.2B

20 Reasons Template

Problem:

#	Possible Explanation	Root Cause?
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

4.2C – Fishbone Analysis Protocol
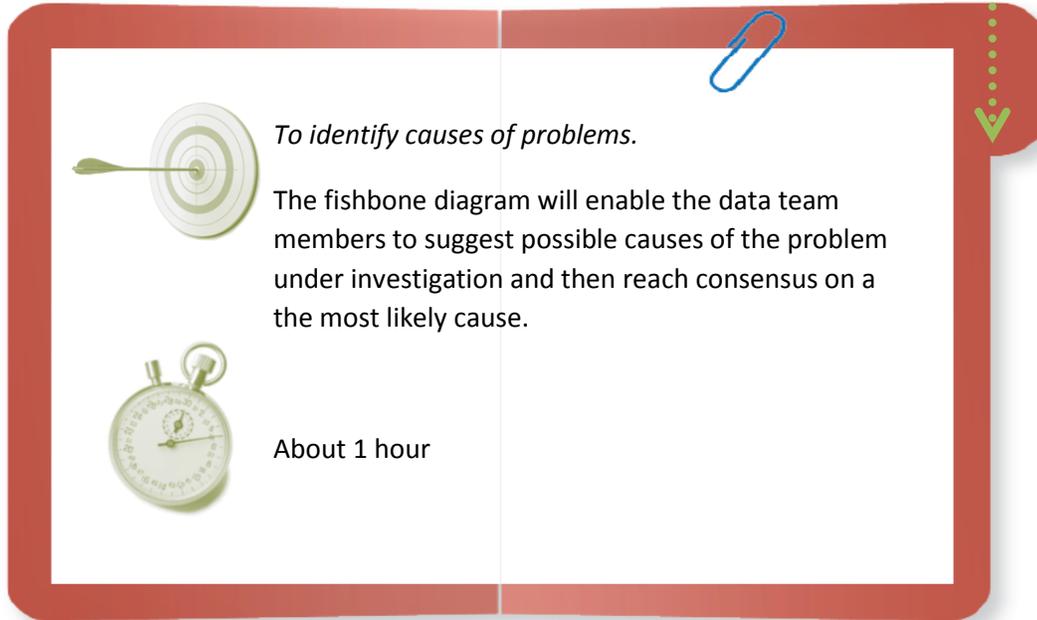
To identify causes of problems.

The fishbone diagram will enable the data team members to suggest possible causes of the problem under investigation and then reach consensus on a the most likely cause.

About 1 hour

Directions:

Part 1: Reviewing an Example

1. Review the example of a *Fishbone Diagram Template* (page 25) so that each team member understands the desired outcome.

Part 2: Creating the Display

1. Create a blank copy of the diagram on chart paper.
2. Write the problem under investigation in the box at the "head" of the fish on the *Fishbone Diagram Template* (page 26).
3. Identify major categories that are logically associated with the problem and write them in the boxes in the diagram. The diagram has four "ribs" and boxes, but more or fewer boxes can be used depending upon the selected categories. The following categories are often used: students, families, processes, curriculum, instruction, teachers. Remember to look for causes that are under the district's/school's control.
4. For each category, brainstorm possible causes of the problem related to that category. Record the possible causes next to the appropriate "rib" in the diagram. Repeat this process for each of the categories.

Note: During the brainstorming section of this protocol, participants may come up with possible causes that do not fit easily into one of the previously identified categories. This can indicate a need to identify a new category or broaden an existing category. Do not discard an idea solely because it does not fit into a previously identified category. If necessary, add the new category and move on. The purpose of the major categories is to provide a structure to guide the brainstorming. These categories should be used to inspire, rather than restrict, participants' thinking.

4.2C

Part 3: Examining the Display

1. Study the display that you have created. Are all of the reasons that have been identified under the control of the district? If not, place an "X" next to those not under district control. As an alternative to this step, the team may want to consult tool **4.3A Determining Significance and Control** that is designed to help the team determine which potential causes are most significant and most influenced by the district.

2. As a data team, analyze each possible cause to determine whether it is a likely cause by asking:

    *   Would the problem have occurred if this cause had not been present?
    *   Would the problem reoccur if the cause was corrected?

3. If the answer to both of these questions is no, you have found a likely cause.
4. Place a checkmark next to each idea that is **not** a likely cause and circle each idea that is a likely cause of the problem.
5. The next step is to use **4.4 Identifying, Collecting, and Displaying Data to Test the Potential Cause** and **4.5 Testing the Cause** to identify, collect, display, and analyze data to test the likely cause(s).

Fishbone Diagram Template Example

District/School Processes

Retention in the primary and intermediate grades

At-risk students are not identified in elementary school

No targeted counseling for students who have been retained

Students

Overage for grade

Member of a special population

Lack of engagement with school

Frustrated with lack of academic success

Problem:

Carter Tech has a large percentage of students who leave school before entering high school.

Instruction is not differentiated to meet needs of diverse student body

No real world context

No focus on relevant outcomes

Instruction

No career education in grades 7 and 8 that supports the need for high school completion

Focus on state standards alone

No focus on relevant outcomes

Curriculum

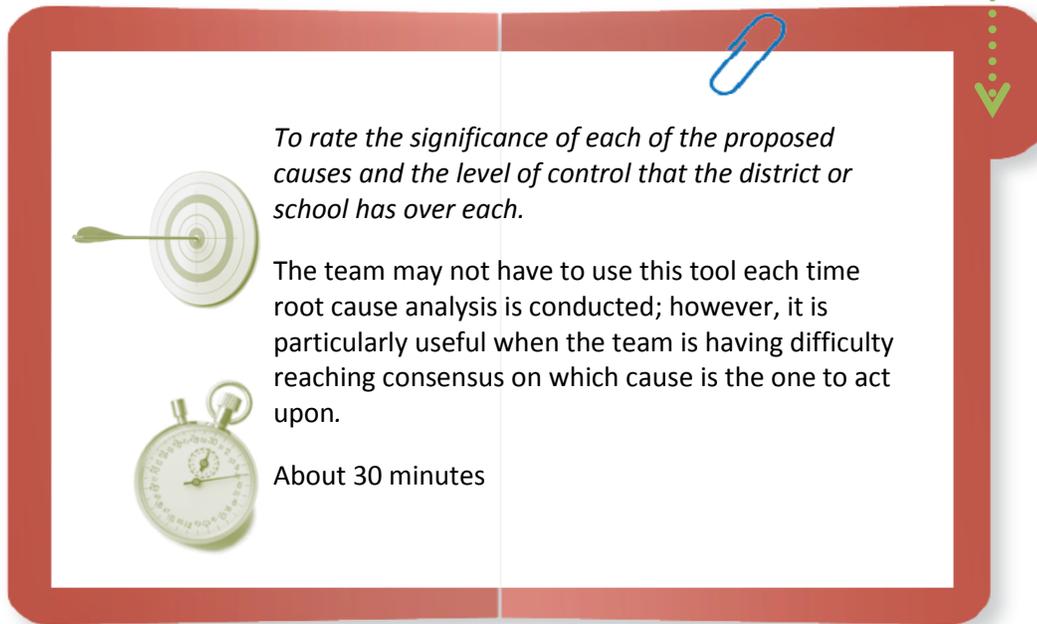## Fishbone Diagram Template

Problem:

4.3A Determining Significance and Control

To rate the significance of each of the proposed causes and the level of control that the district or school has over each.

The team may not have to use this tool each time root cause analysis is conducted; however, it is particularly useful when the team is having difficulty reaching consensus on which cause is the one to act upon.

About 30 minutes

Directions:

1. Create a Significance/Control Matrix on a piece of chart paper similar to the *Significance and Control Matrix Template* on page 28.
2. Write each of the possible causes identified in tools **3.5A Data Analysis Protocol, 3.5B Data Carousel Protocol, or 3.5C Placemat Protocol** on a separate sticky note.
3. Place each possible cause in a quadrant of the matrix based on the team's judgment about its significance as a cause of the underlying problem.
4. When all of the possible causes have been place in a quadrant of the matrix, revisit them, starting with Quadrant I (high significance). As a team, discuss the degree of control that the district or school has over each of the causes in Quadrant I.
5. Reposition each of the Quadrant I possible causes along the degree of control axis to indicate the control that the district or school has over that cause.
6. Repeat this process for the possible causes in each of the quadrants of the matrix.
7. When all of the possible causes have been positioned on the significance and control axes, those in Quadrant I represent the causes that are most significant and over which the district or school has the most control. These are the causes that should be easiest to address and which, if appropriately addressed, will have the greatest impact on student outcomes.
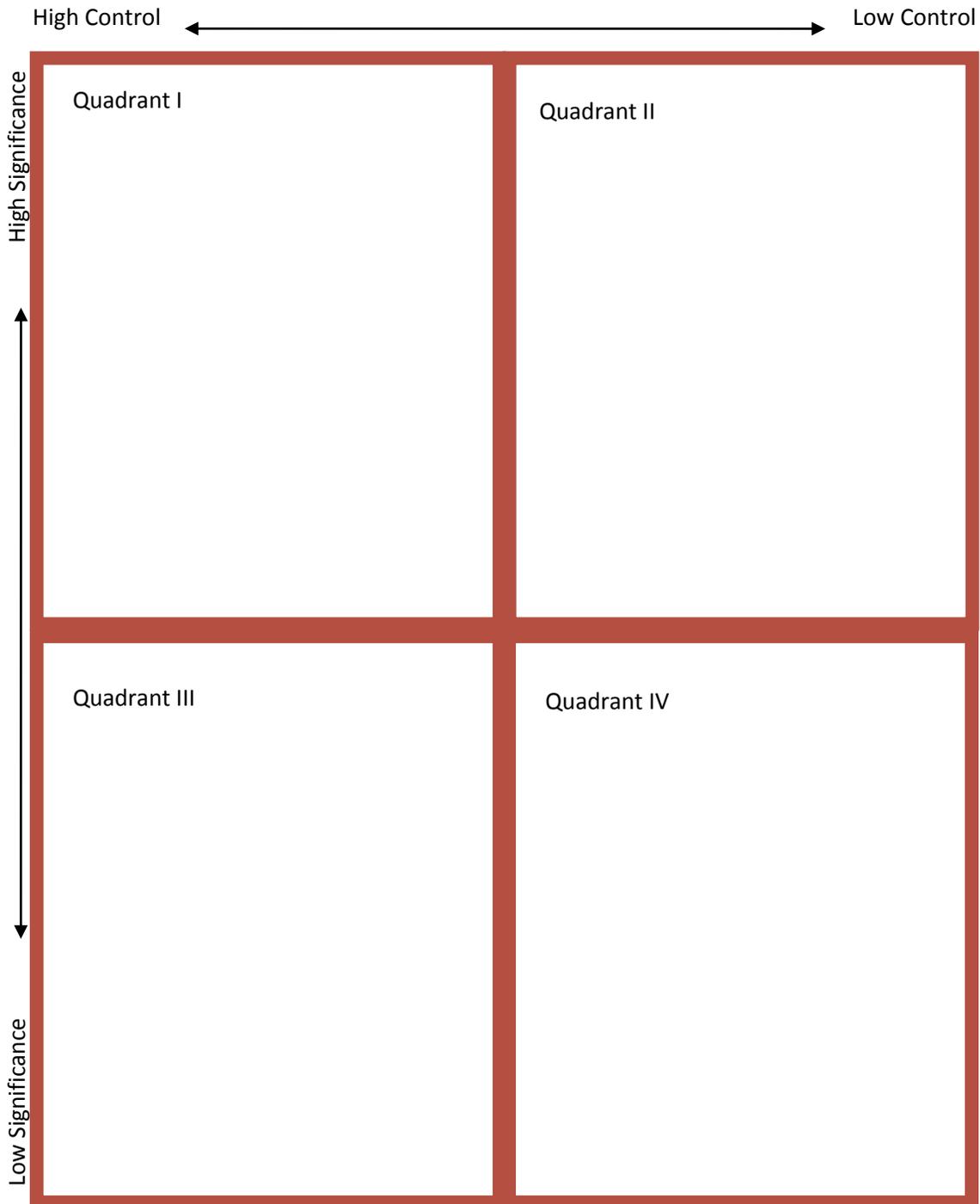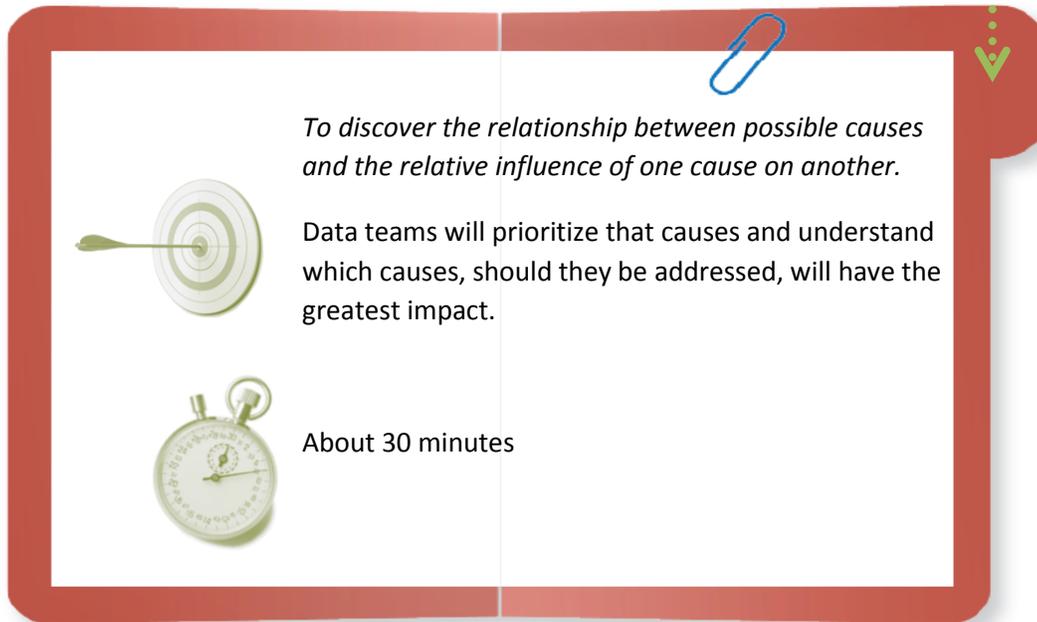
Significance and Control Matrix Template

High Control ←——————————————→ Low Control

High Significance

Quadrant I	Quadrant II
Quadrant III	Quadrant IV

Low Significance

Figure 1. Charting Significance and Control

4.3B Interrelationship Protocol

To discover the relationship between possible causes and the relative influence of one cause on another.

Data teams will prioritize that causes and understand which causes, should they be addressed, will have the greatest impact.

About 30 minutes

Directions:

Part 1: Reviewing an Example

1. Review the example of a completed *Interrelationship Chart* on page 30 of this tool to get an idea of what your team will be producing.

Part 2: Identifying Relationships

1. If you have not already done so, write each of the potential cause statements on a separate sticky note.
2. Place 4 to 6 sticky notes in a circle on a piece of chart paper. Number them in sequential order.
3. Consider two of the potential causes. As a team determine if there is a relationship between these two causes. If there is a relationship, draw a line from cause 1 to cause 2.
4. Once a relationship has been established between two causes, determine which cause exerts the most influence on the other. Place an arrowhead on the line going away from the cause that exerts the most influence. A line should not have two arrowheads, as the team must reach consensus on the cause with the most influence.
5. Repeat this process looking at the relationship between the first cause and each of the other causes.
6. After looking at the relationships between the first cause and each of the other potential causes, repeat the process for the second cause and each of the others, and so on until the influence of each cause on each of the other causes has been established.

Part 3: Identifying Control

1. You should now have a diagram on the chart paper with multiple lines running between causes and arrowheads on the lines indicating which causes have the greatest influence over their related causes. Note that some causes may not be related to any of the other causes. No line will be connected to these causes.
2. Count the number of arrowheads going away from each of the causes and record the number next to the cause. Rank order the causes based on these numbers (e.g., most arrowheads away to least arrowheads away).
3. The cause with the most arrowheads going away from it has the most effect on all the others. Thus, when addressed, this cause will have the greatest impact on the identified problem.

Interrelationship Chart Example
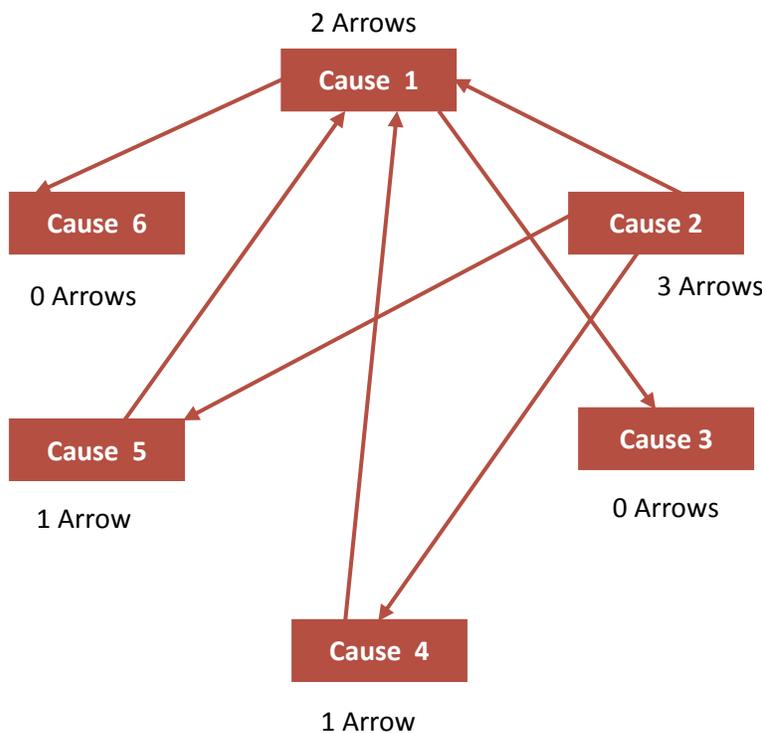
In this example[1], the causes can be rank ordered as follows based on the number of arrowheads going away.

Cause 2
3 arrowheads
Cause1
2 arrowheads
Cause4
1 arrowhead
Cause5
1 arrowhead
Cause3
0 arrowheads
Cause 6
0 arrowheads

Based on this rank ordering, Cause 2 has the greatest impact on the other causes followed by Cause 1. Causes 4 and 5 have a smaller impact on the other causes and Causes 3 and 6 have no perceived impact. This analysis suggests that Cause 2 and Cause 1, if appropriately addressed, will have the largest impact on the problem.

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[1] Adapted from Quality in Education, Inc.

4.4

4.4 – Identifying, Collecting, and Displaying Data to Test the Potential Cause
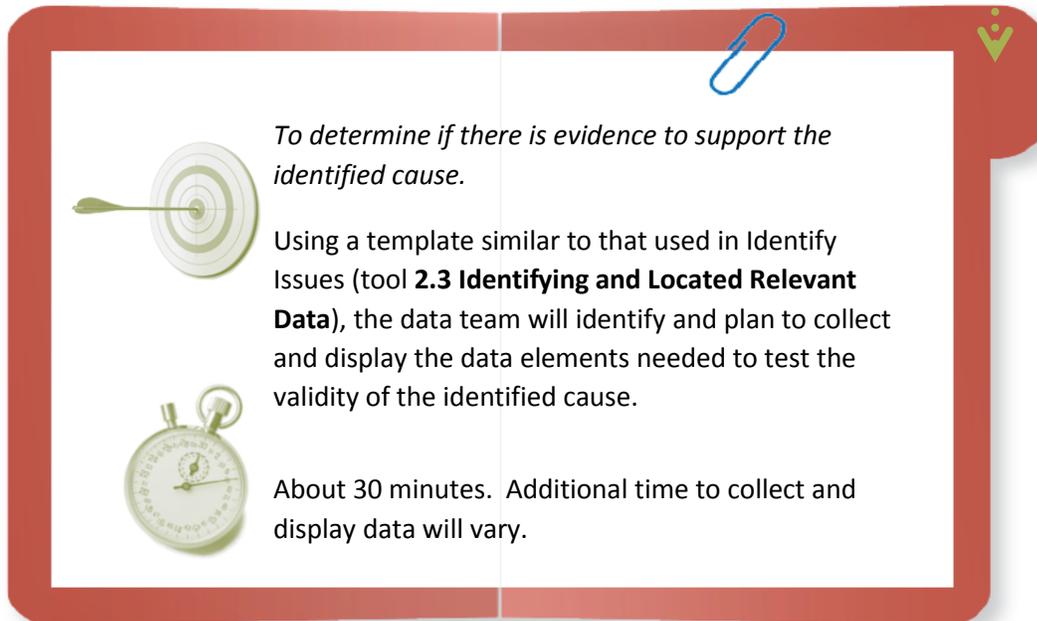
To determine if there is evidence to support the identified cause.

Using a template similar to that used in Identify Issues (tool **2.3 Identifying and Located Relevant Data**), the data team will identify and plan to collect and display the data elements needed to test the validity of the identified cause.

About 30 minutes. Additional time to collect and display data will vary.

Directions:

Part 1: Reviewing an Example

1. Review the example of an *Identifying Cause Data Template* on page 32.

Part 2: Identifying and Collecting Data

1. Use the *Identifying Cause Data Template*[2] on page 33 to help the team identify additional data needed to test the cause and plan for the collection and display of the data.
2. Record the initial issue identified at the beginning of your inquiry and the evidenced-based problem that you are investigating in the *Identifying Cause Data Template*.
3. Underneath the evidence-based problem, write the cause that you believe underlies the problem.
4. As a data team, brainstorm additional data elements that are needed to test the validity of the potential cause.
5. For each identified data element, reach agreement on a plan to collect and display the data.

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[2] Portions of this protocol were developed within the DATAUSE project (Using Data for Improving School and Student Performance) by the consortium of partners including: Public Consulting Group, University of Twente (the Netherlands), Institute of Information Management Bremen GmbH (Germany), Modern Didactics Center (Lithuania) and Specialist Schools and Academies Trust (UK). For more information on the project please visit: www.datauseproject.eu

4.4

Identifying Cause Data Example

Issue that started the inquiry:
The Hidden Valley district data team, working with the district's leadership team, identified high school completion as a priority issue in the district.

Evidence-based problem:
Carter Tech has a large percentage of students who leave school before entering high school.

Cause to be tested:
Average grade 8 students are frustrated with school and don't see the value in continuing to graduation.

Data elements needed:	Target date for collection:	Display construction plan:	Person/group responsible:
Grade 8 Healthy Youth Survey: student engagement section weighted item mean scores	November 2011	Bar chart of weighted mean item responses	John Doe and middle school guidance staff

4.4

Identifying Cause Data Template

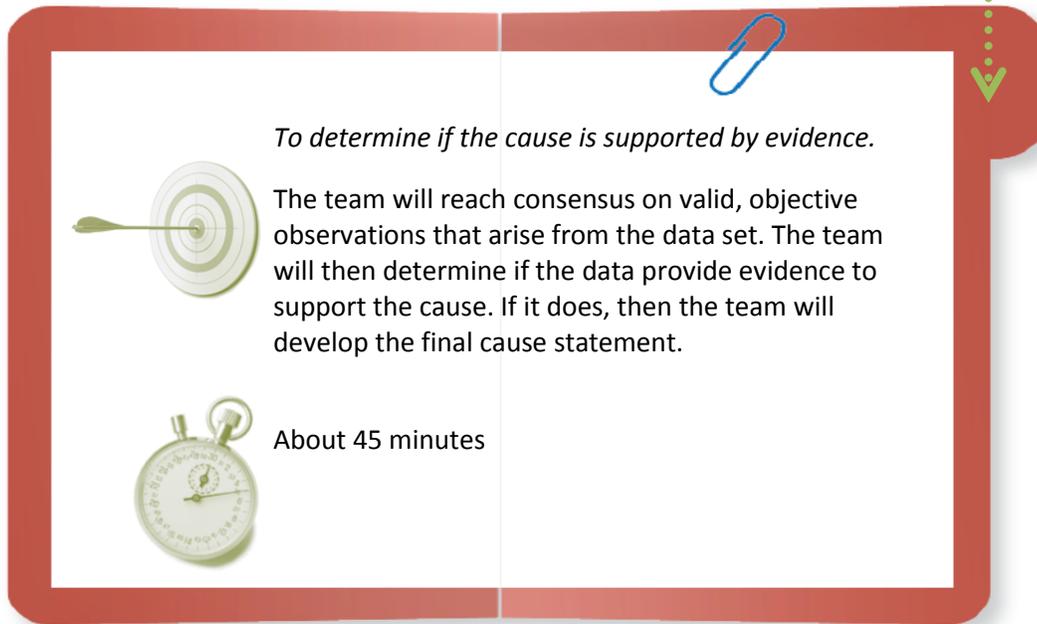| Issue that started the inquiry: |
| --- |
| |

Evidence-based problem:

Cause to be tested:

Data elements needed:	Target date for collection:	Display construction plan:	Person/group responsible:

4.5 – Testing the Cause

To determine if the cause is supported by evidence.

