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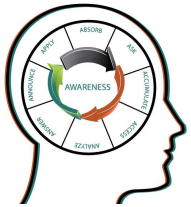

Develop Your Data Mindset

Module 1 - Introduction to Course and Theme, Need for Data Training, Data Types, and Methods of Inquiry Part 4 - Introduction to Data Types and Methods of Inquiry

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Learning Goals

- Increase awareness of need for data use training

SLDS Data Use Standards

- B.3.D Prioritization: Prioritizes time to analyze and use data
- K.1.C Types of Data: Knows that data come in two main forms—QUANTITATIVE and QUALITATIVE—and that, within these forms, there are other categories
- K.2.D Data Context: Knows the circumstances and purposes for which data are collected

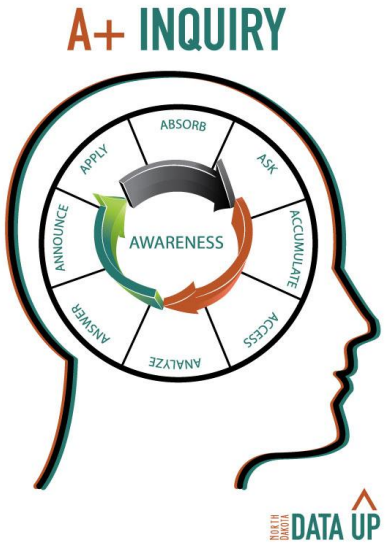
Teacher Thought

If I know which stage of the A+ Inquiry framework data falls into, then I can apply it in a real world setting with student data to help me personalize learning.

Methods of Inquiry

My role, as your Data Coach, is to help you use the **A+ Inquiry framework** to understand, not only your role in accessing and analyzing the data but also to help you understand the full application of the data in order to help your students be successful.

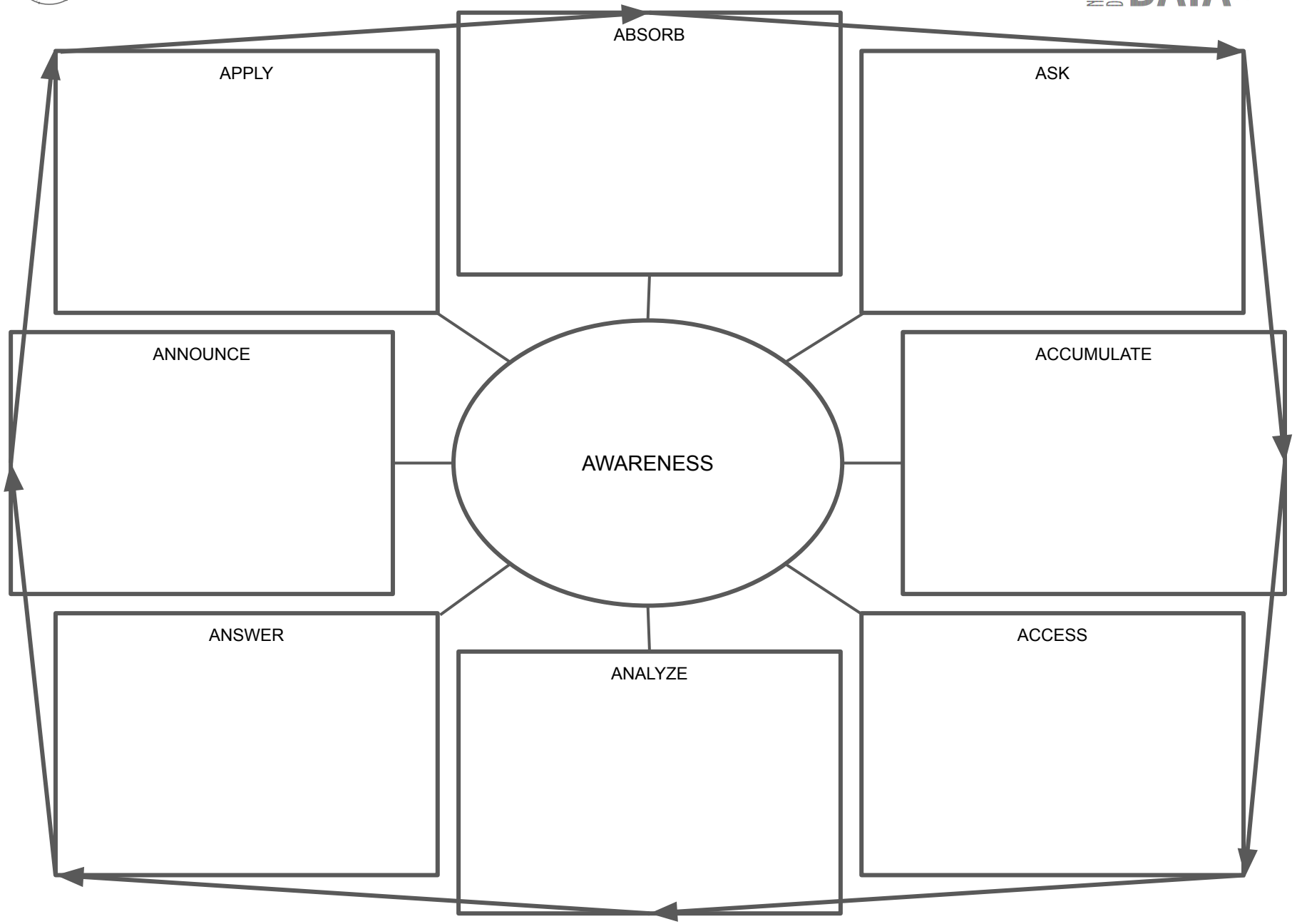
When you understand how to navigate the Absorb, Ask, Accumulate, Access, Analyze, Answer, Announce, and Apply stages of a thorough data utilization process, your appreciation of data will increase, and you can STOP collecting the data you don't need.



