USING BASELINE DATA AND INFORMATION TO SET SLO TARGETS

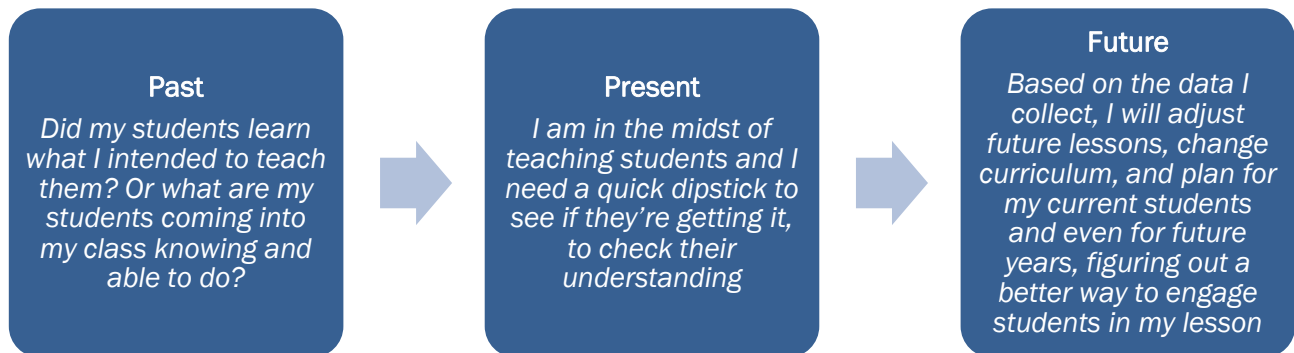## A PART OF THE ASSESSMENT TOOLKIT

> *Putting faces on the data reminds us "that the numbers represent real children and young people striving to make the most of themselves as they prepare for an uncertain future."*
>
> *- Foreword from Sir Michael Barber in "Putting Faces on the Data" (2012)*

Why gather and use data and information?

Kathy Samuels, a high school English teacher, emphasized the importance of data in her classroom. She attributed her conscious focus on data to her teacher residency program, in which she spent a year devoted to looking at student data and learning to be reflective. "I used to think that data was scary until I realized that I use it all the time!"

Ms. Samuels noted that data must inform instruction and keep teachers accountable for students. "Data from my own assessments is the most common data used in my classroom, though I do carefully review state assessment data when it becomes available. I like to think of data as helping to show the past, present, and future."

Past

Did my students learn what I intended to teach them? Or what are my students coming into my class knowing and able to do?

Present

I am in the midst of teaching students and I need a quick dipstick to see if they're getting it, to check their understanding

Future

Based on the data I collect, I will adjust future lessons, change curriculum, and plan for my current students and even for future years, figuring out a better way to engage students in my lesson

The increased use of a variety of assessments, as well as more sophisticated technology, has made more data available in schools than ever before. This access to current and varied student learning data has been described as "teaching with the lights on" because educators do not have to guess what students know or hope that their instruction is having the desired effect. Data provide a way to confirm what students are learning and the extent to which they are making progress towards goals and targets. Using data systematically—whether running records, observations, response logs, performance assessments, or quizzes—to ask questions and gain insight about student progress is a way to tailor instruction to meet the needs of all students.

Using the information that data provides allows educators to make decisions aimed at improving student achievement, such as:

- prioritizing instructional time
- targeting struggling or high-performing students to provide individualized instruction
- identifying individual students' strengths and needs to provide appropriate interventions
- gauging the instructional effectiveness of classroom lessons
- refining instructional strategies
- examining school-wide data to determine patterns of learning and consider how to adapt curriculum
- communicating student progress to students and families

(Hamilton, L., et al, 2009)

What is Data?

For many educators, the word "data" conjures up images of cumbersome spreadsheets, stacks of student reports, and lists of cold, hard numbers. When conceived of in this way, data can seem at odds with the holistic and nuanced way teachers think about their students. But the truth is data is just information. Teachers collect and use information about their students nearly every day, whether or not they call it "data". Attendance, behavior, quizzes, observations, comments, grades, and test scores are all data sources. Data collected and organized in a systematic way can be used to make classroom, district, or system decisions. It should provide an accurate measurement of student progress or lack of progress of content knowledge on tasks, activities, or behaviors.

When it comes to improving instruction and learning, it's not the quantity of the data that counts, but how the information is used.

