

# Amplify Science

## Unit Internalization / Guided Planning

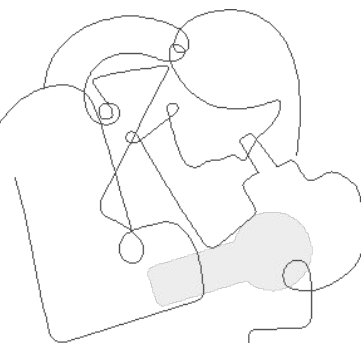
Grade 3, Unit 3: Environments and Survival

### Part 1

School/District Name: LAUSD

Date:

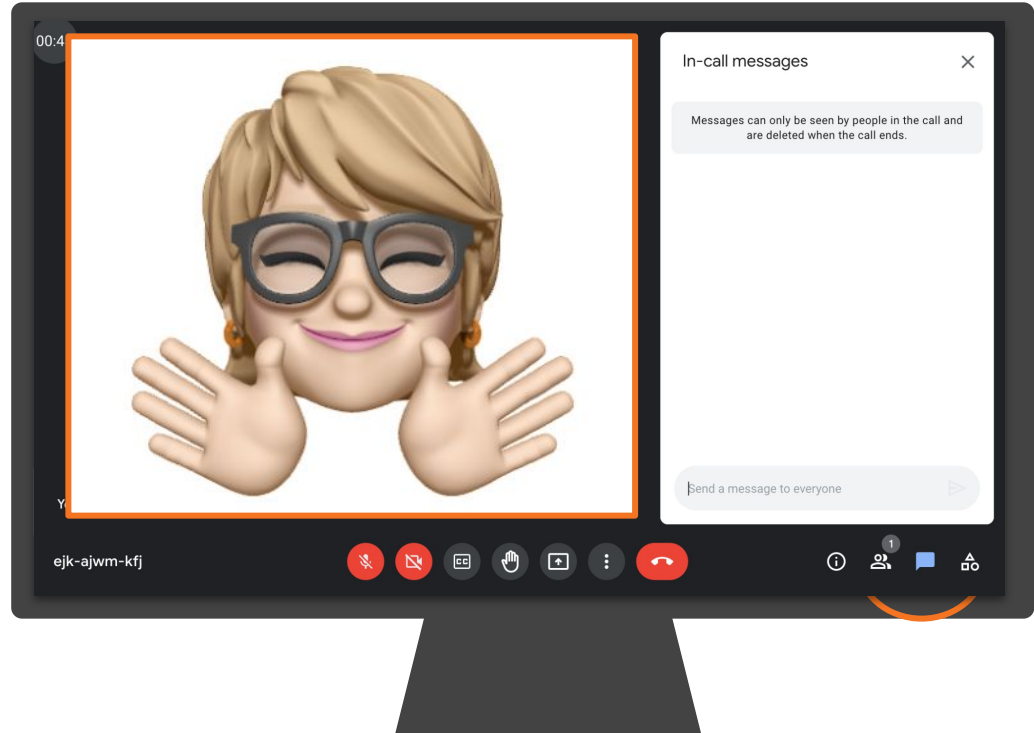
Presented by:



# Ice Breaker!

Who do we have in the room today?

- Share your experience with Amplify Science so far.



# Amplify's Purpose Statement

Dear teachers,

You do a job that is nearly impossible and **utterly essential**.

**We are in your corner** – extending your reach, saving you time, and enhancing your understanding of each student.

**Thank you for working with us** to craft rigorous and riveting learning experiences for your classroom.

We share your goal of **inspiring all students to think deeply, creatively, and for themselves**.


Sincerely,  
Amplify

# Norms: Establishing a culture of learners

- **Take risks:** Ask any questions, provide any answers.
- **Participate:** Share your thinking, participate in discussion and reflection.
- **Be fully present:** Unplug and immerse yourself in the moment.
- **Physical needs:** Stand up, get water, take breaks.



# Schoology



LOS ANGELES UNIFIED SCHOOL DISTRICT

About Los Angeles Unified Find a School Offices Classic View Families Employees

COURSES GROUPS RESOURCES TOOLS

Back to Schoology Home Page

## LMS App Center

The LMS App Center provides a catalog of District-approved digital content and learning tools (including digital components of adopted textbooks) that are available for classroom teachers and students to access within the learning management system, Schoology.

For information on District-approval policies and procedures, please visit: [udidp.lausd.net](#).

- To search the full list of digital learning tools, click "Submit".
- To search by Publisher Name or Textbook Title, type in a word associated to your adopted publisher, then click "Submit".
- To narrow your search with filters such as Content Area, Grade Level, or Content Type, select from the dropdown menu, then click "Submit".

To learn more about using the LMS App Center, please refer to the following video overview.

Publisher Name Starts With

Content Area All

Grade Level All

Content Type All

Textbook Title Starts With

Submit

All Amplify Products



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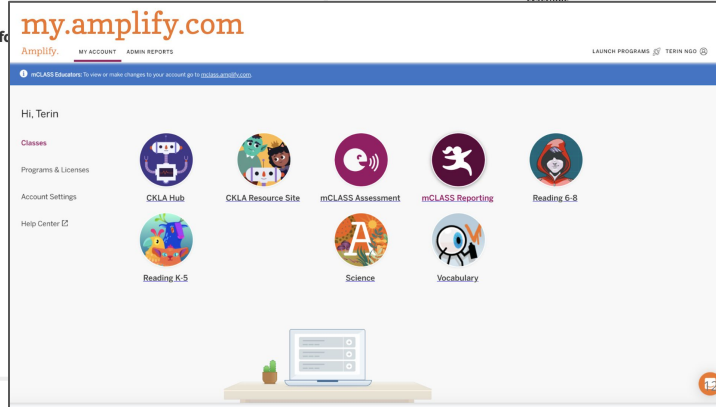
To learn more about using the LMS App Center, please refer to the following video overview.

Search Again

### Amplify

Content Area: ELA  
Grade Level: ES  
Content Type: Supplemental  
Integration Type: App (Left Navigation)  
Purchase Type: District and School  
[Getting Started Guide](#)  
Other Info: School licenses required  
mCLASS  
CKLA  
Amplify Reading  
Amplify Science  
Creative

Vendor Support Desk:  
P: 800.823.9969  
E: [help@amplify.com](mailto:help@amplify.com)  
S: [amplify.com/support/](https://amplify.com/support/)  
Textbook Title(s):  
NA



Vendor Support Desk:  
P: 800.823.9969  
E: [help@amplify.com](mailto:help@amplify.com)  
S: [amplify.com/support/](https://amplify.com/support/)  
Textbook Title(s):  
NA

pp is for  
only)

 mCLASS Educators: To view or make changes to your account go to [mclass.amplify.com](https://mclass.amplify.com).

Hi, Terin

## Classes

Programs & Licenses

Account Settings

Help Center 



[CKLA Hub](#)



[CKLA Resource Site](#)



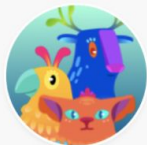
[mCLASS Assessment](#)



[mCLASS Reporting](#)



[Reading 6-8](#)



[Reading K-5](#)



[Science](#)



[Vocabulary](#)



## Amplify. on Schoology

2021-2022



# Schoology

- To join Amplify ES Group: W4PK-W466-63F5B



# Navigation Temperature Check

Rate yourself on your comfort level accessing Amplify Science materials and navigating a digital curriculum.

1 = Extremely Uncomfortable

2 = Uncomfortable

3 = Mild

4 = Comfortable

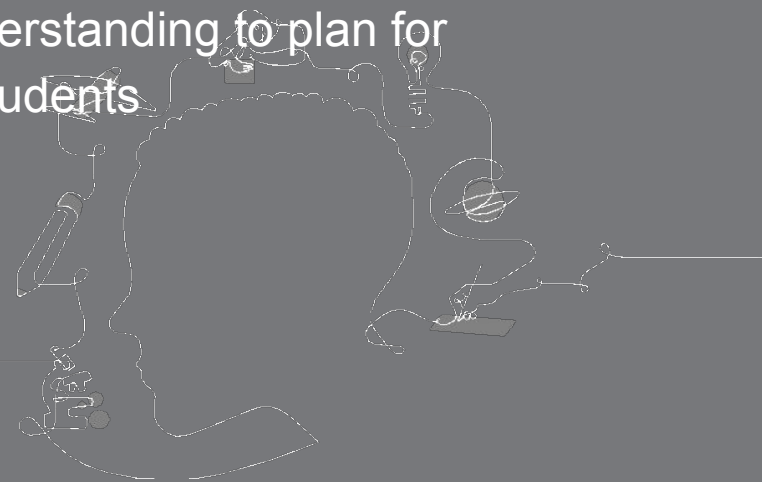
5 = Extremely Comfortable



# Part 1

# Overarching goals

- ❑ Explain how students engage in phenomenon based and 3D learning to construct an understanding of the science concepts introduced in *Environments and Survival*.
- ❑ Internalize the unit and apply your new understanding to plan for the diverse needs of your classroom and students



# Opening Reflection

What are your goals  
for student outcomes?

Participant Notebook

## Reflection

Use the provided spaces as a place for reflection throughout the session.

### Session goals and student outcomes

What Connect the workshop goal(s) to an outcome you envision for your students.	Why Reflect on why you want this outcome for your students.	How How will your students achieve the outcome? Reflect on what you learned during the workshop that will impact student outcomes.





# Plan for the day: Part 1

- Introduction and Framing
- NGSS & 3D Learning
- Phenomenon-based Instruction
- Unit Internalization
- Additional Resources
- Closing



THE LAWRENCE  
HALL OF SCIENCE  
UNIVERSITY OF CALIFORNIA, BERKELEY

+

Amplify.

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Amplify Science

# Course curriculum structure

## Grade K

- Needs of Plants and Animals
- Pushes and Pulls
- Sunlight and Weather

## Grade 1

- Animal and Plant Defenses
- Light and Sound
- Spinning Earth

## Grade 2

- Plant and Animal Relationships
- Properties of Materials
- Changing Landforms

## Grade 3

- Balancing Forces
- Inheritance and Traits
- Environments and Survival
- Weather and Climate

## Grade 4

- Energy Conversions
- Vision and Light
- Earth's Features
- Waves, Energy, and Information

## Grade 5

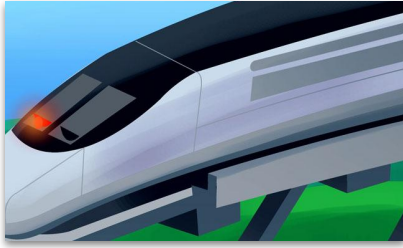
- Patterns of Earth and Sky
- Modeling Matter
- The Earth System
- Ecosystem Restoration