Methods of Inquiry

What if you knew how your role in working with data fit into the stages of the A+ Inquiry framework for effective data utilization? Throughout this course, it is our goal that you will understand your role in working with data as it relates to the A+ Inquiry process.

A+ Inquiry
GRAPHIC ORGANIZER



A+ Inquiry - Descriptions of Stages
GRAPHIC ORGANIZER

NORTH DAKOTA DATA

ABSORB

In the Absorb stage, you identify that which is already known and identify a need to know more about something.

ASK

In the Ask stage, you pose a set of questions that, if answered, will provide you with a better understanding of that which is not known.

ACCUMULATE

In the Accumulate stage, you determine if data required to answer the questions have already been collected or specify and implement methods to collect new data if needed.

ACCESS

In the Access stage, you retrieve collected data from a data source.

ANALYZE

In the Analyze stage, you conduct analysis of the data you retrieved.

ANSWER

In the Answer stage, you respond to the initially posed questions and identify limitations and implications of the findings.

ANNOUNCE

In the Announce stage, you communicate the findings to appropriate stakeholders.

APPLY

In the Apply stage, you make decisions and take action based on the answer.

AWARENESS

Awareness is in the center as the hub of the framework. When you are in one stage, it is important to be aware of how what you're doing aligns with other stages of the framework.

A+ Inquiry - Example
GRAPHIC ORGANIZER

NORTH DAKOTA DATA

ABSORB

Student's performance on universal screening assessment below cut score; student capable of being assessed with current grade level probe; baseline and goal set; student risk status confirmed; intervention assigned; need to evaluate the student's progress toward end or year goal during intervention

APPLY

If a student is progressing adequately, continue intervention "as is" and potentially increase end of year goal.

If student is not progressing adequately, modify intervention and maintain end of year goal

ASK

Is the student making adequate progress toward the end of year goal during the intervention?

Is the slope of the student's trend line steeper than the goal line?

ANNOUNCE

Teacher announces to student during one-on-one meeting
[AND]
Teacher announces to RTI team during regularly scheduled meeting. They discuss whether intervention and/or goal should be modified

AWARENESS

Evaluate a student's progress toward end of year goal

ACCUMULATE

Six to ten weekly CBM assessment data points required during intervention. Teacher collects data by administering probe to student using standardized CBM protocol; teacher records data electronically (e.g. spreadsheet, student's record in CBM vendor site)

ANSWER

Yes, the trend line is steeper than the slope of the goal line; therefore, the student is making adequate progress.
[OR]
No, the trend line is not greater than the slope of the goal line; therefore the student is not making adequate progress

ANALYZE

Data are analyzed visually on a graph. Compare steepness of student's trend line during the intervention to steepness of student's goal line to determine if the slope of the student's trend line is less than the slope of the goal line.

ACCESS

Teacher accesses data in spreadsheet or student's record in CBM vendor report site after administering the minimum sixth, or up to tenth, assessment during the intervention

Methods of Inquiry

Now, let's apply the information from the A+ Inquiry framework to a school setting. First you will practice identifying the stages with a general example. Then you will identify the stages with a specific classroom example.

Remember to continually self-assess and reflect on your personal learning plan as you work through formative assessments. Revisit the goals you set in your journal and decide if they need to be modified.