-Lewis, Harris, Muoneke, Times, 2012

Data can be quantitative or qualitative. The table below illustrates some common types of quantitative and qualitative data used by teachers everyday:

Quantitative Data	Qualitative Data
(expresses quantities, usually consists of numbers, can be measured)	(expresses qualities, usually consists of descriptions, can be observed)
▪ State assessment results ▪ Report card grades ▪ Attendance ▪ Scores on formative or summative assessments ▪ Individual Education Plans	▪ Report card comments ▪ Observations of student behavior, work habits, interactions with other students and teachers, etc. ▪ Individual Education Plans

Many assessments can yield both quantitative and qualitative data. Neither form is superior; rather, each type can provide teachers with different information. For example:

> "Triangulation" is the process of using multiple data sources to address a particular question or problem and using evidence from each source to illuminate or temper evidence from the other sources. It also can be thought of as using each data source to test and confirm evidence from the sources in order to arrive at well-justified conclusions about students' learning needs.
>
> -Hamilton et al., 2009

Mr. Ramsden teaches third grade and his students take a quiz on single digit multiplication. During the quiz he observes students as they work, noting how quickly they begin problems, their use of manipulatives, whether or not they show their work, and their method for solving the problems (counting by ones, skip-counting, drawing pictures, etc.). These are examples of qualitative data that help him get to know his students so that he can provide helpful feedback in future lessons. After the quiz, he corrects their work, records their scores, and shares with students their percentage of correct answers. He notices that the most common mistakes involved multiplying sevens and nines. These are examples of quantitative data.

Mrs. White teaches 8th grade Physical Education. Her students are completing a physical activity baseline assessment. The students are responsible for travelling to different stations around the gym and completing various physical challenges. During the assessment Mrs. White records observations about common difficulties and individual student engagement. These are examples of qualitative data. After the assessment Mrs. White compiles the data (# of sit-ups completed in 60 seconds, # of pull-ups completed) to identify students' levels of fitness, and group strengths and weaknesses to inform future lessons and activities. These are examples of quantitative data.

These are just two of the examples of the types of evidence teachers can use to collect quantitative and qualitative data. Other common forms include:

Formative Assessments	Interim Assessments	Summative Assessments
▪ observations ▪ running records ▪ exit slips ▪ classwork	▪ quarterly writing prompts ▪ fall/winter/spring benchmarks	▪ performance tasks ▪ portfolios (writing, art, etc.) ▪ end-of-unit test ▪ research paper ▪ lab report

No single assessment can tell educators all that is needed to make well-informed instructional decisions. Therefore, multiple data sources should be used when possible and when the information they provide is complimentary, rather than redundant. The following is an overview of data sources, the purpose they serve, and the limitations of using them for making instructional decisions and setting SLO targets.

Data Source	Purpose	Limitations
Annual State Assessments ** Not appropriate for setting SLO targets*	▪ Analyze broad areas of relative strengths and weaknesses among students ▪ Identifying students or groups of students who may need particular support ▪ Setting school-wide, grade-level, department-level or classroom goals for students' annual performance ▪ Reveals which students performed *advanced, proficient, partially proficient,* and *substantially below proficient*. This could help inform how you identify specific tiers for SLO Targets.	▪ A significant amount of time may have passed between the administration and when data become available; students' knowledge and skills may have changed during that time ▪ Over-alignment of instructional practices with test content
Interim Assessments ▪ First benchmarking assessment of the year (e.g., Rhode Island Interim Assessment, District/LEA-developed Assessment, STAR, DIBELS, DRA2, PALS)	▪ Evaluate instructional strategies ▪ Track the progress of current students in a single school year ▪ Reveals which students performed *advanced, proficient, partially proficient,* and *substantially below proficient*. This could help inform how you identify specific tiers for SLO Targets as well as monitoring progress during the year.	▪ May be a snapshot of what students can do since these assessments are seldom cumulative
Classroom Performance Data Previous year: ▪ unit tests ▪ course projects ▪ summer reading work ▪ portfolios (e.g., art, writing) ▪ interviews with teacher from prior year Current year: ▪ class work or homework during the first week or two of school ▪ surveys of prior knowledge (see survey uses on pages 4-5) ▪ student interviews	▪ Assess student prior knowledge to focus instruction ▪ Provide ongoing, formative evaluation of student learning at the most specific level ▪ Focus re-teaching on missing knowledge or weak skills ▪ Identify students for flexible instructional groups or for immediate and specific instruction ▪ Provide immediate feedback about student learning ▪ Provide rich, detailed examples of students' academic performance to complement state or interim assessments	▪ Assignments, conditions, and scores are not generally comparable across classrooms ▪ Assessments are not always consistent with the content or rigor of interim and standardized assessments ▪ Teachers may lack experience in high-quality assessment development procedures ▪ Classroom assessments may require significant teacher time to score and analyze results.