## Key takeaways:

- There are 22 lessons per unit
- Lessons at grades 2-5 are 60 minutes long

# Year at a Glance: Grade 3

Pg. 3



Balancing Forces

**Domain:** Physical Science

**Unit type:** Modeling

**Student role:**  
Engineers



Inheritance and Traits

**Domain:** Life Science

**Unit type:** Investigation

**Student role:** Wildlife biologists

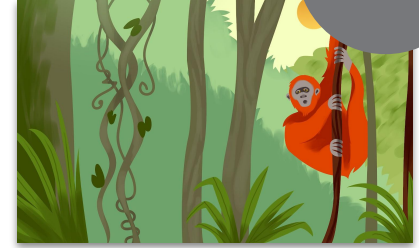


Environments and Survival

**Domain:** Life Science

**Unit type:** Engineering Design

**Student role:**  
Biomimicry engineers



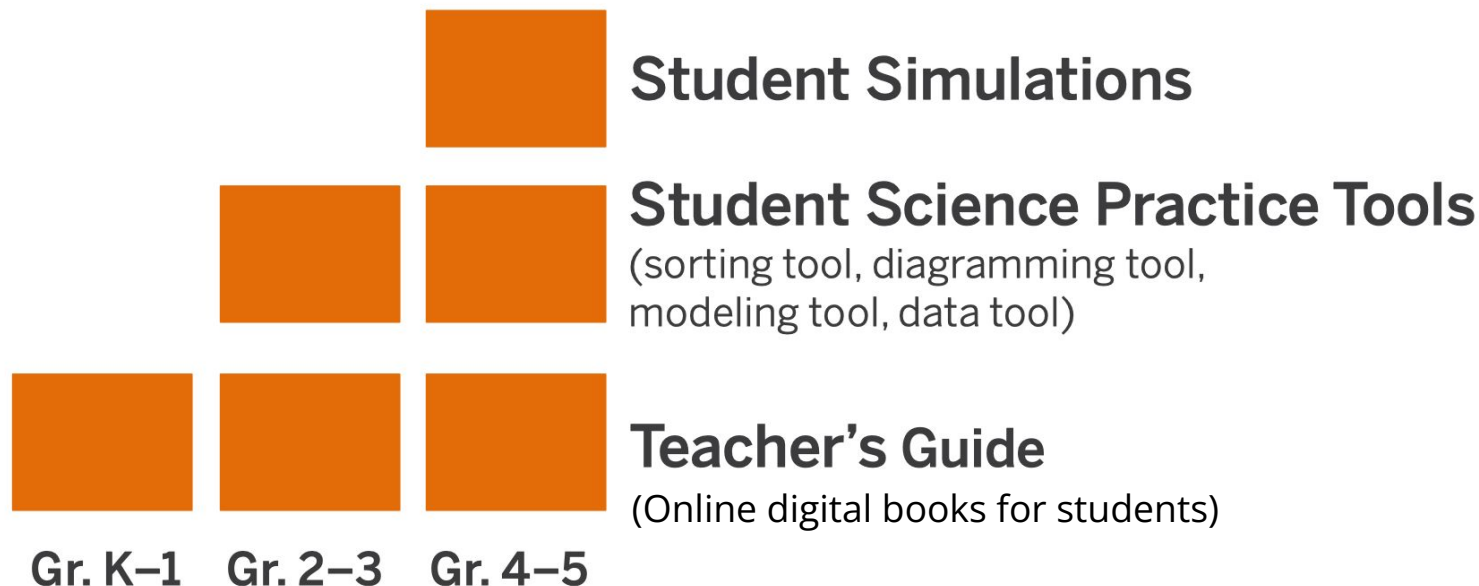
Weather and Climate

**Domain:** Earth and Space Science

**Unit type:**  
Argumentation

**Student role:**  
Meteorologists

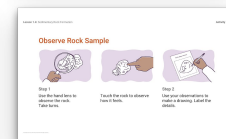
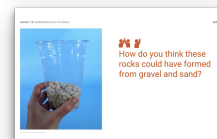
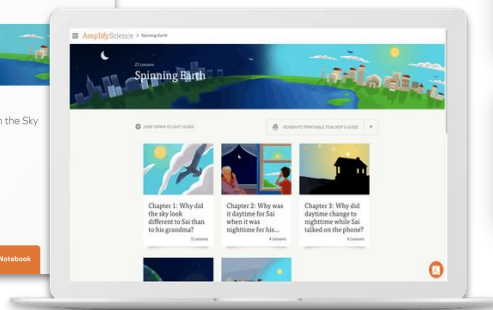
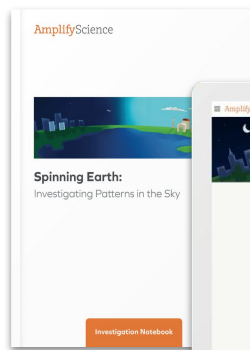
# What are the digital components of Amplify Science Elementary?



# K-5 Program components

## Teacher materials

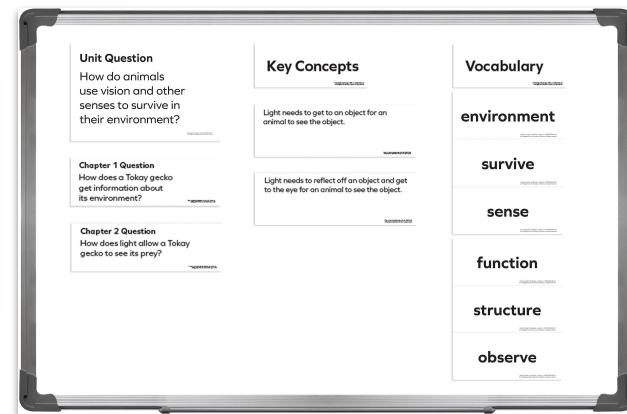
- Teacher's Guide (print and digital)
- Classroom Slides
- Classroom wall materials
- Embedded assessments
- Program Guide
- Program Hub
- Amplify Help Site



Program Hub



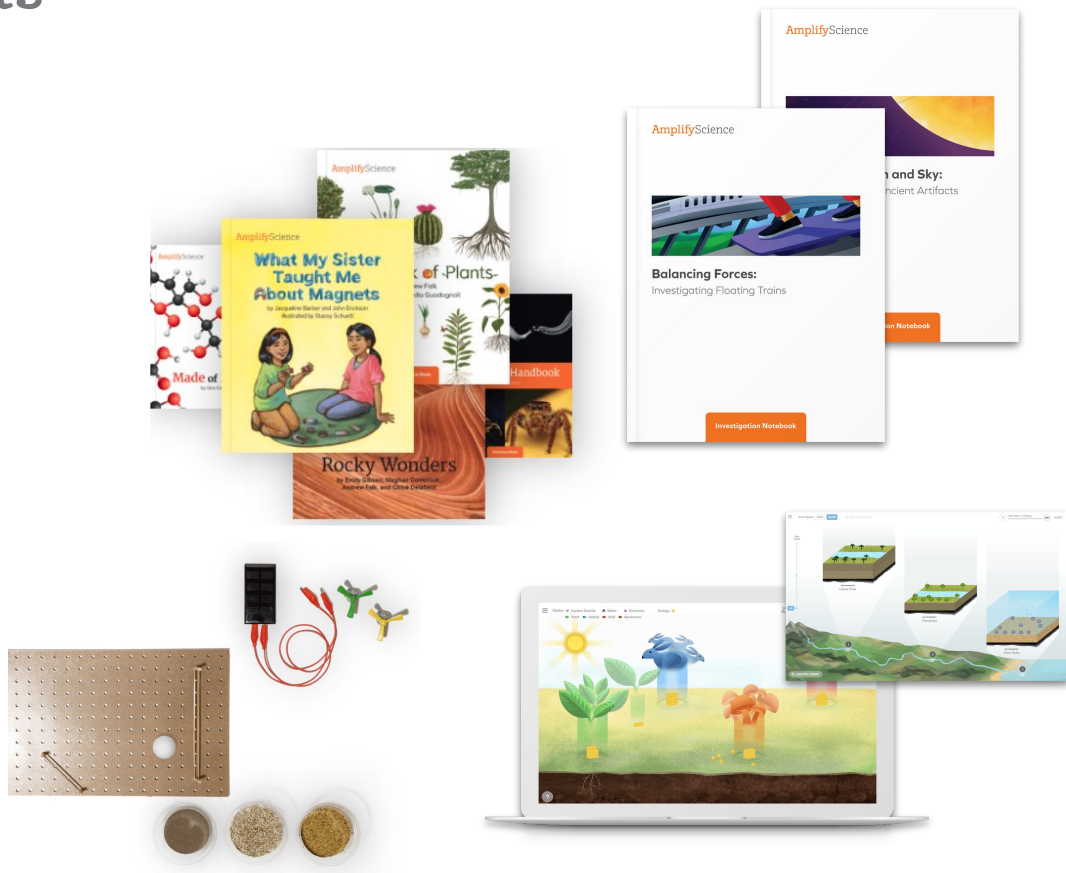
Science Program Guide



# K-5 Program components

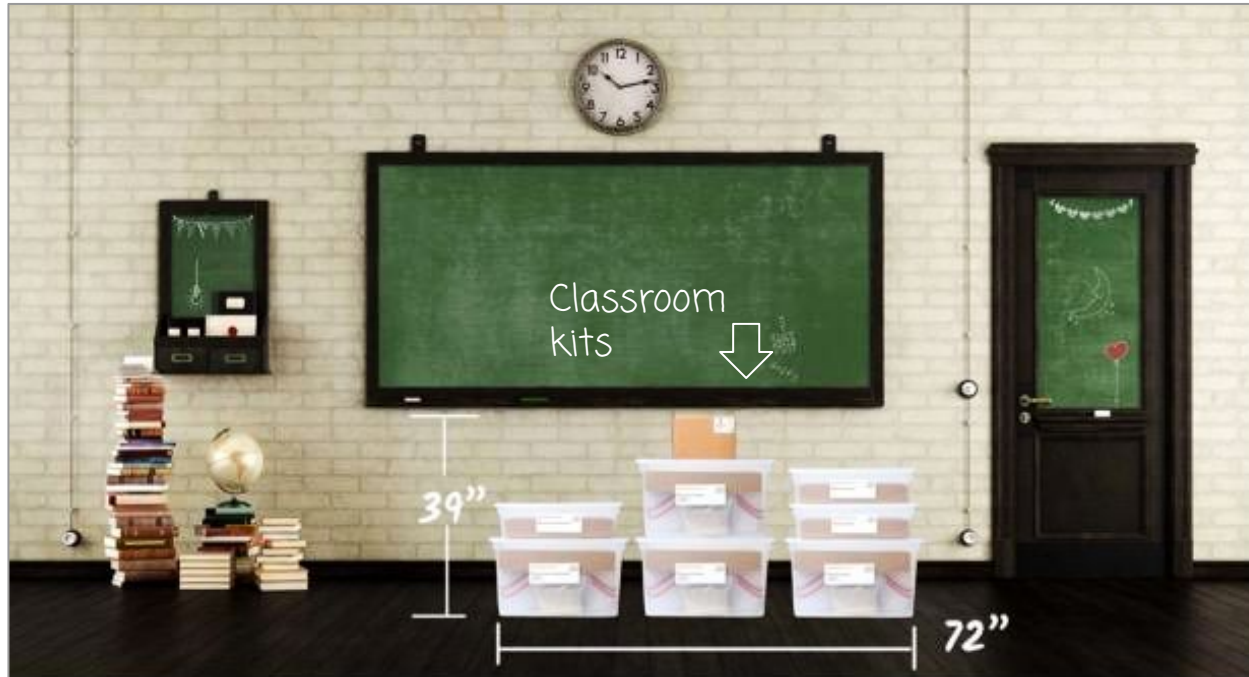
## Student materials

- Hands-on materials
- Investigation Notebooks (print and digital)
- Student books
- Digital Applications