The team will reach consensus on valid, objective observations that arise from the data set. The team will then determine if the data provide evidence to support the cause. If it does, then the team will develop the final cause statement.

About 45 minutes

Directions:

1. Record the cause that you are investigating on the *Cause Data Analysis Template*[3] (page 36) and on chart paper.
2. Take turns making factual observations about what the data say. Refrain from making inferences. Record your observations under the cause on the *Cause Data Analysis Template* and on chart paper.
3. Review all the observations as a team. Reach consensus on those that are valid, factual observations.
4. Answer the following questions:

   - Do the new observations support the likely cause?
   - Does the likely cause need to be refined? If so, refine the statement.

5. As a team, reach consensus on the final cause statement and record it on the *Cause Data Analysis Template*.

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[3] Portions of this protocol were developed within the DATAUSE project (Using Data for Improving School and Student Performance) by the consortium of partners including: Public Consulting Group, University of Twente (the Netherlands), Institute of Information Management Bremen GmbH (Germany), Modern Didactics Center (Lithuania) and Specialist Schools and Academies Trust (UK). For more information on the project please visit: www.datauseproject.eu

4.5

Cause Data Analysis Template

Cause:

Observations (What do you see without judgment?):

Final cause statement:

4.6

4.6 – Identifying the Problem(s) of Practice

To identify a problem of practice relative to the likely cause of the learner-centered problem.

The data team will collaboratively gain a deeper understanding of the practices that are related to the likely cause.

About 30 minutes

Directions:

Part 1: Reviewing an Example

1. Review the example of a completed *Problem of Practice Template*[4] on page 38.

Part 2: Identifying the Problem(s) of Practice

1. When using the *Problem of Practice Template* (page 39), start by writing the final root cause statement in the first row.
2. Then, brainstorm district or school-based practices that could be associated with the most likely cause to the learner-centered problem. For example: "Content related to the cause is not included in the course." Record your responses on chart paper.
3. As a team, reach consensus on the practices that are most likely related to the cause. Record these practices on the *Problem of Practice Template*.
4. From these practices, reach consensus on the practice that is most likely to have the greatest impact on the cause. Record multiple practices if they are related and can be addressed through one initiative.

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[4] Portions of this protocol were developed within the DATAUSE project (Using Data for Improving School and Student Performance) by the consortium of partners including: Public Consulting Group, University of Twente (the Netherlands), Institute of Information Management Bremen GmbH (Germany), Modern Didactics Center (Lithuania) and Specialist Schools and Academies Trust (UK). For more information on the project please visit: www.datauseproject.eu
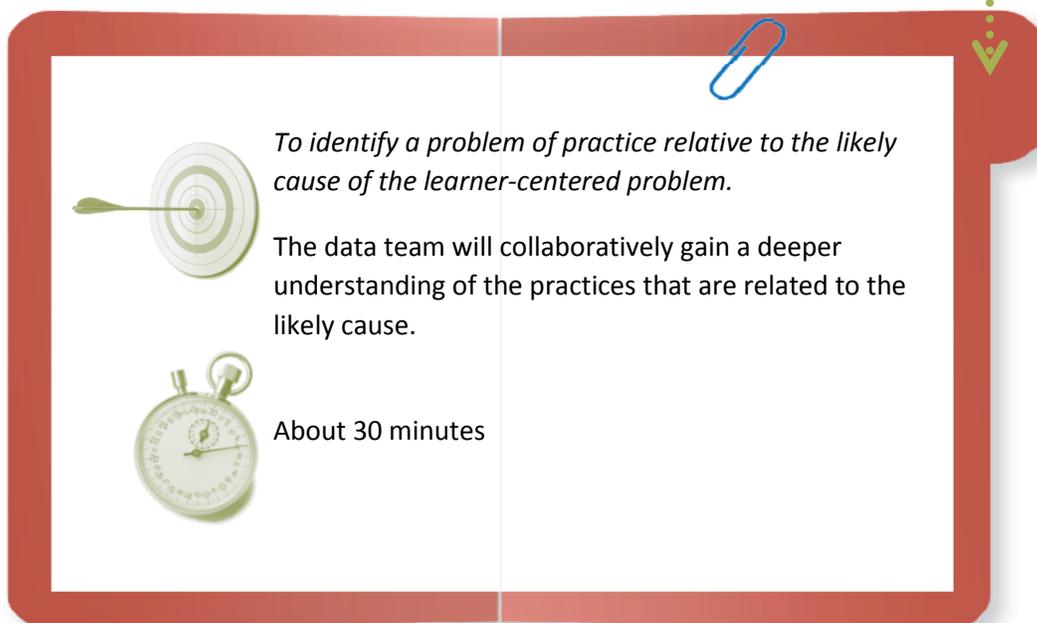
4.6

Problem of Practice Template Example

Final cause statement:
Students who have been retained one or more times in previous grades (K–7) are overage for grade 8 and, in fact, many have reached the legal age to leave school. These students see leaving school and entering the work force as a viable alternative to completing high school.

Practices that could result in the cause of the problem:
- Retention in the primary and intermediate grades.   - At-risk students aren't identified in elementary school.   - No academic support is provided for at-risk students.   - No targeted counseling is provided for students who have been retained.   - There is no career education in grades 7 and 8 that supports the need for high school completion.

Final problem(s) of practice (those that could be addressed through one initiative):
Retention with lack of academic support and counseling.

4.6

Problem of Practice Template

Final cause statement:

Practices that could result in the cause of the problem:

Final problem(s) of practice (those that could be addressed through one initiative):

4.7 – Building Your Knowledge Base
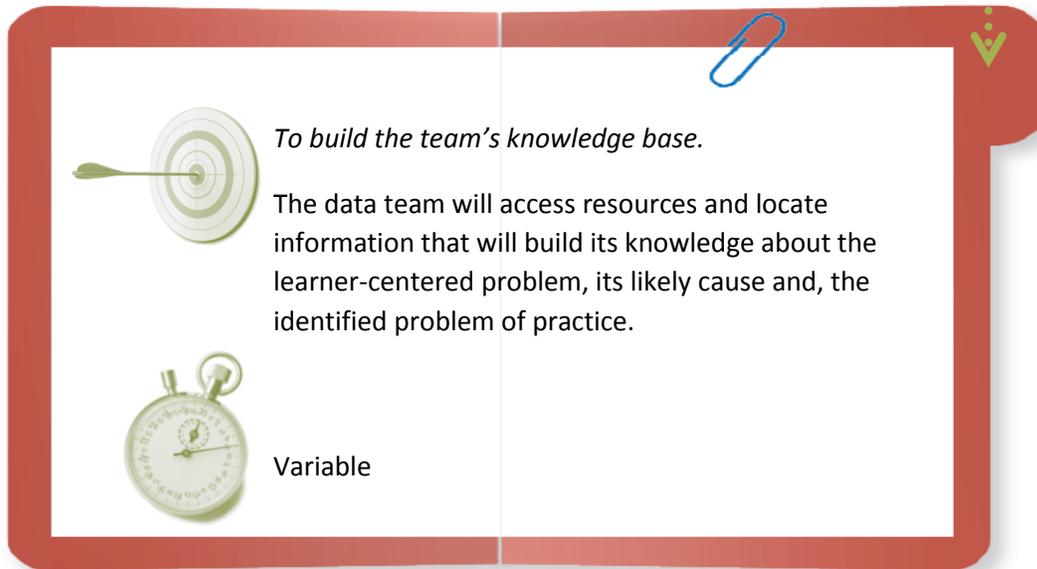
To build the team's knowledge base.

The data team will access resources and locate information that will build its knowledge about the learner-centered problem, its likely cause and, the identified problem of practice.

Variable

Directions:

1. Each team member should select the learner-centered problem, likely cause, of that problem, or one of the problems of practice to research. The What Works Clearinghouse (http://ies.ed.gov/ncee/wwc/) is a good source for literature on a wide range of issues in education that can help you gain a deeper understanding of your selected research topic. Each Education Service District (ESD) is also a great source of information on a wide range of education topics.
2. A listing of some credible education websites that might support your efforts are listed on *Education Research Websites* (page 42).
3. Summarize, in writing, what you learned through your research and share your thoughts with your data team and/or other relevant stakeholders. You might find it helpful to use *Summarizing Research Template*[5] on page 43 to guide your research.

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[5] Portions of this tool were developed within the DATAUSE project (Using Data for Improving School and Student Performance) by the consortium of partners including: Public Consulting Group, University of Twente (the Netherlands), Institute of Information Management Bremen GmbH (Germany), Modern Didactics Center (Lithuania) and Specialist Schools and Academies Trust (UK). For more information on the project please visit: www.datauseproject.eu

4.7

Education Research Websites

	Website	Brief Description
1	http://www.eric.ed.gov/	**ERIC**—Education Resources Information Center; a federal site for collected educational resources, including research.
2	http://ies.ed.gov/ncee/wwc/	**What Works Clearinghouse**—A website operated by the Institute for Education Sciences to provide "a central and trusted source of scientific evidence for what works in education."
3	http://ies.ed.gov/pubsearch/	**IES REL Network**—Institute for Education Sciences search engine for publications, including research from 10 Regional Education Laboratories.
4	http://www.relnei.org/referencedesk.2009-12-31.php	The **Regional Educational Laboratory Northeast and Islands (REL-NEI)** is part of the Regional Educational Laboratory Program. The REL-NEI Reference Desk is a free service that provides quick-turnaround responses to education-related research questions, offering a quick scan of existing research.
5	http://edadmin.edb.utexas.edu/datause/index.htm	**U. of Texas at Austin: Data Use Website**—Department of Educational Administration, College of Education; includes publications; site developed by Chief Data Champion Jeffrey Wayman.
6	http://www.sedl.org/	**SEDL**—(formerly the Southwest Educational Development Laboratory); a private, nonprofit education research, development, and dissemination (RD&D) corporation based in Austin, Texas.
7	http://www.rtinetwork.org/	**RTI Action Network**—A program of the National Center for Learning Disabilities.
8	http://www.ideapartnership.org/journals.cfm	**The IDEA Partnership**—Reflects the collaborative work of more than 55 national organizations, technical assistance providers, and organizations and agencies at state and local levels. Click on "MANY VOICES" to find hundreds of articles and citations from web-based journals and other periodicals; they are building a larger online library to open in March 2010.
9	http://www.promisingpractices.net	**Promising Practices Network**—RAND corporation's website, whose stated purpose is "providing quality evidence-based information about what works to improve the lives of children, youth, and families." All of the information on the site has been screened for scientific rigor, relevance, and clarity.

4.7

Summarizing Research Template
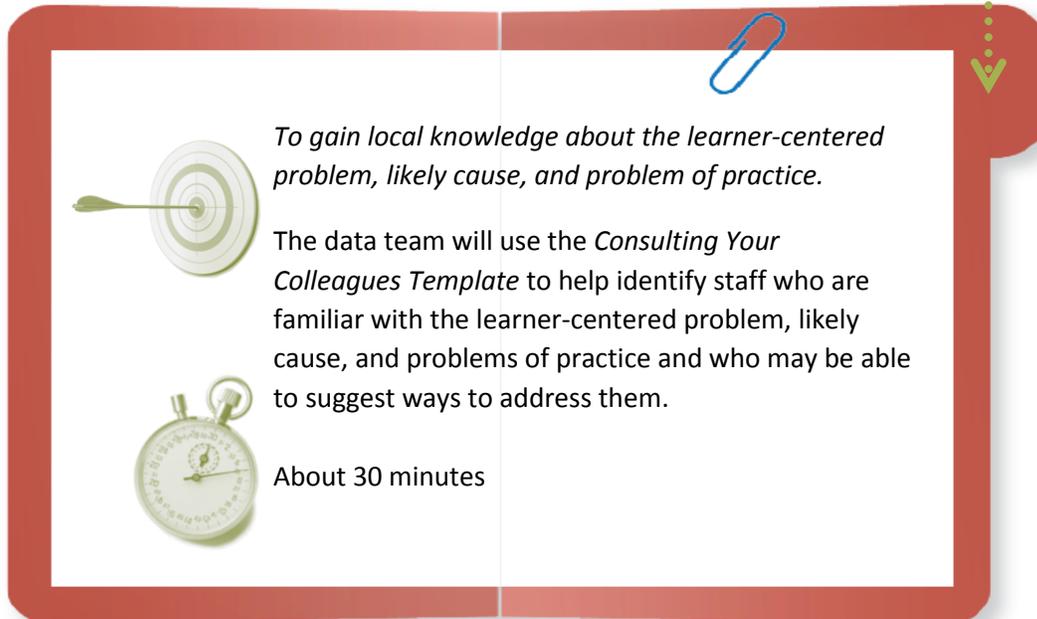
Problem of practice, likely cause, or learner-centered problem being investigated:

Specific questions to be answered:

Research source consulted:

What I learned about the questions:

4.8

4.8 – Consulting Your Colleagues

To gain local knowledge about the learner-centered problem, likely cause, and problem of practice.

The data team will use the *Consulting Your Colleagues Template* to help identify staff who are familiar with the learner-centered problem, likely cause, and problems of practice and who may be able to suggest ways to address them.

About 30 minutes

Directions:

Part 1: Organizing the Interviews

1. Record the learner-centered problem, likely cause, and problem(s) of practice that you have identified in the *Consulting Your Colleagues: Interview Organization Template*[6] (page 47)*.*
2. As a team, brainstorm individuals or groups of colleagues who may be familiar with these topics. Record your ideas on chart paper.
3. As a team, develop a list of colleagues to contact who may have insight into the team's inquiry. Record their names in the appropriate cell in the template.
4. For each colleague, record as much information as possible in the template. The categories in the template are just a start; add more information in the additional comments section of the template if appropriate.
5. As a group, assign a team member to contact each colleague and gather information to be shared with the team.

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[6] Portions of this protocol were developed within the DATAUSE project (Using Data for Improving School and Student Performance) by the consortium of partners including: Public Consulting Group, University of Twente (the Netherlands), Institute of Information Management Bremen GmbH (Germany), Modern Didactics Center (Lithuania) and Specialist Schools and Academies Trust (UK). For more information on the project please visit: www.datauseproject.eu

Part 2: Interviewing Colleagues

1. As a team, brainstorm questions that various colleagues may be able to answer. Some useful questions might be:

    - In your practice, have you encountered this underlying problem? If so, do you agree that we have identified a valid root cause and related problem of practice?
    - Has anything been done in the past to address this cause or problem of practice? If so, what strategies were effective? What strategies have been ineffective?
    - What do you do to address the cause? How effective do you find your strategy?
    - Are you aware of any good resources that can help our team build our knowledge about the root cause or problem of practice?

2. Each interviewer should use the *Summarizing Interviews with Colleagues Template* (page 48) to organize the information that they receive from their colleagues.

Part 3: Summarizing Findings

1. Conduct a team discussion where members share their findings.
2. Summarize the findings in writing for future use.

4.8

Consulting Your Colleagues: Interview Organization Template

Likely cause statement:				

Colleague's name	School	Email	Phone	It is important to consult with this colleague because…

Additional comments:

Problem of practice statement:

Colleague's name	School	Email	Phone	It is important to consult with this colleague because…

Additional comments:

4.8

Summarizing Interviews with Colleagues Template

Problem of practice or likely cause being investigated:

Specific questions to be answered:

Colleagues(s) consulted:

What I learned about the questions:

PLAN AND TAKE ACTION

Introduction – Where are we now?

In *Diagnose Causes,* the team moved the inquiry forward by identifying the learner-centered problem and succinctly stating a problem of practice that it felt contributed to that problem. The team then consulted the literature and their colleagues to increase their understanding of the learner-centered problem and the problem(s) of practice.

In *Plan and Take Action,* the team will build its capacity to design and monitor a plan for the implementation of an initiative that will solve the problem(s) of practice and positively impact the learner-centered problem that it identified in *Identify Issues* and *Understand Issues* and clearly stated in *Diagnose Causes*.

| Getting Ready | Identify Issues | Understand Issues | Diagnose Causes | **Plan and Take Action** | Evaluate Results |

Upon completion of *Plan and Take Action*, you will have:

- Written clear and measurable end state descriptions
- Identified best practice strategies to address the problem (s) of practice
- Created a logic model that links strategies to end states
- Developed a detailed action plan for the implementation of the identified strategies
- Constructed an implementation monitoring plan

| **Tools** |

- 5.1: Describing the Desired End State
- 5.2: Writing Measurable Statements
- 5.3: Identifying Potential Strategies
- 5.4: Rating Strategies' Potential for Success
- 5.5: Rating Feasibility of Implementation
- 5.6: Constructing a Logic Model
- 5.7: Developing an Action Plan
- 5.8: Developing an Implementation Monitoring Plan

WSIPC™

Defining Clear and Measurable End States

What do we Hope to Gain Through Implementing our Initiative?

To develop an effective plan of action, a data team needs to know what the plan is designed to accomplish, the desired end state, and how the team will know when that end state has been reached. Through the earlier steps in the inquiry process, your team has defined a learner-centered problem that underlies the priority issue and the related problem(s) of practice. The action plan to be developed will be designed to solve the problem(s) of practice, which will mitigate or eliminate the learner-centered problem and thus effectively address the priority issue that initiated the inquiry. The challenge is to express these results in terms that can guide the implementation of the initiative, provide feedback on its progress, and signal when the task has been completed.

The desired end state for the initiative is often called the impact, goal, outcome, target, or the objective. These terms are used in different contexts and can be confusing. To facilitate your work in *Plan and Take Action*, let's operationally define them as follows:

Impact	A longer-range, high-level result of the initiative that is not always directly measurable, such as increased motivation to do well in school.
Goal	A high-level result of the initiative stated in general terms, such as improved student performance in mathematics.
Outcome	A longer-range measurable change in behavior, such as continually improving grade 10 mathematics test scores.
Target	A shorter-range measurable change, such as an annual increase as part of a multi-year initiative.
Objective	Very specifically stated measurable result of a strategy or action steps taken to implement that strategy, such as adjusting the master schedule to allow collaboration time for teachers.

Another common point of confusion results when people think of strategies as the end state and not as the means to attain the desired end state. Strategies and goals are often interchanged in peoples' minds. It is our challenge to continually think of strategies, and the initiative itself (a collection of strategies), as the means to attain the desired end state, and think of impact, goals, outcomes, and targets as terms that describe that end state at different levels of immediacy or specificity.

> It is our challenge to continually think of strategies, and the initiative itself (a collection of strategies), as the means to attain the desired end state, and think of impact, goals, outcomes, and targets as terms that describe that end state at different levels of immediacy or specificity.

Examples of Desired End States Related to Problems of Practice

1. A majority of teachers will effectively use differentiated instructional techniques to meet the varied needs of learners in their classrooms.
2. All teachers will use data on their students' performance to individualize instruction.
3. Each teacher team will routinely use data to inform grade-level program decisions.
4. Administrators will use student growth data and classroom observation rubrics to improve the performance of individual teachers.

Examples of Desired End States Related to Learner-Centered Problems

1. The school as a whole, and each NCLB subgroup, will meet AYP targets annually.
2. The cohort graduation rate will increase each year.
3. High school graduates will be college and career ready.
4. Unexcused absences from school will decrease each year at all grade levels.

Constructing a Meaningful End State Description

When writing a description of a desired end state, the terms **S**pecific, **M**easurable, **A**ttainable, **R**ealistic, and **T**imely are often used. The acronym S.M.A.R.T[1] is commonly associated with goals and objectives that are built with these characteristics in mind.

- **S**pecific end states are more likely to be achieved than those that are more loosely defined.
- **M**easurable end states have concrete criteria than can be used to monitor progress and provide evidence that the end state has been reached.
- **A**ttainable end states are those that the team believes can be reached. Most any end state is attainable if the action plan is constructed wisely, the time frame is adequate, and all those involved in the planning and implementation of the initiative are committed to success.
- **R**ealistic end states are those that the team and stakeholders are both willing and able to work toward. An end state can be high and realistic, since a high goal often brings out the best in those who are implementing the initiative.
- **T**imely end states are set in a time frame. Without a time frame, there is no sense of urgency and less effort and fewer resources may be devoted to the initiative.

Specificity when describing an end state is essential. When developing end state descriptions, it is critical to include specific information about who will be impacted by the initiative, what change will occur as a result of the initiative, the magnitude of the desired change, and the time frame. In addition, the team must determine if the end state they are describing is realistic and attainable within the real world context in which they function.

Determining the magnitude of the desired change often presents a challenge when teams are constructing measurable end states. The question is, how do you know what is a realistic and attainable change within the context of a given situation? Faced with this challenge, teams often look to their collective guts to set the magnitude of the improvement target without considering hard evidence about past performance or other available data. As a result, the target may be set too high or too low. It

is recommended that as much data about the impacted population as possible be analyzed to help the team set a realistic and attainable magnitude for the desired change.

Tools **5.1 Describing the Desired End State** and **5.2 Writing Measurable Statements** are related tools that will help the data team vision the results of the successful initiative and define that vision in measurable terms. Tool **5.2 Writing Measurable Statements** provides background on the four elements of a good end state description and gives the team an opportunity to apply what it has learned.

- **Describing the Desired End State**
- **Writing Measurable Statements**

5.1, 5.2

At Hidden Valley

Once the Hidden Valley Data Team had clearly stated the learner-centered problem and problem of practice, and had gathered research and local data on each, team was in a position to describe, and state in measurable terms, the desired end state that would result when the problems were appropriately addressed. After using tool **5.1 Describing the Desired End State** to build its capacity to identify the end states, the team used tool **5.2 Writing Measurable Statements** to help them describe the desired end state for student outcomes and professional practice and to write measurable outcome statements for each. The team described the end states as:

Measurable Learner-centered End State (student outcomes):

The percentage of students who leave Carter Tech at the end of 8th grade will decrease from 70% in 2009–10 to 30% in 2012–13.

Change in Practice:

A system of tiered intervention to provide academic support and counseling for grade 7 and 8 students who may not meet the criteria for advancement to the next grade will be implemented in lieu of retention by the beginning of the 2011–12 school year.

Identifying Potential Best Practice Strategies

Once any team has written a measurable statement that describes the desired end state, it needs to determine how best to address the identified problem of practice so that the end state can be realized. In *Diagnose Causes*, you and your team explored ways to learn as much as possible about the identified learner-centered problem and related problem of practice. Tools **4.7 Building Your Knowledge Base** and **4.8 Consulting Your Colleagues** helped the team begin to identify best practice strategies described in the literature and employed by their colleagues to reach the desired end state.

At Hidden Valley

Based on the research that it has done, the Hidden Valley Data Team has described the desired end states in measurable terms and can move forward to identify high impact strategies that are feasible to implement given the context of their local situation. The team used tools **5.3 Identifying Potential Strategies** and **5.4 Rating Strategies' Potential for Success** to help identify these strategies and to select those that would be feasible to implement.