For more information about purposes and limitations of various data sources, see the Comprehensive Assessment System Criteria and Guidance document: www.ride.ri.gov/CAS

For more information about using data in classrooms and schools, see the Data Use PD webpage: www.ride.ri.gov/Data-Use-PD

What is Baseline Data?

There is no value in assessing students if it does not impact learning and instruction.
-Fullan, Crevola, and Hill, 2006

Baseline data is information about students' level of performance at the "start" of the interval of instruction. It is generally the most recent data available and can include the prior year's assessment scores or grades, results from a beginning of the year benchmark assessment, a pre-test, or other evidence of students' learning, such as portfolio work samples that measure the **pre-requisite knowledge and skills** necessary for the course. The baseline is a "line in the sand" that can be used to measure student change toward important academic indicators during a course or academic year. The key to measuring student learning is to select the appropriate assessments or sources of evidence. Baseline data are used to establish SLO targets (the expected outcome at the end of the instructional period). Consider the following teachers' rationale for identifying and using baseline data to establish groups and targets.

Teacher	SLO Objective Statement	Baseline Data	Teacher's Rationale
Ms. Anderson Elementary Art Teacher	Students in grade 3 will be able to create portraits from observation in a variety of mediums (including drawing with oil pastels, printmaking, collage, and painting) that show evidence of problem solving using basic visual arts concepts (including visual composition, color, shape, as well as a mixture of representational and expressive techniques).	• Grade 2 art portfolios • Pre-test of a self-portrait from memory • Pre-test of a self-portrait using a mirror • Self-reflection of portraits	*"Examining this cohort's portfolios with the K-2 art teacher showed that while students were working with line, color, shape, and pattern, they were not obviously constructing composition, relating parts to the whole, developing attention to detail, or mixing representational and expressive techniques. During the first week of class, I asked students to draw a self-portrait from memory and then gave students mirrors to observe their face and draw a self-portrait with paper and pencil. I asked each student to reflect on the choices they made regarding concept and technique and to explain those choices verbally. Through this assessment I was able to determine baseline information on which techniques students relied on utilizing in their art, which they were comfortable using in descriptive speech, and how they articulated their process and choices. Using all of the data I was able to determine the expected targets for each group."*
Mr. Fredericks Grade 10 French 2 Teacher	Students will demonstrate proficiency in reading, writing, and speaking basic French, including knowledge of vocabulary (related to travel, school, emotions, food, the workplace, sports/hobbies, and the family), the ability to conjugate regular and irregular verbs in the past, present, and future tenses, and knowledge of the geography and culture of the French-speaking world.	• French 1 class data (grades, available assessments, interview with French 1 teacher) • French 1 content assessment as a pre-test of foundational skills • Individual/group conversations with each student to assess oral expression	*"At the beginning of the year I spoke with the French 1 teacher who provided me with insight into each student's specific strengths and weaknesses. Then, I administered the pre-test which confirmed the students' preparedness for the course and helped me determine what needs to be reviewed. I then facilitated small group conversations in French to assess oral expression. Using all of this data I was able to establish three groups: Group 1-in need of some remediation; Group 2-adequately prepared; Group 3-highly prepared/possibly in need of some enrichment; and I was able to establish the targets for each group."*
Ms. Sampson Grade 11 Culinary Arts II Teacher	Students will develop of culinary knowledge and practical skills needed to be career-ready for entry-level culinary-prep positions including sanitation and safety, knife skills, use of large and small equipment, varied food preparation, nutritional values, receiving and storage,	• Culinary Arts I course assessment (NOCTI) • Culinary Arts I final grade • Class survey of prior experiences in culinary arts outside of the school experience (e.g., catering, restaurant, etc.) • Hands-on tasks and new	*"All students in Culinary Arts II have taken and passed Culinary Arts I, including the course assessment (NOCTI-Level I). The assessment has both a written part and a performance part. Analyzing both of these sections of the assessment, along with grades in Culinary Arts I provided me with the baseline information I needed to sort students into three groups: students who excelled at both the written and performance portions, students who excel at the performance portion but struggle more with the written*