# K-5 Program components

## Classroom kits



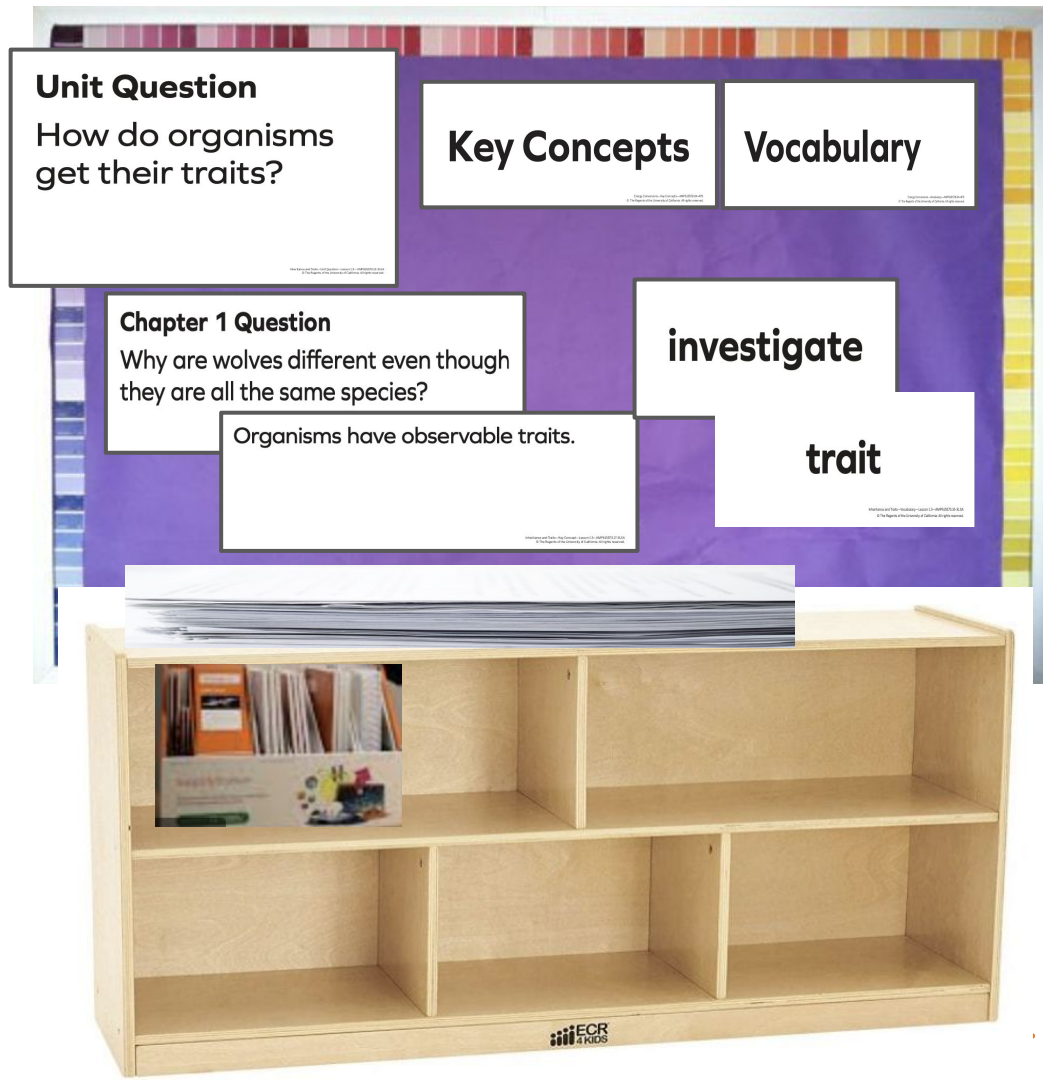
### Classroom kits

Built for a class of 36 students, with consumables for two years



# Unpacking the Kit

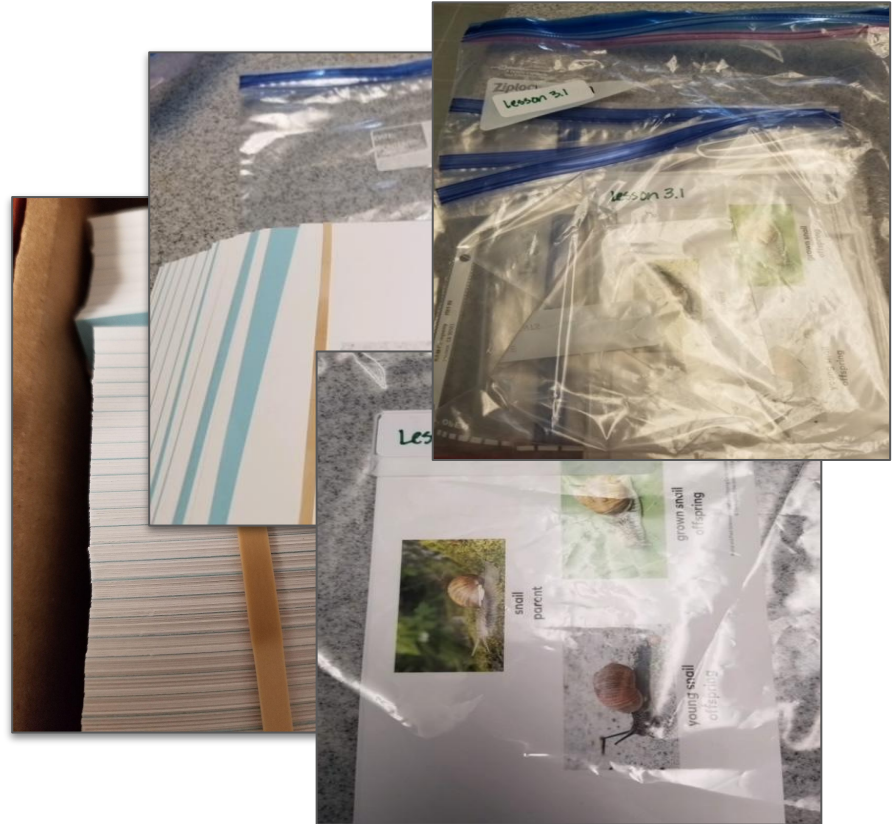
- Pull out the unit question, key concepts and vocabulary materials.
- Place them on the top of the table or bookcase below your science board
- Take books out of kit and place in the bookcase or on the table. (Always collect books after each lesson use. Return to bookcase so they are easily accessible.)



# Cards for games, sorting or matching activities

## Organization tips:

- Separate and place in envelopes or bags (or clip together)
- Label the envelopes or bags with the name and lesson # and activity # (ex. Lesson 2.4, Act. 1)
- Put each envelope or bag (1 set) into a bigger bag and label



# LAUSD Schoology: Unit 1, 3-5 Lesson Prep Videos

The screenshot shows the LAUSD Schoology interface. The top navigation bar is dark blue with the LAUSD logo on the left and icons for search, grid, calendar, and email on the right. The main navigation menu on the left includes 'Home', 'COURSES', 'GROUPS', 'RESOURCES' (circled in orange), and 'TOOLS'. Under 'RESOURCES', there are sections for 'Group Resources' and 'School Resources'. The 'Group Resources' section lists 'Amplify Science- Elementary' (circled in orange) and 'LAUSD Middle School Science - Di...'. The 'School Resources' section lists 'LOS ANGELES USD - 9999' and 'Los Angeles Unified School District'. The 'Group' link in the left sidebar is also circled in orange. The main content area displays 'Amplify Science- Elementary' resources. It includes a folder 'NGSS Resources' added by MARIA ARTEAGA on Jun 1, 2021, a Google Drive link for 'K-6 Phenomenal Notebooking Resources' added by INYOUNG LEE on Feb 1, 2021, and a PDF file 'Amplify\_Science\_Shared\_Logins.pdf' added by Señor Fernando REYES on Aug 9, 2021. At the bottom, a folder 'Lesson Prep Videos' added by Terin Ngo on Oct 11, 2021 is circled in orange.

**LOS ANGELES USD** Home

COURSES GROUPS **RESOURCES** TOOLS

Search

Personal

Public

Group

**Group Resources**

- Amplify Science- Elementary
- LAUSD Middle School Science - Di...

**School Resources**

- LOS ANGELES USD - 9999
- Los Angeles Unified School District

## Amplify Science- Elementary

Title

**NGSS Resources**  
Added by MARIA ARTEAGA · Jun 1, 2021

**Google Drive link for K-6 Phenomenal Notebooking Resources**  
<https://drive.google.com/drive/folders/168S5PDaAsmg6mOg7LUOIhwO8J7GnYn2G?usp=sharing>  
Here are digital resources to support the teaching and learning of the anchor phenomena for Amplify Science and FOSS.  
Subfolders for Unit 1 and Unit 2.  
Note: In the Unit 1 folder for grades 3-6, please find digital phenomenal notebooks which can be assigned to students in Schoology. For K-2, please find a suite of Seesaw activities. Teachers may add the Seesaw activities into their Seesaw accounts and assign them to students.  
Added by INYOUNG LEE · Feb 1, 2021

**Amplify\_Science\_Shared\_Logins.pdf**  
Added by Señor Fernando REYES · Aug 9, 2021

**Lesson Prep Videos**  
Added by Terin Ngo · Oct 11, 2021

# LAUSD Microsite-

## <https://amplify.com/laus>



## Welcome to Amplify Science!

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This site contains supporting resources designed for the LAUSD Amplify Science adoption for grades TK–8.

- Access the [Amplify Science Program Hub](#) (To help orient you to the new design, watch this [video](#) and view this [reference guide](#).)
- Find out more about [Amplify Science@Home](#)
- Share the [Caregiver Hub](#) (Eng/Span) with your families
- For LAUSD ES Teachers- [Amplify Science & Benchmark Advance Crosswalk](#)
- Instructional guidance for a [Responsive Relaunch of Amplify Science in 21-22](#)

Click the button below to preview the digital Teacher's Guide, and check back for exciting updates to this site!

# Microsite: Unit 1, K-2 Lesson Prep Videos

## Classroom kits

Program Introduction	New! Lesson Prep Videos
Learn more about Amplify Science	Unit 1
LAUSD Training Sessions- Reference Materials	Grade K- Needs of Plants and Animals >
 New! Lesson Prep Videos	Grade 1- Animals and Plant Defenses >
Remote Learning Resources	Grade 2- Plant and Animal Relationships >
Onboarding: What to expect	Grade 3- Balancing Forces >
Onboarding videos	Grade 4- Energy Conversions >
Unpacking your first hands-on materials kit	Grade 5- Patterns of Earth and Sky >
Looking for help?	

## Classroom Kits

Built for a class of 36 students, with consumables for two years

# Hands On Material Organization

## Directions

1. Open the Digital Lesson Guides Only page 7 from the Unit Landing page or go the Print TE to page 31. (Chapter 1 Activities)

2. Look for the lessons with Hands On.

HANDS-ON 

3. Note in the table below.

4. Review the materials and preparation to determine if it can be prepared prior to the lesson or on the day of the lesson.

5. Use this same procedure for each Chapter. (Go to the Chapter Activities Contents)

Chapter/Lesson	Activity	Prep Prior	Prep Day of	What to do	
1.1	1	X		Prep plastic bags with labels A, B, C, D and M. Place 1 tsp of the following cinnamon, salt, flour, cornstarch in A,B,C, D. In bag M mix 1 tsp salt and 1 tsp cinnamon.	<i>This is an example from Properties of Materials Grade 2</i>

- Open Your **Lesson Guides Only**
- Start with **Chapter 1** and look for the **hands icon**
- Go into the lesson **materials and prep**

22 Lessons

## Environments and Survival

Printable Teacher Guide

Full Teacher's Guide  
(Includes Unit Guide & all 22 Lesson Guides)

Lesson Guides Only  
(Includes 22 Lesson Guides)

OPEN IN NEW TAB

Unit Overview

Chapters

Printable Resources

Planning for the Unit

Tei

Off

RESET LESSON

### Overview

Students' Initial Explanations

Students begin the *Environments and Survival* unit by being introduced to their role as biomimicry engineers. In this role, they will be learning about the traits of grove snails in order to inspire designs. Students explore the reference book, *Biomimicry Handbook*, which they will use throughout the unit. They examine bar graphs about two types of grove snails in the population—snails with yellow shells and snails with banded shells—and learn that the snails with yellow shells are not surviving as well in their environment. Students are also

LESSON 1.4  
The Survival Model

LESSON 1.5  
Writing an Explanation of Snails' Survival

## Chapter 1 Activities

### Lesson 1.1: Pre-Unit Assessment

- Becoming Biomimicry Engineers
- Introducing the Grove Snail Population
- Writing Initial Explanations

### Lesson 1.2: Investigating Needs for Survival

- Introducing Needs for Survival
- Investigating Needs for Survival
- Making Inferences About Survival

### Lesson 1.3: Earthworms Underground

- Introducing Earthworms Underground
- Partner Reading
- Connecting Traits to Survival in an Environment
- Introduction to Concept Mapping

### Lesson 1.4: The Survival Model

- Introducing the Survival Model
- Engaging with the Survival Model
- Analyzing Survival Model Data
- Critical Juncture: Think-Write-Pair-Share


### Lesson 1.5: Writing an Explanation of Snails' Survival

- Making Inferences from Data
- Introducing Scientific Explanations
- Shared Writing of a Scientific Explanation
- Reflecting on Biomimicry



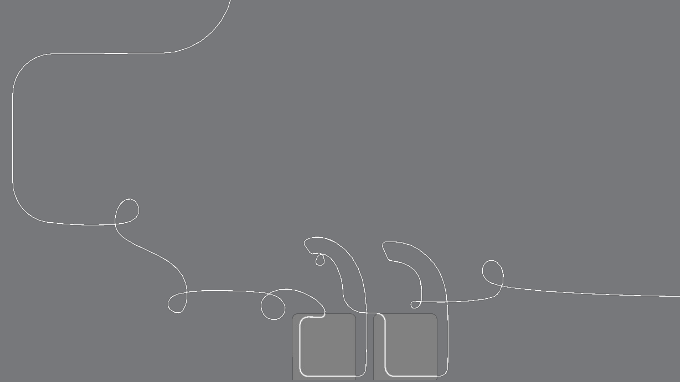
# Hands On Material Organization

## Completed for Environments and Survival

	A	B	C	D	E	F
1	<b>G3 Environments and Survival</b>					
2	<b>Directions</b>					
3	1. Open the Digital Lesson Guides Only page 7 from the Unit Landing page or go the Print TE to page 31. (Chapter 1 Activities)					
4	2. Look for the lessons with Hands On.					
5	HANDS-ON 					
6	3. Note in the table below.					
7	4. Review the materials and preparation to determine if it can be prepared prior to the lesson or on the day of the lesson.					
8	5. Use this same procedure for each Chapter. (Go to the Chapter Activities Contents)					
9						
10	<b>Chapter/Lesson</b>	<b>Activity</b>	<b>Prep Prior</b>	<b>Prep Day of</b>	<b>What to do</b>	
11	1.2	2	X		For each group of 4: 1 set of Needs for Survival Organism Cards, clipped together (4 cards/set) 1 set of Needs for Survival Environment Cards, clipped together (4 cards/set)	
12	1.4	2	X		For each pair of students: 1 tray* 1 Survival Model: Environment 1 1 Survival Model: Environment 2 1 Survival Model Grid 1 set of Survival Model Cards: Food, clipped together (6 cards/set) 1 set of Survival Model Cards: Water, clipped together (6 cards/set) 2 model pieces (red and blue) 1 probability cube 1 plastic cup 30 black tokens	
					For each group of 4 students: 1 plastic tray* (Each group will need four cups filled approximately one-third full with water. If you do not have a sink in your classroom, make sure you have enough water on hand.)	



# Questions?





# Plan for the day: Part 1

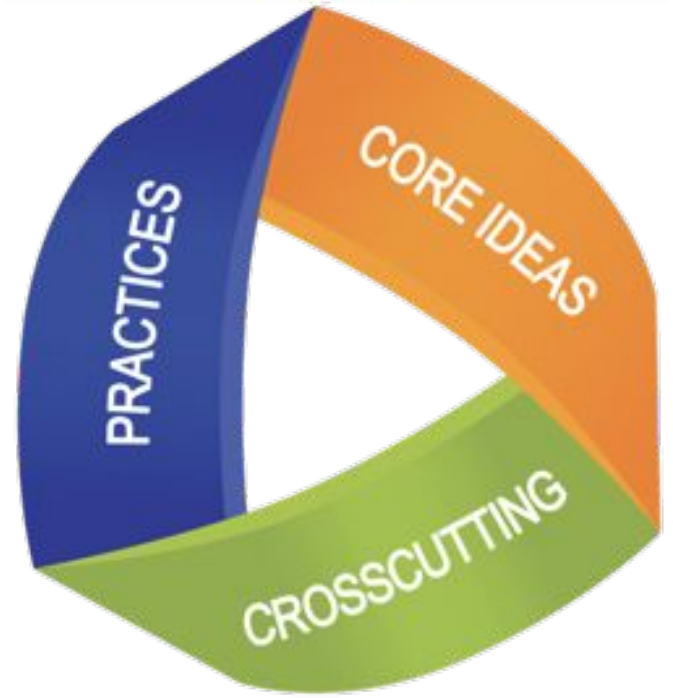
- Introduction and Framing
- **NGSS & 3D Learning**
- Phenomenon-based Instruction
- Unit Internalization
- Additional Resources
- Closing

# Next Generation Science Standards

Three dimensional learning

## Evaluate your knowledge

- On a scale of 0-5, how would you rate your familiarity with 3-D learning?



