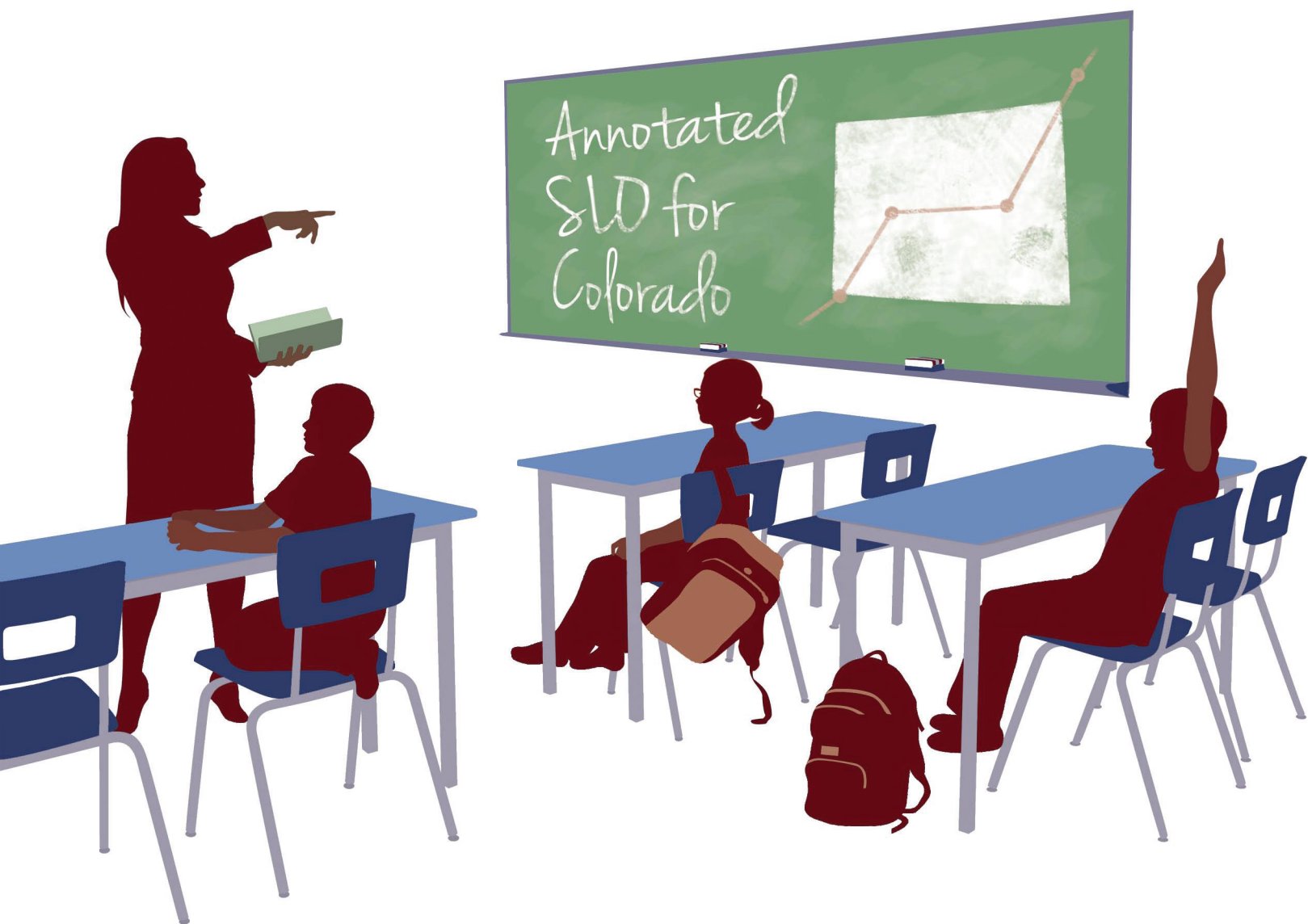




Reform Support Network



Colorado Student Learning Objective Physical Science (Grade 8)

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Introduction

What is an SLO?

As States and school districts implement educator evaluation systems that include measures of student growth, one of the challenges they face is identifying measures for non-tested grades and subjects. The use of **student learning objectives (SLOs)** is one promising approach to addressing this challenge. Structurally, an SLO consists of several “elements” that describe a specific learning objective for a particular student population as well as a specific, systematic process for how an educator can identify and implement strategies to track progress toward that goal and achieve it.

What is an Annotated SLO?