	management and employability skills, and customer service.	materials assigned in the first two weeks of class to confirm established targets	*component, and students who need remediation in Culinary Arts I basics. The first week of class students completed a survey about their experience in culinary arts outside of school and completed a hands-on task that demonstrates their current knowledge and skills."*
Mr. Hatton Grade 6th Science Teacher	Students will understand the characteristics and life cycle of living organisms, be able to articulate the need for balance and biodiversity in an ecosystem, and be able to describe the effects of climate and weather, geological forces, and human activity on the global ecosystem.	• Grade 5 Science grades • Costa Rica Deforestation CR (to gauge background knowledge and informational reading and writing skills) • Mealworm lab (to gauge background knowledge and inquiry skills)	*"Before the beginning of the year I reviewed students' grades from 5th grade Science to get a sense for how prepared they might be for my course. I noted a few students who seemed to struggle in Gr. 5 so that I could pay closer attention to their other baseline data. During the first two weeks of school, I asked students to complete two assignments that I used as an indication of their preparedness for this course: an informational reading and constructed response on deforestation in Costa Rica and a lab experiment using mealworms. Using these two assignments, I confirmed or refuted my impressions about students' preparedness from their 5th grade Science grades. Based on this, I was able to set three tiers of targets. In addition, I feel like I have a decent handle on individual students' background knowledge with respect to this content and the literacy skills which will impact their success in the course."*

What about pre-tests?

Pre-tests are one potential source of Baseline Data. A true pre-test measures the same knowledge and skills that will be measured on the post-test, is in the same form, of the same length, given under the same conditions, etc. For a variety of reasons, high-quality pre-tests can be difficult for educators to design and administer themselves. For example:

- If the assessment is not based on knowledge or skills that progress in a linear manner, such as reading fluency, pre-tests may not be appropriate
- In order to be able to truly compare a pre and post-tests, they must be comparable in terms of difficulty, length, and manner in which they were administered.
- If aware that a pre-test "doesn't count" students may consciously or unconsciously underperform, thus deflating pre-test scores.
- If the post-test too closely resembles the pre-test, scores may be inflated due simply to familiarity and exposure.

These difficulties, as well as others, threaten the validity of the test results. Therefore, it is important to use pre-tests and post-tests when appropriate, such as if an educator has set an SLO on content or skills that progress in a linear manner. The following are some best practices and recommendations for creating high-quality pre- and post-tests:

- Create both pre- and post-tests at the same time, before or at the beginning of the interval of instruction.
- Use the same instructions and testing conditions for both test administrations.
- Ensure both forms have approximately the same number of items, representing the same standards and Depth of Knowledge levels.
- If writing original items, use a "cloning process," which involves creating an item and then creating a duplicate with similar numbers, comparable texts, etc.
- Collaborate with another educator, or have another educator review the test forms.

If an educator has set an SLO on content or skills that do not progress in a linear manner, a pre- and post-test model is likely not appropriate. For example, it may not be useful for an American History teacher to administer a pre-test on names, dates, and facts of American History prior to instruction. However, he or she might consider administering an assignment that asks students to demonstrate related skills that would impact their success on the course, such as comprehension of informational text or analysis of primary and secondary sources. Unlike a pre- and post-test design in which the two assessments closely resemble each other, these sources of baseline data need not be an exact match of the summative evidence used for the SLO in terms of format and content.

Many of the assessments that teachers give can be powerful instructional tools. To realize their potential, though, teachers need to understand and use these assessments well.

-Millner, Santi, Held, and Moss, 2009

In order to set SLO targets, teachers must use their professional judgment when deciding what information will be helpful in determining students' starting points. Common sources of baseline evidence include:

Results from prior year assessments or tests that assess **knowledge and skills that are pre-requisites** to the current subject and/or grade.

For example: a French 2 teacher may examine data from the French 1 class data (grades, available assessments, interview with French 1 teacher) to identify the students' prerequisite knowledge and skills.

Results from assessments in other subjects, including teacher or school generated tests, and state tests that assess **pre-requisite knowledge and skills.**

For example: a physics teacher may want to examine the results of students' prior math assessments and their abiity to solve complex problems OR, a Spanish I teacher may want to examine students' general reading and writing abilities from their previous ELA classes to identify their knowledge of grammar.