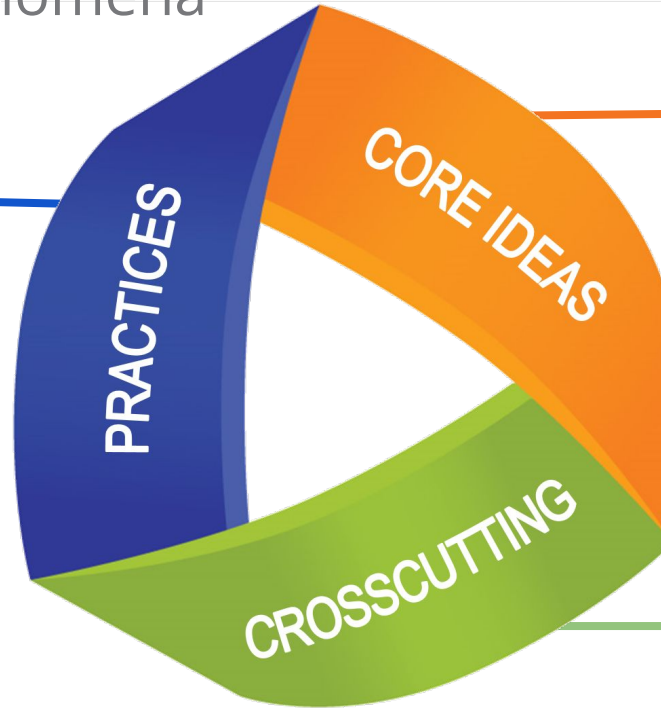
# Conceptual Shifts in NGSS

1. K-12 Science Education Should Reflect the Interconnected Nature of Science as it is Practiced and Experienced in the Real World.
2. The Next Generation Science Standards are student performance expectations – NOT curriculum.
3. The science concepts in the NGSS build coherently from K-12.
4. The NGSS Focus on Deeper Understanding of Content as well as Application of Content.
5. Science and Engineering are Integrated in the NGSS from K–12.
6. The NGSS are designed to prepare students for college, career, and citizenship.
7. The NGSS and Common Core State Standards (Mathematics and English Language Arts) are Aligned.

# Using 3-D teaching and learning

for figuring out phenomena

**What scientists do**  
Science and  
Engineering Practices



**What scientists  
want to know**  
Disciplinary Core  
Ideas

**How scientists  
think**  
Crosscutting Concepts

# Three dimensions of NGSS (CA) at a glance

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p>SEP-1. Asking questions and defining problems</p> <p>SEP-2. Developing and using models</p> <p>SEP-3. Planning and carrying out investigations</p> <p>SEP-4. Analyzing and interpreting data</p> <p>SEP-5. Using mathematics and computational thinking</p> <p>SEP-6. Constructing explanations (for science) and designing solutions (for engineering)</p> <p>SEP-7. Engaging in argument from evidence</p> <p>SEP-8. Obtaining, evaluating, and communicating information</p>	<p><b>Physical Science</b></p> <p>PS1: Matter and its interactions</p> <p>PS2: Motion and stability: Forces and interactions</p> <p>PS3: Energy</p> <p>PS4: Waves and their applications in technologies for information transfer</p> <p><b>Life Science</b></p> <p>LS1: From molecules to organisms: Structures and processes</p> <p>LS2: Ecosystems: Interactions energy, and dynamics</p> <p>LS3: Heredity: Inheritance and variation of traits</p> <p>LS4: Biological evolution: Unity and diversity</p> <p><b>Earth and Space Science</b></p> <p>ESS1: Earth's place in the universe</p> <p>ESS2: Earth's systems</p> <p>ESS3: Earth and human activity</p> <p><b>Engineering, Technology, and Applications of Science</b></p> <p>ETS1: Engineering Design</p> <p>ETS2: Links among engineering, technology, science, and society</p>	<p>CCC-1. Patterns</p> <p>CCC-2. Cause and effect: Mechanism and explanation</p> <p>CCC-3. Scale, proportion, and quantity</p> <p>CCC-4. Systems and system models</p> <p>CCC-5. Energy and matter: Flows, cycles, and conservation</p> <p>CCC-6. Structure and function</p> <p>CCC-7. Stability and Change</p>

# An Analogy between NGSS and a Cake



Baking a cake  
(performance expectations)



**Baking Tools and  
Techniques  
(Science & Engineering  
Practices)**

# Science and Engineering Practices

inquiry

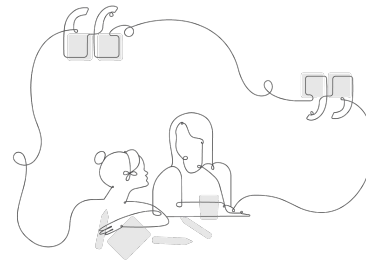
1. Asking questions (for science) and defining problems (for engineering)
2. Developing and using models
3. Planning and carrying out investigations
4. Analyzing and interpreting data

math

5. Using mathematics and computational thinking
6. Constructing explanations (for science) and designing solutions (for engineering)

language

7. Engaging in argument from evidence
8. Obtaining, evaluating, and communicating information





# An Analogy between NGSS and a Cake



Baking a cake  
(performance expectations)



**Baking Tools and  
Techniques  
(Science & Engineering  
Practices)**



**Cake  
(Disciplinary Core Ideas)**

# Disciplinary Core Ideas

Life Science	Physical Science
LS1: From Molecules to Organisms: Structures and Processes	PS1: Matter and Its Interactions
LS2: Ecosystems: Interactions, Energy, and Dynamics	PS2: Motion and Stability: Forces and Interactions
LS3: Heredity: Inheritance and Variation of Traits	PS3: Energy
LS4: Biological Evolution: Unity and Diversity	PS4: Waves and Their Applications in Technologies for Information Transfer
Earth & Space Science	Engineering & Technology
ESS1: Earth's Place in the Universe	ETS1: Engineering Design
ESS2: Earth's Systems	ETS2: Links Among Engineering, Technology, Science, and Society
ESS3: Earth and Human Activity	

# An Analogy between NGSS and a Cake



Baking a cake  
(performance expectations)



Frosting  
(Crosscutting  
Concepts)



Baking Tools and  
Techniques  
(Science & Engineering  
Practices)



Cake  
(Disciplinary Core Ideas)

# Crosscutting Concepts

## 5. Energy and Matter

Tracking energy and matter flows, into, out of, and within systems helps one understand their system's behavior.

## 6. Structure and Function

The way an object is shaped or structured determines many of its properties and functions.

## 7. Stability and Change

For both designed and natural systems, conditions that affect stability and factors that control rates of change are critical elements to consider and understand.

## 4. Systems and System Models

A system is an organized group of related objects or components; models can be used for understanding and predicting the behavior of systems.

# NGSS Standards, Grade 3

**What is Assessed**  
a collection of  
**performance**  
**expectations** describing  
what students should be  
able to do to master the  
standard



3-LS4 Biological Evolution: Unity and Diversity		
3-LS4 Biological Evolution: Unity and Diversity		
Students who demonstrate understanding can:		
3-LS4-1.	Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago. [Clarification Statement: Examples of data could include type, size, and distributions of fossil organisms. Examples of fossils and environments could include marine fossils found on dry land, tropical plant fossils found in Arctic areas, and fossils of extinct organisms.] [Assessment Boundary: Assessment does not include identification of specific fossils or present plants and animals. Assessment is limited to major fossil types and relative ages.]	
3-LS4-2.	Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing. [Clarification Statement: Examples of cause and effect relationships could be plants that have larger thorns than other plants may be less likely to be eaten by predators; and animals that have better camouflage coloration than other animals may be more likely to survive and therefore more likely to leave offspring.]	
3-LS4-3.	Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all. [Clarification Statement: Examples of evidence could include needs and characteristics of the organisms and habitats involved. The organisms and their habitat make up a system in which the parts depend on each other.]	
3-LS4-4.	Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.* [Clarification Statement: Examples of environmental changes could include changes in land characteristics, water distribution, temperature, food, and other organisms.] [Assessment Boundary: Assessment is limited to a single environmental change. Assessment does not include the greenhouse effect or climate change.]	
The performance expectation(s) above were developed using the following elements from the NRC document <i>A Framework for K-12 Science Education</i> :		
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<b>Analyzing and Interpreting Data</b> Analyzing data in 3-5 builds on K-2 experiences and progresses to introducing quantitative approaches to collecting data and conducting multiple trials of qualitative observations. When possible and feasible, digital tools should be used. <ul style="list-style-type: none"><li>Analyze and interpret data to make sense of phenomena using logical reasoning. (3-LS4-1)</li></ul>	<b>LS2.C: Ecosystem Dynamics, Functioning, and Resilience</b> <ul style="list-style-type: none"><li>When the environment changes in ways that affect a place's physical characteristics, temperature, or availability of resources, some organisms survive and reproduce, others move to new locations, yet others move into the transformed environment, and some die. (secondary to 3-LS4-4)</li></ul> <b>LS4.A: Evidence of Common Ancestry and Diversity</b> <ul style="list-style-type: none"><li>Some kinds of plants and animals that once lived on Earth are no longer found anywhere. (Note: Moved from K-2.) (3-LS4-1)</li></ul>	<b>Cause and Effect</b> <ul style="list-style-type: none"><li>Cause and effect relationships are routinely identified and used to explain change. (3-LS4-2), (3-LS4-3)</li></ul> <b>Scale, Proportion, and Quantity</b> <ul style="list-style-type: none"><li>Observable phenomena exist from very short to very long time periods. (3-LS4-1)</li></ul> <b>Systems and System Models</b> <ul style="list-style-type: none"><li>A system can be described in terms of its components and their interactions. (3-LS4-4)</li></ul>

# Navigate to the Unit Landing Page

Review the  
**Standard  
and Goals**  
and the **3-D  
Statements**

22 Lessons

## Environments and Survival

Printable Teacher Guide

Unit Overview  
Chapters  
Printable Resources  
Planning for the Unit  
Teacher References  
Offline Preparation

Unit Overview  
Chapters  
Printable Resources  
Planning for the Unit  
Teacher References  
Lesson Overview Compilation  
Standards and Goals  
3-D Statements  
Assessment System  
Embedded Formative Assessments  
Books in This Unit  
Apps in This Unit  
Opportunities for Unit Extensions  
Flextensions in This Unit  
Offline Preparation

### Unit Overview

What's in This Unit?

There is an astounding diversity of traits among organisms living in different environments on Earth. How do the traits of different organisms make them more likely or less likely to survive in their environments? What happens to organisms when their environment changes? Biologists continue to study how organisms' traits affect their ability to avoid predators and to get food and water. Many engineers in the field of biomimicry engineering draw inspiration from the traits of organisms to design innovative solutions for a vast array of problems, such as painless needles inspired by mosquito stingers or body armor inspired by snail shells.

[Read more](#)

### Chapters

Chapter 1: Why are the snails with yellow shells not surviving well?

LESSON 1.1  
Pre-Unit Assessment

LESSON 1.2  
Investigating Needs for Survival

LESSON 1.3  
Earthworms Underground

LESSON 1.4  
The Survival Model

LESSON 1.5  
Writing an Explanation of Snails' Survival



# 3D Statements

## Key

Practices Disciplinary Core Ideas Crosscutting Concepts

## Unit Level

### Chapter Level

#### Chapter 1: Why are the snails with yellow shells not surviving well?

### Lesson Level

#### Lesson 1.1: Pre-Unit Assessment

Students use mathematics and computational thinking as they analyze data and figure out that in a population of snails, the snails with yellow shells are not surviving in the environment as well as the snails with banded shells (structure and function). Then, students write initial explanations about their ideas why.



# Plan for the day: Part 1

- Introduction and Framing
- NGSS & 3D Learning
- Phenomenon-based Instruction
- Unit Internalization
- Additional Resources
- Closing



# Next Generation Science Standards

## Phenomenon-based learning and teaching

A scientific phenomenon is an **observable event** that occurs in the universe that we can use science ideas to explain or predict.

# Comparing topics and phenomena

Topic-based	Phenomenon-based
Chemical reactions	There's a reddish-brown substance in a town's tap water.