The Reform Support Network (RSN) has developed a series of annotated SLOs to orient readers around their structure, provide analysis and suggest specific actions to strengthen the SLO’s quality. Each annotated SLO, such as the one in this document, provides analysis and suggestions for improvement for each individual element within the SLO as well as the SLO as a whole. States, school districts, colleges, universities and others can use the RSN’s collection of annotated SLOs, the “SLO Library,” to prepare teachers and administrators to develop high-quality SLOs or to improve SLOs that they have already developed.

The SLO Library is not a collection of exemplary SLOs. The RSN designed the library as a teaching tool, so most of the jurisdictions intentionally provided the library with SLOs that vary in quality. They also vary in their subject areas and grade levels. Each SLO review identifies and discusses both strengths and areas for improvement. It is up to the reader, then, not to mimic the SLOs found in the library but to extrapolate lessons learned from them to produce new, original and high quality SLOs.

How to Use This Document

The RSN intends for the SLO Library to support any stakeholder actively engaged in learning about or implementing SLOs: State departments of education, school districts and schools, teachers implementing SLOs, administrators leading an SLO process and colleges of education interested in adding SLO coursework to their teacher or administrator preparation programs.

Each annotated SLO begins with contextual information for the jurisdiction that produced the SLO and then presents each element of the SLO in sequence. Each element begins with the jurisdiction’s actual description of it, which is followed by the text of “an author” from the jurisdiction. Think of the author as the teacher(s) or school district administrator(s) who actually wrote the SLO. The language from the jurisdiction’s description comes from the jurisdiction’s SLO template or other guidance materials. The author’s text comes from the SLO provided by the jurisdiction. Both sections are unedited.

The subsequent section, “Review of the Author’s Text and Potential Improvements,” is the focus of the library and should be of greatest interest to the reader. This section analyzes the text written by the author from the jurisdiction and provides considerations for improving the quality of the individual element.

An overall summary of the entire SLO follows the presentation of the elements and concludes the review of the SLO.

The appendix contains what the RSN calls an “element comparison tool,” which links the name of the element used by this jurisdiction to the standardized term used in the SLO Library. The comparison table intends to provide readers with the means to compare elements across SLOs, even if they are called by different names.

Colorado Contextual Information

SLO Implementation Timeline	
School year the jurisdiction piloted or plans to pilot SLOs without stakes for teachers ¹	2012–2013 (pilot year) 2013–2014 (will not count towards the loss of non-probationary status)
School year the jurisdiction piloted or plans to pilot SLOs with stakes for teachers ²	N/A
School year began or plans to begin large scale implementation	2013–2014 (will not count towards the loss of non-probationary status) 2014–2015 (large-scale implementation)
SLO Development and Approval	
Who develops SLOs?	The local educational agency (LEA) decides.
Are collectively developed SLOs permitted (for example, by teams of teachers and administrators)?	Yes
Who approves SLOs?	The LEA decides.
SLO Use in Evaluation	
Are SLOs required or optional for use in evaluating educators?	Optional
Are SLOs the sole measure of student growth in the evaluation system? If not, what other measure(s) does the jurisdiction use?	No. SLOs are not currently used in evaluation, but starting in 2013–2014, SLO-inspired measures may be used in evaluations. Other measures may include growth targets on State tests, growth targets on district assessments and overall school growth.
Does the jurisdiction use SLOs to determine educator compensation?	The LEA decides.
What weight does the SLO carry in determining the summative rating for teachers in the jurisdiction's evaluation system?	The LEA decides. Each teacher must have at least 2 measures (one collective and one individual), and these measures may be SLOs. The total of these measures must add up to 50 percent of a teacher's evaluation.
What weight does the SLO carry in determining the summative rating for administrators in the jurisdiction's evaluation system?	The LEA decides.
SLO Implementation	
How many SLOs are required for most teachers?	The LEA decides.
How many SLOs are required for most school administrators?	The LEA decides.
Which teachers and administrators are required to use SLOs?	The LEA decides.
SLO Assessment	
Who selects which assessments are used for SLOs?	The LEA decides.
Are there standards or required development processes for assessments created by teachers, schools, or districts? If so, what are they?	The SEA has created assessment inventory templates and an assessment review tool to support LEAs. LEAs are required to "seek to ensure" that assessments used for evaluation purposes be fair, valid and reliable.
What types of assessments are permitted?	The LEA decides.
Are performance or portfolio-based assessments permitted for SLOs?	Yes
Are commercially available assessments permitted for SLOs?	Yes

¹ SLOs will not be used in educator evaluations

² SLOs may be used in educator evaluations

Student Learning Objective: Physical Science (Grade 8)

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Rationale

Standardized Name

Rationale

JURISDICTION'S DESCRIPTION OF THE ELEMENT

Choose the rationale of your objective

Using the dropdown menu, select the Rationale that supports this objective.

