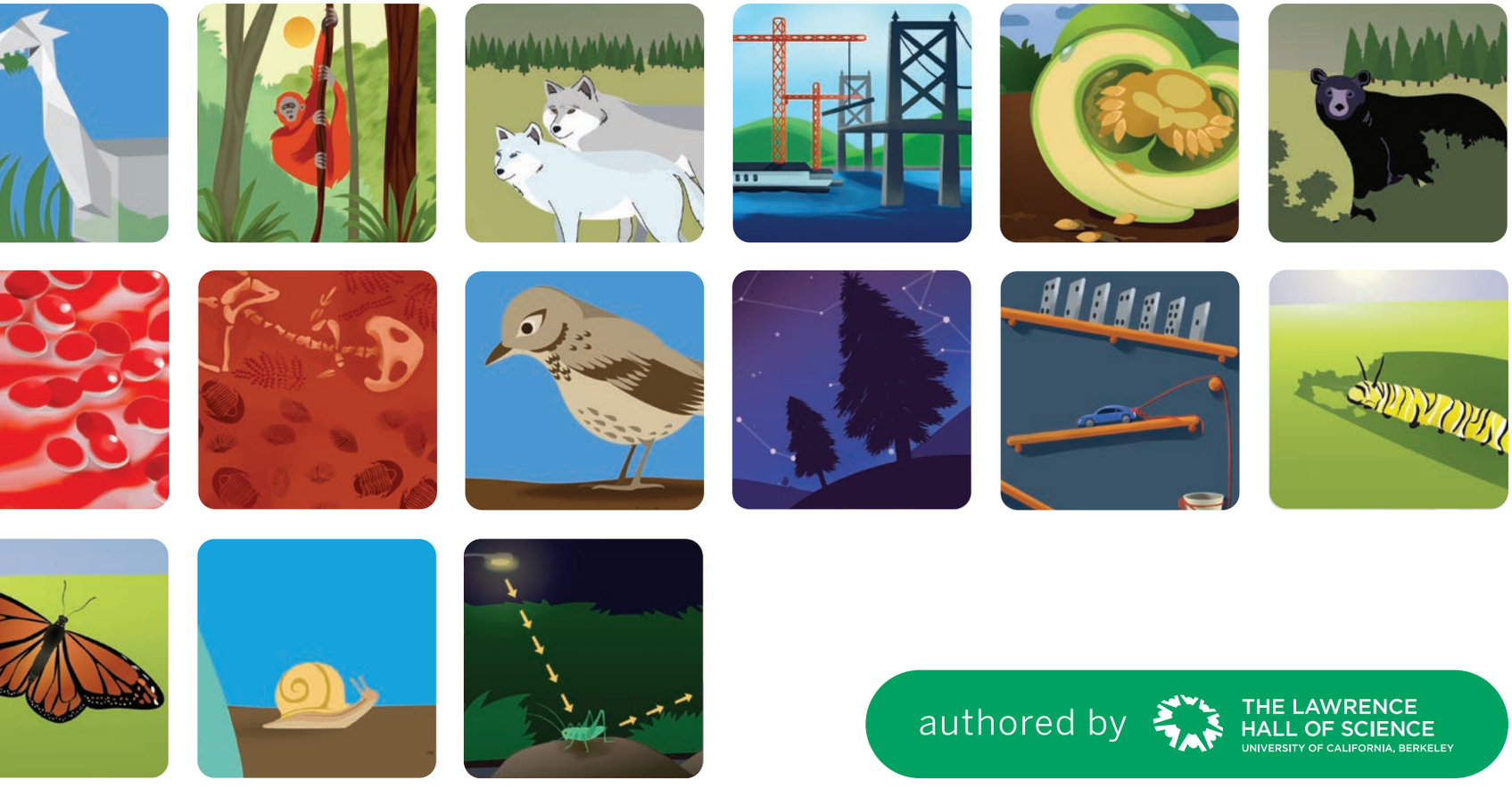
Amplify Science

Grade 2

Planning guide

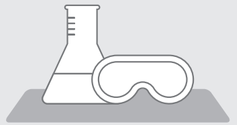


authored by THE LAWRENCE HALL OF SCIENCE
UNIVERSITY OF CALIFORNIA, BERKELEY

Program components

Student

Hands-on



Kit materials

Reading

Student Books for read-alouds, shared reading, and partner reading

Writing

Student Investigation Notebooks

Apps

Student practice apps

Teacher

Instruction

Print Teacher's Guide

Digital Teacher's Guide

Display and hands-on materials (vocabulary cards, unit questions, key concepts, sorting cards, and more)