Results of beginning of the course teacher or department performance task or the first interim assessment focused on the course **enduring understandings.**

For example: a first grade teacher may administer benchmark assessments, PALS and DRA2, in September of the current school year to determine students' foundational skills in reading.

Students' performance on the work assigned in the first few weeks of the course. This information will provide a picture of students' level of preparedness based on the **pre-requisite knowledge and skills** needed for the course. This information can be gathered through assignments (e.g., students ability to read complex scientific texts), surveys, observational checklists, and/or anecdotal notes.

For example: a Computer Programming teacher may administer and analyze a performance assessment to determine students level of preparedness.

Historical data, such as students' writing or art portfolios, science projects, or students' grades in previous classes (ensuring that there is an understanding of the criteria for the grades given by the students' previous teachers).

For example: the third grade teacher may examine students' K-2 art portfolios to determine the use of basic art elements.

The use of multiple data sources help teachers get a more accurate picture of what students know and can do. Each data source fills in another piece of the puzzle until a more complete picture emerges. When multiple data sources are used and show similar areas of student strengths and weaknesses, teachers can be more confident in the starting points and the targets established.   However, when one assessment shows students struggling in a particular skill and another assessment shows them performing well in that skill, teachers need to look more closely to understand the discrepancy. Consider the following scenario and how the examination of data can allow for setting thoughtful targets and guiding instruction.

Scenarios:	Examining student data to understand learning, determine starting points, and set targets
Use of Data Source #1: State Assessment	The 5th grade teachers at Riverview Elementary School met to examine selected data about how students had performed on the previous year's mathematics state assessment. The teachers examined the results on each math strand and found that most students were proficient in arithmetic. However, they struggled with geometry skills concerning shapes and measurements.
Use of Data Source #2: End-of-Year 4th Grade Common Assessment	Using the end-of-year 4th grade common assessment on geometry, the teachers observed that the content strand in which students struggled the most was measuring perimeters of polygons. Since calculating perimeters was a matter of adding, and students had performed well on the addition strands of both the annual and unit assessments, the teachers were perplexed. They decided to collect new data on students' geometry skills using questions from the supplemental workbooks of their standards-based math curriculum.
Use of Data Source #3: Supplemental Workbooks	When reviewing the students' workbook responses, they noticed a pattern. Students performed well on simple perimeter problems when the shapes were drawn for them, but on word problems that required them to combine shapes before adding, they struggled. The teachers hypothesized that students' difficulties were not with calculating perimeters, but with considering when and how to combine polygons in response to real-world problems. They further hypothesized that students would benefit from opportunities to apply basic geometry skills to novel situations.

Setting Targets

Knowing students' starting points by using baseline data enables teachers and administrators to determine the amount of progress that students should make during the interval of instruction. One way of determining starting points for students is to identify three levels of preparedness for the curricular focus of the Objective Statement:

Low: Students have not mastered **pre-requisite knowledge or skills** necessary for the course
Expected: Students are **appropriately prepared** to meet the demands of the course
High: Students have **already mastered some key knowledge and skills**

In any given classroom there may be many, few, or no students in any of these given categories. However, reviewing this information may be helpful for determining appropriate targets. Targets can be set for a whole class, differentiated groups, or individual students.

Whole Group Target	Tiered Targets	Individual Targets
One target for all students This works best when: • Baseline data show that all students performed similarly • The course content requires a certain level of mastery from all students in order to pass/advance (e.g., a C&T course in Plumbing) • It is necessary for all students to work well together (e.g., orchestra, theater, dance).	*Different targets for groups of similar students* This allows for projecting achievement for students who are at, above, or below grade level.	*Individualized targets for each student* This can work well in Special Education settings and/or when class sizes are small.
Example: 100% of students will pass the State Cosmetology Exam.	Example: The 18 students who scored a 2 on the baseline writing prompt will score a 4 or higher on the final of monthly writing prompts. The 6 students who scored a 3 on the baseline writing prompt will score a 4 or higher on the final monthly writing prompt.	Example: Students will meet individual targets on Fountas & Pinnell guided reading levels: Student 1 will reach a Level O Student 2 will reach a Level N Student 3 will reach a Level M Student 4 will reach a Level K Student 5 will reach a Level N Student 6 will reach a Level L

Baseline Data Worksheet

Use this worksheet to help you identify appropriate sources of baseline data and inform SLO targets.