AUTHOR'S TEXT FOR THE ELEMENT

This objective supports the unified improvement plan goals.

REVIEW OF AUTHOR'S TEXT AND POTENTIAL IMPROVEMENTS

In a later element, the author identifies State standards 1 and 2 for physical science as goals for student progress. Here the author suggests that the selection of these standards supports the school district's unified improvement plan.

The student growth objective (SGO) would be stronger if the author made clearer how the selection of these standards actually aligns with the unified improvement plan and why they are more important than others. Imagine defending the selection of the objective to an evaluator, who likely will require more information than a statement that it supports an improvement plan.

Population

Standardized Name

Student Population

JURISDICTION'S DESCRIPTION OF THE ELEMENT

Describe the population of your objective

Who are you going to include in this objective?

AUTHOR'S TEXT FOR THE ELEMENT

8th Grade students enrolled since the beginning of the school year.

REVIEW OF AUTHOR'S TEXT AND POTENTIAL IMPROVEMENTS

Enrollment and grade level provide the basis for participation in this SGO. Information in a later element suggests that 45 students made the cut-off date.

The author might consider providing greater clarity for the criteria that identifies participants for this SGO. What is the cut-off date for "the beginning of the school year?" If the cut-off date means that the performance of too many students won't be factored into the final results of the SGO, the author might consider an additional shorter-term SGO for students who joined the class later. Further, he or she might consider attaching the student roster and describing individual student abilities and needs, based on a review of pre-assessment and additional data sources. Including this information would demonstrate knowledge of students and help teachers and evaluators alike identify appropriate instructional strategies and growth targets.

Interval of Time

Standardized Name

Interval of Instruction

JURISDICTION'S DESCRIPTION OF THE ELEMENT

Choose the interval of time of your objective

Using the dropdown menu, select the Interval of Time for this objective.

AUTHOR'S TEXT FOR THE ELEMENT

One school year

REVIEW OF AUTHOR'S TEXT AND POTENTIAL IMPROVEMENTS

The author identifies one school year as the period of time in which the SGO will be implemented. He or she might consider adding a beginning and end date for the teaching period, along with average minutes of instruction per day and week. This would allow evaluators and teachers to ensure that the time available for instruction matches the expectations for learning the content.

JURISDICTION'S DESCRIPTION OF THE ELEMENT

Choose the body of evidence of your objective

Using the list box menu, select up to six Assessments for this objective's body of evidence. (PC users hold 'ctrl' to select or deselect multiple selections. Mac users hold Command -⌘ to select or deselect multiple selections.)

AUTHOR'S TEXT FOR THE ELEMENT

District Created Assessment

REVIEW OF AUTHOR'S TEXT AND POTENTIAL IMPROVEMENTS

While the actual assessment remains unidentified, the author pinpoints it as one created by the school district. Because the author does not identify or attach the assessment, it is not clear whether it aligns with the selected standards and if it focuses primarily on scientific method, which the author identifies in a later element as the learning content for this SGO. To be effective, SGOs must build the case that their assessments align with the selected standards.

While the author's text may or may not refer to a common district assessment for this particular subject and grade level, it is important to be very clear about the actual assessment(s) teachers will use. This knowledge is key, as teachers and evaluators alike determine if the assessment aligns with the standards and will accurately measure progress towards them. Further, the author might consider identifying multiple assessments to establish more reliable levels of student performance.

Finally, it is also important for teachers and evaluators to be able to discuss the types of items the assessment includes, so they can determine its rigor. For example, to what extent does it use constructed-response items? Are there a range of items, by type and difficulty, to capture the performance of all students? (For example, if all assessment items are difficult, students at the low end of the spectrum may get no points, which could mask learning that has taken place.)

Baseline

Standardized Name

Baseline

JURISDICTION'S DESCRIPTION OF THE ELEMENT

Baseline Data: Your principal/manager will use the district content guidelines and the collaborative process to agree on measureable student growth objectives. Baseline is the pre-assessment data. The baseline data will include a short summary of student assessment scores for your body of evidence.

AUTHOR'S TEXT FOR THE ELEMENT

Of the 45 students who took the pre-test, 43 scored unsatisfactory (less than 50%), and two scored partially proficient (between 50% and 70%).

REVIEW OF AUTHOR'S TEXT AND POTENTIAL IMPROVEMENTS

The author provides a summary of the pretest results, and the results indicate that students do not yet know the content.

Including a roster with specific student baselines and targets would add clarity to the specific pre-assessment score distribution and provide a rationale for the growth targets that the author sets. Gathering and analyzing additional performance data (for example, portfolios and other tests) from previous classes could establish a much richer view of students' baseline abilities and ultimately inform goal setting.