The team decided to implement an initiative based on the following strategies:

- *Differentiated instruction through tiered interventions (RtI)*
- *Elimination of the retention policy*
- *Enhanced college and career counseling*
- *Targeted counseling and support for at risk students*

Armed with the knowledge gained from consulting the literature and colleagues, a team is now in a position to identify strategies that may address the root cause and problem of practice. Once identified, the team can decide which of the strategies are most likely to be effective in achieving the desired end state. Tools **5.3 Identifying Potential Strategies** and **5.4 Rating Strategies' Potential for Success** will help the team identify and select high impact strategies.

- **Identifying Potential Strategies**
- **Rating Strategies' Potential for Success**

5.3, 5.4

It takes more than a good set of strategies to ensure the problem of practice will be solved. The capacity of the organization and infrastructure will also impact the success of the initiative. Once the high impact strategies have been identified, the data team can use tool **5.5 Rating Feasibility of Implementation** to determine if the institutional environment will support the identified high impact strategies. Through the use of tools **5.3 Identifying Potential Strategies**, **5.4 Rating Strategies' Potential for Success**, and **5.5 Feasibility of Implementation**, the data team will be able to select the evidence-based strategies that will have the most impact on the problem(s) of practice and that are likely to be successfully implemented.

Rating Feasibility of Implementation

5.5

Implementation, Scaling-up, and Sustainability

Now that you have researched best practice and high-impact strategies to address the learner-centered problem and the problem(s) of practice, it is time to plan for the implementation of those best practices through action planning. Before we begin the actual planning, however, it is important to take a step back and think about the implementation process.

In 2003, Grigg, Daane, Jin, & Campbell (in Fixsen, Naoom, Blase, & Frances, 2007[2]) noted that in the 20 years since *A Nation at Risk* was published, billions of dollars had been spent on high-quality scientific research to identify best practices that can be employed by educators to improve the performance of students in the United States. Over this time period, "… the National Assessment of Educational Progress showed the achievement of U.S. students was virtually identical to what it was in the early 1980s." In the article *Implementation: The Missing Link between Research and Practice,* Dean Fixsen and his colleagues make the case, based on their synthesis of the literature on implementation science, that the quality of the implementation process is the key link between sound research and desired outcomes (Fixsen et al, 2007). That being said, it is particularly important for your data team, and the other stakeholders involved in efforts to address the identified problems, to pay close attention to the fidelity and intensity of the implementation of the evidence-based best practices you have selected as you develop the action plan that will guide your work over time.

In addition to fidelity and intensity issues, the data team and stakeholders need to consider the infrastructure that needs to be in place to not only promote effective implementation, but to also set the stage for taking the initiative to scale—ensuring that an effective initiative impacts the majority of students—and promoting the sustainability of the initiative over time.

The State Implementation and Scaling-up of Evidence-based Practices (SISEP) Center located at the Child Development Institute of the University of North Carolina has researched and disseminated strategies to help states establish capacity to carry out effective implementation, organizational change, and systems transformation. The Center defines scaling-up innovations in education as providing the initiative to at least 60% of the students who could benefit from them. To accomplish this, states, districts, and schools must capitalize on every opportunity to develop and institutionalize the infrastructure needed to support the full and effective use of the initiative.

The Center notes that many initiatives or innovations that implement evidence-based best practices do so as pilot or demonstration projects and that, although these efforts are a necessary part of the change process, they rarely lead to widespread or sustainable use. The Center's research suggests that part of the reason for this is that attention is not paid to making the systems changes (e.g., policy, funding, and/or regulatory changes) or establishing implementation capacity. To overcome this, the Center suggests that organizations establish transformation zones that address not only the initiative, but also focus on infrastructure development. Transformation zones "…establish simultaneously new ways of work (the intervention) and the capacity to support the new ways of work (infrastructure to assure effective use of the intervention)."[3] At the outset, the transformation zone is a relatively narrow vertical slice through the organization centered on the initiative that touches all aspects of the infrastructure that are necessary to support the effectiveness of implementation. As success of the initiative is

supported through progress monitoring and the evaluation of outcomes, the transformation zone can be broadened to encompass a larger segment of the organization and impact a larger population (i.e., it can be scaled-up). Additionally, since attention has been paid to building the infrastructure necessary to support the successful initiative, the stage has been set to sustain the initiative over time. As a result, "…in four or five years the entire system is in the transformation zone, and the innovation and the implementation infrastructure are embedded as standard practice."[4]

As the data team moves forward with the action planning and evaluation components of the *District and School Data Team Toolkit*, it is important to keep these concepts in mind. Action plans and implementation monitoring plans should include action steps and feedback mechanisms that address not only the evidence-based best practices, but the process of implementation and infrastructure development.

Please see the Resources portion of this toolkit on page 14 for further information on stages of implementation, the core components or key drivers of the implementation process, and the infrastructure or systems that need to be in place or considered up front to enhance the effectiveness, impact, and sustainability of the initiative.

Creating a Logic Model

So far we have defined problems and desired end states. It may be tempting to leap into action right now, or at the very least begin articulating the action steps that can and should be taken on route to your success. However, before launching action, it is useful to begin by developing a high level map of your course from current state to end state.

A logic model shows the logical connection between the initiative (one or more strategies) and the desired end state or result. The logic model is expressed in terms of an **If… Then** proposition (just like we learned in our high school geometry class).

> A logic model shows the logical connection between the initiative (one or more strategies) and the desired end state or result.

If *X* is true, **Then** *Y* will logically follow.

In the case of action planning, the proposition is: **If** the high-impact strategies are implemented faithfully and effectively, **Then** the problem of practice will be corrected and the learner-centered problem solved. This logic model shows the overall relationship between the strategies and the desired end state. The logic model can also contain more limited propositions that show the relationship between strategies and objectives, objectives and action steps, implementation indicators and interim outcomes.

In addition to helping the team shape the steps of its action plan, the logic model will facilitate communication with stakeholders about the outcome of the initiative and how the actions being taken are connected to those outcomes.

At Hidden Valley

In preparation for creating an action plan for the implementation of their initiative, the Hidden Valley Data Team created a high-level logic model to guide its work. The team used tool **5.6 Constructing a Logic Model** to create a logic model that was based on the general proposition that:

IF *we implement the best practice strategies with appropriate fidelity and intensity,*

THEN, *the desired measurable end states will be achieved.*

In conjunction with the development of the logic model, the team also reviewed tool **6.1 Developing an Evaluation Plan** to ensure that they were mindful of the provisions that need to be made, up front, to ensure that the team would have the data to provide evidence of the success of the initiative.

Tool **5.6 Constructing a Logic Model** provides a template that will help the team develop a model to guide the construction of the action plan needed for the implementation of the initiative. The logic model the team creates will

Constructing a Logic Model	5.6

also be critical for evaluating the impact of its work later. As the team prepares to construct a logic model, it should also review **6.1 Developing an Evaluation Plan** to be sure to lay the groundwork for evaluating the improvement effort. As the team works through the development of the logic model, it needs to keep the following proposition in mind:

- **IF** we successfully implement the high-impact strategies to address the problem of practices, **THEN** we can expect to reach the measurable objectives related to each strategy.
- **IF** each objective is reached, **THEN** the problem of practice improvement target will be attained.
- **IF** the problem of practice improvement target is attained, **THEN** the learner-centered problem improvement target should be met.

Developing an Action Plan

The logic model provides a firm conceptual base that will enable the team to develop an action plan for the implementation of the initiative. Where the logic model is a conceptual overview of your intended course, the action plan spells out the detailed steps of the implementation process.

The action plan provides the practical information needed for the successful implementation of the initiative by identifying:

- The desired end state/improvement target
- Each of the high-impact strategies that will lead to the desired end state
- Measurable objectives to guide the implementation of each of the strategies
- A person responsible for overseeing the implementation of each strategy/objective/ action step
- The steps that need to be taken to achieve each objective. Each action step should be focused on reaching one of the measurable objectives or working together with other action steps to reach an objective. Keep them simple!
- A timeline for implementation (date at which an action step is completed or, in the case of an ongoing action, is up and running)
- Inputs or resources needed to support the implementation effort

At Hidden Valley

The logic model constructed by the Hidden Valley Data Team provided guidance for the development of an action plan that described the nuts and bolts of the implementation effort. The team used the logic model and tool **5.7 Developing an Action Plan**.

Tool **5.7 Developing an Action Plan** provides a template for constructing an action plan that includes the information referenced above.

Developing an Action Plan　　　　　**5.7**

Constructing an Implementation and Monitoring Plan

Many teams feel that their work is done once the action plan has been constructed—actually the work has just begun. The challenge now is to ensure that the implementation of the initiative is conducted as planned and that adjustments are made in response to feedback and data analysis. The monitoring and fine tuning of the initiative will be much easier if the team has:

1. Identified and clearly stated the priority issue and learner-centered problem
2. Identified and clearly stated the problem of practice that contributes to the learner-centered problem
3. Created measurable end state statements
4. Identified best practice strategies shown to have an impact on the problem of practice Constructed measurable objectives for each strategy
5. Developed a complete action plan

Using what you have learned and written into your action plan, your team can now create an implementation monitoring plan that will allow the team to systematically collect, analyze, report, and act on data generated as the initiative is implemented. Through the use of this formative feedback (data collection and analysis), the team will be able to make mid-course corrections as necessary and, of equal importance, report progress to stakeholders.

Critical to the effectiveness of an implementation monitoring plan is the identification of implementation and progress indicators that not only report on the completion of action steps, but also provide information about the effect that those actions have had. For instance, it is necessary to gather data on the number of professional development sessions that were held and the number of participants at each session (often referred to as outputs), but those data are not sufficient to inform decisions about the effectiveness of those professional development sessions. Additional data need to be collected on how teacher behavior has been changed through participation in the professional development sessions (e.g., are teachers now able to implement the strategy that was introduced through the professional development session?)

> ### At Hidden Valley
>
> With the completed action plan in hand, the Hidden Valley Data Team took a step back to think about how it would monitor the implementation of the plan to ensure that the strategies were carried out with appropriate fidelity and intensity and that progress was being made toward the desired end states. Using the action plan and tool **5.8 Developing an Implementation Monitoring Plan** as a guide, the team identified implementation indicators and interim outcomes that would provide evidence that the initiative was on the right track. Feedback derived from these indicators and outcomes would also enable the team to make mid-course corrections if necessary and would provide information on the initiative's progress that could be reported to stakeholders on a regular basis.

By creating an implementation monitoring plan, the team will be proactive in identifying factors that will inform its decisions about the progress of the initiative and what changes need to be made as the initiative moves forward. By identifying up front the data needed to inform the team's decisions and how and when those data will be collected, the team will ensure that the data will be available when needed to monitor progress and

> **Developing an Implementation Monitoring Plan**
>
> **5.8**

communicate with stakeholders. Tool **5.8 Developing an Implementation Monitoring Plan** provides instructions that will help the team develop an effective implementation monitoring plan. The template provided will enable the team to walk, step-by-step, through the identification of implementation indicators and interim outcomes for each strategy and its associated objectives. In each cell of the template, the team can identify activities, participation, adult and student outcomes, and the data needed to inform decisions about each of these indicators.

Summary

Through *Getting Ready* to *Plan and Take Action* of the *District and School Data Team Toolkit*, the data teams have learned how to identify a critical issue, the learner-centered problem, and the problem(s) of practice that contribute to the leaner-centered problem . The team has developed an action plan to address the issue and an implementation monitoring plan to ensure that the plan is implemented faithfully and with appropriate intensity.

A thoughtfully designed intervention addresses the learner-centered problem and the associated problem of practice. If effectively implemented, the intervention leads to improved practices, the solution of the learner-centered problem and improved outcomes for students. Figure 1 below summarizes the process.
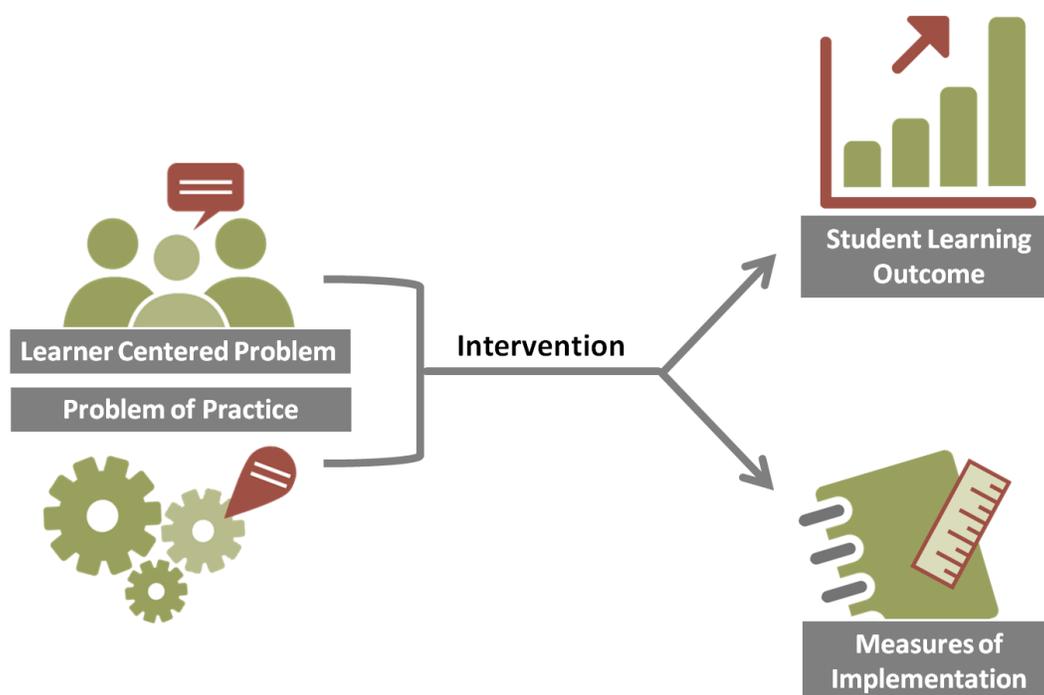
Figure 1. End States Flow Chart   **©2012 Public Consulting Group, Inc.**

As the initiative is implemented, the team will monitor its progress and make mid-course adjustments as indicated. The team will assess the implementation indicators and interim outcomes to ensure that the initiative is being implemented faithfully and with appropriate intensity. They will also use the monitoring information to keep stakeholders informed of the progress of the initiative. In *Evaluate Results*, the team will develop the skills necessary to plan, conduct, and report on the evaluation of the initiative. They will identify, up front, the data that will need to be collected to provide the evidence they will need to answer two fundamental questions: 1) Did the initiative have the desired impact? 2) Why was, or wasn't, the initiative effective? The logic model, objectives, and measurable end state descriptions developed in *Plan and Take Action* are critical components of the evaluation plan that the team will develop and eventually implement. Now the challenge is to implement the plan and evaluate the results.

References

[1] Top Achievement. (n.d.). *Creating S.M.A.R.T. Goals.* Retrieved 2012, from TOP Achievement Self Improvement An Personal Development Community: http://topachievement.com/smart.html

[2] Fixsen, D. L., Naoom, S. F., Blase, K. A., & Frances, W. (2007). Implementation: The Missing Link Between Research and Practice. The APSAC Advisor.

[3] State Implementation and Scaling-up of Evidence-based Practice (2010). Tools to support the Development of a coherent and Aligned System FPG Child Develop Institute, University of North Carolina Chapel Hill, The National Implementation Research Network, September, 2010.

[4] State Implementation and Scaling-up of Evidence-based Practice (2010). Stage-Based Measures of Components: Installation Stage Action Planning Guide for Implementation FPG Child Develop Institute, University of North Carolina Chapel Hill, The National Implementation Research Network, Page 2, September 2010.

Resources

- *An Implementation Informed Approach to Education Initiatives in Washington State*: State Implementation and Scaling-up of Evidence-based Practices (SISEP): University of North Carolina FPG Child Development Institute; PowerPoint Presentation: Chapel Hill, NC. June, 2012.
- *Stages of Implementation: An Introduction*: State Implementation and Scaling-up of Evidence-based Practices (SISEP): University of North Carolina FPG Child Development Institute; Chapel Hill, NC
- *Implementation Action Plan*: State Implementation and Scaling-up of Evidence-based Practices (SISEP): University of North Carolina FPG Child Development Institute: Chapel Hill, N.C. Adapted from *MiBLSi 10/20/11.*
- *Implementation Drivers by Stage of Implementation:* National Implementation Research Network (NIRN);
- *Implementation Drivers: An Initial Conversation When Planning or Reviewing a Practice, Program or Initiative:* National Implementation Research Network (NIRN).

5.1 Describing the Desired End State
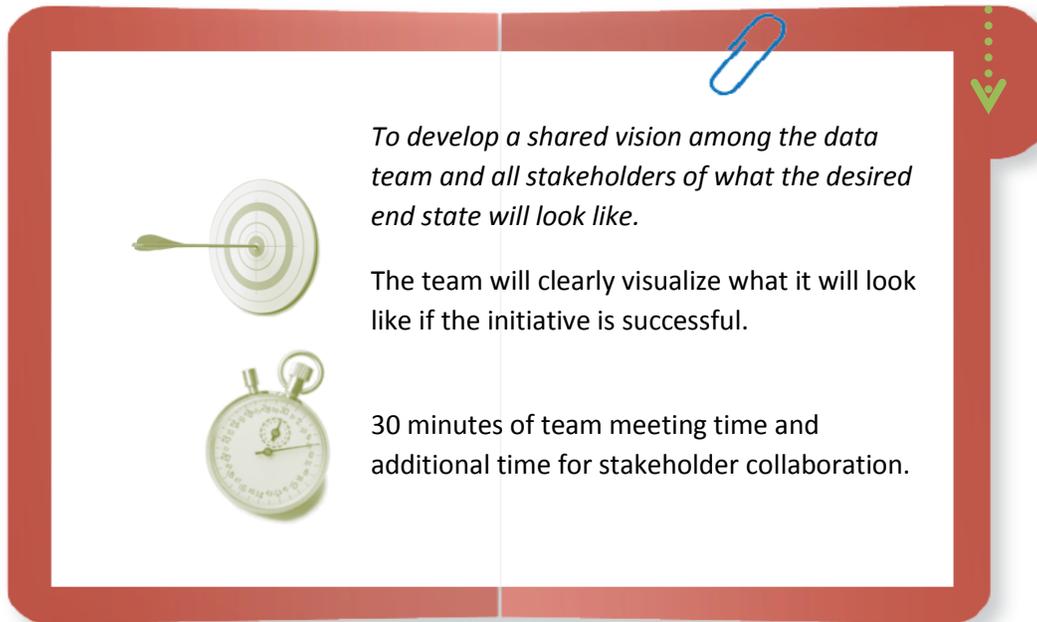
To develop a shared vision among the data team and all stakeholders of what the desired end state will look like.

The team will clearly visualize what it will look like if the initiative is successful.

30 minutes of team meeting time and additional time for stakeholder collaboration.

Before planning and taking action, it is critical for all stakeholders to share a common vision of the desired outcome of the initiative. The team has identified and achieved consensus on the learner-centered problem and the problem of practice. It is now important for the team to clearly visualize what it will look like, the desired end state, if the initiative is successful in addressing the problem of practice and the underlying problem. Examples of desired end states can be found on page 3 of the *Plan and Take Action* handbook.

Directions:

1. Based on your research and feedback gathered from your colleagues, work with your team to brainstorm the desired end state[1]: what it would look like if the identified problem of practice was solved. Appoint a note taker to record your suggestions on chart paper.
2. Once each team member has made his/her suggestions, reach consensus on a succinct description of what the desired end state should look like.
3. Using Tool **1.4D Communication Organizer Template** introduced in *Getting Ready*, share the team's description of the desired end state with key stakeholders. Adjust the statement based on stakeholder feedback as appropriate.

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[1] Portions of this tool were developed within the DATAUSE project (Using Data for Improving School and Student Performance) by the consortium of partners including: Public Consulting Group, University of Twente (the Netherlands), Institute of Information Management Bremen GmbH (Germany), Modern Didactics Center (Lithuania) and Specialist Schools and Academies Trust (UK). For more information on the project please visit: www.datauseproject.eu

5.2 Writing Measurable Statements
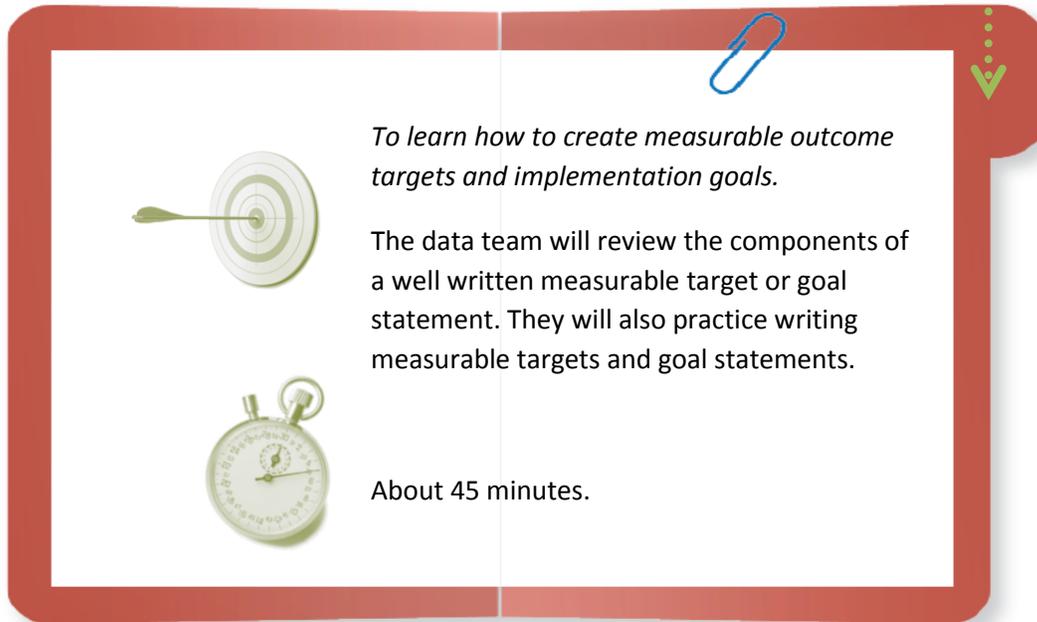
To learn how to create measurable outcome targets and implementation goals.

The data team will review the components of a well written measurable target or goal statement. They will also practice writing measurable targets and goal statements.

About 45 minutes.

Directions:

1. Review *Elements of a Well-Written Measurable Statement* [2] (page 18).
2. Using the *Elements of a Well-Written Measureable Statement* document as a guide, each data team member should create a well-written statement for each of the scenarios described on pages 19–24 by:

   - Identifying each of the four elements of a well-written measurable statement
   - Writing a clear target/goal statement

3. As a data team, reach consensus on the most appropriate measurable statement for each scenario. Possible answers are included in *Possible Answers to Scenarios* (pages 25–30). You may want to consult the answers after your discussion.

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[2] Portions of this tool were developed within the DATAUSE project (Using Data for Improving School and Student Performance) by the consortium of partners including: Public Consulting Group, University of Twente (the Netherlands), Institute of Information Management Bremen GmbH (Germany), Modern Didactics Center (Lithuania) and Specialist Schools and Academies Trust (UK). For more information on the project please visit: www.datauseproject.eu

5.2

Elements of a Well-Written Measurable Statement

Typical Goal or Desired Outcome

- Increase the achievement of all students in mathematics.

Typical Goal Statement

- Increase the percentage of students who score at the proficient level on the state mathematics assessment.

A clearer and more useful statement would address the following questions:

1. What will change?

- The percentage of students who score at the proficient level.

2. For what population?

- All students who are taking the state assessment.

3. By how much?

- In this example, the target could be to reach 80% in 4–5 percentage point annual increments.

4. By when?

- In this example, within 5 years.

The resulting measurable statement (compare to the typical statement above):

- To increase the percentage of all students who score at the proficient level on the state mathematics assessment to 80% within the next five years.

A Few Words about Targets and Timeframes

Sometimes the ultimate target we must set or the timeframe in which we must accomplish our goals are given to us by state or district policies that are outside of our control. For example, NCLB required schools to have an ultimate goal of all students reaching proficiency in reading and mathematics by 2014. If a target and timeframe have been handed down to you, the gap between the current proficiency level and the target level could be broken down into annual incremental targets if desired.