Planning for a year

Grade 2 scope and sequence

(66 days of instruction)

Plant and Animal Relationships

20 45-minute lessons
2 dedicated assessment days

Focal NGSS Performance Expectations:

- 2-LS2-1
- 2-LS2-2
- 2-LS4-1

Focal Disciplinary Core Ideas:

- LS2.A
- LS4.D

Properties of Materials

20 45-minute lessons
2 dedicated assessment days

Focal NGSS Performance Expectations:

- 5-PS1-1
- 5-PS1-2
- 5-PS1-3

Focal Disciplinary Core Ideas:

- PS1.A

Changing Landforms

20 45-minute lessons
2 dedicated assessment days

Focal NGSS Performance Expectations:

- 5-ESS2-1
- 5-ESS2-2
- 5-ESS3-1
- 5-PS1-1
- 5-PS1-2
- 5-PS1-4
- 3-5-ETS1-1
- 3-5-ETS1-2
- 3-5-ETS1-3

Focal Disciplinary Core Ideas:

- ESS2.A
- ESS2.C
- ESS3.C
- PS1.A
- PS1.B
- ETS1.A
- ETS1.B
- ETS1.C

Amplify Science was built from the ground up for 3-dimensional learning. Access the Teacher's Guide to see the complete list of Disciplinary Core Ideas, Crosscutting Concepts, and Science and Engineering Practices addressed in each unit.

Scheduling options

No matter what your scheduling preference, Amplify Science will work in your classroom.

"I teach science twice each week."

Each Amplify Science unit at grade 2 is made up of 22 45-minute lessons, which includes two lessons for pre- and post-assessment. With 2 scheduled 45-minute sessions each week, each Amplify Science unit will take between 2 and 2.5 months to complete.

"I teach science three times each week."

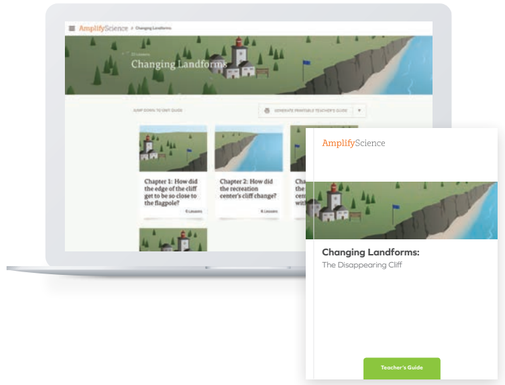
The easiest option is to plan for 3 45-minute sessions each week. This way, each Amplify Science unit will take approximately 1.5 months. This plan will provide you the freedom to slow down the pace of instruction if your students need more time, or if you'd like to weave in additional experiences.

"I teach science every day."

It will take you approximately 5 weeks (22 school days) to complete each unit. If you plan for sessions shorter than 45 minutes, the units will take slightly longer to complete.

Planning for a unit

Each unit's Teacher's Guide has all the information you need to learn about that unit's content and structure, materials, storyline, and student learning objectives.



Planning options

1 hour per unit

If you want to thoroughly prepare for a unit, the most important resources to locate and read are:

Foundational:

- **Unit Overview:** A few paragraphs outlining the unit, including what the unit is about, why it was written this particular way, and how students experience the unit.
- **Unit Map:** A 1-page summary showing how the chapters build upon each other, what questions students will investigate, and what evidence sources they will use to figure those questions out.
- **Lesson Overview Compilation:** 1–2 pages on each lesson provide insight into each lesson's sequence of activities, intent, materials used, and how the lessons connect with and build upon each other.

Supporting:

- **Progress Build:** A thorough explanation of the unit's learning progression (called the "Progress Build"). Understanding and internalizing the Progress Build is key to understanding the embedded unit assessments.
- **Science Background:** A teacher-facing document that gives valuable science content information and calls out common student misconceptions and preconceptions. The Science Background resource provides all the context and subject matter knowledge needed to teach the unit.