Objective Statement *What do my students need to know or be able to do by the end of the interval of instruction?*	
Baseline Data *What data/information can I review to gauge my students' preparedness to succeed with this content or skill(s)?*	
Think about what this data reveals about your students, such as: ☐ *Whether there are any distinct groups or patterns* ☐ *Whether students are more, less, or about as prepared expected* ☐ *Whether there are new questions as a result of examining this data*	

Based on your analysis above, sort students into the categories below (Note that you may have many, few, or no students in each category).

Students with lower levels of preparedness:	Students with expected preparedness:	Students with higher levels of preparedness:

Consider the distribution of your students among these categories. Does this affirm or call into question the focus of your Objective Statement? If it no longer feels appropriate, consider revising.

How will I group students for my targets based on this data (e.g., whole group, tiered, individual)?	
How will I set my targets based on this data (e.g., progress, mastery, combination)?	
Is there any other data I can collect or colleagues I can consult to confirm that these targets are rigorous yet attainable?	

Baseline Data Worksheet (example)

Objective Statement *What do my students need to know or be able to do by the end of the interval of instruction?*	(1) Write arguments to support claims with clear reasons and relevant evidence, including the acknowledgement of opposing claims, references to credible sources, a concluding statement, and a formal style. (2) Draw evidence from literary or informational texts to support analysis, reflection, and research.
Baseline Data *What data/information can I review to gauge my students' preparedness to succeed with this content or skill(s)?*	I have reviewed writing samples from students' 5th grade writing portfolios. These portfolios consisted of mostly narrative, opinion, and informational/explanatory writing. Therefore I also used a baseline assessment of writing an argument in response to informational text, which I scored using the District Middle School Writing Rubric.
Think about what this data reveals about your students, such as: • *Whether there are any distinct groups or patterns* • *Whether students are more, less, or about as prepared expected* • *Whether there are new questions as a result of examining this data*	This group of students seems slightly stronger than their peers last year. Overall, most students appear to be on grade level or slightly below, but I do have two students whose writing is much stronger than their peers. I'm considering using the 7th grade writing rubric to assess these students' writing, as it may be more appropriate.

Based on your analysis above, sort students into the categories below (Note that you may have many, few, or no students in each category).

Students with lower levels of preparedness:	Students with expected preparedness:	Students with higher levels of preparedness:
Ryan, Julian, Steven, Gloria, Jackie, Calvin, Chris, Louis, Zack, Tania, Ja'Quan, Michael, Meg	Kristen, Jenn, Brianna, Matt, Jessica, Kevin, Daniel, Rowan, Josie, Evan, Mark, Maddie, Beth, Constance, Will, Sarah, Toby	Jim, Valerie

Consider the distribution of your students among these categories. Does this affirm or call into question the focus of your Objective Statement? If it no longer feels appropriate, consider revising.

How will I group students for my targets based on this data (e.g., whole group, tiered, individual)?	Because there is a fairly wide distribution of preparedness among students, I think tiered targets would be appropriate.
How will I set my targets based on this data (e.g., progress, mastery, combination)?	I am setting my targets to show progress from the baseline.
Is there any other data I can collect or colleagues I can consult to confirm that these targets are rigorous yet attainable?	I am going to review my targets with the other sixth grade ELA teacher to confirm that they are rigorous. I'll also consult some historical data from the past few years about students performed using the District Middle School Writing Rubric to see if my targets are rigorous yet attainable.

Summary

This tool attempts to support educators in using baseline data and information by providing guidance on understanding the purpose of baseline data, identifying sources of baseline data, and using baseline data to set targets for SLOs. The key points covered in this tool include:

- an SLO can have quantitative or qualitative data, or a combination of both

- There are many sources of baseline data, including prior year's assessment scores or grades, results from a beginning of the year benchmark assessment, a pre-test, or other evidence of students' learning, such as portfolio work samples that measure the pre-requisite knowledge and skills necessary for the course.

- However, baseline data does not have to include a pre-test. Pre-tests are not appropriate in all situations.

- Different types of targets are appropriate for different types of situations.

For more information on using baseline data refer to the module on Using Baseline Data and Information to Set SLO Targets on the RIDE Educator Evaluation webpage: http://www.ride.ri.gov/TeachersAdministrators/EducatorEvaluation/OnlineModules.aspx

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