# Next Generation Science Standards

## How might learning be different?

Topic-based	Phenomenon-based
Chemical reactions	There's a reddish-brown substance in a town's tap water.
Electric circuits	A flashlight won't turn on, even though it used to work.
Natural selection	A population of newts has become more poisonous over time.

# Comparing topics and phenomena

## A shift in science instruction

from learning about  
(like a student)



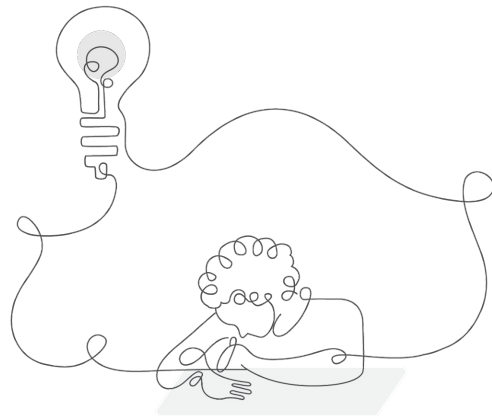
to figuring out  
(like a scientist)

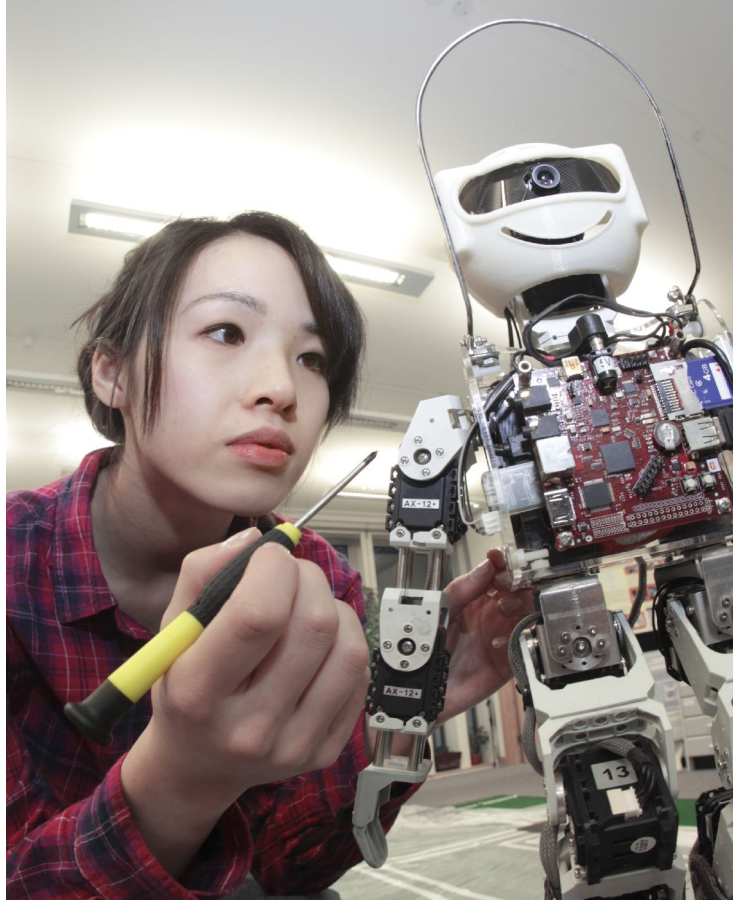
# Previewing the unit

## Introducing the phenomenon

Amplify Science units are designed around complex phenomena that drives student learning through the unit.

Pay attention to the phenomenon, or observable event, students will figure out in your unit.





We're beginning a new science unit about **living things** and how they stay alive.

We will take on the role of **engineers**.

# Engineers



All the people in these photographs are engineers.



What do you **notice**?

Based on these photographs, what do you think **engineers** do?

## Vocabulary



**engineer**

a person who uses science knowledge to design something in order to solve a problem



In this unit, we will take on the role of **engineers** working for an engineering firm, or company.

Let's **read our first message** from Dr. Jasmine Neel, the lead engineer at the engineering firm.



**To:** Biomimicry Engineers  
**From:** Dr. Jasmine Neel, Lead Engineer  
**Subject:** Grove Snail Biomimicry Project, Part 1

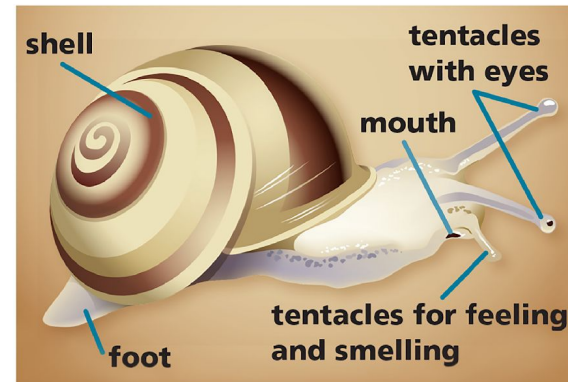
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Hello biomimicry engineers,

We are excited that you are working with our engineering firm! We often get ideas for designs from studying organisms. We have been studying grove snails, and we need your help to learn more about them and to get ideas for designs. Here is a diagram that shows some of the parts of the body of a grove snail.

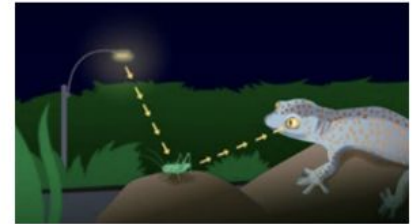
Thank you!



# Amplify Science

## Anchoring phenomenon

- Complex and rich
- Drives learning through a whole unit
- Specific and observable
- Relatable at students' developmental level



# K-5 Navigation structure

**Year** (each year includes 3–4 units)



**Units** (each unit includes 3–6 chapters)



**Chapters** (each chapter includes 2–10 lessons)



**Lessons** (each lesson includes 2–5 activities)



# Let's Go Live!

22 Lessons

Environments and Survival

Printable Teacher Guide

Unit Overview

Chapters

Printable Resources

Planning for the Unit

Teacher References

Offline Preparation

Unit Overview


What's in This Unit?

There is an astounding diversity of traits among organisms living in different environments on Earth. How do the traits of different organisms make them more likely or less likely to survive in their environments? What happens to organisms when their environment changes? Biologists continue to study how organisms' traits affect their ability to avoid predators and to get food and water. Many engineers in the field of biomimicry engineering draw inspiration from the traits of organisms to design innovative solutions for a vast array of problems, such as painless needles inspired by mosquito stingers or body armor inspired by


Read more

Chapters


Chapter 1: Why are the snails with yellow shells not surviving well?




LESSON 1.1  
Pre-Unit Assessment




LESSON 1.2  
Investigating Needs for Survival



LESSON 1.3  
Earthworms Underground



LESSON 1.4  
The Survival Model

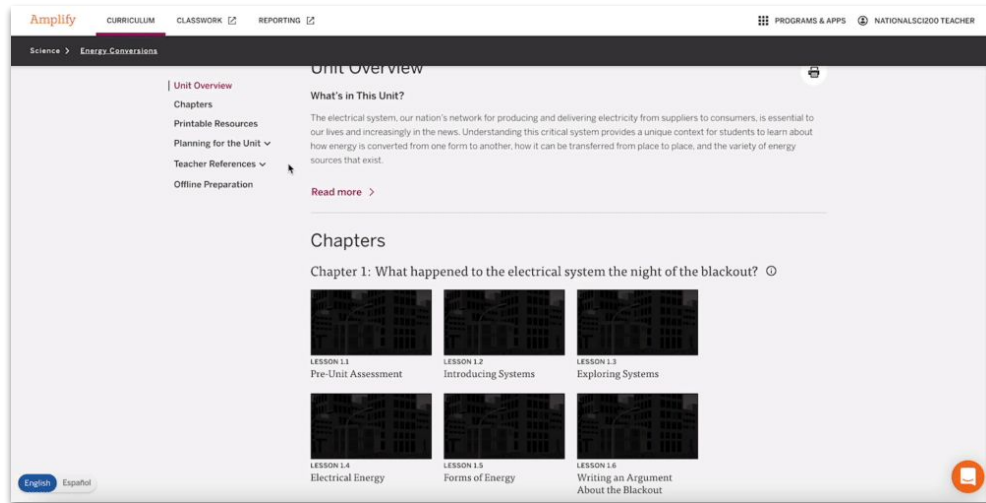


LESSON 1.5  
Writing an Explanation of Snails' Survival

# Unit Level resources

Collection of resources to support planning and day-to-day instruction in the unit:

- Printable Resources
- “Planning for the Unit” documents
- Teacher References



# Key Unit Documents for Unit Planning

## Apps in this Unit

Let's take a few minutes to review the **Practice Tools and Simulations** in this unit document and explore the digital tools



22 Lessons

## Environments and Survival

Printable Teacher Guide

Unit Overview

Chapters

Printable Resources

Planning for the Unit

- Unit Map
- Progress Build
- Getting Ready to Teach
- Materials and Preparation
- Science Background
- Standards at a Glance

Teacher References

- Lesson Overview
- Compilation
- Standards and Goals
- 3-D Statements
- Assessment System
- Embedded Formative Assessments
- Books in This Unit
- Apps in This Unit
- Opportunities for Unit Extensions
- Flextensions in This Unit
- Offline Preparation

### Unit Overview

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[Read more](#)

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LESSON 1.3  
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LESSON 1.5  
Writing an Explanation of Snails' Survival

# Navigating to the Student Apps page

Amplify. CURRICULUM CLASSWORK REPORTING

Science California > Environments and Survival

22 Lessons

## Environments and Survival

Printable Teacher Guide

- Unit Overview
- Chapters
- Printable Resources
- Planning for the Unit
- Teacher References
- Offline Preparation

### Unit Overview

#### What's in This Unit?

There is an astounding diversity of traits among organisms living in different environments on Earth. How organisms make them more likely or less likely to survive in their environments? What happens to organisms when environment changes? Biologists continue to study how organisms' traits affect their ability to avoid predators and water. Many engineers in the field of biomimicry engineering draw inspiration from the traits of organisms to create innovative solutions for a vast array of problems, such as painless needles inspired by mosquito stingers.

[Read more >](#)

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LESSON 1.3  
Earthworms Underground

### PROGRAMS & APPS

CALIFORNIASCI26 TEACHER

Rock Transformations Sim

Scale Tool

Sound Waves Sim

Thermal Energy Sim

Traits and Reproduction Sim

Vision and Light Sim

Weather Patterns Sim

### Tools

Admin Portal

Classwork

Elementary Student Apps

Library

My Account

Science Reporting

### Other Resources

Benchmark Assessments

CA Science Program Guide

CA Science Program Guide

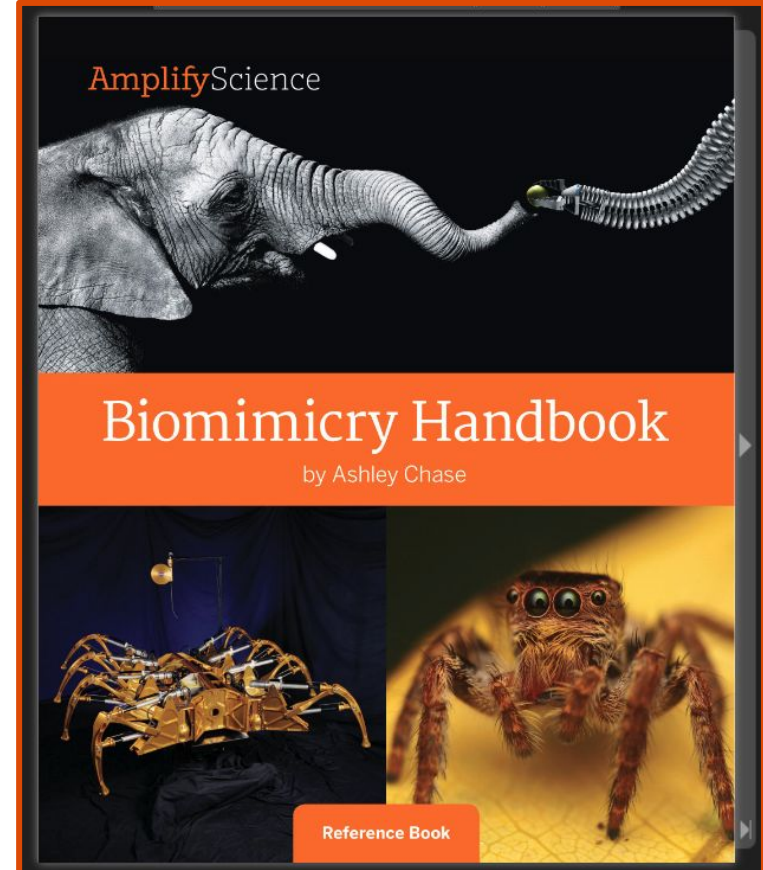
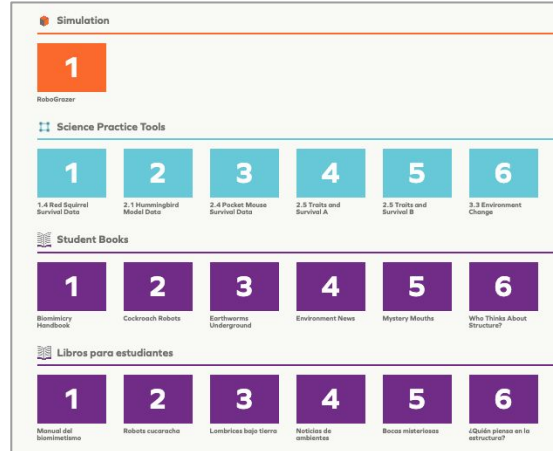
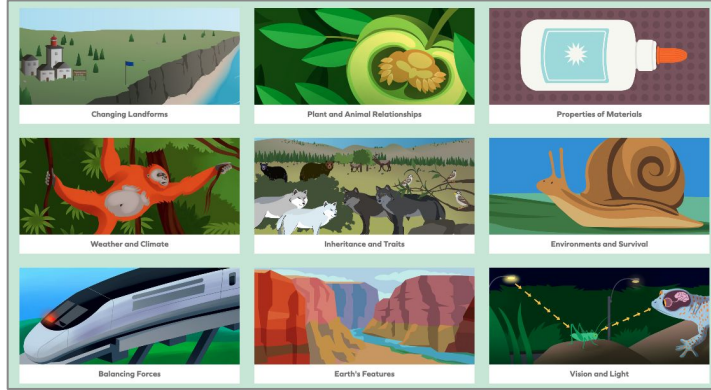
Help