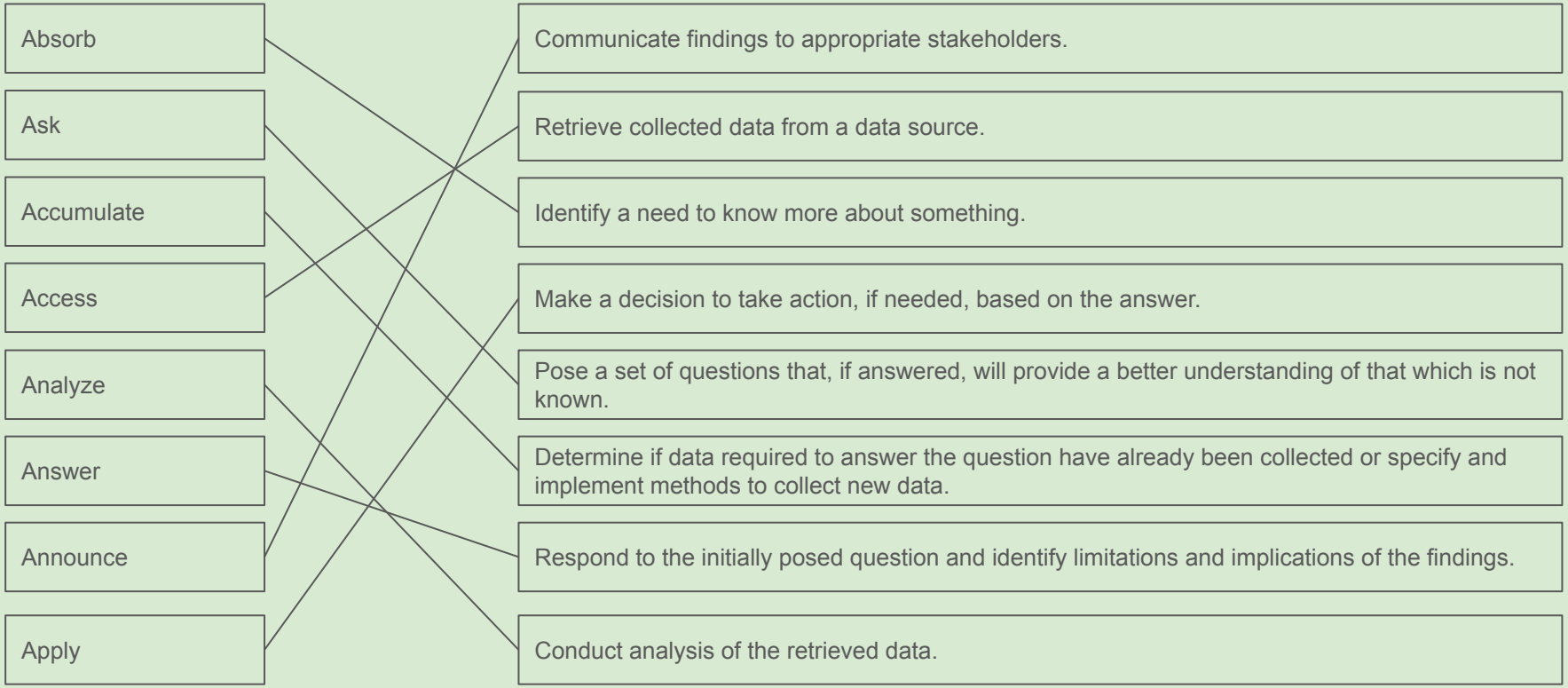
Activity

Match the appropriate section of the A+ Inquiry framework to the associated text.

Absorb	Communicate findings to appropriate stakeholders.
Ask	Retrieve collected data from a data source.
Accumulate	Identify a need to know more about something.
Access	Make a decision to take action, if needed, based on the answer.
Analyze	Pose a set of questions that, if answered, will provide a better understanding of that which is not known.
Answer	Determine if data required to answer the question have already been collected or specify and implement methods to collect new data.
Announce	Respond to the initially posed question and identify limitations and implications of the findings.
Apply	Conduct analysis of the retrieved data.

Activity Answer

Match the appropriate section of the A+ Inquiry framework to the associated text.



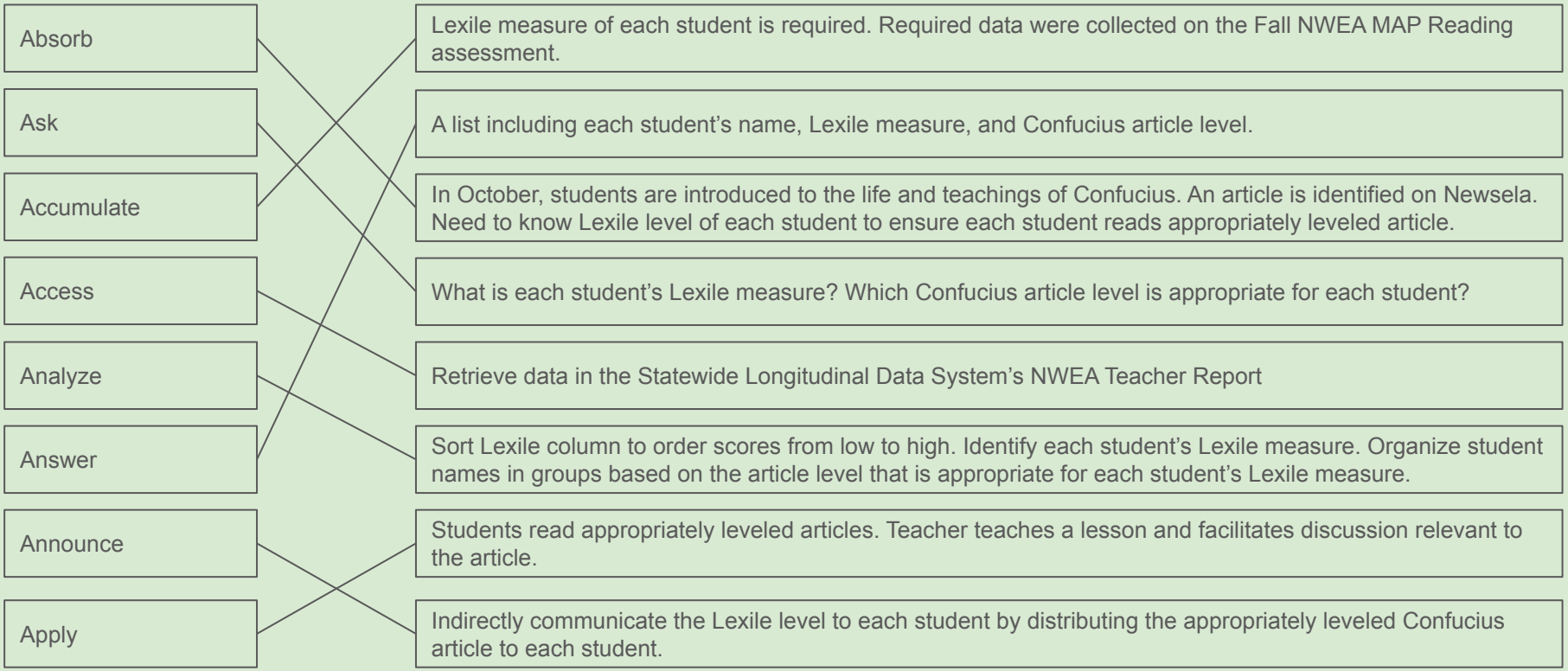
Activity

Match the appropriate section of the A+ Inquiry framework to the associated text.