(Target level - current level)
(Target year-current test year)

If an external target and timeframe are not given, it is important to set them in a meaningful and realistic way. For example, if the percent proficient at the state level is 75% and the percent proficient in similar districts is 78%, those might be realistic targets to strive for. If the local percent proficient in math was 58%, 56%, 57%, and 59% over the past four years, it is unlikely that 80% of the local students would be proficient after the first year of the intervention. It would be more realistic to set a target of 80% after five years of the initiative with a predicted 4–5 percentage point increase each year to reach the 80% level in about five years.

5.2

Scenarios

Scenario 1A: Learner-Centered Problem End State Description

The Hidden Valley School District needs to determine if the new grade 3–6 reading program purchased in 2009 and used with the English language learners (ELLs) with special needs has been effective in reducing the performance gap between special education and general education ELLs as measured by the Measurements of Student Progress (MSP) reading test from 10 percentage points to 0 by the 2012 test.

Elements:

- What will change?
- For whom?
- By how much?
- By when?

Statement:

Scenario 1B: Problem of Practice End State Description

The performance gap in reading between ELL students with special needs and general education students with special needs did not decrease since the introduction of the new reading series in 2008–2009 as measured by the 2010 Measurements of Student Progress (MSP) reading test. Staff surveys and supervisor observations confirmed that teachers were not adequately prepared to implement the new reading program. A summer workshop with embedded professional development for all teacher teams was held during the 2010–2011 school year to address this problem of practice.

Elements:

- What will change?
- For whom?
- By how much?
- By when?

Statement:

Scenario 2A: Learner-Centered Problem End State Description

In response to chronically low mathematics performance across the district, the superintendent reallocated resources from the professional development budget to the salary account to fund the hiring of mathematics coaches to provide embedded professional development for the middle school mathematics teachers in one of the two district middle schools. The superintendent hoped to see a significant increase in the percent of proficient students (at least a 10 percentage point increase) in the middle school students whose teachers had participated in the embedded professional development provided by mathematics coaches within three years.

Elements:

- What will change?
- For whom?
- By how much?
- By when?

Statement:

Scenario 2B: Problem of Practice End State Description

Through surveys and conversation with her staff, the K–12 math supervisor determined that the majority of middle school math teachers did not have the content or pedagogic background needed to successfully implement the new standards-based mathematics curriculum. She convinced the superintendent to reallocate resources from the professional development budget to the salary account to fund the hiring of mathematics coaches to provide embedded professional development for the middle school mathematics teachers during the 2011–12 school year to address this perceived need.

Elements:

- What will change?
- For whom?
- By how much?
- By when?

Statement:

Scenario 3A: Learner-Centered Problem End State Description

The superintendent of the Hidden Valley School District reviewed cohort graduation data (same students grade 9 to grade 12) for the class of 2009 and was shocked to see that only 80% of the cohort graduated on time, while the state average was 95%. The superintendent instructed the assistant superintendent to work with the district data team to develop a measurable improvement target for the class of 2014, in order to bring the district in line with the current state graduation rate.

Elements:

- What will change?
- For whom?
- By how much?
- By when?

Statement:

Scenario 3B: Problem of Practice End State Description

The *On Time Graduation Task Force* in the Hidden Valley School District reviewed data on students who did not graduate with the class of 2009 and the prior five graduating classes. The data suggested that these students were not identified as at-risk students and therefore did not receive dedicated support services. The *Task Force* recommended to the superintendent that the district establish a protocol, by the beginning of the 2010–11 school year, to be used at each grade level to identify at-risk students.

Elements:

- What will change?
- For whom?
- By how much?
- By when?

Statement:

Scenario 4A: Learner-Centered Problem End State Description

The district leadership team, with support from the district data team, reviewed MSP writing performance in grades 3–8 over the past three years. The data revealed that the percentage of proficient female students was consistently five percentage points or more higher than the percentage of proficient male students at each grade level. The data team was asked to create a measurable improvement target for male students to eliminate this gap in performance by the 2014 test administration date.

Elements:

- What will change?
- For whom?
- By how much?
- By when?

Statement:

Scenario 4B: Problem of Practice End State Description

The ELA Department, chairperson and the literacy coach presented data on the gap between male and female performance on the MSP in grades 3–8 to the literacy teachers. The literacy coach administered a survey designed to measure teachers' views on gender and literacy learning. The teachers and coach analyzed the results of the survey and determined that the majority of teachers felt that female students were more likely to succeed in literacy and male students were more likely to succeed in quantitative areas. The literacy coach used several articles as study texts with the teachers to help them develop a more realistic picture of the relationship between gender and performance.

Elements:

- What will change?
- For whom?
- By how much?
- By when?

Statement:

Scenario 5A: Learner-Centered Problem End State Description

During the district principals' meeting, the principals of the four district high schools noted that the data displays the district data team provided clearly showed a positive relationship between high absence and low performance on the High School Proficiency Examination (HSPE). On the 2009 HSPE, 30% of the tested students had been absent for ten or more days prior to test administration. Of these, 90% scored at the failing level. The principals worked together, with support from the district data team, to create an improvement goal for attendance in their schools that would have no student with 10 or more absences prior to the 2012 test administration date.

Elements:

- What will change?
- For whom?
- By how much?
- By when?

Statement:

Scenario 5B: Problem of Practice End State Description

The district's high school principals, led by the district data team, used several protocols to determine the root cause of absenteeism in their schools. The driving causes appeared to be the lack of faculty knowledge of the consequences of absenteeism and the faculty's poor implementation of the district's attendance policies. To address these causes, the leadership team conducted a session during the 2012 summer faculty institute during which the district attendance policy was reviewed, clear expectations for the implementation of the policy were established, and data were provided on how absenteeism affects students' academic and social performance.

Elements:

- What will change?
- For whom?
- By how much?
- By when?

Statement:

5.2

Scenario 6A: Learner-Centered Problem End State Description

While investigating the cohort graduation rate, the assistant superintendent noticed that students who were retained in grade 9 generally didn't graduate with their class. Five percent of the students in the class of 2011 had been retained in grade 9 and only 10% of those students graduated with their class. To develop an action plan to address this problem, the assistant superintendent must create a measurable target for the reduction of grade 9 retention for the class of 2016 to 1%.

Elements:

- What will change?
- For whom?
- By how much?
- By when?

Statement:

Scenario 6B: Problem of Practice End State Description

Retention in grade 9 was determined to correlate with dropping out of school. The 9th grade faculty met to determine the root cause of retention. They identified the lack of early identification practices and inadequate support services as the major contributors to retention in 9th grade. To address these problems of practice the 9th grade team, principal, and assistant superintendent for instruction developed a protocol for the identification of at risk students and support staff were hired and trained to work individually with these students to ensure that they met promotion requirements.

Elements:

- What will change?
- For whom?
- By how much?
- By when?

Statement:

5.2

Possible Answers to Scenarios

Scenario 1A

The Hidden Valley School District needs to determine if the new grade 3–6 reading program purchased in 2009 and used with the English language learners (ELLs) with special needs has been effective in reducing the performance gap between special education and general education ELLs as measured by the Measurements of Student Progress (MSP) reading test from 10 percentage points to 0 by the 2012 test.

Elements:

- What will change? <u>Gap between special education and general education</u>
- For whom? <u>English language learners with special needs</u>
- By how much? <u>10 percentage points</u>
- By when? <u>2012</u>

Statement:

To decrease the gap between special education and general education ELLs' performance on the MSP reading test from 10 percentage points on the 2009 tests to 0 on the 2012 test.

Scenario 1B: Problem of Practice End State Description

The performance gap in reading between ELL students with special needs and general education students with special needs did not decrease since the introduction of the new reading series in 2008–2009 as measured by the 2010 Measurements of Student Progress (MSP) reading test. Staff surveys and supervisor observations confirmed that teachers were not adequately prepared to implement the new reading program. A summer workshop with embedded professional development for all teacher teams was held during the 2010–2011 school year to address this problem of practice.

Elements:

- What will change? <u>Teachers' proficiency in using the concepts and practices of the reading program introduced during the 2008–09 school year.</u>
- For whom? <u>Grade 3–6 teachers</u>
- By how much? <u>90% of all teachers will demonstrate proficiency (score of 4 or 5) on the reading program implementation rubric.</u>
- By when? <u>By the end of the 2011–12 school year</u>

Statement:

By the end of the 2011–12 school year, 90% of the grade 3–6 teachers will demonstrate proficiency in the use of the concepts and practices imbedded in the reading program introduced during the 2008–09 school year by achieving a score of 4 or 5 (1 low to 5 high, scale) on the program implementation rubric.

Scenario 2A

In response to chronically low mathematics performance across the district, the superintendent reallocated resources from the professional development budget to the salary account to fund the hiring of mathematics coaches to provide embedded professional development for the middle school mathematics teachers in one of the two district middle schools. The superintendent hoped to see a significant increase in the percent of proficient students (at least a 10 percentage point increase) in the middle school students whose teachers had participated in the embedded professional development provided by mathematics coaches within three years.

Elements:

- What will change? <u>Percent of students proficient on the MSP mathematics test</u>
- For whom? <u>Students in the target middle school</u>
- By how much? <u>10 percentage points</u>
- By when? <u>Within three years</u>

Statement:

To increase within three years the percentage of middle school mathematics students in the target school who score at the proficient level or above on the MSP mathematics test.

Scenario 2B: Problem of Practice End State Description

Through surveys and conversation with her staff, the K–12 math supervisor determined that the majority of middle school math teachers did not have the content or pedagogic background needed to successfully implement the new standards-based mathematics curriculum. She convinced the superintendent to reallocate resources from the professional development budget to the salary account to fund the hiring of mathematics coaches to provide embedded professional development for the middle school mathematics teachers during the 2011–2012 school year to address this perceived need.

Elements:

- What will change? <u>Specific math content and pedagogic knowledge.</u>
- For whom? <u>Middle School math teachers.</u>
- By how much? <u>90% of the teachers will score at the proficient level or above on an assessment designed to determine teachers' ability to use specific math content and pedagogic knowledge in the classroom.</u>
- By when? <u>By the end of the 2011–2012 school year.</u>

Statement:

By the end of the 2011–2012 school year, 90% of the middle school teachers will score at the proficient level or above on an assessment designed to measure teachers' ability to use content and pedagogic knowledge in the classroom.

5.2

Scenario 3A

Elements:

- What will change? <u>Graduation rate</u>
- For whom? <u>Class of 2014</u>
- By how much? <u>From 80% to 95%</u>
- By when? <u>2014</u>

Statement:

To increase the cohort graduation rate from 80% to 95% for the class of 2014.

Scenario 3B: Problem of Practice End State Description

The *On Time Graduation Task Force* in the Hidden Valley School District reviewed data on students who did not graduate with the class of 2009 and the prior five graduating classes. The data suggested that these students were not identified as at-risk students and therefore did not receive dedicated support services. The *Task Force* recommended to the superintendent that the district establish a protocol, by the beginning of the 2010–11 school year, to be used at each grade level to identify at-risk students.

Elements:

- What will change? <u>A protocol will be in place to identify students who are "at risk" of not graduating with their class</u>
- For whom? <u>All grade 9–12 students</u>
- By how much? <u>All students will be screened using the protocol</u>
- By when? <u>The beginning of the 2010–2011 school year</u>

Statement:

A protocol will be put in place by the beginning of the 2010-11 school year to screen all students in grades 9–12 to identify those who are at risk of not graduating with their class.

Scenario 4A

The district leadership team, with support from the district data team, reviewed MSP writing performance in grades 3–8 over the past three years. The data revealed that the percentage of proficient female students was consistently five percentage points or more higher than the percentage of proficient male students at each grade level. The data team was asked to create a measurable improvement target for male students to eliminate this gap in performance by the 2014 test administration date.

Elements:

- What will change? <u>The gap between proficient male and female students on the MSP writing test</u>
- For whom? <u>Male students at all grade levels</u>
- By how much? <u>To equal the percentage of proficient female students</u>
- By when? <u>2014 MSP writing test administration date</u>

Statement:

To increase the percentage of proficient male students at each grade level to equal the percentage of proficient female students by the 2014 MSP writing test administration date.

Scenario 4B: Problem of Practice End State Description

The ELA Department, chairperson and the literacy coach presented data on the gap between male and female performance on the MSP in grades 3–8 to the literacy teachers. The literacy coach administered a survey designed to measure teachers' views on gender and literacy learning. The teachers and coach analyzed the results of the survey and determined that the majority of teachers felt that female students were more likely to succeed in literacy and male students were more likely to succeed in quantitative areas. The literacy coach used several articles as study texts with the teachers to help them develop a more realistic picture of the relationship between gender and performance.

Elements:

- What will change? <u>Teachers' views on gender and performance</u>
- For whom? <u>All literacy teachers</u>
- By how much? <u>Survey results will show a shift from gender bias to gender neutrality for 80% of the literacy teachers in grades 3–8</u>
- By when? <u>End of the current school year</u>

Statement:

By the end of the current school year, 80% of the literacy teachers in grades 3-8 will have shown a shift from gender bias to gender neutrality on the Gender Bias survey instrument.

Scenario 5A

Elements:

- What will change? <u>The percentage of students with 10 or more days of absence</u>
- For whom? <u>High school students</u>
- By how much? <u>No student will have 10 or more absences</u>
- By when? <u>2012 HSPE administration date</u>

Statement:

To decrease to 0 the percentage of high school students with 10 or more days of absence prior to the 2012 HSPE administration date.

Scenario 5B: Problem of Practice End State Description

The district's high school principals, led by the district data team, used several protocols to determine the root cause of absenteeism in their schools. The driving causes appeared to be the lack of faculty knowledge of the consequences of absenteeism and the faculty's poor implementation of the district's attendance policies. To address these causes, the leadership team conducted a session during the 2012 summer faculty institute during which the district attendance policy was reviewed, clear expectations for the implementation of the policy were established, and data were provided on how absenteeism affects students' academic and social performance.

Elements:

- What will change? Faculty implementation of the attendance policy
- For whom? All secondary faculty members
- By how much? 95% of the faculty will effectively implement the district's attendance policy
- By when? Throughout the 2012-13 school year

Statement:

During the 2012–2013 school year, 95% of the secondary school faculty will implement the district's attendance policy.

5.2

Scenario 6A

Elements:

- What will change? <u>Grade 9 retention rate</u>
- For whom? <u>Class of 2016</u>
- By how much? <u>To 1%</u>
- By when? <u>2013</u>

Statement:

To decrease the grade 9 retention rate for the Class of 2016 to 1%.

Scenario 6B: Problem of Practice End State Description

Retention in grade 9 was determined to correlate with dropping out of school. The 9th grade faculty met to determine the root cause of retention. They identified the lack of early identification practices and inadequate support services as the major contributors to retention in 9th grade. To address these problems of practice the 9th grade team, principal, and assistant superintendent for instruction developed a protocol for the identification of at risk students and support staff were hired and trained to work individually with these students to ensure that they met promotion requirements.

Elements:

- What will change? <u>Identification practices and support services</u>
- For whom? <u>Ninth grade students</u>
- By how much? <u>All students will be screened and support service provided to all at risk students</u>
- By when? <u>The beginning of the next school year</u>

Statement:

By the beginning of the next school year, a protocol will be in place to screen all 9th grade students to identify those at risk and support services will be provided for these students during the school year to help them meet the promotion requirements.

5.3 Identifying Potential Strategies
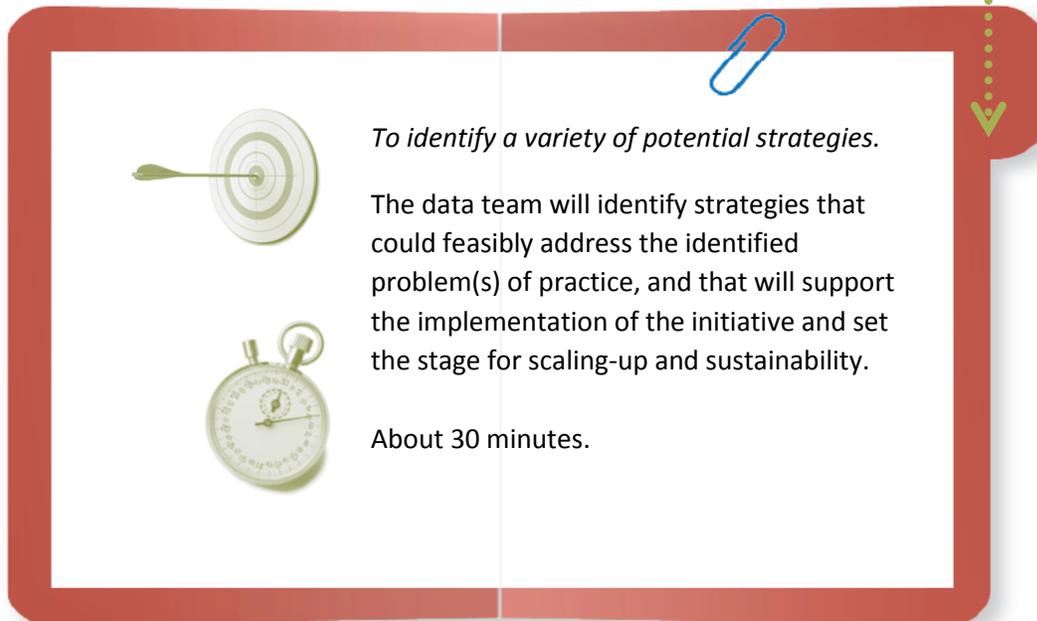
To identify a variety of potential strategies.

The data team will identify strategies that could feasibly address the identified problem(s) of practice, and that will support the implementation of the initiative and set the stage for scaling-up and sustainability.

About 30 minutes.

Directions:

1. Write the learner-centered problem and problem(s) of practice statements that the team developed in *Diagnose Causes* on chart paper to focus this brainstorming session[3].
2. Using the knowledge the team has gained (**4.7 Building Your Knowledge Base**, **4.8 Consulting Your Colleagues**), brainstorm possible strategies to address the problem(s) of practice.
3. Once the team has reached consensus on strategies that may address the problem(s) of practice, repeat this process to identify strategies that will support the implementation effort and set the stage for eventually scaling-up the initiative and providing for its sustainability. Refer to the resources on implementation science, scaling-up, and sustainability in the *Plan and Take Action* handbook for guidance.
4. Record the strategies for use with tool **5.4 Rating Strategies' Potential for Success.**

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[3] Portions of this tool were developed within the DATAUSE project (Using Data for Improving School and Student Performance) by the consortium of partners including: Public Consulting Group, University of Twente (the Netherlands), Institute of Information Management Bremen GmbH (Germany), Modern Didactics Center (Lithuania) and Specialist Schools and Academies Trust (UK). For more information on the project please visit: www.datauseproject.eu

5.4

5.4 Rating Strategies' Potential for Success
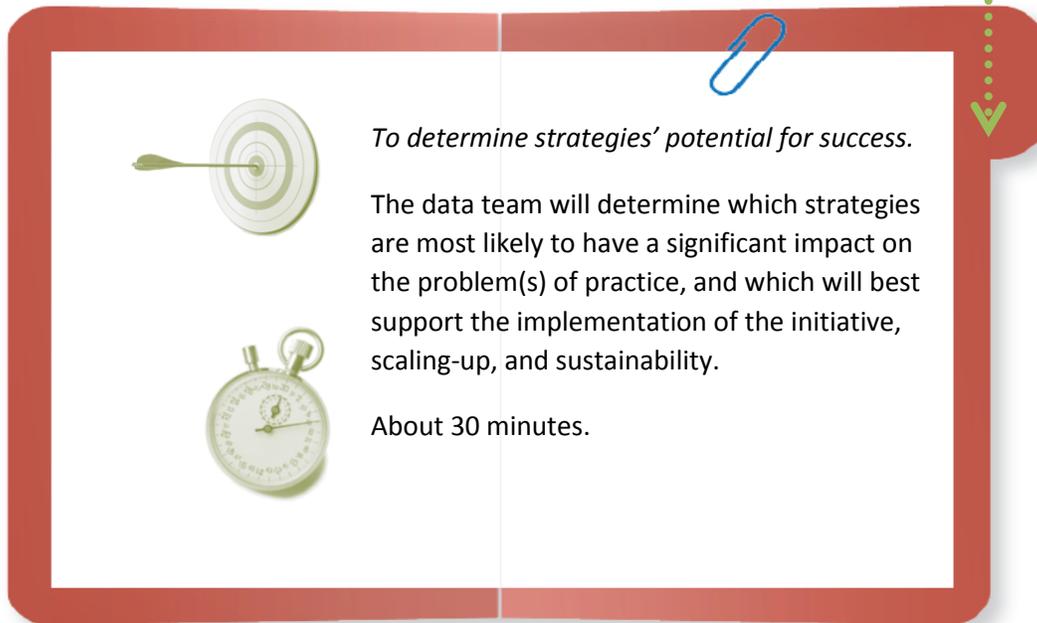
To determine strategies' potential for success.

The data team will determine which strategies are most likely to have a significant impact on the problem(s) of practice, and which will best support the implementation of the initiative, scaling-up, and sustainability.

About 30 minutes.

Directions:

Part 1: Reviewing an Example

1. Review the example of a *Strategy Rating Checklist* (page 34) so that each team member understands the desired outcome.

Part 2: Completing a Checklist

1. The *Strategy Rating Checklist*[4] on page 35 contains several very basic characteristics that a strategy might need to be successful in your district and/or school. Review these characteristics and eliminate any that are not appropriate. As a team, discuss the characteristics that should be eliminated and those that should be added to the checklist. Reach consensus on the final list of characteristics and record the characteristics on the checklist.
2. Write the name of each strategy that the team identified using tools **5.3 Identifying Potential Strategies** as column titles in the *Strategy Rating Checklist*. Individually assess each strategy against the characteristics in the checklist by placing a check mark in the cell next to each characteristic that the strategy has. Repeat for each strategy.
3. Either project or have the facilitator duplicate the checklist on chart paper. As a team, reach consensus on the assessed characteristics of each of the strategies. Rank order the strategies based on the number of check marks each received. Those with the largest number of check marks are your high-impact strategies.

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[4] Portions of this tool were developed within the DATAUSE project (Using Data for Improving School and Student Performance) by the consortium of partners including: Public Consulting Group, University of Twente (the Netherlands), Institute of Information Management Bremen GmbH (Germany), Modern Didactics Center (Lithuania) and Specialist Schools and Academies Trust (UK). For more information on the project please visit: www.datauseproject.eu

Strategy Rating Checklist Example

Characteristics of Potentially Successful Strategies	Strategy					
	Differentiated Instruction through tiered interventions (RtI)					
Clearly addresses the problem of practice.	X					
Is based on sound research.	X					
Endorsed by other schools.	X					
Targets our population of students.	X					
Total	4					

5.4

Strategy Rating Checklist

Strategy						
Characteristics of Potentially Successful Strategies						
Clearly addresses the problem of practice						
Is based on sound research						
Endorsed by other schools						
Targets our population of students						
[Insert additional]						
[Insert additional]						
[Insert additional]						
Total						

5.5 Rating Feasibility of Implementation

To rate the identified high-impact strategies by their feasibility of successful implementation.

The data team will discuss the feasibility of implementation for the strategies it has identified as high impact and rank order them by perceived likelihood for success.

30 minutes.

Directions:

1. The *Feasibility of Implementation Checklist*[5] on page 38 contains several very basic characteristics that a strategy might need to be successful in your district or school. Review these characteristics and eliminate any that are not appropriate. Add characteristics that you believe are necessary for successful implementation

2. As a team, discuss the characteristics that should be eliminated and those that should be added to the checklist. Reach consensus on the final list of characteristics and record the characteristics as additional row titles in the checklist.

3. Write the name of the high-impact strategies that the team identified using tool **5.4 Rating Strategies' Potential for Success** as column titles in the *Feasibility of Implementation Checklist*. Individually rate each strategy against the characteristics in the checklist by placing a check mark in the cell next to each characteristic the strategy has. Repeat for each strategy.