Science Program Guide

Science Program Hub



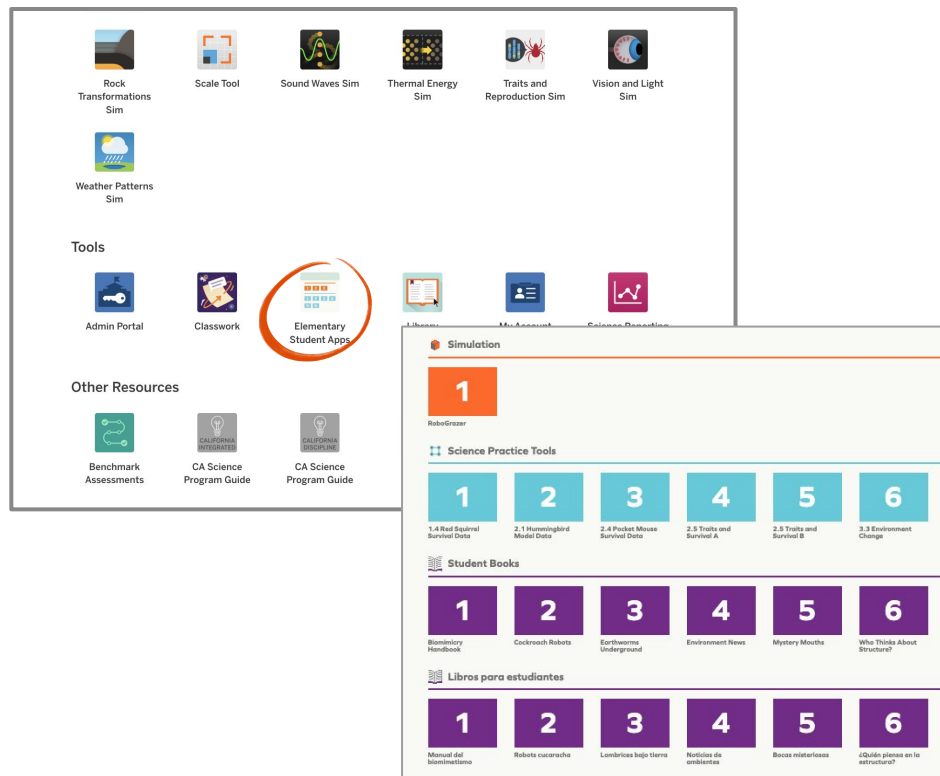
# Student Apps page



# Explore the Student Apps Page

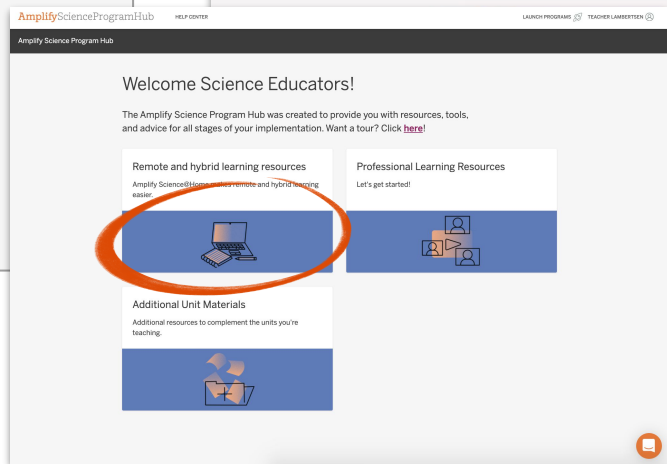
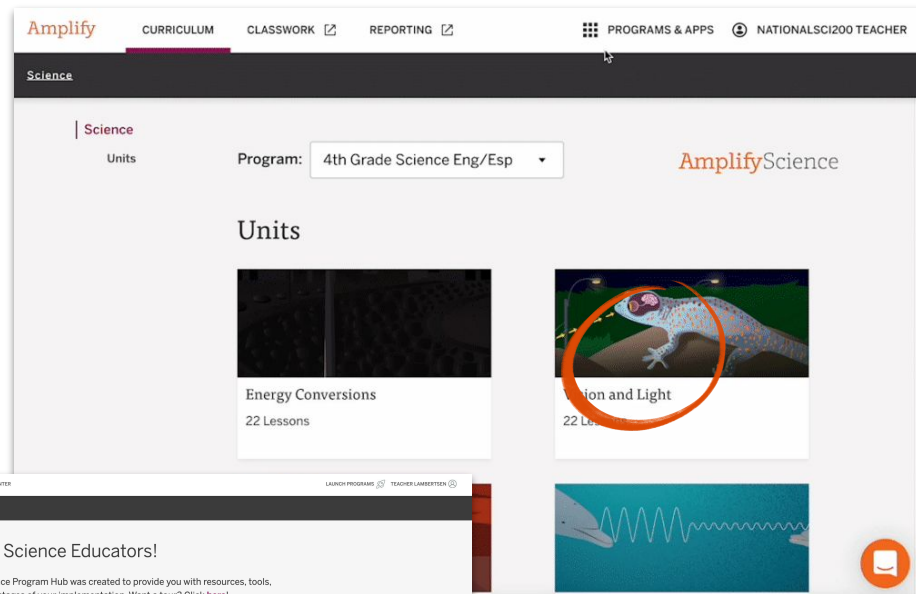
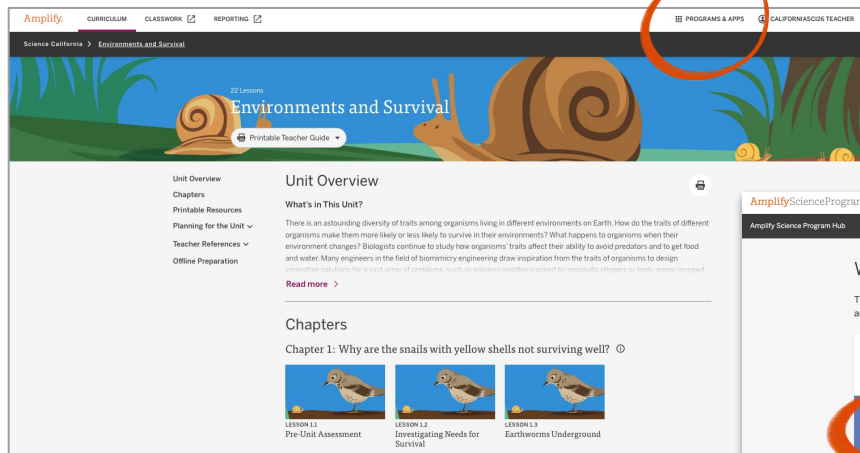
Familiarize yourself with the Program Hub.

Be ready to share one resource you've found that you'll use while planning and teaching.



# Program Hub

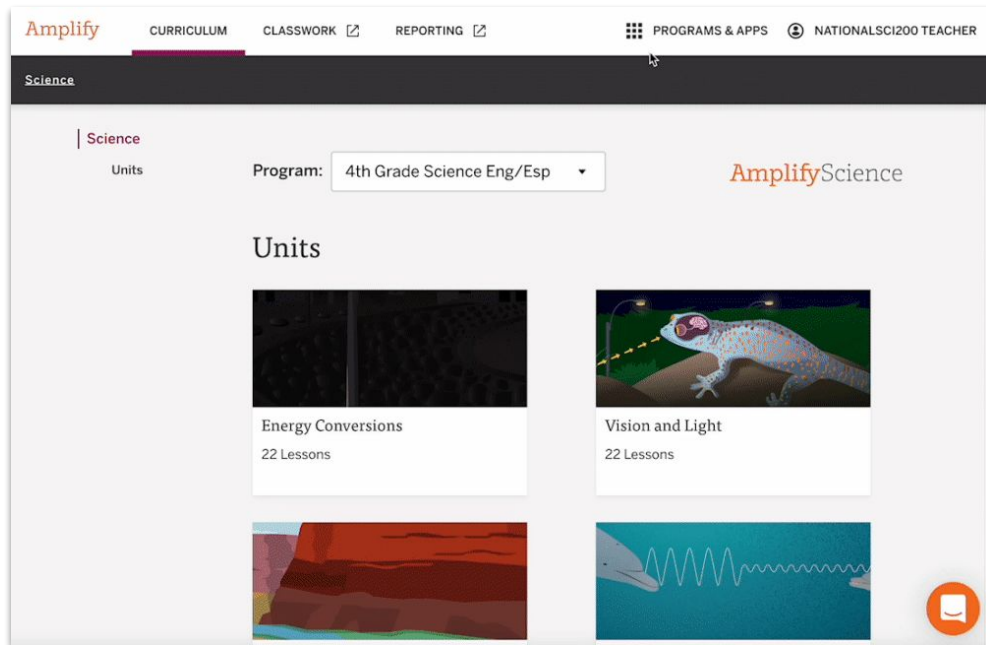
Use the Amplify Science Program Hub to find useful resources for implementing Amplify Science, including unit overview videos and planning tools.



# Explore the Program Hub

Familiarize yourself with the Program Hub.

Be ready to share one resource you've found that you'll use while planning and teaching.



# Key Unit Documents for Unit Planning

The image shows a screenshot of a digital unit planning interface for 'Environments and Survival' (22 Lessons). The interface includes a sidebar on the left with a navigation menu, a main content area, and a 'Printable Resources' section. Orange arrows point to specific elements: the 'Printable Resources' link in the sidebar, the 'Unit Overview' section, the 'What's in This Unit?' text, the 'Printable Resources' section header, and the 'Coherence Flowcharts' resource. The 'Printable Resources' section lists various documents available for download, including assessment objectives, compilation materials, and glossaries. The bottom of the page shows thumbnails for Lesson 1.4 and Lesson 1.5.

**Environments and Survival** 22 Lessons

Printable

**Unit Overview**

What's in This Unit?

There is an astounding diversity of traits among organisms living in different environments on Earth. How do the traits of different

**Printable Resources**

- 3-D Assessment Objectives
- Copymaster Compilation
- Eliciting and Leveraging Students' Prior Knowledge, Personal Experiences, and Cultural Backgrounds
- Investigation Notebook
- NGSS Information for Parents and Guardians
- Print Materials (11" x 17")
- Coherence Flowcharts
- Crosscutting Concept Tracker
- Flextension Compilation
- Multi-Language Glossary
- Print Materials (8.5" x 11")

**LESSON 1.4**  
The Survival Model

**LESSON 1.5**  
Writing an Explanation of Snails' Survival

## Core Unit Planning & Internalization

Unit Title:		1
<b>Overview</b> [Resources: Unit Overview, Teacher's Guide, Coherence Flowchart, Unit Map, 3-D Statements]		
What is the phenomenon/real-world problem students are investigating in your unit?	Student Role:	2 3
Unit Question:	Relationship between the Unit Phenomenon and Unit Question:	4 5
By the end of the unit, students figure out...		6
How do students engage with three-dimensional learning to figure out the phenomenon/real-world problem in your unit?		7

### Unit Guide resources:

- Unit Overview
- Unit Map
- *Coherence Flowchart*

### Unit Guide resources:

- Lesson Overview Compilation
- Unit Overview

### Unit Guide resources:

- Unit Map

### Unit Guide resources:

- 3D Statements at the Unit Level



## Core Unit Planning & Internalization

Unit Title:

### Environments and Survival

#### Overview

[Resources: Unit Overview, Teacher's Guide, Coherence Flowchart, Unit Map, 3-D Statements]

What is the phenomenon/real-world problem students are investigating in your unit?

How can learning about how grove snails survive help engineers design effective solutions to problems?

Student Role:

Biomimicry Engineers

Unit Question:

Why are different organisms more likely or less likely to survive in an environment?