Absorb	Lexile measure of each student is required. Required data were collected on the Fall NWEA MAP Reading assessment.
Ask	A list including each student's name, Lexile measure, and Confucius article level.
Accumulate	In October, students are introduced to the life and teachings of Confucius. An article is identified on Newsela. Need to know Lexile level of each student to ensure each student reads appropriately leveled article.
Access	What is each student's Lexile measure? Which Confucius article level is appropriate for each student?
Analyze	Retrieve data in the Statewide Longitudinal Data System's NWEA Teacher Report
Answer	Sort Lexile column to order scores from low to high. Identify each student's Lexile measure. Organize student names in groups based on the article level that is appropriate for each student's Lexile measure.
Announce	Students read appropriately leveled articles. Teacher teaches a lesson and facilitates discussion relevant to the article.
Apply	Indirectly communicate the Lexile level to each student by distributing the appropriately leveled Confucius article to each student.

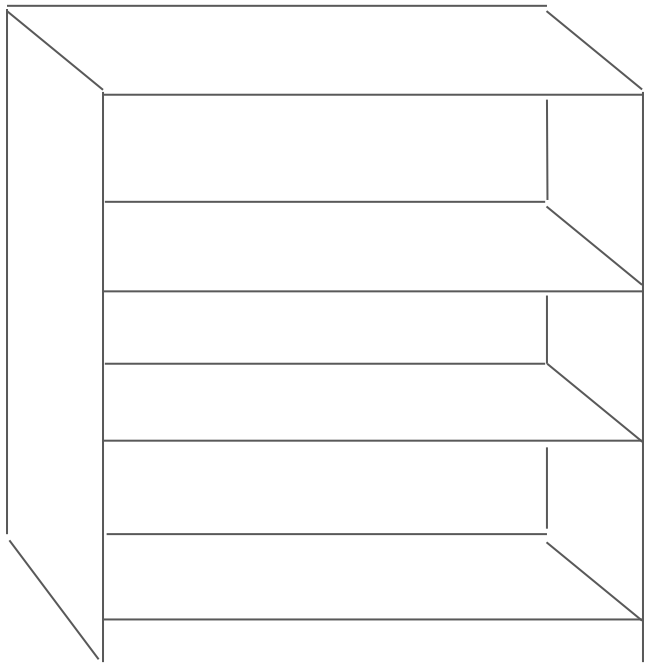
Activity Answer

Match the appropriate section of the A+ Inquiry framework to the associated text.



Methods of Inquiry

If you think about it, remember when you found the piles of items and pieces in your room? Of course, the first thing you did was ask your administrator to contact the maintenance supervisor about the bookshelf and chair.



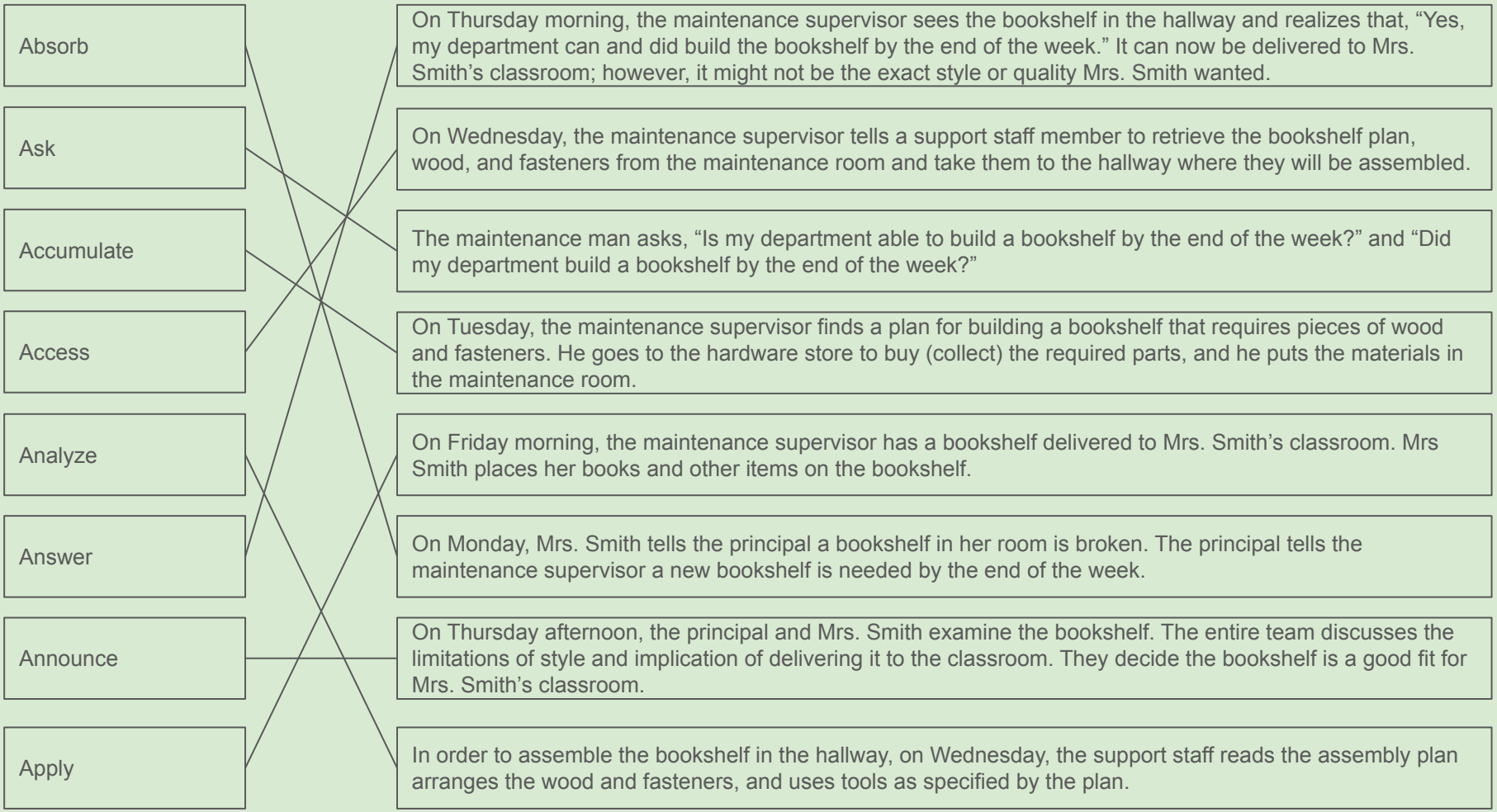
Activity

Match the appropriate section of the A+ Inquiry framework to the associated text.