4. The facilitator will project or duplicate the checklist on chart paper. As a data team, reach consensus on the characteristics of each of the strategies. Rank order the strategies based on the number of check marks each received. Those with the largest number of check marks are your high-impact strategies with the highest feasibility for successful implementation.

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[5] Portions of this tool were developed within the DATAUSE project (Using Data for Improving School and Student Performance) by the consortium of partners including: Public Consulting Group, University of Twente (the Netherlands), Institute of Information Management Bremen GmbH (Germany), Modern Didactics Center (Lithuania) and Specialist Schools and Academies Trust (UK). For more information on the project please visit: www.datauseproject.eu
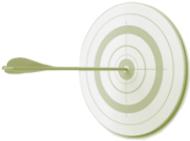
Feasibility of Implementation Checklist

Criteria	High-Impact Strategies					
Administrative support						
District policies						
Superintendent						
Principals						
Department heads						
Union leadership						
Resources						
Funding						
Staff						
Materials						
Teacher support						
Understand need						
Willingness to be involved						

Criteria	High-Impact Strategies					
Capacity						
Already trained staff						
Training available						
Time to plan and monitor						
[Insert Additional]						
[Insert Additional]						
Total						

5.6 Constructing a Logic Model
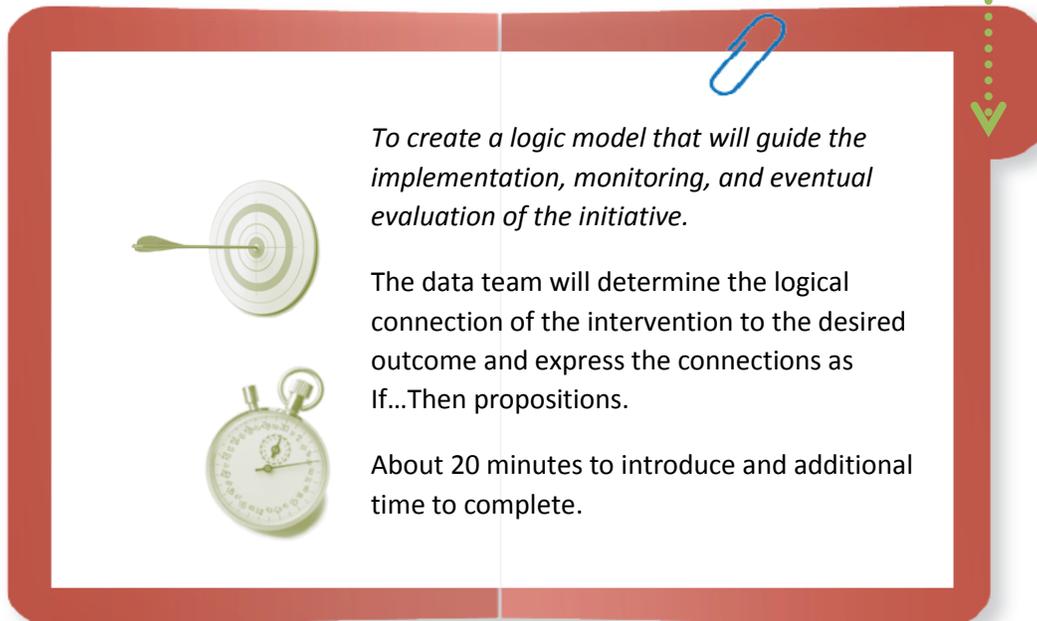
To create a logic model that will guide the implementation, monitoring, and eventual evaluation of the initiative.

The data team will determine the logical connection of the intervention to the desired outcome and express the connections as If…Then propositions.

About 20 minutes to introduce and additional time to complete.

A logic model will help your team determine and illustrate the logical connection of the intervention that you design to the desired end states (outcomes). *If … then….* logic statements form the bridge between the strategies and objectives of your intervention and the desired outcomes. This relationship is illustrated on page 42. By keeping these logical connections between the intervention and the desired outcomes, the team will be able to move forward efficiently and effectively.

Directions:

Part 1: Reviewing an Example

1. Review the *Logic Model Example* provided on page 42.

Part 2: Developing a Logic Model

1. Record the learner-centered problem statement and the problem of practice statement that the team previously developed in the template.
2. Using the skills that you developed in tools **5.1 Describing the Desired End State** and **5.2 Writing Measurable Statements**, generate improvement targets for the learner-centered problem and the problem of practice. Record them on the template.
3. Record the high-impact strategies that the team selected using tool **5.4 Rating Strategies' Potential for Success** in the template.
4. For each strategy, develop a measurable objective that will guide the implementation of that strategy. Each objective should be narrow in focus and guide only one aspect of the implementation or outcome of the strategy. It is common to have several objectives associated with each strategy. Expand the template as necessary.
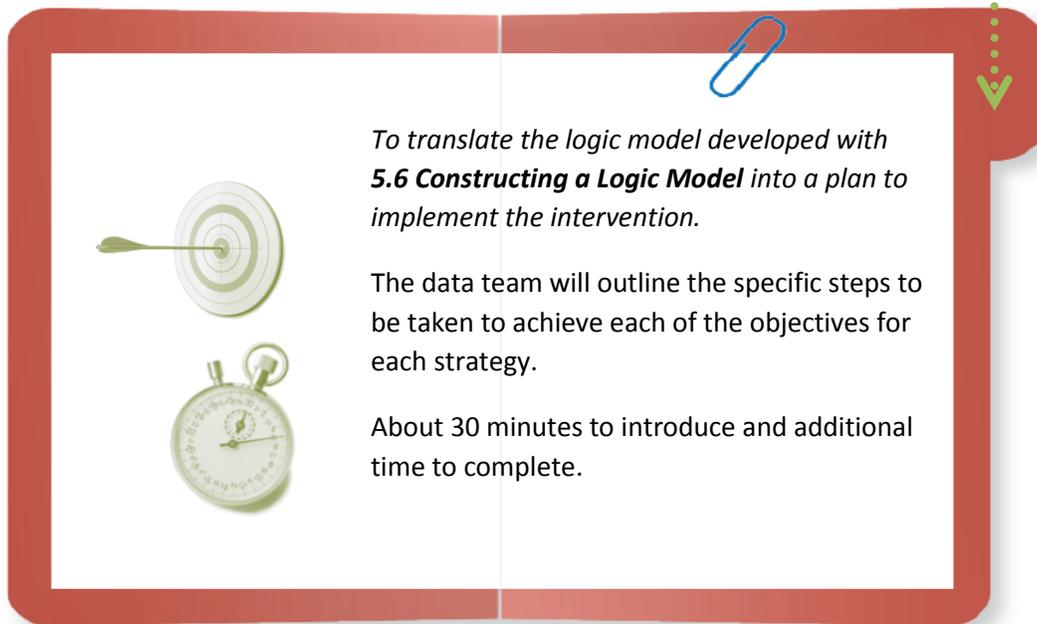
Logic Model Example

Logic Model Template	
Learner-Centered Problem Statement: Carter Tech has a large percentage of students who leave school before entering high school.	**Measurable Desired End State:** The percentage of students who leave Carter Tech at the end of grade 8 will decrease from 70% in 2009–2010 to 30% in 2012–2013.
Problem of Practice Statement: Retention with lack of academic support and counseling.	**Measurable Desired End State:** A system of tiered intervention to provide academic support and counseling for grade 7 and 8 students who may not meet the criteria for promotion to the next grade will be implemented in lieu of retention by the beginning of the 2011–2012 school year.

IF we successfully implement these strategies to address the problem of practice	**THEN we can expect to reach the** measurable objectives related to each strategy. **IF** each objective is reached, **THEN** the problem of practice improvement target will be attained. **IF** the problem of practice improvement target is attained, **THEN** the learner-centered problem measurable desired end state should be met.
Strategy 1 Differentiated instruction through tiered interventions (RtI)	Objective 1 Prior to the beginning of the 2011–2012 school year, all grade 7 and 8 teachers, counselors, and administrators at Carter Tech will have participated in a 5-day training on the practices of differentiated instruction through tiered interventions.
	Objective 2 By July 2011, the Hidden Valley School Board will have a policy that ends the practice of retention of students who do not meet the criteria for promotion to the next grade.

5.6

Logic Model Template

Logic Model	
Learner-Centered Problem Statement:	**Measurable Desired End State:**
Problem of Practice Statement :	**Measurable Desired End State:**
If we successfully implement these strategies to address the problem of practice	**Then we can expect to reach the** measurable objectives related to each strategy. **If** each objective is reached, **Then** the problem of practice improvement target will be attained. **If** the problem of practice improvement target is attained, **Then** the learner-centered problem measurable desired end state should be met.
Strategy 1	Objective 1
	Objective 2
Strategy 2	Objective 1
	Objective 2
Strategy …	Objective 1
	Objective 2

5.7 Developing an Action Plan

To translate the logic model developed with **5.6 Constructing a Logic Model** *into a plan to implement the intervention.*

The data team will outline the specific steps to be taken to achieve each of the objectives for each strategy.

About 30 minutes to introduce and additional time to complete.

Directions:

Part 1: Reviewing an Example

1. Review the example, which is a portion of an *Action Plan* on page 46.

Part 2: Developing an Action Plan

1. Record the problem of practice measurable desired end state and each strategy with its associated objectives where indicated in the template[6].
2. Start with the first strategy and individually identify actions that need to be taken to reach each of the objectives and record each action on a large sticky note.
3. Place the sticky notes on a piece of chart paper organized by objective.
4. As a team, reach consensus on the required actions steps.
5. Once consensus has been reached, rearrange the sticky notes so that they appear in chronologic order.
6. Record the action steps in the *Action Plan Template* on page 47.
7. Next determine the inputs or resources that will be needed to accomplish each of the action steps. Record them next to the appropriate action step in the *Action Plan Template*.

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[6] Portions of this tool were developed within the DATAUSE project (Using Data for Improving School and Student Performance) by the consortium of partners including: Public Consulting Group, University of Twente (the Netherlands), Institute of Information Management Bremen GmbH (Germany), Modern Didactics Center (Lithuania) and Specialist Schools and Academies Trust (UK). For more information on the project please visit: www.datauseproject.eu

8. As a team, determine a best estimate of the timeline for each of the action steps. Think of when the action will start and finish. Many actions will result in the production of something that is finite; other actions will reach an end state and then continue in that end state for a long period of time. Consider the end date for an ongoing action as the time when the action or product is fully functional and sustainable.

9. Once the team has determined the action steps for each objective and its associated timeline and inputs/resources, assign a team member or other appropriate stakeholder to be the steward for that objective or action step(s) within the objective. As an alternative, the team may decide to assign one individual to be responsible for all of the objectives and action steps within one of the strategies. Make note of each of these items in the *Action Plan Template*.

10. Repeat steps 3 through 9 for each strategy. Expand the template as necessary.

Action Plan Example

Action Plan Example
Problem of Practice Improvement Target:
A system of tiered intervention to provide academic support and counseling for grade 7 and 8 students who may not meet the criteria for promotion to the next grade will be implemented in lieu of retention by the beginning of the 2011–2012 school year.
Strategy 1: *Differentiated instruction through tiered interventions (RtI)*
Objective 1: *Prior to the beginning of the 2011–2012 school year, all grade 7 and 8 teachers, counselors, and administrators at Carter Tech will have participated in a 5-day training on the concepts and practices of differentiated instruction through tiered interventions.*

Person(s) Responsible	Action Steps	Timeline	Inputs/Resources
Simon Stulfoots, Curriculum Coordinator	Research outstanding professional development providers on the concepts and practices involved in providing differentiated instruction through tiered interventions.	June 15, 2011	RtI National Network listing of professional development providers What Works in Education RtI Best Practices Forum.
Dr. Jones, Assistant Superintendent	Employ professional development provider.	June 25, 2011	Allocate funding from FY12 professional development budget
Dr. Jones, Assistant Superintendent	Schedule a 5-day all school summer workshop.	June 30, 2011	Commit previously scheduled summer workshop time to this professional development

5.7

Action Plan Template

Action Plan			
Measurable Desired End State:			
Strategy 1:			
Objective 1:			
Person(s) Responsible	Action Steps	Timeline	Inputs/Resources
Objective 2:			
Person(s) Responsible	Action Steps	Timeline	Inputs/Resources
Objective 3:			
Person(s) Responsible	Action Steps	Timeline	Inputs/Resources

5.7

Action Plan			
Strategy 2:			
Objective 1:			
Person(s) Responsible	Action Steps	Timeline	Inputs/Resources
Objective 2:			
Person(s) Responsible	Action Steps	Timeline	Inputs/Resources
Objective 3:			
Person(s) Responsible	Action Steps	Timeline	Inputs/Resources

5.8 Developing an Implementation Monitoring Plan
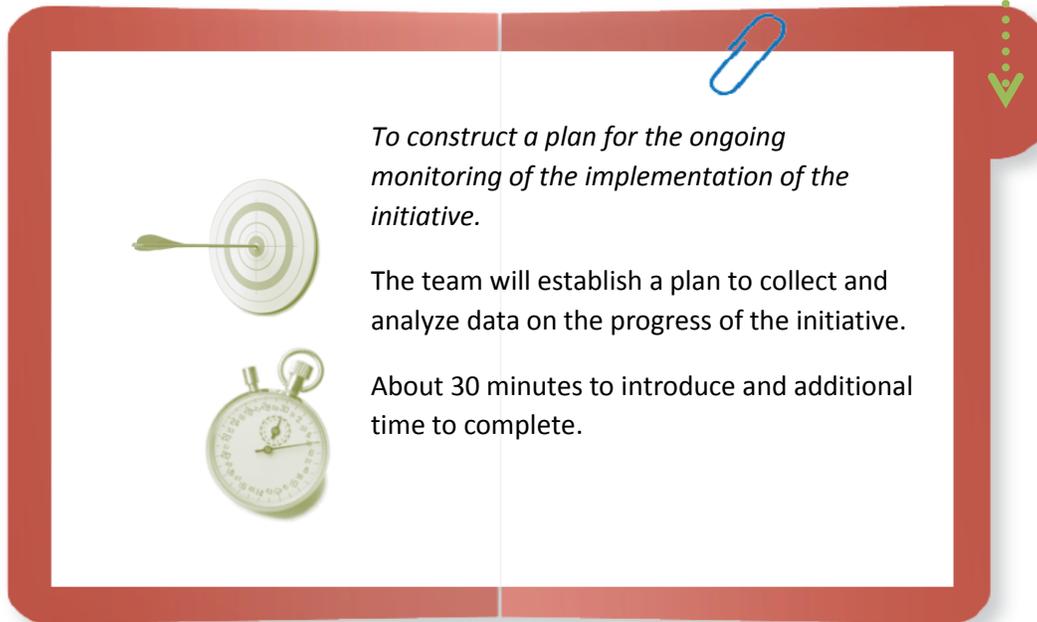
To construct a plan for the ongoing monitoring of the implementation of the initiative.

The team will establish a plan to collect and analyze data on the progress of the initiative.

About 30 minutes to introduce and additional time to complete.

Directions:

Part 1: Reviewing an Example

1. Review the example of a portion of an *Implementation Monitoring Plan*[7] on page 50.

Part 2: Creating an Implementation Monitoring Plan

2. As in tool **5.7 Developing an Action Plan**, add the strategies and objectives where indicated in the template.

3. As a team, brainstorm observable outputs or events that can serve as implementation indicators, or show that the initiative is being implemented faithfully and effectively. These indicators may be activities (e.g., events that are held, products that are produced) or they may be measures of participation in events or programs. Determine which of these indicators will best inform the team of the progress of the initiative. Record them in the template.

4. Again as a team, brainstorm observable interim outcomes for adults or students. These may be observable changes in teacher behavior, such as the implementation of a new instructional technique after participating in a professional development course. The actions associated with an objective may also produce observable changes in student behavior, such as increased engagement or improved performance on a benchmark assessment.

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[7] Portions of this tool were developed within the DATAUSE project (Using Data for Improving School and Student Performance) by the consortium of partners including: Public Consulting Group, University of Twente (the Netherlands), Institute of Information Management Bremen GmbH (Germany), Modern Didactics Center (Lithuania) and Specialist Schools and Academies Trust (UK). For more information on the project please visit: www.datauseproject.eu

5. As the action plan unfolds and the initiative is implemented, the *Implementation Monitoring Plan* will help the team keep track of, and report on, the progress of the initiative. It is important for the team to collect and analyze data on the indicators and outcomes to inform decisions about mid-course corrections in the initiative and to keep stakeholders informed about the progress that the initiative is making. The team should select specific dates by which progress data will be collected, analyzed, and reported in the status column of the *Implementation Monitoring Plan*. The periodic status reports for each strategy can be summarized and easily reported to stakeholders. As in previous tools, **1.4D Communication Organizer** may be helpful as the team reports on the progress of the initiative.

Implementation Monitoring Plan Example

IMPLEMENTATION MONITORING PLAN EXAMPLE				
Problem of Practice Improvement Target: *A system of tiered intervention to provide academic support and counseling for grade 7 and 8 students who may not meet the criteria for promotion to the next grade will be implemented in lieu of retention by the beginning of the 2011–2012 school year.*				
Strategy 1 *Differentiated instruction through tiered interventions (RtI)*				
Objective 1 *Prior to the beginning of the 2011–2012 school year, all grade 7 and 8 teachers, counselors, and administrators at Carter Tech will have participated in a five-day training on the concepts and practices of differentiated instruction through tiered interventions.*				
Implementation Indicators		Interim Outcomes		Status of the Objective (dated)
Activities	Participation	Adults	Students	
Professional development provider hired				9/1/11 Professional development funds were allocated and experts on RtI were engaged to provide the five-day staff workshop, which was held 8/25/2011–8/30/2011. 90% of eligible staff participated in the workshop and 85% of those scored at the proficient or above level on the professional development exit exam that was provided and scored by the provider.
Workshop scheduled	Percent of staff participating	Percent of participants scoring at or above the proficient level on professional development exit exam		
Funds allocated				

5.8

Implementation Monitoring Plan Template

Implementation Monitoring Plan				
Measurable Desired End State:				
Strategy 1				
Objective 1				
Implementation Indicators		**Interim Outcomes**		**Status of the Objective (dated)**
Activities	Participation	Adults	Students	
Objective 2				
Implementation Indicators		**Interim Outcomes**		**Status of the Objective (dated)**
Activities	Participation	Adults	Students	

EVALUATE RESULTS

Introduction – Where are we now?

In *Plan and Take Action,* the team used the identified learner-centered problem, problem of practice, and best practice strategies determined to have a high impact on the problems to construct a logic model and action plan for the implementation of an initiative (collection of related strategies) to address the problem of practice and learner-centered problem. Team members identified measurable end states for both of the problems that the success of the initiative could be judged against, as well as constructed an implementation monitoring plan to assess the progress of the initiative against predefined implementation indicators and interim performance outcomes.

In *Evaluate Results,* the team will build an evaluation plan that will identify evidence that needs to be collected and a procedure for using that evidence to assess the overall impact of the initiative on the previously defined desired end states. The team will also learn to use evidence gathered through the implementation monitoring plan to determine why the initiative was, or wasn't, successful, or was partially successful in achieving the desired outcomes. Once the team has analyzed the evidence, it will use its findings and conclusions as a basis for an evaluation report to stakeholders that will summarize the impact of the initiative, suggest modification of the initiative, if indicated, and outline next steps that should be taken to sustain the impact of the initiative.
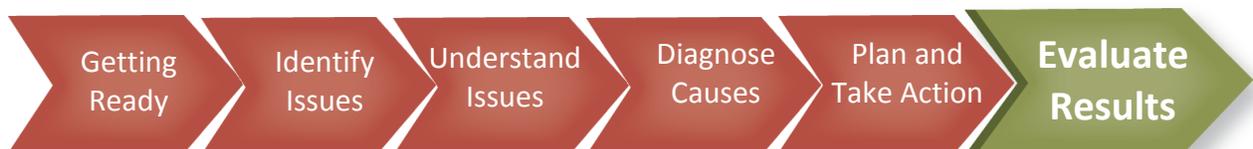
Upon completion of *Evaluate Results*, you will have:

- Developed an understanding of the role and value of the evaluation process
- Created an evaluation plan
- Analyzed evidence on the impact of the initiative
- Determined findings and conclusions based on the evidence

Tools

- 6.1: Developing an Evaluation Plan
- 6.2: Developing an Evaluation Report
- 6.3: Planning Next Steps

- Communicated the team's findings and conclusions to stakeholders to inform next steps in the continuous improvement process
- Reflected on what went well, what didn't go as planned, and what steps need to be taken next

Why Evaluate the Impact of the Initiative?

What Gets Evaluated Gets Done

It is human nature to complete tasks that others depend upon you to complete or that will be looked at critically by your colleagues or the general public. Although we all want to complete all of the tasks and projects that face us, we often just don't have the time or resources to make that possible. As a result, we set priorities. Tasks and projects that will be assessed or reviewed by our colleagues usually have a higher priority, and therefore a higher likelihood of completion than those that are not. If, in addition to the intrinsic value of the initiative, all stakeholders know from the outset that the initiative as a whole and its individual components will be evaluated, then the motivation to effectively implement the initiative will be high.

Beyond stakeholder motivation, evaluation answers the questions: Did the intervention work? Did it meet the desired end states and have the long-range desired impact? By answering these questions, summative evaluation can help determine if and how the initiative should be expanded, how it could be modified to increase its effectiveness, or, if the desired end states were not reached, what type of alternative intervention should be designed to get the desired results. The evaluation process also yields the evidence which, when communicated to appropriate stakeholders, can set the stage for the allocation of resources necessary to sustain the initiative over time.

Implementation Monitoring versus Summative Evaluation

In *Plan and Take Action*, the team developed a detailed implementation monitoring plan that provided a process for the collection and analysis of data about the quality of the implementation of the high-impact strategies. Guided by the implementation monitoring plan, the team gathered and analyzed formative evaluation data on the implementation indicators and interim outcomes. These data provided evidence of progress and the information necessary to support mid-course implementation corrections. The summative evaluation provides evidence about the effectiveness of the mid-course corrections and the ultimate outcome of the initiative. In addition to giving a thumbs up or down assessment of the impact of the initiative, the summative evaluation uses data from the implementation monitoring plan to suggest why the initiative was, or was not, successful. Figure 1 provides a comparison between the implementation monitoring plan (monitors implementation) and the evaluation plan (assesses changes).

Monitoring Implementation versus Evaluating Change	
Implementation Monitoring Plan	**Evaluation Plan**
Assesses implementation indicators and interim outcomes	Assesses improvement targets
Focused on short-term incremental steps	Focused on the final product or outcome
Addresses the question: Are we effectively doing what we planned to do?	Addresses the question: Did our planned strategies have the desired outcome?
Internal stakeholders are the primary audience	External stakeholders are the primary audience

Figure 1. Monitoring Implementation versus Evaluating Change

What is an Evaluation Plan?

As with the implementation monitoring plan, it is important for the team to decide from the outset how the outcomes of the initiative will be evaluated. As mentioned above, discussion of the evaluation

> Discussing the evaluation process at the outset of the initiative is also important in ensuring that the necessary mechanisms are in place from the beginning to provide the data needed for the summative evaluation.

process at the beginning of the initiative may have a positive effect on those responsible for its implementation. Discussing the evaluation process at the outset of the initiative is also important in ensuring that the necessary mechanisms are in place from the beginning to provide the data needed for the summative evaluation. An evaluation plan, created at the beginning of the initiative, will provide the structure necessary to support the summative evaluation.