Relationship between the Unit Phenomenon and Unit Question:

Students' figuring out why some grove snails are more likely to survive than others provides a captivating phenomenon that motivates students to investigate the survival of organisms in a changing environment.

By the end of the unit, students figure out...

Snails with yellow shells were more likely to survive in the past because their yellow color was an adaptive trait in their former environment. That area used to be sandy, so the snails with yellow shells blended in against the yellow sand. When the environment changed from sandy to brown grass, the yellow color became a non-adaptive trait; it is easier for birds to see the yellow snails against the brown grass.

How do students engage with three-dimensional learning to figure out the phenomenon/real-world problem in your unit?

Students use physical models, read informational texts, analyze data, and engage in student-to-student discussions to figure out why some snails are more likely to survive than others (structure and function, systems and system models). Students write scientific explanations about their findings and use their newfound understanding of how the traits of organisms affect the organisms' survival (structure and function) in order to help an engineering firm design a robot that aims to mitigate the effect of an environmental change (systems and system models).



# Questions?





# Plan for the day: Part 1

- Introduction and Framing
- NGSS & 3D Learning
- Phenomenon-based Instruction
- Unit Internalization
- **Additional Resources**
- Closing

# Additional resources

## Welcome, caregivers!

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We hope you enjoy learning more about Amplify Science and what students are learning in science this year.

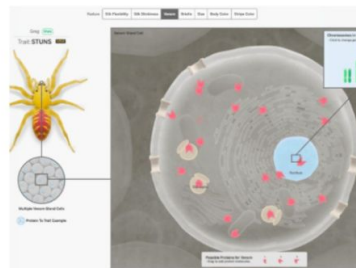
[Para acceder a este sitio en español haga clic aquí.](#)

Amplify welcomes you and your learner to the Science program for the new school year. We are very excited to provide you with exceptional learning opportunities through Science. Below are resources and helpful guides for enabling your student to have the most productive experience with our platform throughout the year.

 [Contact Us](#)



Grades 6-8



# LAUSD Microsite-

## <https://amplify.com/lausd-science>

### Welcome to Amplify Science!

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This site contains supporting resources designed for the LAUSD Amplify Science adoption for grades TK–8.

- Access the [Amplify Science Program Hub](#) (To help orient you to the new design, watch this [video](#) and view this [reference guide](#).)
- Find out more about [Amplify Science@Home](#)
- Share the [Caregiver Hub](#) (Eng/Span) with your families
- For LAUSD ES Teachers- [Amplify Science & Benchmark Advance Crosswalk](#)
- Instructional guidance for a [Responsive Relaunch of Amplify Science in 21-22](#)

Click the button below to preview the digital Teacher's Guide, and check back for exciting updates to this site!





# Plan for the day: Part 1

- Introduction and Framing
- NGSS & 3D Learning
- Phenomenon-based Instruction
- Unit Internalization
- Additional Resources
- Closing

# Overarching goals

- ✓ Explain how students engage in phenomenon based and 3D learning to construct an understanding of the science concepts introduced in the unit *Environments and Survival*
- ✓ Internalize the unit and apply your new understanding to plan for the diverse needs of your classroom and students





## Plan for the day: Part 2

- Teaching and Learning in an Amplify Science Lesson
- Instructional Approach Reflection
- Planning a Lesson
- Closing



# Amplify Science Approach



# Environments and Survival

**Problem:** How can learning about how grove snails survive help engineers design effective solutions to problems

**Role:** Biomimicry Engineers

Students figure out how the traits of grove snails affect their survival in different environments.





# Environments and Survival

## Coherent Storylines



Why are the snails with yellow shells not surviving well?



Why are the snails with banded shells more likely to survive than the snails with yellow shells?



Why were snails with yellow shells more likely to survive in their environment 10 years ago?



How can engineers sue what they learn from organisms' traits to design solutions?

# Environments and Survival

## Unit Question

Why are different organisms more likely or less likely to survive in an environment?



# Explaining the phenomenon: Science Concepts

What **science concepts** do you think students need to understand in order to **explain the phenomenon**?



# Environments and Survival Progress Build

**Assumed prior knowledge (preconceptions):** Students are expected to have had previous opportunities to think about the needs of different organisms and the relationship between meeting needs and survival.

## Level 3

What is adaptive can change when the environment changes.

## Level 2

There can be adaptive and non-adaptive traits in a population.

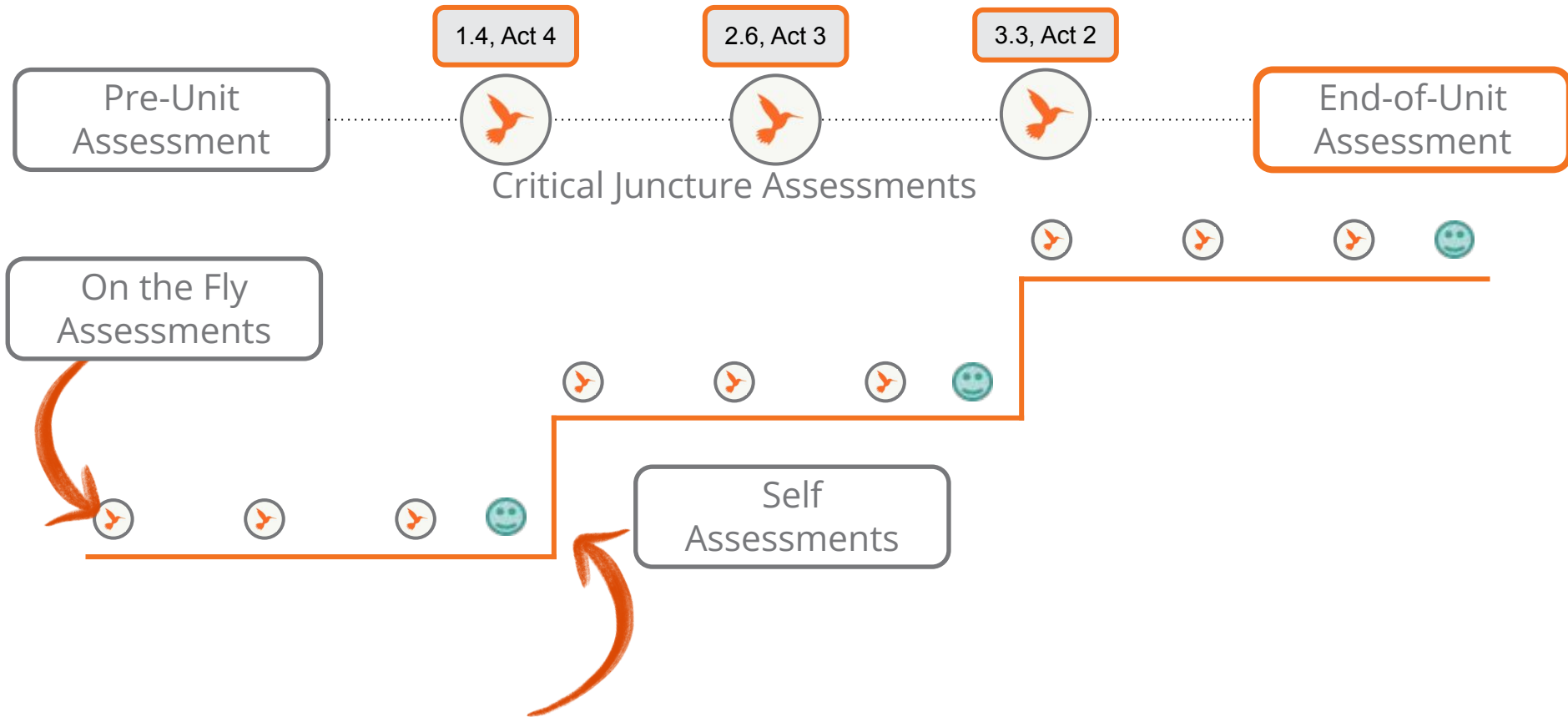
## Level 1

When it is easier for organisms to meet their needs in an environment, they are more likely to survive.

Prior knowledge

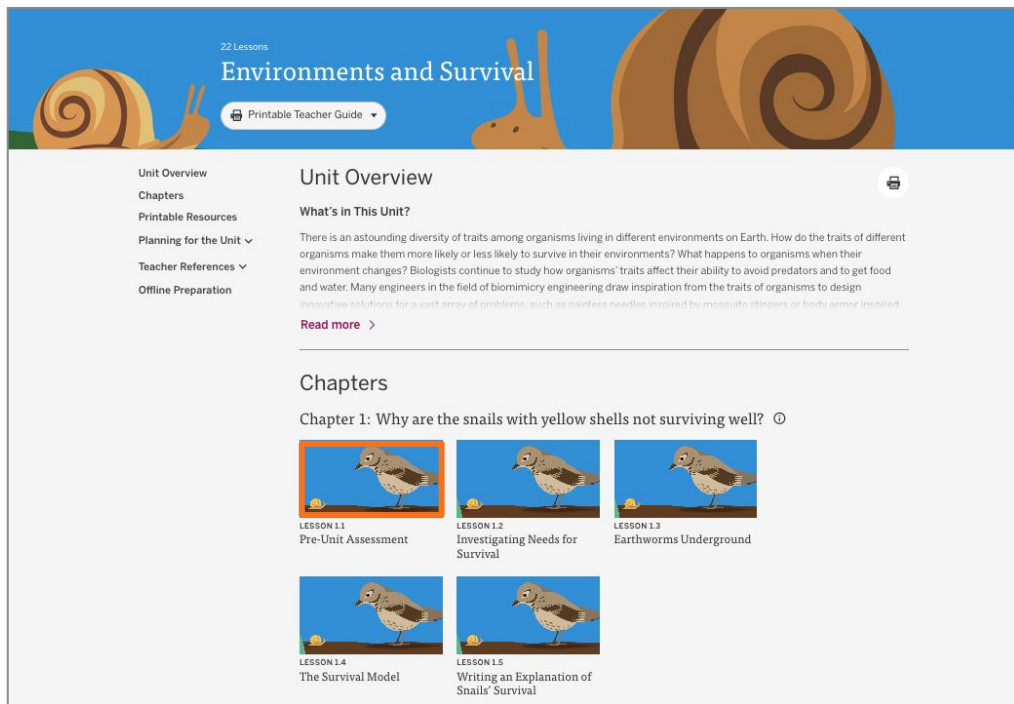
Deep, causal understanding

# K-5 Assessment System



# Beginning the Unit

The first lesson of every Unit is a pre-unit assessment.



22 Lessons

## Environments and Survival

Printable Teacher Guide

- Unit Overview
- Chapters
- Printable Resources
- Planning for the Unit
- Teacher References
- Offline Preparation

### Unit Overview


#### What's in This Unit?

There is an astounding diversity of traits among organisms living in different environments on Earth. How do the traits of different organisms make them more likely or less likely to survive in their environments? What happens to organisms when their environment changes? Biologists continue to study how organisms' traits affect their ability to avoid predators and to get food and water. Many engineers in the field of biomimicry engineering draw inspiration from the traits of organisms to design innovative solutions for a vast array of problems, such as painless needles inspired by mosquito stingers or body armor inspired by


[Read more](#)

### Chapters


Chapter 1: Why are the snails with yellow shells not surviving well?




LESSON 1.1  
Pre-Unit Assessment




LESSON 1.2  
Investigating Needs for Survival



LESSON 1.3  
Earthworms Underground



LESSON 1.4  
The Survival Model



LESSON 1.5  
Writing an Explanation of Snails' Survival

# Inheritance and Traits Family Connection

## Lesson 1.1: Pre-Unit Assessment

Printable Lesson Guide

Lesson Brief (3 Activities)

1 READING Becoming Biomimicry Engineers

2 TEACHER-LED DISCUSSION Mimicking the Grove Snail Population

3 WRITING Writing Initial Explanations

RESET LESSON

Overview  
Materials & Preparation  
Differentiation  
Standards  
Vocabulary  
Unplugged?

### Overview

Students begin the *Environments and Survival* unit by being introduced to their role as biomimicry engineers. In this role, they will be learning about the traits of grove snails in order to inspire designs. Students explore the reference book, *Biomimicry Handbook*, which they will use throughout the unit. They examine bar graphs about two types of grove snails in the population—snails with yellow shells and snails with banded shells—and learn that the snails with yellow shells are not surviving as well in their environment. Students are also introduced to the Unit Question: *Why are different organisms more likely or less likely to survive in an environment?* At the end of the lesson, students write their initial explanations about the grove snail population. Students' written explanations serve as a pre-unit assessment for formative purposes, designed to reveal students' initial understanding of unit content—including unit-specific science concepts and the crosscutting concept of Systems and System Models—prior to instruction. As such, students' explanations offer a baseline from which to measure growth of understanding over the course of the unit and can also provide the teacher with insight into students' thinking. This three-dimensional teacher to draw connections to students for preconceptions that might get in the understanding. The purpose of this lesson is to introduce the unit and allow students to demonstrate their current understanding of organisms' needs for survival in their environment.