Absorb	On Thursday morning, the maintenance supervisor sees the bookshelf in the hallway and realizes that, “Yes, my department can and did build the bookshelf by the end of the week.” It can now be delivered to Mrs. Smith’s classroom; however, it might not be the exact style or quality Mrs. Smith wanted.
Ask	On Wednesday, the maintenance supervisor tells a support staff member to retrieve the bookshelf plan, wood, and fasteners from the maintenance room and take them to the hallway where they will be assembled.
Accumulate	The maintenance man asks, “Is my department able to build a bookshelf by the end of the week?” and “Did my department build a bookshelf by the end of the week?”
Access	On Tuesday, the maintenance supervisor finds a plan for building a bookshelf that requires pieces of wood and fasteners. He goes to the hardware store to buy (collect) the required parts, and he puts the materials in the maintenance room.
Analyze	On Friday morning, the maintenance supervisor has a bookshelf delivered to Mrs. Smith’s classroom. Mrs Smith places her books and other items on the bookshelf.
Answer	On Monday, Mrs. Smith tells the principal a bookshelf in her room is broken. The principal tells the maintenance supervisor a new bookshelf is needed by the end of the week.
Announce	On Thursday afternoon, the principal and Mrs. Smith examine the bookshelf. The entire team discusses the limitations of style and implication of delivering it to the classroom. The decide the bookshelf is a good fit for Mrs. Smith’s classroom.
Apply	In order to assemble the bookshelf in the hallway, on Wednesday, the support staff reads the assembly plan arranges the wood and fasteners, and uses tools as specified by the plan.

Activity Answer

Match the appropriate section of the A+ Inquiry framework to the associated text.



Methods of Inquiry

Excellent, you are well on your way to using data effectively! We'll get into more details about A+ Inquiry in upcoming modules.

Data Types

Now that you are getting your room in order for the year, let's familiarize ourselves with some different types of data you're bound to encounter through this school year or over this course.

- **Demographic**
  - Represent characteristics of an individual or group, such as age, gender, and grade level
- **Perception**
  - Represent the thoughts of an individual or group, such as the results of student or teacher surveys
- **Student Learning**
  - Represent academic achievement, such as GPA and standardized assessment performance
- **School Process**
  - Represent what schools and educators do to help students learn, such as programs and interventions, staffing, and scheduling
- **Behavior**
  - Represent student conduct, such as bullying, technology violations, and tardiness.

Activity

Indicate whether each item represents Demographic, School Process, Perception, Student Learning, or Behavior data

- Number of interventions -
- Percentage of stakeholders with negative opinions about the school -
- Test grade -
- Number of plagiarism incidents -
- Number of students by IEP status -
- Number of staff meetings -
- Scale score in a subject -
- Number of technology violations -
- Number of minutes allotted for a strategy or subject -
- GPA -
- Number of staff with negative opinions of school climate -
- Number of bullying incidents -
- Number of students by gender -
- Percentage of students with positive opinions of learning environment -
- ACT score -
- Number of students by race/ethnicity -
- Number of discipline referrals -
- Percentage of students by economic status -
- Number of teacher contract days -
- Percentage of parents with positive opinions of teacher effectiveness -

Activity Answer

Indicate whether each item represents Demographic, School Process, Perception, Student Learning, or Behavior data

- Number of interventions - School Process
- Percentage of stakeholders with negative opinions about the school - Perception
- Test grade - Student Learning
- Number of plagiarism incidents - Behavior
- Number of students by IEP status - Demographic
- Number of staff meetings - School Process
- Scale score in a subject - Student Learning
- Number of technology violations - Behavior
- Number of minutes allotted for a strategy or subject - School Process
- GPA - Student Learning
- Number of staff with negative opinions of school climate - Perception
- Number of bullying incidents - Behavior
- Number of students by gender - Demographic
- Percentage of students with positive opinions of learning environment - Perception
- ACT score - Student Learning
- Number of students by race/ethnicity - Demographic
- Number of discipline referrals - Behavior
- Percentage of students by economic status - Demographic
- Number of teacher contract days - School Process
- Percentage of parents with positive opinions of teacher effectiveness - Perception

Methods of Inquiry

I realize that school is just starting, and you already have all this data on your students. There is so much that you may be wondering about how to pull it all together and for what purpose.

At a very basic level, data help answer important questions for the purpose of guiding decisions and actions that lead to improved student learning. Implementing data in such a way that it functions properly allows us to be good data stewards, optimizing the responsible use of all data that are collected.

Methods of Inquiry

One of my goals this school year is to prevent data hoarding. When data is hoarded, it is accumulated and never used.

You might think of data hoarding as if we are in an accumulation trap where we get so caught up in collecting data that our data never escape the place where they were collected. The are never analyzed and never used for the purposes of informing decisions or actions. This does not help students in any way, whether the data is stored in file cabinets, a database, or a cloud.