An evaluation plan provides the structure to support the gathering of evidence to answer two basic questions:

1. Did the initiative have the desired impact?
2. Why was, or wasn't, the initiative partially or completely effective?

To do this, the evaluation plan outlines:

- What constitutes success (the measurable desired end states)
- The data needed to provide evidence of success
- How and when the success criteria data will be gathered and analyzed
- How data from the implementation monitoring plan will be analyzed to suggest why the initiative was or wasn't successful
- How findings and conclusions will be shared with stakeholders

Creating an Evaluation Plan

As already discussed, the evaluation plan should be created early in the development of the initiative. The evaluation plan is based on the logic model and can therefore be built prior to, or concurrent with, the action plan and the implementation monitoring plan. An evaluation plan addresses the following topics:

1. Describe the initiative to be evaluated.
   - Who will the initiative impact (e.g., students, school, district)?
   - What is the desired goal or the desired long-range impact of the initiative?
   - What are the major strategies employed by the initiative?
   - What is the logic model that links the strategies to the desired outcome?
2. Define the measurable desired end states.
   - Learner-centered problem end state
   - Problem of practice end state
3. Identify the data that will need to be collected and analyzed to provide evidence.
   - What data need to be collected to provide evidence?
   - How will the data be collected (e.g., tests, surveys, observations)?
   - When and by whom will each data element be collected?
   - How will the data be stored?
4. Explain how the data analysis will be conducted.
   - How will the data be prepared for analysis (i.e., culled, organized, displayed)?
   - Who will conduct the factual analysis of the data displays?
5. How will inferences, findings, and conclusions be made from the evidence?
   - Have the improvement targets been met?
   - Why was the intervention a success?
   - Why was the intervention unsuccessful?
   - How can the intervention be improved?
   - Who will develop findings and conclusions?
6. Describe the dissemination of findings, conclusions, and recommended next steps.
   - What messages need to be communicated?
   - To whom?
   - When?
   - How?

> **At Hidden Valley**
>
> The Hidden Valley Data Team reviewed tool **6.1 Developing an Evaluation Plan** as it constructed the action plan and implementation monitoring plan. From the outset it was obvious that the implementation monitoring plan would be a good source of evidence for use in the evaluation of the impact of the initiative. They also noted additional data beyond the implementation indicators and interim outcomes that would be needed to provide evidence of the impact of the initiative. The team used tool **6.1 Developing an Evaluation Plan** to help them think more deeply about planning for the evaluation of the initiative.

Developing an Evaluation Plan   **6.1**

For information on questions that should be considered when creating an evaluation plan and for tools to support your team as it conducts an evaluation, please see the Resources section on page 11. Tool **6.1 Developing an Evaluation Plan** provides an evaluation plan template and offers six steps for developing an evaluation plan, as described in this outline.

Analyzing Summative Data

The analysis of the summative evaluation data uses the same process that the team has used throughout the *District and School Data Team Toolkit*.
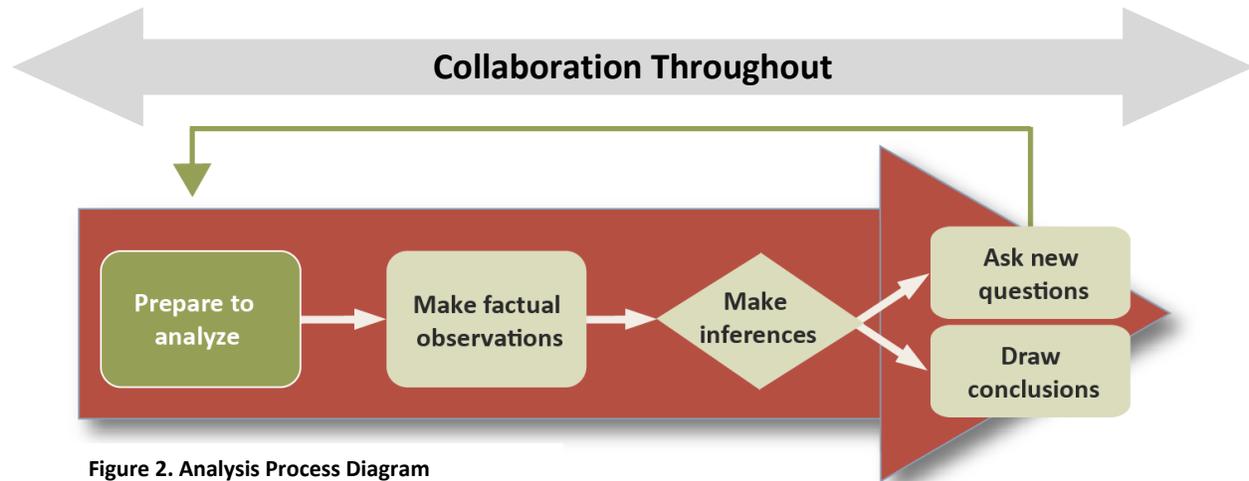
Collaboration Throughout

Prepare to analyze → Make factual observations → Make inferences → Ask new questions / Draw conclusions

Figure 2. Analysis Process Diagram

Just as focusing and clarifying questions guided the inquiry and data analysis as the team worked to identify a learner-centered problem and problem of practice, evaluation questions guide the inquiry into the impact of the intervention. In this case, our questions are:

1. Did the initiative have the desired impact?
2. Why was, or wasn't, the initiative effective?

To answer these questions, the team analyzes the data related to the measurable desired end states and then digs into the data provided through the implementation monitoring plan. To answer the first evaluation question, the team must first prepare the data and then make factual observations about what the data say. Since the end states were written in measurable terms, the data or evidence needed are implied in the statement. Inferences that lead to clarifying questions may arise, but it is more likely that there will be sufficient evidence for the team to draw findings and conclusions related to the impact of the initiative.

Next the team can dig more deeply into the data to answer the second question: Why was, or wasn't, the initiative completely effective? The data collected and analyzed through the implementation monitoring plan will be exceedingly helpful. The team can step back and, using the second evaluation question as a lens, look at all the data collected through the course of the initiative. By looking across this large amount of data, the team should be in a position to make inferences, findings, and conclusions about why the initiative did or didn't help achieve the desired end states. Analysis of this large amount of data may also suggest areas where the initiative was partially successful or areas of positive unintended outcomes that will inform the next steps in continuous improvement.

Communicating Findings, Conclusions, and Suggestions

Throughout the implementation of the initiative, internal, and occasionally external, stakeholders have been informed of the progress of the initiative. Periodic status reports are an integral part of the implementation monitoring plan and provide an easy way for the team to communicate across stakeholder groups. With the conclusion of the summative evaluation, it is now incumbent upon the team to communicate its findings, conclusions, and suggested next steps.

These results should be communicated to internal, and particularly external, stakeholders. It is primarily the external stakeholders who will control the sustainability of the initiative. It is these external stakeholders who are most likely to control the resources to support the initiative going forward and who have the power to ensure that a successful initiative is sustained and a less successful initiative is modified or eliminated.

At Hidden Valley

The initial implementation of the initiative was completed and the Hidden Valley Data Team used their evaluation plan to conduct the summative evaluation. Fortunately, the plan was well constructed and the team had sufficient data to make evidence-based findings, conclusions, and recommendations for next steps to sustain and bring the initiative to scale. The results of the initiative now need to be communicated to stakeholders. The team used tool **6.2 Developing an Evaluation Report**, to help them effectively convey key messages about the impact of the initiative and the status of the underlying problem and the problem of practice.

Tool **6.2 Developing an Evaluation Report** provides an outline and related template that will support data teams as they prepare to effectively communicate their findings.

| Developing an Evaluation Report | **6.2** |

Tool **1.4D Communication Organizer Template** introduced in *Getting Ready* can help the team clarify the messages it wants to send to various stakeholders about the evaluation results and organize how those messages will be communicated.

Where Will the Evaluation Process Take Us?

After the development of the evaluation report, the team should meet to reflect on what went well, what didn't go as planned, and what steps need to be taken next.

Planning Next Steps   **6.3**

Tool **6.3 Planning Next Steps** will help the team organize a focused meeting to re-examine what was planned, discuss what actually occurred, explore why the team got a given result(s), and determine how it should move forward.

The evaluation process and subsequent reflection has enabled the team to discuss the initiative and the impact it has had on student outcomes and changes in educator practice. Much has been accomplished, but the process of continuous improvement, by definition, must move forward. The team now needs to decide:

1. Will the initiative be revised and re-implemented?
2. Will the initiative be expanded to impact a larger population (taken to scale)?
3. What steps will need to be taken to ensure the sustainability of the initiative?
4. Will the team revisit the issues identified in *Identify Issues* to re-enter the Cycle of Inquiry and Action develop a new initiative?

At Hidden Valley

The Hidden Valley Data Team developed and disseminated the evaluation report to internal and external stakeholders but their work was not yet done. Important decisions needed to be made about scaling up, sustainability, and next steps in the overall school improvement process. The team used tool 6.3 Planning Next Steps to structure a formal meeting to look toward the future.

The team's answer to these questions can't be made without input from other stakeholders. That is why, in part, the evaluation report is so important. As stakeholders digest the report, they will develop a deeper understanding of the initiative and the impact that it has had on student outcomes and educator practice. Stakeholders will become informed participants in formulating answers to these questions.

How the team proceeds depends on the collaborative answers to the questions posed above. Possible courses of action associated with each question are outlined in Table 1.

Possible Courses of Action
1. If the initiative is to be revised and re-implemented, the team needs to:
a. Revisit the data in the evaluation plan and the implementation monitoring plan to identify the parts of the original initiative for revision.
b. Review the logic model and make revisions that incorporate what was learned through the implementation and evaluation of the initiative.
c. Revise, if appropriate, the desired end states.
d. Research best practices in the area in need of revision.
e. Apply the science of implementation concepts described in *Plan and Take Action* to ensure fidelity and intensity of implementation.
f. Develop an action plan and implementation monitoring plan to guide the implementation of the revisions.
g. Evaluate the effectiveness of the revised initiative against the desired end states.
2. If the initiative is to be expanded to impact a broader population, the team needs to:
a. Consult the resources provided in *Plan and Take Action* to build its understanding of the scaling-up process.
b. Determine how the narrow transformation zone that was part of the original initiative can be broadened to support the expansion effort.
c. Identify the parts of the infrastructure that need to be addressed to accommodate the expansion of the initiative (e.g., policies, resource allocation, professional development).
d. Create improvement targets for changes in student outcomes and in educator practice that will result from the expansion of the initiative.
e. Develop an action plan and implementation monitoring plan to guide the expansion of the initiative.
f. Evaluate the effectiveness of the expanded initiative against the desired end states.
3. To ensure the sustainability of the initiative, the team needs to:
a. Revisit the transformation zone concept introduced in *Plan and Take Action*.
b. Identify the systems and infrastructure that must be maintained over time to sustain the initiative.
c. Work with appropriate stakeholders to establish policies and create the infrastructure necessary to support the initiative over time.
4. To act on another priority issue either identified through the work done in *Identify Issues* or through the implementation of this initiative, the team needs to:
a. Revisit the work done in *Identify Issues*.
b. Re-enter the Cycle of Inquiry and Action.
c. Use, as appropriate, the tools provided in the *District and School Data Team Toolkit* to act on the new issue and its underlying problem.

Table 1. Possible Courses of Action

Summary

Evaluate Results has provided the team with the capacity to develop and use an evaluation plan to guide the collection and analysis of data to provide evidence about the impact of the initiative on the desired end states. The evaluation plan also helps the team use information gathered through the implementation monitoring plan to suggest why the initiative was, or was not, effective. The findings and conclusions that the team disseminates to both internal and external stakeholders set the stage for scaling-up and sustaining successful initiatives and the modification or replacement of initiatives that the evidence indicates were not effective.

The team needs to remember that the Cycle of Inquiry and Action is, in fact, a cycle-the process is iterative and is used within the context of continual school improvement. Based on the results of the summative evaluation, the team will decide where they need to re-enter the Cycle of Inquiry and Action. Will they dig deeper into the current issue, or investigate one of the other issues they identified at the outset of the process? Will they re-enter by diagnosing additional problems, identifying new high impact strategies, and developing a new action plan? The point of reentry will depend on the current circumstances. It is most important is that the data informed inquiry process continues.

Resources

- McNamara, C. (2002). *A Basic Guide to Program Evaluation.*
  http://www.tgci.com/magazine/A%20Basic%20Guide%20to%20Program%20Evaluation.pdf
  This brief article makes the case that you don't have to be an expert to conduct a useful
  evaluation. Myths about the evaluation process are presented and dispelled.
- McNamara, C. *In Basic Guide to Program Evaluation (Including Outcomes Evaluation).*
  http://managementhelp.org/evaluation/program-evaluation-guide.htm. This document
  provides guidance toward planning and implementing an evaluation process. There are
  many kinds of evaluations that can be applied to programs: goals-based, process-based and
  outcomes-based.
- New York State Teacher Centers (2009). Evaluation Tools. In *Program Evaluation*.
  http://www.programevaluation.org/tools.htm The program evaluation website provides
  tools for both planning and conducting evaluation projects. A number of resources have
  been developed that can be used for a wide variety of educational evaluation.
- Shackman, G. (2010). *What is program evaluation? A beginners guide.*
  http://gsociology.icaap.org/methods/evaluationbeginnersguide.pdf This 17 page guide
  introduces basic evaluation concepts such as research questions and logic models. It also
  addresses both qualitative and quantitative evaluation models.

6.1

6.1 Developing an Evaluation Plan
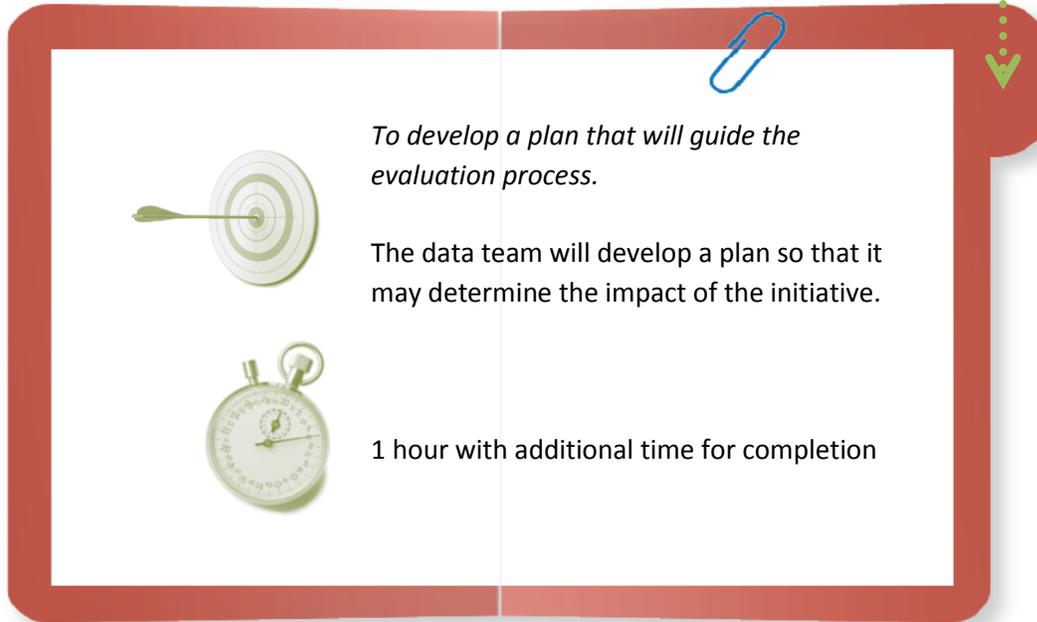
To develop a plan that will guide the evaluation process.

The data team will develop a plan so that it may determine the impact of the initiative.

1 hour with additional time for completion

Directions:

Part 1: Reviewing an Example

1. Review the example of a portion of an evaluation plan on page 15.

Part 2: Creating an Evaluation Plan

1. Access copies of the action plan and the implementation monitoring plan that your team created in *Plan and Take Action*.
2. As a team, capture the required information in each section of the *Evaluation Plan Template*[1]. Since many of the required elements can be taken from documents that you have previously constructed, it would be most efficient if the *Evaluation Plan Template*, action plan, and implementation monitoring plan are accessible in digital format on the same computer with projection capability. Alternatively, the facilitator can record the information on chart paper to be entered electronically later.
3. Have a team member project the *Evaluation Plan Template* as the team discusses each section. As the team reaches consensus on the information to be included in each section, record it in the electronic template. Be sure to save your work!
4. Once the plan is complete, assign responsibilities and timelines for the implementation of the plan by data team members.

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[1] Portions of this tool were developed within the DATAUSE project (Using Data for Improving School and Student Performance) by the consortium of partners including: Public Consulting Group, University of Twente (the Netherlands), Institute of Information Management Bremen GmbH (Germany), Modern Didactics Center (Lithuania) and Specialist Schools and Academies Trust (UK). For more information on the project please visit: www.datauseproject.eu

6.1

Evaluation Plan Outline

1. Describe the initiative to be evaluated.
   - Who will the initiative impact (e.g., students, school, district)?
   - What is the desired goal or long-range desired impact of the initiative?
   - What are the major strategies employed by the initiative?
   - What is the logic model that links the strategies to the desired outcome?
2. Define the measurable desired end states.
   - Learner-centered problem desired end state.
   - Problem of practice desired end state.
3. Identify the data that will need to be collected and analyzed to provide evidence.
   - What data need to be collected to provide evidence?
   - How will the data be collected (e.g., tests, surveys, observations)?
   - When and by whom will each data element be collected?
   - How will the data be stored?
4. Explain how the data analysis will be conducted.
   - How will the data be prepared for analysis (i.e., culled, organized, displayed)?
   - Who will conduct the factual analysis of the data displays?
5. How will inferences, findings, and conclusions be made from the evidence?
   - Have the improvement targets been met?
   - Why was the intervention successful? Why was the intervention unsuccessful?
   - How can the intervention be improved?
   - Who will develop findings and conclusions?
6. Describe the dissemination of findings, conclusions, and recommended next steps.
   - What messages need to be communicated?
   - To whom?
   - When?
   - How?

Evaluation Plan Example

Step 1: Describe the initiative to be evaluated.	
Who will the initiative impact?	Students, teachers and administrators
What is the desired goal/end state?	Decrease the percentage of students who leave Carter Tech at the end of 8th grade
What are the strategies being implemented? *(From action plan or implementation monitoring plan)*	Differentiated instruction through tiered interventions (RtI)
What is the logic model? (From tool **5.6 Constructing a Logic Model**)	Prior to the beginning of the 2011–2012 school year, all grade 7 and 8 teachers, counselors, and administrators at Carter Tech will have participated in a 5-day training on the practices of differentiated instruction through tiered interventions.

Step 2: Define the measurable improvement targets.	
Learner-centered problem measurable end state *(From logic model)*	*The percentage of students who leave Carter Tech at the end of grade 8 will decrease from 70% in 2009–2010 to 30% in 2012–13.*
Problem of practice measurable end state *(From logic model)*	*Problem 1: A system of tiered intervention to provide academic support and counseling for grade 7 and 8 students who may not meet the criteria for promotion to the next grade will be implemented in lieu of retention by the beginning of the 2011–2012 school year.* *Problem 2: The Carter Tech retention policy in effect during the 2009–2010 school year will be eliminated by the school board prior to the beginning of the 2011–12 school year.*

Step 3: Identify the data that will need to be collected and analyzed to provide evidence that the problem(s) of practice and the learner-centered problem have been solved.

Learner-Centered Problem

Data Needed	How Collected?	Collected by whom?	Collected by when?	How stored?
Percentage of students leaving Carter Tech prior to entering high school for 2005–2006 through 2010 –2011	Pull withdrawal forms for all students who withdrew from Carter Tech or who did not enter 9th grade from 2005–2006 through 2009–2010	Middle school and high school registrars	End of 2010-2011school year	Excel database
Percentage of students leaving Carter Tech prior to entering high school in the 2011–2012 school year	Pull withdrawal forms for all students who withdrew from Carter Tech or who did not enter 9th grade	Middle school and high school registrars	End of 2011–2012 school year	Excel database

Problem of Practice 1				
Data Needed	**How Collected?**	**Collected by whom?**	**Collected by when?**	**How stored?**
Learning goals for at least 100 students across all classrooms in grades 7 and 8 during the 2011–2012 school year	Randomly select 10 students from each classroom	Teachers submit learning goals for selected students to the data team	Beginning of second and third marking periods	Paper file by teacher name
Observation of differentiated instruction being provided	Classroom observations	Principals and department heads	End of second and third marking periods	Summaries of observations filed by teacher name
Distribution of students, by Tier, across all classrooms	Review of intervention team records	Director of Special Education	End of first and fourth marking periods	Excel database
Problem of Practice 2				
Data Needed	**How Collected?**	**Collected by whom?**	**Collected by when?**	**How stored?**
Retention policy in effect in 2009–2010	School board policy book	Data team	End of 2009–2010 school year	Initiative data file
Vote of school board to change the retention policy	School board minutes	Data team	Beginning of 2010–2011 school year	Initiative data file
Retention policy in effect in 2011–2012	School board policy book	Data team	Beginning of 2010–2011 school year	Initiative data file

Step 4: Explain how the data analysis will be conducted.	
How will the data be prepared for analysis (i.e., culled, organized, displayed)?	The data team will construct data displays, in appropriate formats, that clearly communicate what the culled and organized data say about the targets.
Who will conduct the factual analysis of the data displays?	The data team will use the data overview process to involve grade level teacher teams, counselors, and other stakeholders in the factual analysis of the summative data.

Step 5: How will the findings and conclusions be developed and disseminated?	
Who will determine: • What messages need to be communicated? • To whom? • When? • How?	Administrative team based on discussion with the data team.

6.1

Evaluation Plan Template

Step 1: Describe the initiative to be evaluated.	
Who will the initiative impact?	
What is the desired goal/end state?	
What are the strategies being implemented? *(From action plan or implementation monitoring plan)*	
What is the logic model? (*From tool* **5.6 Constructing a logic model**)	

Step 2: Define the measurable improvement targets.	
Learner-centered problem measurable end state *(From logic model)*	
Problem of practice measurable end state *(From logic model)*	

Step 3: Identify the data that will need to be collected and analyzed to provide evidence.				
Data Needed	**How Collected?**	**Collected by whom?**	**Collected by when?**	**How stored?**

Step 4: Explain how the data analysis will be conducted.	
How will the data be prepared for analysis (i.e., culled, organized, displayed)?	
Who will conduct the factual analysis of the data displays?	

| Step 5: How will inferences, findings, and conclusions be made from the evidence?	
Have the improvement targets been met?	
Why was the intervention successful? Why was the intervention unsuccessful?	
How can the intervention be improved?	
Who will develop findings and conclusions?	

6.1

Step 6: How will the findings and conclusions be disseminated?	
What messages need to be communicated?	
To whom?	
When?	
How?	

6.2

6.2 Developing an Evaluation Report
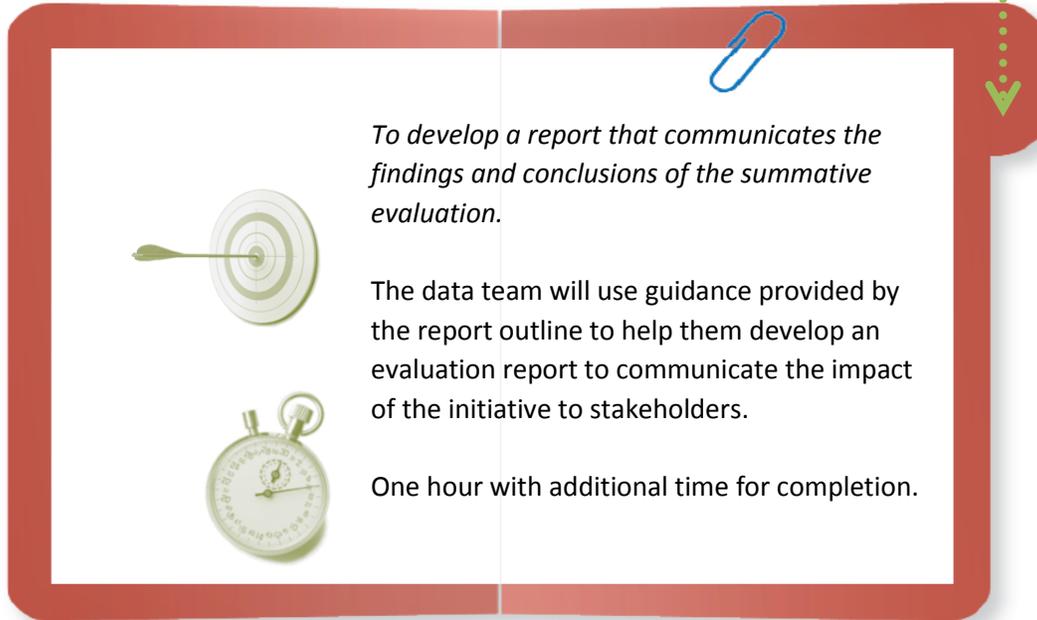
To develop a report that communicates the findings and conclusions of the summative evaluation.