Expected Growth

Standardized Name

Student Growth Targets

JURISDICTION'S DESCRIPTION OF THE ELEMENT

Expected Growth (Scroll Down to complete): Student growth is based on individual student growth, not class averages. Growth is measured from pre-assessment to post- assessment. What is your expected growth?

AUTHOR'S TEXT FOR THE ELEMENT

80% of my 8th grade students will move up one proficiency level or more in Physical Science.

REVIEW OF AUTHOR'S TEXT AND POTENTIAL IMPROVEMENTS

The author sets a very general growth target ("80% of [my] 8th grade students will move one proficiency level or more in Physical Science"). Setting a growth expectation of one proficiency level can be an effective method for target setting. However, because this SGO does not include individual student baselines, the amount of learning expected of each student is unclear.

To achieve their goals for this SGO, students with baselines of zero will have to grow by 50 points, while students scoring 49 will have to grow by only one. If most of the students are closer to 50 than zero on their pre-assessment, the target set by the author would not be very rigorous. An evaluator receiving this SGO would not be able to make an informed judgment about its rigor, therefore, because the SGO does not include a roster tying individual students to pre-assessment scores. The author might consider attaching rosters of students tied to their pre-assessment scores for this and other SGOs.

Finally, standard two appears to address biological sciences, not physical science. It is not clear how the teacher will assess student understanding of standard two.

JURISDICTION'S DESCRIPTION OF THE ELEMENT

Describe the learning content of your objective

For more information See the SGO Common Core Standards Document.

AUTHOR'S TEXT FOR THE ELEMENT

Colorado Science Standards 1 and 2 with a focus on how science is done (scientific method).

REVIEW OF AUTHOR'S TEXT AND POTENTIAL IMPROVEMENTS

The author cites two broad standard areas and suggests that the focus of the SGO will be on scientific method, though the author does not state which specific standards address the scientific method. Standard one focuses on physical science, standard two on life sciences.

It is important to select the specific components of the standards that are critical for students to learn. The author might consider citing these verbatim from the standards document for the course. A more targeted selection would focus the learning and teaching, which would strengthen this element.

Further, the author might consider the language the jurisdiction uses for this element. That language asks for a description, implying a need for much greater detail than that provided here. In providing greater detail, the author might consider describing the impact the learning content will have on student success in future courses and the extent to which it aligns with the Common Core State Standards.

Finally, the author's selection of Colorado's standard two, which focuses on life science, requires some degree of explanation. Does the author mean to make the connection between scientific method in life sciences with scientific method in the physical sciences? Will the author assess whether students learn life science content? The author can eliminate these questions by stating clearly why he or she included standard two in this SGO.

JURISDICTION'S DESCRIPTION OF THE ELEMENT

Describe the strategies you will use to meet your objective

What methods of teaching are you going to use? See the SGO Strategies Document.

AUTHOR'S TEXT FOR THE ELEMENT

Strong focus on writing in science, using science notebooks daily. Inquiry based instruction as dictated by the DPS curriculum, non-linguistic representation for my English language learners (most of my students), cooperative learning, and modeling.

REVIEW OF AUTHOR'S TEXT AND POTENTIAL IMPROVEMENTS

The author selects research-based strategies (such as science notebooks and inquiry-based instruction). The SGO also includes a specific instructional strategy for English learners (non-linguistic representation).

To improve this element, the author might consider explaining how and when teachers would deploy these strategies in the classroom, so that an evaluator would know how to support teachers as they implement the strategies. Further, the author might consider defining how the teacher will monitor ongoing student progress, share it with students and adjust instruction as appropriate.

Overview of Colorado Physical Science (Grade 8)

This science SGO includes instructional strategies that reflect best practices for science education. Incorporating the specific components of the relevant science standards would improve the focus of the SGO. Further, the author takes a common approach to setting growth targets for SGOs by requiring that a certain percentage of students improve by one proficiency level. However, it is not possible to determine if expected movement by one proficiency level is a rigorous target, because the author does not present pre-assessment scores by individual student. Doing so would improve the overall quality of this SGO. Finally, this SGO incorporates standards for both physical and life science, yet it is not clear how students will learn life science content in this physical science class. Although all sciences are related, especially in their use of the scientific method, the author needs to make these connections explicit.

Appendix: Tool for Comparing SLO Elements Across Jurisdictions

Colorado Element Name	Standardized Name
Rationale	Rationale
Population	Student Population
Interval of Time	Interval of Instruction
Assessment	Assessments
Baseline	Baseline
Expected Growth	Student Growth Targets
Learning Content	Learning Content
Strategies	Instructional Strategies

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