Disciplined Inquiry: Assessment, Evaluation, and Research

In education, we use data for a variety of purposes related to processes that could be known as disciplined inquiry; disciplined inquiry represents a process of asking an intentional question and answering the question with data to create knowledge and understanding that lead to improved decisions and actions.

In other words, disciplined inquiry refers to an intentional process of asking and answering questions to improve understanding, create knowledge, inform decisions, and/or provide rationale for action. In these types of processes, you go through a series of stages where you:

- Identify a gap in what is known and what should be known
- Collect data
- Analyze data
- Share analysis results with appropriate stakeholders
- Make decisions and take action based on results

Disciplined Inquiry: Assessment, Evaluation, and Research

No matter what we call it or under what initiative, disciplined inquiry includes Assessment, Evaluation, and Research. The good news is that you do this all year every day with students, whether it is RTI, AdvancED, School Improvement, NWEA MAP, or Renaissance STAR. The vendors or terms may change, but underneath it all, disciplined inquiry includes doing what you do every day with students. The only thing that changes is the user (you or your principal, for example) and the type of data.

- **Assessment**
  - Improve student learning
- **Evaluation**
  - Judge merit or worth of a program or other initiative
- **Research**
  - Create generalizable knowledge

Disciplined Inquiry: Assessment, Evaluation, and Research

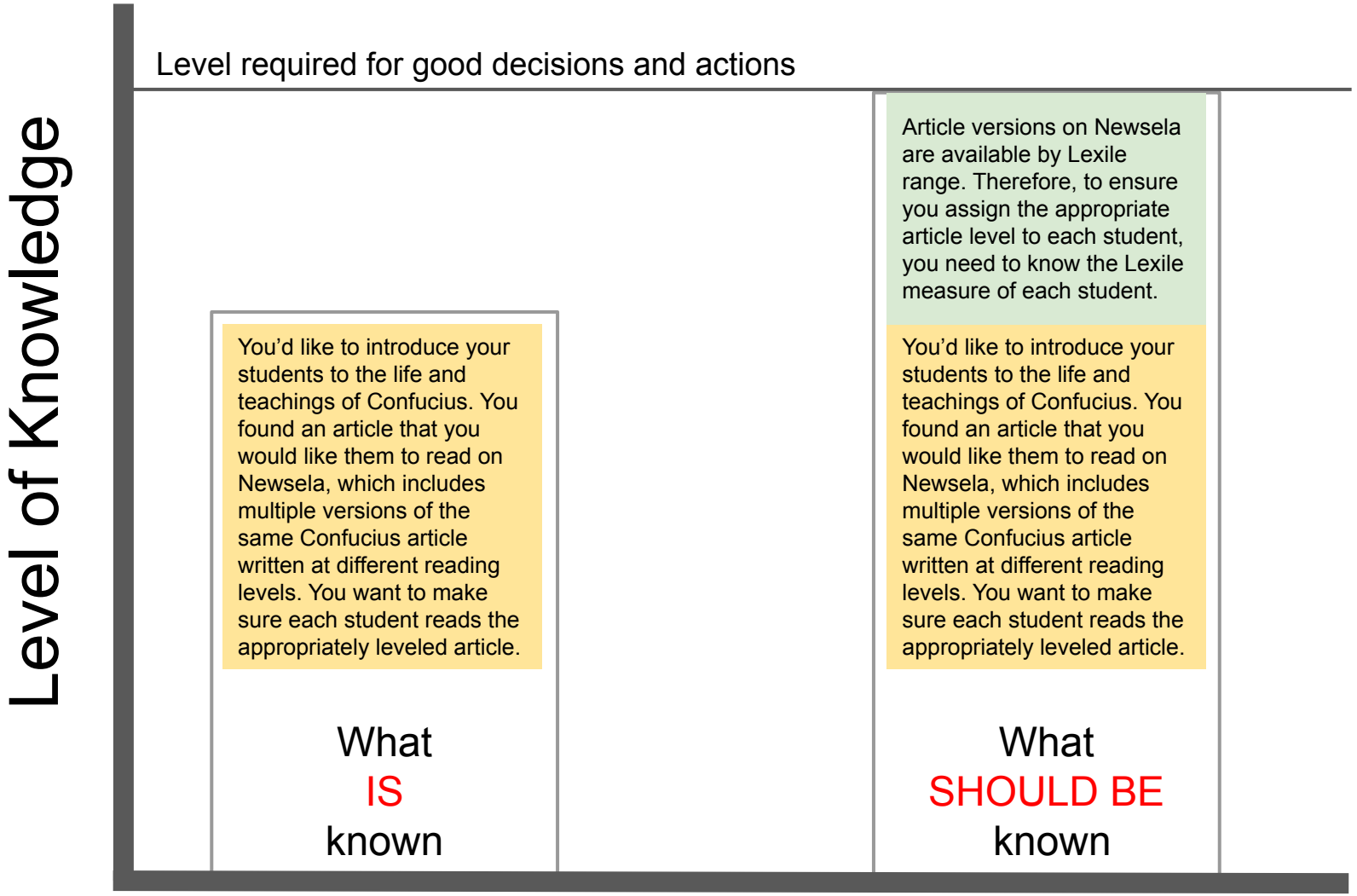
Common types of disciplined inquiry include assessment, evaluation, and research. The meanings of these are sometimes difficult to differentiate, but at some point in your career it is likely that you will be asked to participate in each of these types of inquiry.