The data team will use guidance provided by the report outline to help them develop an evaluation report to communicate the impact of the initiative to stakeholders.

One hour with additional time for completion.

Directions:

Part 1: Reviewing an Example

1. Review the example of a portion of an Evaluation Report on page 25.

Part 2: Developing an Evaluation Report

1. Review the *Evaluation Report Outline* (page 24) and the *Evaluation Report Template*[2] (page 29) with your team.
2. Some of the information that appears in the evaluation report can be provided prior to the full implementation of the initiative. As a team, review the outline and template and identify those areas that can be completed now. Assign responsibilities and timelines for the completion of these sections.
3. Also review tool **1.4D Communication Organizer Template** to help your team organize its thoughts prior to completing the report.
4. Once the initiative has been fully implemented, complete the balance of the evaluation report and publish it.

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[2] Portions of this tool were developed within the DATAUSE project (Using Data for Improving School and Student Performance) by the consortium of partners including: Public Consulting Group, University of Twente (the Netherlands), Institute of Information Management Bremen GmbH (Germany), Modern Didactics Center (Lithuania) and Specialist Schools and Academies Trust (UK). For more information on the project please visit: www.datauseproject.eu

Evaluation Report Outline

1. Overview
   - A summary that describes the problem being addressed by the action plan
   - Original priority issue and focusing question
   - Description of the learner-centered problem
   - Description of the identified problem of practice
   - Measureable desired end states
2. Implementation Description
   - Brief narrative (1–2 pages) identifying the strategies and major steps taken as part of the action plan to implement the initiative
   - Table detailing the action steps taken, including status updates
3. Evaluation Results
   - Data displays depicting the results of the action plan
   - Short narratives to describe findings from the analysis of evidence
   - Conclusions based on findings
4. Recommendations and Next Steps
   - Suggested modifications, if indicated
   - Suggestions for sustainability of the initiative, if indicated
   - Identification of new focusing questions, if indicated
   - Identification of immediate next steps to take the initiative to scale, ensure sustainability, and/or re-enter the Cycle of Inquiry and Action if indicated

6.2

Evaluation Report Example

Section 1: Overview	
Original priority issue/focusing question	High school completion in the Hidden Valley School District
Learner-Centered Problem	Carter Tech has a large percentage of students who leave school before entering high school.
Root cause	Students who have been retained one or more times in previous grades (K–7) are over age for grade 8 and, in fact, many have reached the legal age to leave school. These students see leaving school and entering the work force as a viable alternative to completing high school.
Improvement targets	**Leaner-Centered Problem:** The percentage of students who leave Carter Tech at the end of grade 8 will decrease from 70% in 2009–2010 to 30% in 2012–2013.
	Problem of Practice 1: A system of tiered intervention to provide academic support and counseling for grade 7 and 8 students who may not meet the criteria for promotion to the next grade will be implemented in lieu of retention by the beginning of the 2011–2012 school year.
	Problem of Practice 2: The Carter Tech retention policy in effect during the 2009–2010 school year will be eliminated by the school board prior to the beginning of the 2011–2012 school year.

Section 2: Implementation Description	
Description of strategies and major actions taken	The initiative began with planning in the spring of 2011 and started in earnest with the school board's approval of the elimination of the retention policy at Carter Tech. After the policy was eliminated, the district facilitated a five-day workshop for all grade 7 and 8 teachers, counselors, and administrators where they became proficient with the concepts and processes involved in differentiated instruction through tiered interventions.

All teachers implemented this strategy at the beginning of the 2011–2012 school year by diagnosing the needs of individuals and developing unique learning goals for each of their students. Students were also classified as Tier 1, 2, or 3 based on formative evaluations and the intervention team worked with teachers to help them differentiate instruction guided by the analysis of formative assessment data. |

Section 2 (continued): Status of Objectives Related to Each Strategy				
	Action Step	**Implementation Indicator**	**Date Completed**	**Results**
Detailed Action Step Results	• Professional development provider selected • Funds allocated • Workshop scheduled and conducted with 100% participation	Percent of staff participation	8/30/11	As of 9/1/11, professional development funds were allocated and experts on RtI were engaged to provide the five-day staff workshop which was held 8/25/2011–8/30/2011. 90% of eligible staff participated in the workshop.
	95% of workshop participants will demonstrate proficiency on the professional development exit exam		9/10/11	85% of participants scored at the proficient or above level on the professional development exit exam that was given and scored by the professional development provider.

Note: Information from the status section of the completed implementation monitoring plan can be used here to summarize the results for one or more objectives.

6.2

2. Did the initiative have the desired impact?

**Carter Technical School
Grade 7, 8, 9 Withdrawal Rates
2005-06 — 2011-10**
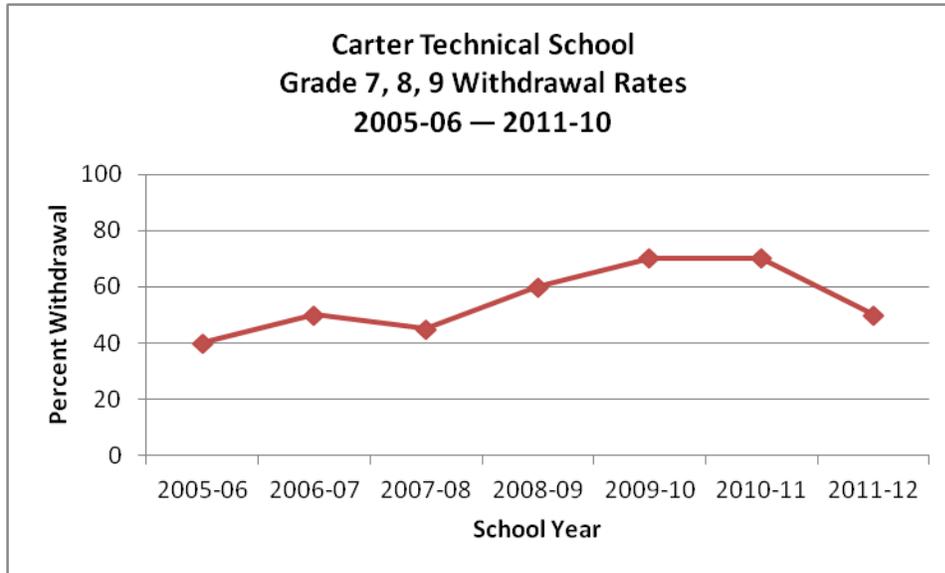
The graph above indicates that the withdrawal rate at Carter Tech varied from a low of 40% in 2005–2006 to a high of 70% in 2009–2010 and 2010–2011. At the end of the intervention year (2011–2012) the rate had decreased to 50%.   With the exception of a small decrease in the percentage of withdrawals in 2007–2008, the trend was toward an increase in the withdrawal rate through 2010–2011. Although there isn't sufficient evidence to imply causation, the large decrease in withdrawals during the intervention year suggests that the strategies employed may have influenced student decisions to remain in school.

3. Why was, or wasn't, the initiative effective?

 Although the improvement target of 30% withdrawal rate was not achieved, the intervention appears to have had an impact on students' decisions to remain in school and enter high school. The full effect of the intervention may have been compromised by the small percentage of staff who did not attend the summer workshop and those who did not demonstrate proficiency on the exit examination.

Classroom observations also suggested that these teachers were not able to implement differentiated instruction in their classrooms. Analysis of the distribution of students across tiers also indicated that a larger percentage of students from these teachers' classrooms were referred for special education interventions.

6.2

Section 4: Recommendations and Next Steps	
Suggested modifications	On the whole, the initiative as implemented has shown moderate success. We suggest that continued observations and follow up with these teachers to support their growth in competency. Serious steps should be taken to train all teachers and to ensure that all teachers are willing and able to implement the initiative's strategies in their classrooms.
Suggestions for sustainability	Additional professional development and expanded support from the administrative staff will increase the frequency and effectiveness of strategy implementation by all staff members. Particular attention should be paid to helping the counseling staff plan and implement strategies to support teachers' efforts in the classroom.
New focusing questions	What are the characteristics of the students who continue to withdraw from Carter Tech prior to entering grade 9 after they have experienced the initiative?
Next steps	1. Reflect on the lessons learned during the first year of implementation and modify the action plan for year 2 to reflect these lessons. 2. Reinforce and expand the strategies in the year 1 action plan to promote sustainability and to bring the initiative to scale in the district. 3. Act on stakeholder feedback to modify the initiative to increase its effectiveness.

6.2

Evaluation Report Template

Section 1: Overview		
Original priority issue/focusing question		
Learner-Centered Problem		
Root cause		
Improvement targets	Learner-Centered Problem:	
	Problem of Practice:	

Section 2: Implementation Description	
Description of strategies and major actions taken	

Section 2: Implementation Description (continued)				
	Action Step	**Implementation Indicator**	**Date Completed**	**Results**
Detailed Action Step Results				

Note: Information from the status section of the completed implementation monitoring plan can be used in the results column to summarize the results for one or more action steps.
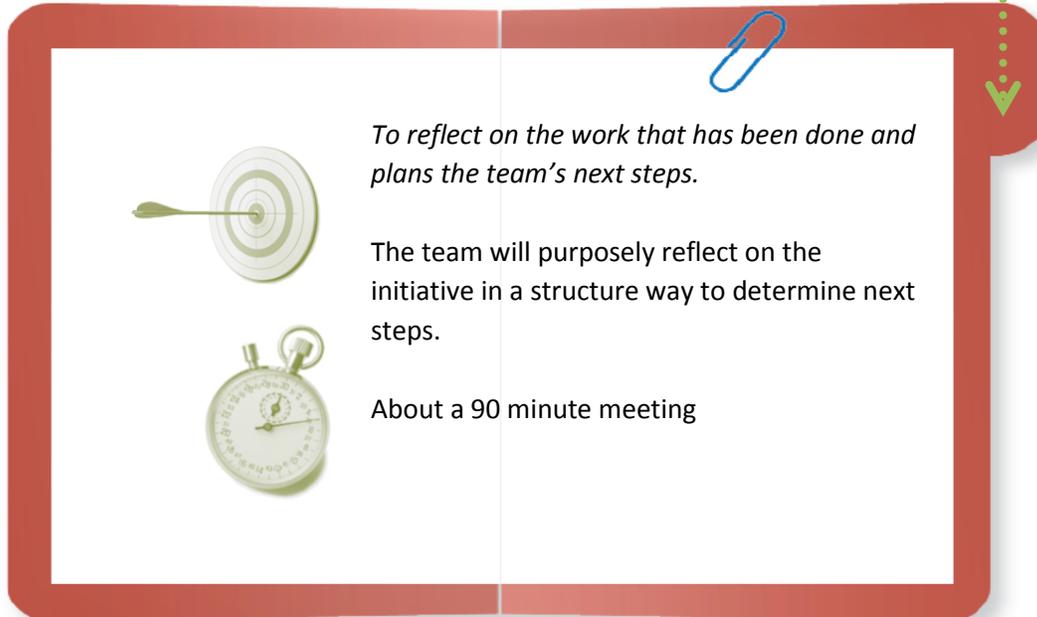
Section 3: Evaluation Results

Use this section to summarize your results with data displays, written descriptions of your findings, and conclusions.

Section 4: Recommendations and Next Steps	
Suggestions modifications	
Suggestions for sustainability	
New focusing questions	
Next steps	

6.3

6.3 Planning Next Steps

To reflect on the work that has been done and plans the team's next steps.

The team will purposely reflect on the initiative in a structure way to determine next steps.

About a 90 minute meeting

The following process is based on the idea of an after action review–a reflection tool developed BY the United States military and used commonly in a number of industries for reflecting and learning after any focused effort to accomplish a goal.

After your team has completed a project, but particularly after completing tool **6.2 Developing an Evaluation Report**, you should plan a meeting to reflect on what went well, what didn't go as planned, and what steps need to be taken next. To prepare the team for this meeting, you may want to organize some documents for them to review as pre-work. If you have just completed an evaluation report, you should send all team members the finished copy of the report and ask them to read it before coming to the meeting. Below are the steps to guide the meeting. It is a good idea to appoint a non-participating facilitator/note taker for this meeting. You may decide to bring someone in from outside the team to serve this function.

Directions:

1. Start the meeting by re-iterating for the team the project you will be using for this reflection. Remind people that the focus for conversation during this meeting will only be about topics that are directly related to this project. If, during the meeting, important questions or issues are raised about other projects, list them in a parking lot and in the meeting notes to be addressed at a later date.

2. Open the discussion by using existing documentation (or the evaluation report) to review the project under review. At a high level, either describe or ask the team to talk through responses to the following questions:

   - What was the purpose?
   - Who was the audience?
   - What was the timeline?
   - Who was involved?
   - What outcomes were intended?
   - What were the strengths and challenges expected from the outset?

3. Distribute copies of the *After Action Review Template* (page 35) to each of the team members. Read the four questions and explain that the team will conduct a focused brainstorm about each one of them during the meeting.

4. Start with the first question. Team members should spend two minutes in independent, silent self-reflection about the question in relation to the project.

5. The facilitator asks each person in turn to give one response to the question. The response should be concise and should be in the form of a phrase or single sentence. This is recorded on chart paper or a projected copy of the *After Action Review Template* where all can see. If a team member wishes to pass, they may do so.

6. After all team members have had a chance to contribute one idea, the facilitator can open up the conversation to allow anyone to contribute more responses to the question. Remain focused on generating responses to the question without discussing them in detail until the group feels they have captured all ideas.

7. Spend about 15–20 minutes in a focused discussion of each question before moving on to the next question.

8. Finish the meeting by asking the team to reflect on key points or big ideas that came out of the discussion. You may use the notes from the discussion to highlight items to review, but try to get the group to make a few (2–5) clear statements about what the group has learned from the project, what steps need to be taken next, and what lessons have been learned for use in the future.

9. After the team has reflected and discussed the initiative, work together to complete the *After Action Review template*.

After Action Review Template

After Action Review
1) What was planned? What outcomes did we set out to achieve? What secondary results did we also expect to have?
2) What actually occurred? Did we complete all steps in our plan? Did we change course during the project? Did we run into any expected or unexpected barriers? Did we meet with any expected or unexpected successes? What outcomes did we achieve?
3) Why did we get the results we got?
4) What did we learn that can help us in the future?

Appendix A – Glossary of Data Use Terms and Concepts

Achievement gap

The disparity in academic performance on tests among identified groups or the difference between how a group performs compared to what is expected of that group.

Action Plan

A step-by-step outline of the actions that need to be taken to implement an initiative and achieve a desired outcome. For each major action, plans typically identify the resources needed, measures of effective implementation, who is responsible for the action, and a timeline for implementation.

Adequate Yearly Progress (AYP)

AYP is a statewide accountability system mandated by the No Child Left Behind Act of 2001. It requires each state to ensure that all schools and districts make Adequate Yearly Progress as defined by states and as approved by the US Department of Education.

Aggregation

Data that are presented in summary (as opposed to individual student-level data or data broken down by subgroup).

Alignment

Judgmental procedures undertaken to ensure that the content of state tests appropriately reflect the knowledge, skills, and abilities articulated in the state's content standards for each grade level and subject area.

Alternative assessment

Any form of measuring what students know and are able to do other than traditional standardized tests. Alternative forms of assessment include portfolios, performance-based assessments, and other means of testing students.

Authentic assessment

Portfolio assessments, performance evaluations, open-ended exams, and other assessment instruments used to evaluate student performance in real life situations.

Average

A single value (as a mean, mode, or median) that summarizes or represents the general significance of a set of unequal values. A measure of central tendency.

Benchmark Assessments

Generally used as part of a formative evaluation system, benchmark assessments are administered to periodically monitor the progress of individuals and groups of students. Benchmark assessments may also be referred to as interim or common assessments when administered to all students in a subject, grade, school, or district.

Capacity Building

Providing opportunities, such as job embedded staff development, coaching, and time for reflection on effective instructional practices, that enhance the ability of teachers and administrators to positively impact student learning.

Causation

A relationship in which one action or event is the direct consequence of another.

Certificate of Academic Achievement (CAA)

The Certificate of Academic Achievement (CAA) tells families, schools, businesses, and colleges that an individual student has mastered a minimum set of reading, writing, and math skills by graduation.

Certificate of Individual Achievement (CIA)

Students with severe learning disabilities who would not be able to pass the MSP and HSEP even with accommodations are eligible to earn a Certificate of Individual Achievement instead of a Certificate of Academic Achievement. Students may use multiple ways to demonstrate their skills and abilities commensurate with their Individual Education Program (IEP). These students must still meet other state and local graduation requirements.

Classroom or Curriculum Based Assessments (CBA)

CBA is a broader term than Curriculum-Based Measurement (CBM), as defined by Tucker (1987). CBM meets the three CBA requirements: (1) measurement materials are aligned with the school's curriculum; (2) measurement occurs frequently; and (3) assessment information is used to formulate instructional decisions.

Comprehensive Education Data and Research System (CEDARS)

The Comprehensive Education Data and Research System (CEDARS) is a longitudinal data warehouse for educational data. Districts report data on courses, students, and teachers. Course data include standardized state course codes. Student data include demographics, enrollment information, schedules, grades, and program participation. Teacher data include demographics, certifications, and schedules.

Collaboration

To work jointly with others, especially on an intellectual endeavor.

Collaborative Data Analysis Process

Colleagues analyze data together and reach consensus on what the data say and the inferences that can be made from the data.

Common Assessments

Common assessments are administered in a routine, consistent manner across a state, district, school, grade level, or subject area. Under this definition, common assessments include annual statewide accountability tests and commercially produced tests, interim assessments, benchmark assessments, and end-of-course tests, as long as they are administered consistently and routinely to provide information that can be compared across classrooms and schools.

Common Core of Learning	What all students should know and be able to do upon graduation from high school.
Common Core State Standards	The Common Core State Standards Initiative is a state-led effort coordinated by the National Governors Association Center for Best Practices (NGA Center) and the Council of Chief State School Officers (CCSSO). The standards were developed in collaboration with teachers, school administrators, and experts to provide a clear and consistent framework to prepare our children for college andcareers.
Comparison Group	Also know as a control group in a strict scientific experimental design. It is a group of participants in an experiment who are not given or exposed to the treatment or variable being manipulated. The group is compared with the group getting the treatment to see if there is a difference between the two that can be attributed to the treatment.
Content Standards	Specific measurable descriptions of what students should know and be able to do in grades 3–8 and 10 in reading, writing, mathematics, and science.
Continuous Improvement	A long-term approach that systematically seeks to achieve small, incremental changes in processes in order to improve efficiency and quality. The continuous improvement cycle includes data analysis, determination of needs, planning for improvement, implementation of the plan, and analysis of the results.
Correlation	A mutual relation between two or more things. Correlation does not imply causation.
Correlation Studies	Correlation studies look for relationships among variables. Although correlation studies can suggest that a relationship between two variables exists, they do not support an inference that one variable causes a change in another.
Criterion-Referenced Assessment	Criterion-referenced assessment measures what a student understands, knows, or can accomplish in relation to a specific performance objective. It is typically used to identify a student's specific strengths and weaknesses in relation to an age or grade level standard. It does not compare students to other students. peers nationally. Compare with "norm-reference test."

Criterion Referenced Tests (CRTs) or Standards-Based Tests (SBTs)	Assessments in which test items are aligned with specific standards and scores are reported relative to those standards. In CRTs or SBTs, student performance is not judged relative to the performance of other students as in norm-referenced tests, but rather based on mastery of the standards.
Curriculum-Based Measurement	CBM is an approach to measurement that is used to screen students or to monitor student progress in mathematics, reading, writing, and spelling. With CBM, teachers and schools can assess individual responsiveness to instruction. When a student proves unresponsive to the instructional program, CBM signals the teacher/school to revise that program. CBM is a distinctive form of CBA because of two additional properties: (1) Each CBM test is an alternate form of equivalent difficulty, and (2) CBM is standardized, with its reliability and validity well documented.
Cycle of Inquiry and Action	The cycle of inquiry is a process in which educators analyze data—such as demographic, perceptual, school process, and student achievement data—in order to understand how these elements are interrelated and what they suggest about students' learning needs. As a multistep process, the cycle of inquiry often involves analyzing data to better understand student needs, developing hypotheses about instructional practice, formulating and implementing action plans to improve student learning and achievement, and then once again analyzing data to evaluate student progress and inform next steps.
Data	Data are empirical pieces of information that educators can draw upon to make a variety of instructional and organizational decisions. By themselves, data are not evidence—it takes concepts, theories, and interpretive frames of references that are applied to the data to provide evidence.
Data (Types)	• Assessment Data – Data gathered from a subject's response to test items designed to be valid and reliable measures of specific learning outcomes. • Documents or similar artifacts (as opposed to transcribed results of interviews) – These include newspapers, magazines, books, websites, memos, annual reports, studies, and so on. Often analyzed using content analysis. • Input Data – Data that are added to a system that will influence the process or output data.

Data (Types) Continued…

- Interview Data – Data that are gathered through person to person dialogue. Interview data are frequently coded to allow aggregation and analysis.

- Observational Data – Data gathered through personal observation of behaviors. The observer's notes serve as the data source and are often coded and aggregated for analysis.

- Output Data – Data that describe results of the intervention during implementation, such as the number of staff who participated in a training or the quantity of resources allocated to the intervention.

- Outcome Data – Data that describe the end state after an intervention has been implemented and are used to assess the impact of the initiative.

- Primary Data – Data of any type gathered directly by the researcher through administration of tests or surveys, or by conducting interviews and making observations.

- Process Data – Data that describe an intervention or activity as it is being implemented.

- Quantitative Data – Data that can be expressed numerically, as a scale or test score. Quantitative data can be represented visually in graphs, histograms, tables, and charts, and can be statistically manipulated.

- Qualitative Data – Narrative or categorical data that describe meaning for research subjects, such as interview or observation data, both in raw form (e.g., notes, recordings) and when synthesized into a narrative description.

- Secondary Data – Data of any type that was previously collected by others that a researcher may wish to analyze.

- Survey Data – Data that are gathered through electronic or paper media in response to specific prompts. Responses are often provided by selecting from several provided options.

Data-Based Decision Making	Data-based decision making in education refers to teachers, principals, and administrators systematically collecting and analyzing various types of data, including demographic, administrative, process, perceptual, and achievement data, to guide a range of decisions to help improve the success of students and schools. Other common terms include data-driven decision making, data-informed decision making, and evidence-based decision making.
Data Capacity	An organization's ability to contain and receive data, both efficiently and effectively. Data capacity allows for access, understanding, and use of available data.
Data Champion	An individual who is passionate about using data and who can lead the quest for a culture of inquiry and systemic data use.
Data Coach	A data coach is an individual charged with helping schools or districts use data effectively to make decisions. Often, data coaches organize school-based data teams, lead practitioners in a collaborative inquiry process, help interpret data, or educate staff on using data to improve instructional practices and student achievement.
Data Culture	Data culture describes a school and/or district environment that includes attitudes, values, goals, norms of behavior, and practices, accompanied by an explicit vision for data use by leadership and that characterize a group's appreciation for the importance and power that data can bring to the decision making process. It also includes the recognition that data collection is a necessary part of an educator's responsibilities and that the use of data to influence and inform practice is an essential tool that will be used frequently. Widespread data literacy among teachers, administrators, and students is a salient characteristic of a data-driven school culture.
Data Inventory	A catalogue of the data available in a school, who controls the data, the location of the data, accessibility, and how the data are being used.
Data Literacy	The ability to ask and answer questions about collecting, analyzing, and making sense of data is known as data literacy.
Data Manager	Generally a staff member within the Information Technology department who coordinates the systems for the collection, storage, and dissemination of data at the district and/or school level.
Data Point	A data point is one score on a graph or chart, which represents a student's performance at one point in time.