30 minutes per unit

If you're a bit strapped for time but still want to get the essentials, try to focus on:

- **Unit Overview**, 1 page
- **Unit Map**, 1 page
- **Lesson Overview Compilation**

5 minutes per unit

If you have only 5 minutes to familiarize yourself with the most essential aspects of the unit, skip right to the **Unit Overview** and **Unit Map**. At the very least, you'll understand the unit narrative and structure, and get a sense of the materials used.

NOTE

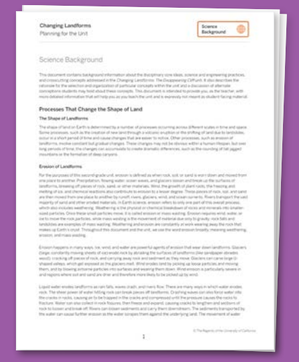
There's much more information available in the Teacher's Guide, including overviews of the unit's assessments, readings, student-facing technology, and standards.

Unit Overview
1 page

Unit Map
1 page

Lesson Overview Compilation
Read through the lesson overviews in Chapter 1 - ***1 page each***

Progress Build
1 page



Science Background
Between 5 and 10 pages

Planning for a unit

Plant and Animal Relationships

22 Lessons

Investigation focus

In the *Plant and Animal Relationships: Investigating Systems in a Bengali Forest unit*, students dive deep into how plants depend on animals in their habitats. They pursue a chain of reasoning that takes them from considering how plants get what they need to grow to understanding how seeds depend on animals for dispersal.

Student role and phenomena

Students assume the role of plant scientists reporting to the lead scientist at the Bengal Tiger Reserve, who has tasked students with explaining the unit's anchor phenomenon: new chalta trees are no longer growing there.

Insights

Along with firsthand experiences, students read informational texts, focus on how to plan and carry out investigations about plant needs, and engage in student-to-student discussions as they come to understand some challenging life science concepts.

Properties of Materials

22 Lessons

Engineering design focus

In the *Properties of Materials: Designing Glue* unit, students discover that by mixing ingredients together, it's possible to create a mixture that takes on some of the properties of its ingredients.

Student role and phenomena

In this unit, students take on the role of glue engineers and use engineering design practices to create a glue for use at their school.

Insights

Over the course of the unit, students conduct tests that yield quantifiable results, graph their data, analyze and interpret results, and then use that evidence to iteratively design a series of glue mixtures, each one better than the one before.

Changing Landforms

22 Lessons

Modeling focus

In the *Changing Landforms: The Disappearing Cliff* unit, students use models to investigate how wind and water can cause changes to landforms. They learn that landforms made of solid rock undergo small-scale changes, and that over time, these changes add up to big changes.

Student role and phenomena

In this unit, take on the role of geologists in order to help the Oceanside Recreation Center Director understand what is happening to a collapsed cliff, and decide whether the center needs to be closed immediately.

Insights

Exploration and investigation of models (through both physical models and student-made diagrams) allow students to generate and explore questions about wind and water changing landforms. At the end of the unit, students consider a new anchor phenomenon to explain why the nearby cliff eroded overnight and use this information to discuss whether the same thing could happen to the recreation center's cliff.

Planning for a lesson

Amplify Science makes lesson prep as easy as 1, 2, 3. You can use either the printed or digital Teacher's Guide.

1

Read the 1-page **Lesson Overview**, which contains:

- A **1-paragraph summary of the lesson**, including insights into the lesson's activities and any materials used.
- Clearly labeled **phenomena**.
- **Student learning objectives**
- **Lesson at a Glance**, which provides an outline of the lesson along with pacing suggestions.

Have some extra time? Read through the full step-by-step instructions for the lesson to see exactly where different materials are used, where projections are shown, and where to insert recommended teacher talk moments.

2

Every lesson includes a **Materials and Preparation** section, which clearly identifies all of the hands-on manipulatives, Student Books, printed classroom wall materials, and digital tools needed for the lesson. Remember: every lesson is different! Some lessons might call for Student Books; other lessons might call for setting up stations for hands-on investigations. Be sure to glance at the Materials and Preparation section to see what you need for your specific lesson.

