

Approach to assessment

The Amplify Science assessment system is grounded in the principle that students benefit from regular and varied opportunities to demonstrate understanding through performance. In practice this means that, for assessment opportunities in each Amplify Science unit, conceptual understanding is revealed through engagement in the science and engineering practices.

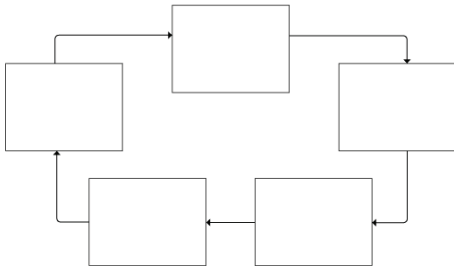


The Amplify Science assessment system

The system of assessment for each Amplify Science unit is designed to provide teachers with credible, actionable, and timely information about student progress toward the unit's learning goals, including their mastery of disciplinary core ideas, science and engineering practices, and crosscutting concepts. As a system, these assessment opportunities encompass a range of modalities and reflect current research on effective assessment strategies and the principles outlined in the NGSS and the National Research Council's Framework for K–12 Science Education (2012).

Formative assessments to illuminate student thinking

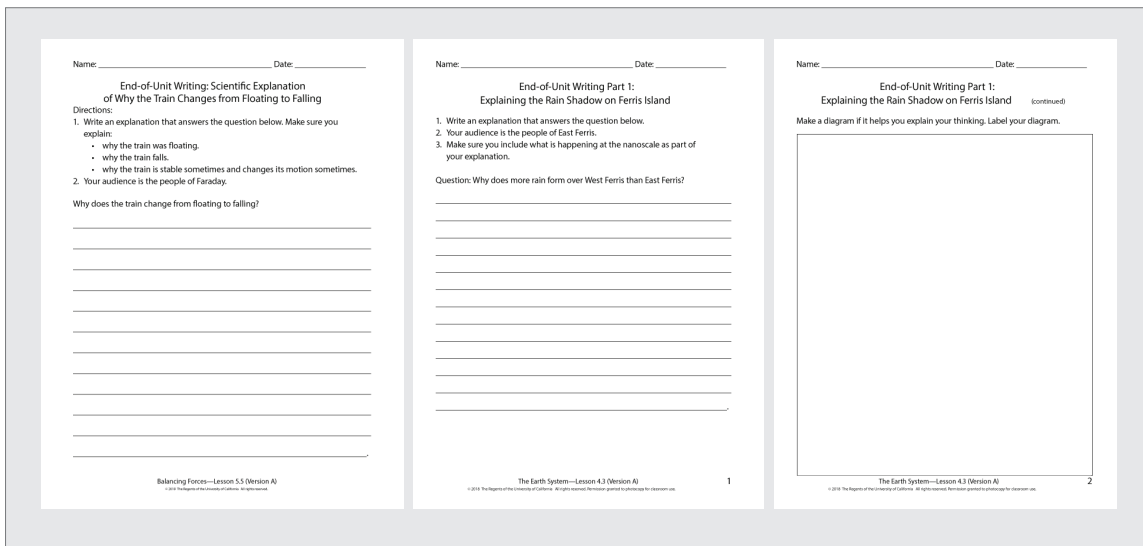
Each unit includes a range of formative assessments embedded in instruction with the goal of providing regular, actionable information to the teacher with minimal impact on instructional time. Assessments include frequent unobtrusive observational assessments, end-of-chapter scientific explanations, evidence-based arguments, modeling activities, and student self-reflections. Each assessment includes guidance for the teacher on what misconceptions to look for and suggestions on how to adjust instruction accordingly.