Data Quality

The attributes of a data set that make data useful such as validity, reliability, completeness, accuracy, timeliness, and relevance to the question being investigated.

Data Sets

Sets of data that are made up from separate elements which can be manipulated and analyzed in an effort to answer a question.

Data Teams

- **School Data Team:** A representative group of individuals that builds the capacity of building level staff to effectively use data by providing structures, training, and support. A primary mission of a school data team is to create a culture of inquiry and data use at the building level.

- **District Data Team:** A representative group of individuals that builds the capacity of district level staff to effectively use data by providing structures, training, and support. A primary mission of a district data team is to create a district-wide culture of inquiry and data use and to support school-level data teams.

Data Use Improvement Plan

An action plan designed to eliminate one or more barriers that limit effective data use in the school.

Data Usefulness

Data are considered useful when they are valid, reliable, complete, accurate, relevant, and available in a timely manner.

Data Warehouse

A data warehouse is a computer system that stores educational information from several sources and integrates it into a single electronic source. Data warehouses are designed to allow the manipulation, updating, and control of multiple databases that are connected to one another via individual student identification numbers. Capabilities of data warehouses often extend beyond data storage, however, and may include data management and reporting systems used for retrieving and analyzing data.

Deviation

The difference between a value in a frequency distribution and a fixed number (as the mean).

Diagnostic Assessments

Most commonly used at the classroom level, diagnostic assessments are part of a formative evaluation system to monitor progress and to identify specific strengths and weaknesses of students. The results of diagnostic assessments are used to inform instructional decisions.

Disaggregation

Summary data split into different subgroups (e.g., gender, race, ethnicity, economic status).

Disproportionality

Disproportionality occurs when a given subgroup is represented in a larger or smaller proportion in a particular program or educational environment than would be predicted based on the representation of that subgroup in a total population. Data on disproportionality can be viewed in several ways. Westat's technical assistance document, Methods for Assessing Racial/Ethnic Disproportionality in Special Education: A Technical Assistance Guide, provides more information about these measures, including step-by-step instructions on how to calculate them, discussions of how to interpret each, and a summary of their strengths and weaknesses. This document is available at https://www.ideadata.org/Products.asp.

Distributed Leadership

Leadership tasks are shared and supported by individuals and structures across an organization. The social distribution of leadership reflects how work is shared, assigned, or taken up by formal or informal leaders; the situational distribution of leadership explains how organizational structures such as policies are carried out.

District Portfolio

A district portfolio defines the school system improvement team's work, data analysis, goal identification, action planning, accomplishments and reflections.

Elementary and Secondary Education Act (ESEA)

The Elementary and Secondary Education Act passed in 1965 as part of President Johnson's War on Poverty. This act authorizes the federal government's single largest investment in elementary and secondary education. The ESEA focuses on children from high poverty communities and students at risk of educational failure. The act authorizes several well-known federal education programs including Title I, Safe and Drug Free Schools, Bilingual Education (Title VII), and Impact Aid.

Enablers and Barriers

Terms used in the Data Use Theory of Action to describe policies, structures, capacities, or processes that either support (enablers) or hinder (barriers) effective data use in the schools.

End-of-Course Assessments (EOC)

End-of-course assessments for high school mathematics were first implemented statewide in the 2010–2011 school year and replaced the mathematics portion of the HSPE. End-of-course assessments for high school science are to be implemented statewide by spring 2012 and replace the science portion of the HSPE.

English as a Second Language (ESL)

Students enrolled in U.S. schools that haven't yet mastered English are known as English language learners. They are either immigrants or children born in the United States. Usually such students receive bilingual education or English-as-a-second language services.

End state

A description of what it will "look like" if the initiative is successful and the learner-centered problem and problem of practice have been resolved.

Equating

A set of statistical procedures undertaken in order to adjust for differences in the difficulty of different test forms for the same subject area and grade level from year-to-year (horizontal equating) or scale test scores (and/or performance levels) so they have a consistent meaning across adjacent grade levels (vertical equating, vertical scaling, vertical articulation or moderation).

Essential Academic Learning Requirements (EALRs)

The Essential Academic Learning Requirements (EALRs) for all content areas were developed to meet the requirements of the Basic Education Act of 1993. These standards define what all students should know and be able to do at each grade level.

Evaluation

Evaluation is the comparison of actual impacts against strategic plans. It looks at original objectives, at what was accomplished, and how it was accomplished. It can be formative when taking place during the life of a program or organizational objective, with the intention of improving the strategy or way of functioning of the program or organization. It can also be summative, drawing lessons from the outcomes of a completed program

Evaluation Report

A summary of the problem being addressed, the initiative to address the problem, the status of the initiative's implementation over time, and findings based on the formative and summative data collected. The report provides conclusions and recommendations to guide future action plans. A major function of the report is to communicate with stakeholders about the initiative's impact.

Evidence

An outward sign or indication. Something that provides proof.

Evidence-Based Practice

Evidence-based practices are educational practices and instructional strategies that are supported by scientific research studies.

Factual Observations

A statement about what the data say without any interpretation. Factual observations are the first step in the data analysis process and they provide the basis for making sound inferences.

Fidelity of Implementation

Fidelity refers to the accurate and consistent provision or delivery of instruction in the manner in which it was designed or prescribed according to research findings and/or developers' specifications. Five common aspects of fidelity include: adherence, exposure, program differentiation, student responsiveness, and quality of delivery.

First and Second Order Change	**First order change** is a change in specific structures or practices with the focus on how those changes are operationalized (i.e., teaching from a new textbook or changing to a block schedule). This is contrasted to **second order change**, where the emphasis is on addressing the underlying beliefs that resulted in the change (i.e., using a block schedule to implement more hands-on, interactive classroom teaching experiences or using multiple teaching strategies based on student needs).
Formative Assessment	Formative assessment is a process that is intended to provide feedback to teachers and students at regular intervals during the course of instruction.
Formative Program Evaluation	Real-time measure of the implementation of a program that periodically tests for progress against implementation indicators, benchmarks, and interim outcomes.
Generalization	Application of an inference to a population larger than the sample. The process of using data from a sample of students to describe the behavior of all students in the school.
Goal	A high level result of the initiative stated in general terms such as improved student performance in mathematics.
Grade Level Expectations (GLEs)	The grade-by-grade content expectations build on and expand the EALR indicators that were created for grades 4, 7 and 10. GLEs were designed to specifically address learning standards for students in grades K–10. OSPI has released reading, math, and science expectations for grades kindergarten through 10 and soon to follow is writing.
High School Proficiency Exam (HSPE)	This test measures the proficiency of students in high school and serves as the state's exit exam for reading and writing. The HSPE in combination with the MSP replace the WASL and meet the requirements of NCLB.
High-Impact Initiative	An initiative that has a high likelihood of affecting a large percentage of the target population and to achieve the improvement target.
High-Level Data	Typically aggregate data that can be used to initiate the inquiry process. The review of high-level data will result in the creation of focusing questions that will help to identify more granular data that can be used to extend the inquiry.

A

Hypothesis	A hypothesis is a tentative inference made in order to draw out and test its logical or empirical consequences. Within the cycle of inquiry, it is an evidence-based inference about students' learning needs that teachers can test using instructional modifications and follow-up data about student performance.
Impact	A high level result of the initiative that is not always directly measurable such as increased motivation to do well in school.
Implementation and progress indicators	Measurable evidence that the initiative, and its component strategies and actions steps, are being implemented faithfully and with appropriate intensity.
Implementation Indicator	Describes what it will look like if the strategy or initiative is being implemented effectively and as planned.
Implementation Monitoring Plan (IMP)	Derived from the action plan, the IMP serves to focus attention on the implementation indicators, interim outcomes, and benchmarks. It provides a plan for the collection of appropriate data and periodic review of the status of the initiative. The IMP provides valuable formative information needed to adjust the action plan, as well as to create the summative evaluation report.
Improvement Target	Describes, in measurable terms, what that end state will be when the desired improvement is achieved.
Inference	Formed from the act of inferring or passing from one proposition, statement, or judgment considered as true to another whose truth is believed to follow from that of the former. Inferences are formed from observations of factual data. Inferences can also be made from statistical sample data to generalizations (as of the value of population parameters) usually with calculated degrees of certainty.
Initiative	A planned series of strategies, objectives, and action steps designed to achieve a desired end state.
Interim Assessments	Interim assessments are typically administered on a school- or district-wide scale at regular intervals during a single school year. Although the results from interim assessments may be used at the teacher or student level, the assessment is typically designed to be aggregated at a level beyond the classroom, such as the school or district level. These are also referred to as benchmark assessments.
Interim Outcomes/Benchmarks	Measurable formative results, established at the outset of the initiative, to provide insight about the progress of the initiative.

Intervention Fidelity	Descriptions or measures of the correspondence service delivery parameters (e.g. frequency, location, foci of intervention) and quality of treatment processes between implementation site and the prototype site.
	Learner-centered problem For a variety of reason, students encounter problems when learning course content. Different students encounter different problem. Through the identification of each leaner's or each group of learners problem instructional or programmatic adjustments can be made to address the "learner-centered" problem andhelp each student successfully master course content.
Limiting Factors	Often there are one or more factors that limit a district's or school's ability to achieve systemic data use. Once these limiting factors are identified and removed, the school can move forward toward using data to inform decisions at all levels.
logic model	A **logic model** shows the logical connection between the initiative (one or more strategies) and the desired end state or result. The logic model is expressed in terms of an **If… Then** proposition.
Mean (Arithmetic)	A value that is computed by dividing the sum of a set of terms by the number of terms.
Measure	Outcome data that can be used to measure the performance of a student or group of students. Measures may include test scores, attendance, discipline, grades, and credits earned.
Measurements of Student Progress (MSP)	Washington state assessment in reading, writing, and mathematics given to students in grades 3–8. This State test replaced the WASL and meets the requirements of No Child Left Behind.
Median	A value in an ordered set of values below and above which there is an equal number of values or the arithmetic mean of the two middle values if there is no one middle number.
Mode	In a set of numbers, the mode is the most frequently occurring value.
National Assessment of Educational Progress (NAEP)	NAEP is the only test in the United States that allows comparisons of the performance of students in Washington with performance of students nationally. Assessments are conducted periodically in mathematics, reading, science, writing, the arts, civics, economics, geography, and U.S. history.

No Child Left Behind (NCLB)	Refers to the No Child Left Behind Act – the common name for federal Elementary and Secondary Education Act (ESEA), signed into law by President Bush in 2002, which mandates proficiency of all students by 2014.
Norm	A standard, model, or pattern regarded as typical (e.g., the current middle-class norm of two children per family). In the context of this project, team norms are the pattern of behaviors accepted by the data team to guide their interactions and procedures.
Norm-Referenced Test	An assessment in which performance is reported relative to the performance of other test-takers on a scale from 1 to 100 (percentile rank).
Objective	Very specifically stated measurable result of a strategy or action steps taken to implement that strategy, such as adjusting the master schedule to allow collaboration time for teachers.
Outcome	A longer-range measurable change in behavior, such as continually improving grade 10 mathematics test scores.
Outcome Program Evaluation	Provides a measure of the impact or outcome of a program as judged against predefined criteria (measurable outcomes).
Percentile Rank	A student's score is reported as the percentage of students in the norming populations who had scores equal to or lower than the student. For instance, student X earned points equal to or higher than 80% of the other test takers. The student therefore scored at the 80th percentile. The norming population is usually a large random sample of test-takers.
Performance-Based Assessment	Requires students to perform hands-on tasks, such as writing an essay or conducting a science experiment. Such assessments are becoming increasingly common as alternatives to multiple-choice, machine-scored tests. Also known as authentic assessment, performance-based education system, or standards-based learning. A performance-based educational system places significantly greater emphasis on how well students meet specific learning goals and places significantly less emphasis on state-level laws and rules dictating how instruction is provided.
Population	Every student who is eligible to become a member of a specific sample of students. For example, the population of 10th graders is all 10th graders who may be enrolled in the district.

Portfolio	A systematic and organized collection of a student's work throughout a course or class year. It measures the student's knowledge and skills and often includes some form of self-reflection by the student.
Portfolio Assessments	A technique of evaluating student authentic performance based on the review of a series of distinct activities usually collected over an extended period of time and scored according to established standards and rubrics.
Problem Statement	A clear, succinct, evidence-based statement of the problem revealed through analysis of data related to the issue under investigation.
Problem(s) of practice	The action, or lack of action, of the adults in the system that contribute to problems for their students.
Process Program Evaluation	Provides information on how a program works; how it produces results; if it is being implemented faithfully; and suggests how it might be improved.
Program Evaluation	Outcome and process measures related to the functioning of an implementation site or of components within an implementation site.
Professional Learning Community (PLC)	Designed to increase teacher and/or district staff capacity in meeting the challenge to close achievement gaps and raise the bar for all students. Characterized by continuous, school-based/district-based professional development, mutual support and coaching with peers, dedicated time for collaborative work and "permission to take risks as a staff to learn, practice, and hone their skills. Effective school/ district leadership is fundamental to creating professional learning communities (OSPI, *Addressing the Achievement Gap*).
Progress Monitoring	Progress monitoring is used to assess students' academic performance, to quantify a student rate of improvement or responsiveness to instruction, and to evaluate the effectiveness of instruction. Progress monitoring can be implemented with individual students or an entire class.
Question Types	• Focusing Question – A high-level question related to an issue of interest that serves to initiate an inquiry and suggest the preliminary data that need to be collected and analyzed. • Clarifying Question – A follow-up question that guides deeper inquiry into the initial issue and suggests additional data that need to be collected and analyzed.

Random Selection and Assignment	Random selection is how the sample of people is drawn for a study from a population. Random assignment is how the sample drawn is assigned to different groups or treatments in your study.
Raw Score	The number of points earned before any score transformations are applied. For instance, a student earned a raw score of 85 out of 120 possible points on an assessment.
Reliability	The degree to which the results of an assessment are dependable and consistently measure particular student knowledge and/or skills. Reliability is an indication of the consistency of scores across raters, over time, or across different tasks or items that measure the same thing. Thus, reliability may be expressed as: a.) the relationship between test items intended to measure the same skill or knowledge (item reliability); b.) the relationship between two administrations of the same test—or comparable tests— to the same student or students (test/retest reliability); or c) the degree of agreement between two or more raters (rater reliability). An unreliable assessment cannot be valid.
Response to Intervention (RtI)	Response to intervention integrates assessment and intervention within a multi-level prevention system to maximize student achievement and reduce behavior problems. With RtI, schools identify students at risk for poor learning outcomes, monitor student progress, provide evidence-based interventions and adjust the intensity and nature of those interventions depending on a student's responsiveness, and identify students with learning disabilities. . (http//www.rti4success.org).
Sample	A group of students included in a data set. For example, the group of 10th graders in a district for any one school year is a sample of the entire population of 10th graders who may be enrolled in the district. The extent to which that group of 10th graders is representative of the entire population is the extent to which generalizations can be made to 10th graders in the future.
Sampling Error	A particular sample under study may be unusual in some way, leading to invalid or inaccurate inferences about the characteristics of the larger population from which the sample was drawn. For example, when comparing the performance of 10th graders in one year to 10th graders in the next, it is important to bear in mind that the performance is based on two different groups (samples) of 10th graders who may have different characteristics.

Scaled Scores	In the same way that the centigrade temperature scale can also be expressed on the Fahrenheit scale, student raw scores can be converted to scaled scores. Equating adjustments may result in different raw score ranges for performance levels from year-to-year. Raw scores can be scaled so that scaled score ranges for performance levels stay the same from year to year.
Scaling-up	In education, scaling-up means that the initiative will be provided to at least 60% of those who would benefit from it.
Second Grade Fluency and Accuracy Assessment	Every student is assessed at the beginning of second grade using a grade-level equivalent oral reading passage.
S.M.A.R.T	Acronym that describes the attributes of a well written end state description: Simple, Measurable, Attainable, Realistic, Timely
Stakeholder	Any individual that is involved with or is affected by a course of action or who has a vested interest in the enterprise, its policies, practices, and outcomes.
Standard Error of Measurement (SEM)	Based on the reliability of a test—the higher the reliability, the lower the SEM. Standard error of measurement can add a band of uncertainty around individual raw scores and scaled scores.
Standardization	A consistent set of procedures for designing, administering, and scoring an assessment. The purpose of standardization is to assure that all students are assessed under the same conditions so that their scores have the same meaning and are not influenced by differing conditions. Standardized procedures are very important when scores will be used to compare individuals or groups.
Standards	Subject-matter content that describes what students should know and be able to do. Content standards often contain benchmarks to measure students' attainment of the standards.
Strategy	A plan of action designed to achieve a particular goal.
Summative Assessment	Summative assessment measure outcomes that result from interventions.
Summative Program Evaluation	Measures of the effectiveness or impact of a program, at a given point in time, against pre-defined criteria (improvement targets, measurable objectives, outcomes, etc.).

Systemic Data Use

When the use of data becomes common practice, and part of daily decision making throughout the school and district.

Target

A relatively short range measurable change such as an annual increase as part of a multi-year goal.

Timeline

The date at which an action step will be completed or, for an ongoing action, when it is "up and running".

Transformation zones

Establish new ways to work (the initiative) and the capacity to support the work (infrastructure).

Trend Line

A trend line is a line on a graph that represents a line of best fit through a set of data points.

Triangulation

A process that makes data more reliable and valid by using different sources of data (respondents, time, location), different methods (interviews, assessments, questionnaires) and different types (quantitative and qualitative) next to each other. The advantages of one method can compensate for the disadvantage of the other.

Validity

The extent to which an assessment measures what it is supposed to measure and the extent to which inferences and actions made on the basis of test scores are appropriate and accurate. For example, if a student performs well on a reading test, how confident are we that the student is a good reader? A valid standards-based assessment is aligned with the standards intended to be measured, provides an accurate and reliable estimate of students' performance relative to the standard, and is fair. An assessment cannot be valid if it is not reliable.

Vision Statement

A description of what is aspired to. The vision statement describes the future state that the organization would like to achieve.

Washington Alternate Assessment System (WAAS)

The WAAS provides multiple ways for students with an Individual Education Program (IEP) to participate in the state testing system.

Washington Assessment of Student Learning (WASL)

This test was replaced in 2009–10 by the Measurements of Student Progress (MSP) and the High School Proficiency Exam (HSPE).

Washington English Language Proficiency Assessment (WELPA)

Determines student eligibility for English language development (ELD) services. The WELPA annually assesses growth in English language development by the state's English language learners. This assessment tests reading, writing, listening, and speaking skills.

A

Washington Kindergarten Inventory of Skills (WaKIDS)

This program helps bring families, teachers, and early learning providers together to support each child's learning and transition into public schools.

References

Assessment Glossary. (n.d.). Retrieved November 2011, from National Center for Research on Evaluation, Standards, and Student Teaching (CRESST): http://www.cse.ucla.edu/products/glossary.php

Bergeson, T., Heuschel, M. A., & MacGregor, R. (2005, July). *School Improvement.* Retrieved November 2011, from Office of Superintendent of Public Instruction: http://www.k12.wa.us/Improvement/District/pubdocs/SSIRGNotebookWeb.pdf

Merriam-Webster. (2011). Retrieved from Merriam-Webster Dictionary : www.merriam-webster.com

National Center on Response to Intervention . (2011). *Gloassary of RTI Terms* . Retrieved from National Center on Response to Intervention : http://www.rti4success.org/RTIGlossary

National Implementation Research Network. (2008). *Glossary of Terms* . Retrieved November 2011, from National Implementation Research Network (NIRN: http://www.fpg.unc.edu/~nirn/implementation/glossary.cfm

Office of Superintendent of Public Instruction . (n.d.). *Glossary - Administrator Professional Certificate.* Retrieved November 2011, from Office of Superintendent of Public Instruction : http://www.k12.wa.us/certification/Administrator/pubdocs/Glossary.pdf

U.S. Department of Education. (2011). *Glossary .* Retrieved November 2011, from Institute of Educatio Sciences (ies): http://ies.ed.gov/ncee/wwc/Glossary.aspx

Some definitions were developed within the DATAUSE project (Using Data for Improving School and Student Performance) by the consortium of partners including Public Consulting Group, University of Twente (the Netherlands), Institute of Information Management Bremen GmbH (Germany), Modern Didactics Center (Lithuania) and Specialist Schools and Academies Trust (UK), found at http//www.datauseproject.eu

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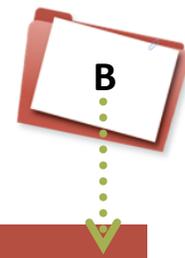
Appendix B – List of Acronyms

Acronym	Description
AMAOs	Annual Measurable Achievement Objectives
AP	Advanced Placement
AWSP	Association of Washington School Principals
AYP	Adequate Yearly Progress
CAA	Certificate of Academic Achievement
CBA	Curriculum or Classroom Based Assessment
CBM	Curriculum-Based Measurement
CCSS	Response to Intervention or Instruction
CEDARS	Comprehensive Education Data and Research System
CIA	Certificate of Individual Achievement
CTC	Community and Technical College(s)
DECA	Devereux Early Childhood Assessment
DEL	Department of Early Learning
EALRs	Essential Academic Learning Requirements
ECEAP	Early Childhood Education and Assistance Program
ELD	English Language Development
ELL	English Language Learners
EOC	End of Course exam
ERDC	Education Research & Data Center
ESA	Educational Service Agency
ESD	Educational Service District
ESEA	Elementary and Secondary Education Act
ESL	English as a Second Language
FRPL	Free or Reduced-Price Lunch
FTE	Full-Time Equivalent
GCS	Global Challenge State(s)
GED	General Educational Development
GFS	Graduate Follow-up Study
GLEs	Grade Level Expectations
HECB	Higher Education Coordinating Board
HSPE	High School Proficiency Exam
IEP	Individualized Education Program
IPEDS	Integrated Postsecondary Education Data System

ITBS	Iowa Test of Basic Skills
ITED	Iowa Tests of Educational Development
K-12	Kindergarten through Grade 12
LEA	Local Educational Agency (districts)
LEP	Limited English Proficient
METT	Multi-Ethnic Think Tank
MSP	Measurements of Student Progress
NAEP	National Assessment of Educational Progress
NBCT	National Board Certified Teacher
NBPTS	National Board for Professional Teaching Standards
NCES	National Center for Education Statistics
NCLB	No Child Left Behind
OLPT	Oral Language Proficiency Test
OSPI	Office of Superintendent of Public Instruction
P-20	Pre-Kindergarten through "Grade 20" (postsecondary education and
PCHEES	Public Centralized Higher Education Enrollment System
PESB	Professional Educator Standards Board
PLC	Professional Learning Community
PSE	Public School Employees
PTA	Parent Teacher Association
RTI	Response to Intervention or Instruction
SBCTC	State Board for Community and Technical Colleges
SBE	State Board of Education
SEA	State Educational Agency. In Washington, the Office of Superintendent
SIOP	Sheltered Instruction Observation Protocol
SIP	School Improvement Plan
SLA	Second Language Acquisition
SPED or SpEd	Special Education
TANF	Temporary Assistance to Needy Families
TPEP	Teacher & Principal Evaluation Program
WASA	Washington Association of School Administrators
WASL	Washington Assessment of Student Learning (discontinued in 2009)
WEA	Washington Education Association
WERA	Washington Educational Research Association
WLPT	Washington Language Proficiency Test

WSCA	Washington School Counselor Association
WSSDA	Washington State School Directors' Association

References

- *CRESST Assessment Glossary*, found at http//www.cse.ucla.edu
- Merriam-Webster Dictionary, found at http//www.merriam-webster.com/dictionary
- Slaughter, R. (2008). *Assessment literacy handbook A guide for standardized assessment in public education*. Portsmouth, NH Public Consulting Group, Inc.
- Some definitions were developed within the DATAUSE project (Using Data for Improving School and Student Performance) by the consortium of partners including Public Consulting Group, University of Twente (the Netherlands), Institute of Information Management Bremen GmbH (Germany), Modern Didactics Center (Lithuania) and Specialist Schools and Academies Trust (UK), found at http//www.datauseproject.eu