You'll want to bookmark **apps.learning.amplify.com/elementary** before the first day of class.

3

Download any **Digital Resources** needed for the lesson. For example, most lessons have projections that you can show to your students at specific parts in the lesson. Be sure to download the PDF of projections before class.

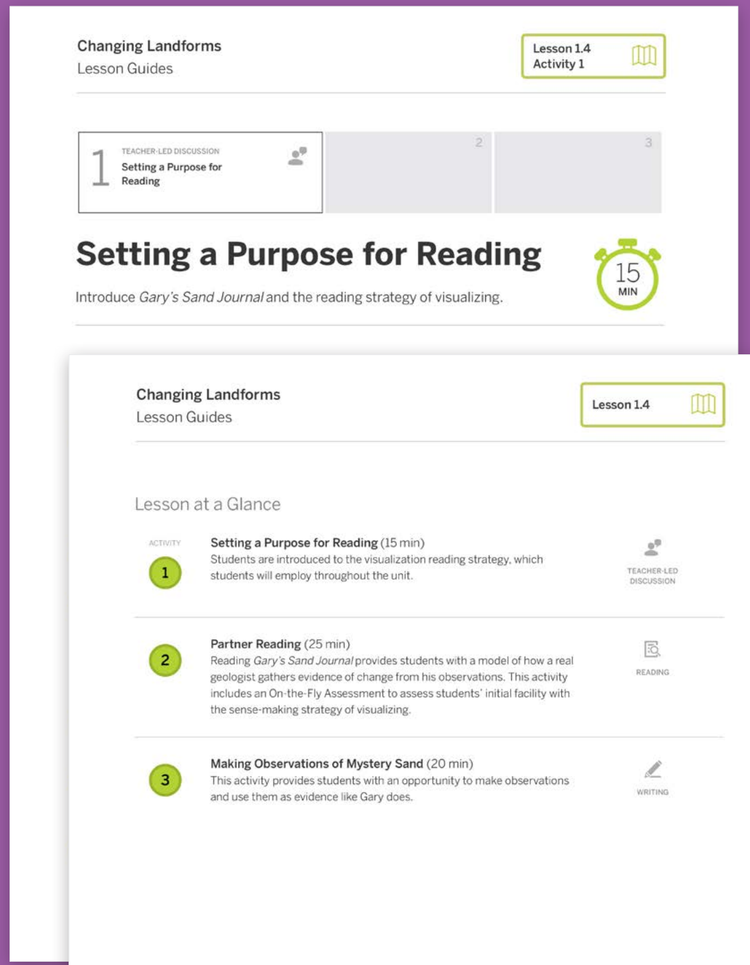
TIP

Did you know that you can download all digital resources you'll need in the unit with just a few clicks? Look for the **Offline Guide** in your digital Teacher's Guide to download all projections, assessments, videos, and more.

Offline Preparation

Teaching without reliable classroom internet? Prepare unit and lesson materials for offline access.

OFFLINE GUIDE


Changing Landforms
Lesson Guides
Lesson 1.4
Activity 1
1 TEACHER-LED DISCUSSION Setting a Purpose for Reading
2
3
Setting a Purpose for Reading
Introduce *Gary's Sand Journal* and the reading strategy of visualizing.
15 MIN

Changing Landforms
Lesson Guides
Lesson 1.4
Lesson at a Glance
ACTIVITY 1 **Setting a Purpose for Reading** (15 min) Students are introduced to the visualization reading strategy, which students will employ throughout the unit. TEACHER-LED DISCUSSION
2 **Partner Reading** (25 min) Reading *Gary's Sand Journal* provides students with a model of how a real geologist gathers evidence of change from his observations. This activity includes an On-the-Fly Assessment to assess students' initial facility with the sense-making strategy of visualizing. READING
3 **Making Observations of Mystery Sand** (20 min) This activity provides students with an opportunity to make observations and use them as evidence like Gary does. WRITING
© The Regents of the University of California
3

For more information on Amplify Science, visit **amplify.com/science**.







Amplify.

THE LAWRENCE HALL OF SCIENCE
UNIVERSITY OF CALIFORNIA, BERKELEY

AMP-SCI-NA-PLAN-G2-1218