<p>Name: _____ Date: _____</p> <p style="text-align: center;">Seed Observations</p> <p>Directions:</p> <ol style="list-style-type: none">1. Put your seeds in order from biggest to smallest.2. Pick two seeds that are different sizes.3. Draw a picture of each seed in the boxes below.4. Label your drawings "bigger" and "smaller."5. Complete the sentence in each box. <table border="1" style="width: 100%;"><tr><td style="width: 50%; height: 150px;"></td><td style="width: 50%; height: 150px;"></td></tr></table> <p>This seed is about the same size as a _____.</p> <p>This seed is about the same size as a _____.</p>			<p>Name: _____ Date: _____</p> <p style="text-align: center;">New Plant Growth</p> <p>Directions:</p> <ol style="list-style-type: none">1. Put the pictures in order of how you think the plant grows.2. Glue one picture in each box below.3. Decide which picture is a picture of seeds. Then label it "seeds."4. Decide which picture is a picture of a seed sprouting. Then label it "seed sprouting."5. Decide which picture is a picture of a full-grown plant. Then label it "full-grown plant."  <p style="text-align: center;">12 Plant and Animal Relationships—Lesson 1.5 13</p> <p style="font-size: small; text-align: center;">©2018 The Regents of the University of California. All rights reserved. Permission granted to photocopy for classroom use.</p>

On-the-Fly Assessment from Grade 1 Plant and Animal Relationship unit

Summative assessments to measure student growth and comprehension

Each unit concludes with a summative End-of-Unit Assessment that measures student mastery of the unit’s learning goals. In the final assessment, students craft sophisticated, evidence-based scientific arguments, models, and explanations, demonstrating their deep understanding of the ideas learned in the unit.



Left: End-of-Unit Assessment from Grade 3 Balancing Forces unit
 Middle and right: End-of-Unit Assessment from Grade 5 The Earth System unit

Three-dimensional assessment opportunities make measuring progress toward NGSS learning goals possible.

Assessment opportunities include clear labeling around the Disciplinary Core Ideas (DCIs), Crosscutting Concepts (CCCs), and Science and Engineering Practices (SEPs) to help teachers connect formative and summative assessments to specific NGSS dimensions.

Assessment Opportunity	Next Generation Science Standards
<p>Lesson 1.1: 3D Performance Task: Scientific Explanation</p> <p>Assessment Type: Pre-Unit Assessment</p> <p>Evaluation Guidance:</p> <ul style="list-style-type: none"> Assessment Guide (in Digital Resources for Lesson 1.1), with support for revealing students’ prior knowledge, preconceptions, and to gauge their facility for using the SEPs and CCCs. Possible Student Responses 	<p>DCI:</p> <ul style="list-style-type: none"> ESS2.D: Weather and Climate <p>SEPs:</p> <ul style="list-style-type: none"> Practice 4: Analyzing and Interpreting Data Practice 5: Using Mathematics and Computational Thinking Practice 7: Engaging in Argument from Evidence Practice 8: Obtaining, Evaluating, and Communicating Information <p>CCCs:</p> <ul style="list-style-type: none"> Patterns Scale, Proportion, and Quantity

DCI, SEP, and CCC labeling for assessments in the Assessment System unit overview document

The variety of assessment options for Amplify Science K–5 include:

F: Formative **S: Summative**

- **Pre-Unit Assessment (F):**
Discussion, modeling, and written explanations to gauge students knowledge.
- **On-the-Fly Assessments (OtFA) (F):**
Multi-dimensional tasks integrated regularly throughout the lessons. OtFA opportunities were designed to help a teacher make sense of student activity during a learning experience (e.g., student-to-student talk, writing and model construction) and to provide evidence of how a student is coming to understand core concepts and developing dexterity with SEPs and CCCs. Three-dimensional assessment opportunities make measuring progress toward NGSS learning goals possible.
- **Self-assessments (F):**
One per chapter; brief opportunities for students to reflect on their own learning, ask questions, and reveal ongoing wonderings about unit content.
- **Critical Juncture Assessments (F):**
Variety of multidimensional performance tasks intended to assess student progress, occurring at the end of each chapter. Examples include writing scientific explanations, engaging in argumentation, developing and using models, and designing engineering solutions. Based on student performance on the assessment, teachers have access to recommendations for targeted student interventions, suggested follow ups, or for differentiating classroom instruction.
- **End-of-Unit Assessment (S):**
Assessments toward the end of each unit feature a combination of targeted discussions, student-generated models, and written explanations to gauge students' knowledge and growth.