- **Research** is a process of asking a question and collecting and analyzing data to create generalizable knowledge about something. As an educator, you might perform research to better understand what factors contribute to student learning or to determine if achievement gaps exist between subgroups.
- **Evaluation** is a process of asking a question and collecting and analyzing data to determine the value or worth of something. As an educator, you might be part of an evaluation process to determine if the district's curriculum or professional development program is needed or effective.
- **Assessment** is a process of asking a question and collecting and analyzing data to improve student learning. Assessment is the most frequently used form of disciplined inquiry for a teacher; there are a variety of assessment types, including formative, interim, and summative.

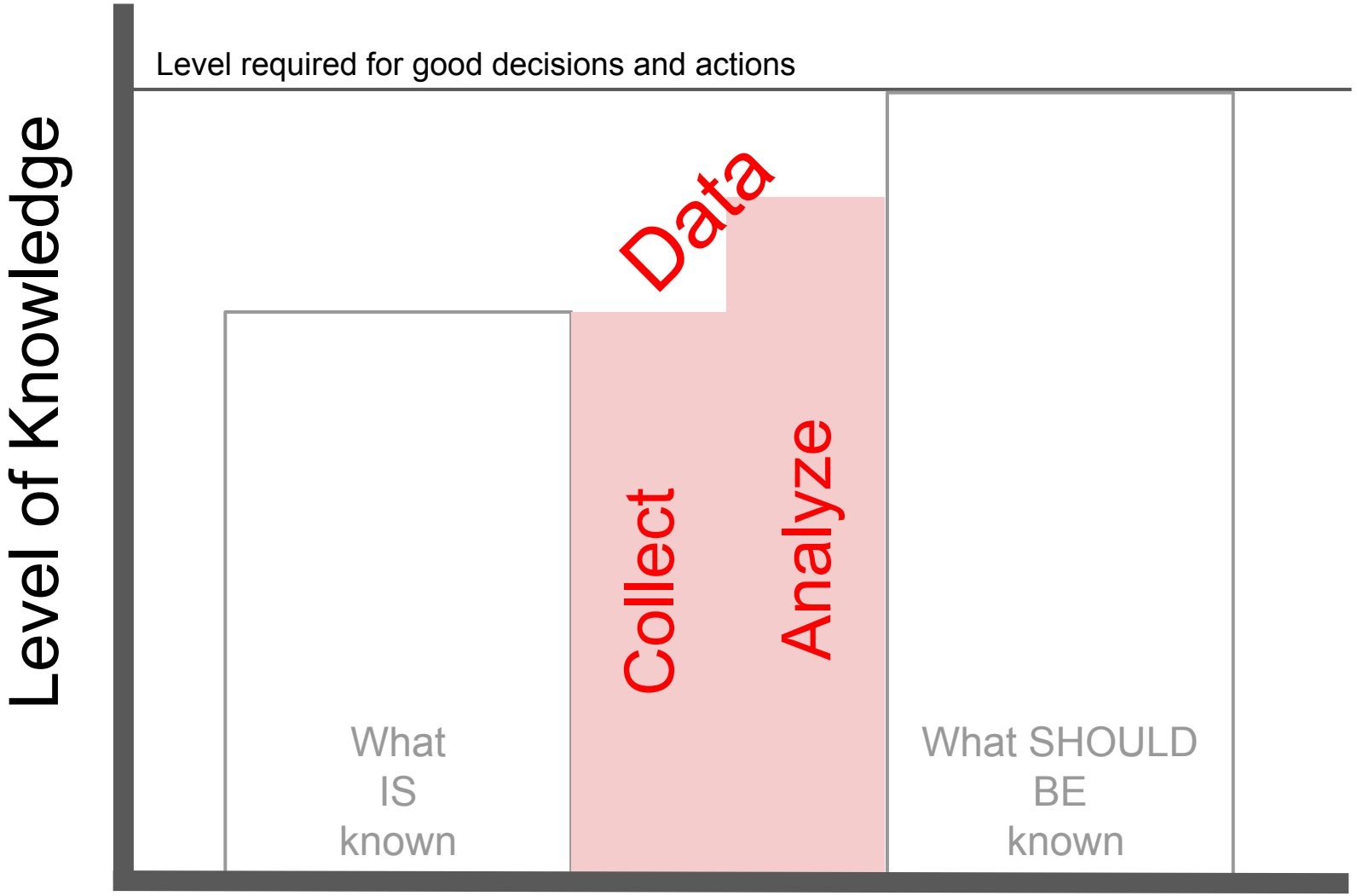
Disciplined Inquiry: Assessment, Evaluation, and Research

Imagine knowing exactly what each of your students needs to reach benchmarks. How much more effective would you be in helping them grow to their individual potential? Using disciplined inquiry, you could help students bridge the gap from what they know and what they need to know.

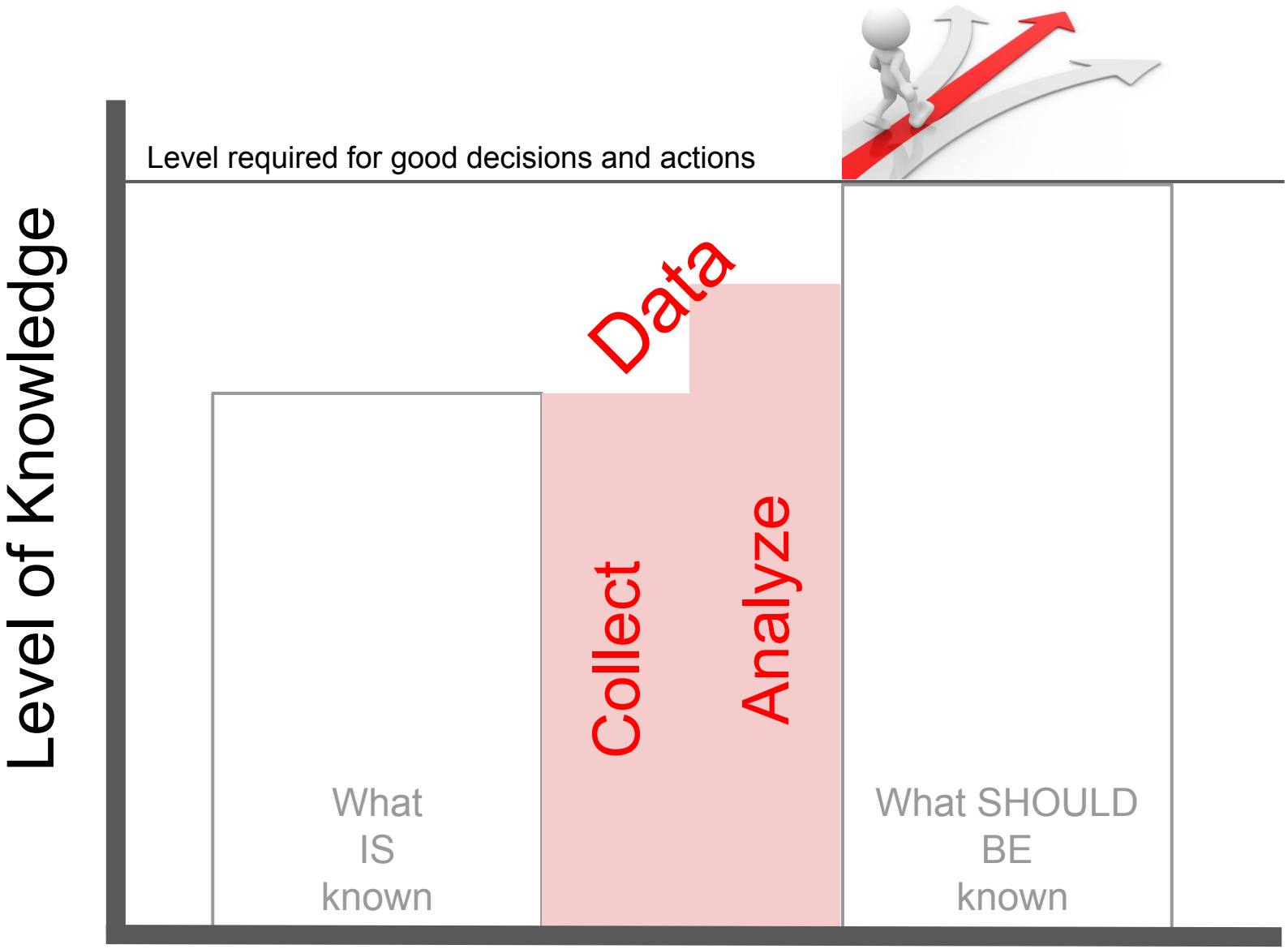
Take, for example, this illustration. There is often a gap between what is known and what should be known that must be bridged before making decisions or taking actions. Part of the disciplined inquiry process involves using data to bridge this gap.



The collection and analysis of data can help bridge the gap between what is known and what should be known.



An enhanced level of knowledge and understanding will help ensure that good decisions and actions lead us in the right direction.



Activity

Indicate whether each item represents an assessment, evaluation, or research process

- Determine if a program is reaching the intended audience -
- Determine if a program is implemented as planned -
- Determine whether a program is having intended effects -
- Determine if there is a relationship between two or more variables -
- Determine student performance against a defined set of standards -
- Determine if there is a difference in mean/median/range/slope before, during, and after an intervention for a single group -
- Determine if there is a difference in pre-post growth between a group receiving an intervention and a group not receiving the intervention -
- Determine student strengths and skill deficits -
- Determine if there is a difference in posttest performance between a group that received and intervention and a group that did not receive an intervention -
- Determine likelihood of a student achieving benchmark on an end of year test -
- Determine whether a student knows what needs to be known relevant to the current lesson -
- Determine district/school needs based on stakeholder feedback -

Activity

Indicate whether each item represents an assessment, evaluation, or research process

- Determine if a program is reaching the intended audience - Evaluation
- Determine if a program is implemented as planned - Evaluation
- Determine whether a program is having intended effects - Evaluation
- Determine if there is a relationship between two or more variables - Research
- Determine student performance against a defined set of standards - Assessment
- Determine if there is a difference in mean/median/range/slope before, during, and after an intervention for a single group - Research
- Determine if there is a difference in pre-post growth between a group receiving an intervention and a group not receiving the intervention - Research
- Determine student strengths and skill deficits - Assessment
- Determine if there is a difference in posttest performance between a group that received and intervention and a group that did not receive an intervention - Research
- Determine likelihood of a student achieving benchmark on an end of year test - Assessment
- Determine whether a student knows what needs to be known relevant to the current lesson - Assessment
- Determine district/school needs based on stakeholder feedback - Evaluation

Disciplined Inquiry: Assessment, Evaluation, and Research

Now that we have looked at some data from last year and discussed how you can be a good steward of data, let's join your coworkers in our fall in-service. During the in-service, you will be introduced to the knowledge, skills, and professional behaviors required for effective data use. These data use standards will be put into action using the A+ Inquiry framework.

Teacher Thought

If data doesn’t fall into one of the A+ Inquiry stages (Absorb, Ask, Accumulate, Access, Analyze, Answer, Announce, Apply), then I don’t need it! What a gift of time!

Indicate the extent to which you agree or disagree

	Strongly disagree	Disagree	Agree	Strongly Agree
This module part increased my knowledge of general data types				
This module part increased my knowledge of inquiry methods				

Well Done

You have completed this module part. You can begin the next lesson when you are ready.