**Unit Design Problem:** We want to use what we learn about grove snails to design effective solutions to problems.

**Chapter-level Anchor Phenomenon:** The number of snails with yellow shells now is smaller than it was 10 years ago.

### Digital Resources

- Classroom Slides 1.1 | PowerPoint
- Classroom Slides 1.1 | Google Slides
- All Projections
- Partner Reading Guidelines
- Grove Snail Population Data
- Assessment Guide: Interpreting Students' Pre-Unit Explanations of Why the Yellow Snails Aren't Surviving Well
- Pre-Unit Writing: Explaining Why the Snails with Yellow Shells Aren't Surviving Well copymaster
- Environments and Survival Investigation Notebook
- Questioning Strategies for Grades 2-5
- Environments and Survival Family Connections Homework
- Crosscutting Concept Tracker
- Eliciting and Leveraging Students' Prior Knowledge, Personal Experiences, and Cultural Backgrounds

Name: \_\_\_\_\_ Date: \_\_\_\_\_

## ***Environments and Survival Family Connections Homework***

1. Choose a member of your household and tell them about what we are investigating in science class.
2. Ask them about their experiences, ideas, and questions related to our investigations.
3. Write notes about what you learn.

### **Summary of our investigation you can share:**

In science class, we are working as biomimicry engineers to figure out why some of the grove snails in a population are surviving well while others are not. We will be answering the question, *Why are different organisms more likely or less likely to survive in an environment?*

### **Ask questions such as:**

- What does our investigation make you think of?
- Do you have any memories, stories, expertise, or experiences about something like what we're investigating?
- What have you heard or learned about these topics?
- What do you wonder about what we are investigating?

Write notes here about what you learn:


# Beginning the Unit

We will be looking at Chapter 1, Lesson 2 for our model lesson.

22 Lessons

Environments and Survival

Printable Teacher Guide

Unit Overview

Chapters

Printable Resources

Planning for the Unit

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Unit Overview

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Read more

Chapters

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LESSON 1.3  
Earthworms Underground

LESSON 1.4  
The Survival Model

LESSON 1.5  
Writing an Explanation of Snails' Survival



Grade 3 | Environments and Survival

# Lesson 1.2: Investigating Needs for Survival



## Activity 1

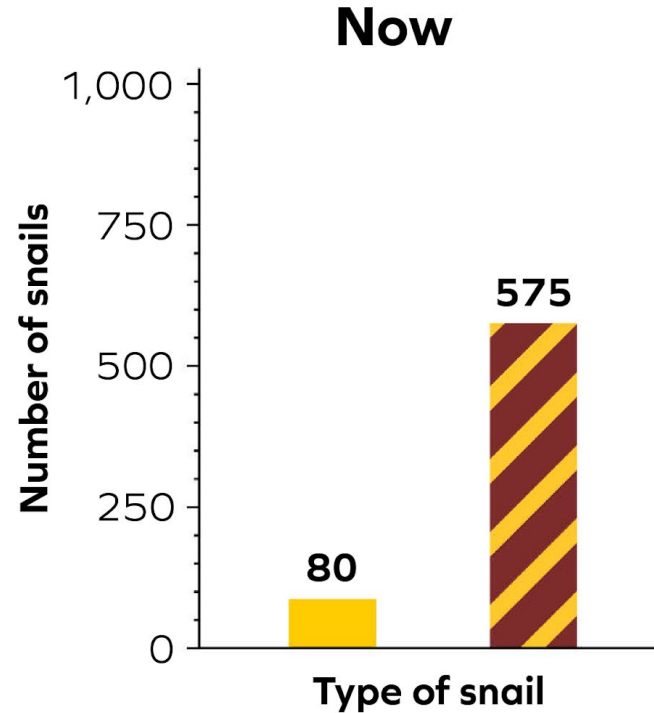
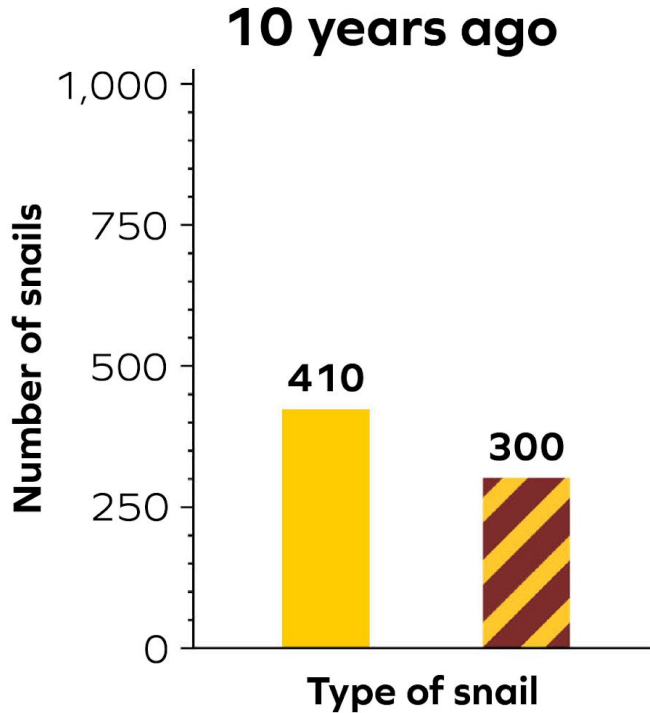
# Introducing Needs for Survival





Let's look at the **grove snail data** again and discuss what the bar graphs show us about the number of snails with yellow shells **this year versus 10 years ago.**

# Grove Snail Population Data



## Vocabulary



**organism**

**a living thing, such as a plant or an animal**

# Vocabulary



**survive**

to stay alive



# What do **organisms** need to **survive**?

Today we are going to investigate this question:

What makes organisms in a population more likely to survive or less likely to survive?



AmplifyScience



### Environments and Survival:

Snails, Robots, and Biomimicry

Investigation Notebook

We are going to be using  
an **Investigation  
Notebook** like  
scientists use.

## Activity 2

# Investigating Needs for Survival



You will investigate how **organisms** meet their needs for **survival**. You will work with a partner to **investigate** one of four different organisms. Each organism has **different needs**.

Red-Eyed Tree Frog



## Needs for survival

Food	insects, including crickets and flies
Water	need a lot of water to keep their skin moist, so they live in environments where there is a lot of rain
Avoid predators	bats, snakes, birds
Temperature	warm to hot

Pocket Gopher



## Needs for survival

Food	the roots of plants, including grasses, shrubs, and trees
Water	get enough water from their food, so they don't need to live near a source of water to drink
Avoid predators	snakes, hawks, owls
Space	areas with a lot of space to dig tunnels underground

Red Fox



## Needs for survival

Food	small rodents, insects, and plants
Water	need a source of water to drink from, such as a lake or a stream
Avoid predators	wolves, coyotes
Temperature	cold or very cold

Environments and Survival—Needs for Survival Organism Cards—Lesson 1.2—AMP050603.00.3L.00  
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Garter Snake



## Needs for survival

Food	earthworms, crickets, and small rodents
Water	need to live close to a source of water, such as a pond, to find their prey
Avoid predators	hawk, fox, raccoon
Temperature	prefer warmer temperatures, but can live in cool environments

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You will read about four different environments. As you do, you will figure out if your organism can meet its needs in each environment.

### Desert




What is it like in this environment?	The desert can be a harsh environment because it is very warm and dry, but many plants and animals live there.
Temperature	warm throughout the year, very hot in the summer
Rain	not much rain
Plants	cacti, small shrubs
Animals	snakes, lizards, hawks, coyotes, insects

### Tropical Forest




What is it like in this environment?	The tropical forest is home to many plants and animals.
Temperature	warm throughout the year
Rain	very rainy
Plants	trees, ferns, grass, moss
Animals	birds, bats, insects, monkeys

### Grassland



What is it like in this environment?	The grassland gets its name from the grass that grows in this environment.
Temperature	very cold winters, hot summers
Rain	rainy, mostly in the spring
Plants	grass, flowering plants
Animals	wolves, coyotes, deer, mice, hawks, insects

### Alpine Tundra



What is it like in this environment?	This environment is located at very high altitudes, so it is a harsh environment where trees cannot grow.
Temperature	extremely cold in winter, cold in summer
Rain	some rain
Plants	short grasses, flowering plants, shrubs
Animals	coyote, elk, marmot, insects

Environments and Survival—Needs for Survival/Environment Cards—Lesson 1.2—AMP000003.09-10.18  
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### Common Collared Lizard



#### Needs for survival

Food	insects, including grasshoppers and crickets
Water	only needs a little bit of water to drink occasionally
Avoid predators	roadrunners, coyotes
Temperature	needs to live in areas with warm temperatures so it can keep its body warm

This is an example  
**organism card**.

I will show you how I can  
use this card to learn  
about the **needs** of my  
organism.

**Desert****What is it like in this environment?**

The deserts can be a harsh environment because it is very warm and dry, but many plants and animals live there.

**Temperature**

warm throughout the year, very hot in the summer

**Rain**

not much rain

**Plants**

cacti, small shrubs

**Animals**

mice, hawks, coyotes, insects

This is an example of an **environment card**.

Let's think about whether the **common collared lizard** can meet its needs in the **desert environment**.

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Needs for Survival

Directions:  
1. Record the name of your organism on the line below.  
2. In the second column of each table, record the other need listed on your card that your organism has—either space or temperature.  
3. Read your first environment card. For each need, circle Yes, No, or Maybe in Column 3 to answer the question *Can your organism meet its needs in this environment?*  
4. Read the next environment card and repeat Step 3 until you have read about all four environments and completed each table.  
5. After you have discussed your ideas with your group, answer the question on the bottom of the next page.

Organism: \_\_\_\_\_

Environment	Needs	Can this organism meet this need in this environment?
Desert	Food	Yes No Maybe
	Water	Yes No Maybe
	Avoid predators	Yes No Maybe
		Yes No Maybe

Environment	Needs	Can this organism meet this need in this environment?
Alpine Tundra	Food	Yes No Maybe
	Water	Yes No Maybe
	Avoid predators	Yes No Maybe
		Yes No Maybe

4

Environments and Survival—Lesson 1.2

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\_\_\_\_\_ is likely / not likely to survive in an alpine tundra environment.  
\_\_\_\_\_ is likely / not likely to survive in a tropical forest environment.  
\_\_\_\_\_ is likely / not likely to survive in a grassland environment.

\_\_\_\_\_

Can this organism meet this need in this environment?

Maybe

Maybe

Maybe

Maybe

Can this organism meet this need in this environment?

Maybe

Maybe

Maybe

Maybe

each

\_\_\_\_\_

5

Turn to pages 4–5 in your notebooks.

You'll use the information on the cards to **complete the tables** in your notebooks.

Let's practice filling out a table about the **common collared lizard** surviving in the **desert**.

Environment	Needs	Can the organism meet this need in this environment?		
Desert	Food	Yes	No	Maybe
	Water	Yes	No	Maybe
	Avoid predators	Yes	No	Maybe
		Yes	No	Maybe

**Organism:** \_\_\_\_\_

is likely / not likely to survive in a desert environment.



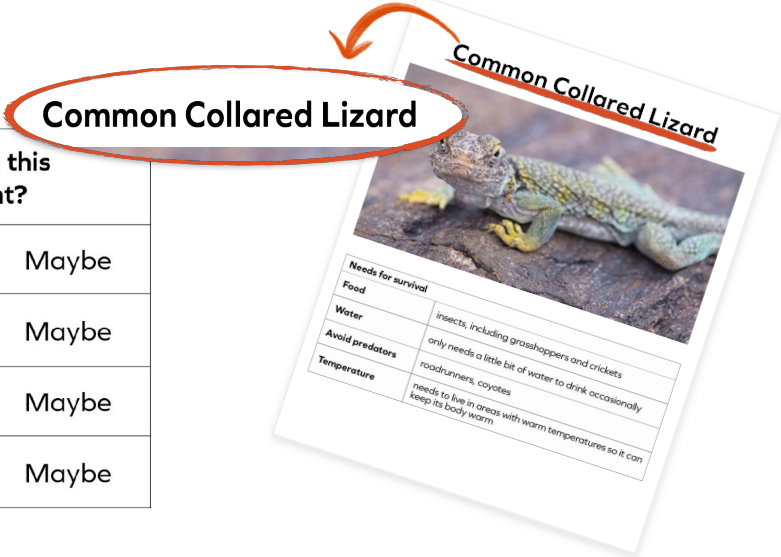


I'll record the name of my organism, **common collared lizard**, at the top.

Environment	Needs	Can the organism meet this need in this environment?		
	Food	Yes	No	Maybe
	Water	Yes	No	Maybe
	Avoid predators	Yes	No	Maybe
		Yes	No	Maybe

Organism: common collared lizard

is likely / not likely to survive in a desert environment.



Next, I'll record my organism's other need, **Temperature**, in the last row.

Environment	Needs	Can the organism meet this need in this environment?		
Desert	Food	Yes	No	Maybe
	Water	Yes	No	Maybe
	Avoid predators	Yes	No	Maybe
	Temperature	Yes	No	Maybe

Organism: common collared lizard

is likely / not likely to survive in a desert environment.

Common Collared Lizard



Needs for survival	
Food	insects, including grasshoppers and crickets
Water	only needs a little bit of water to drink occasionally
Avoid predators	roadrunners, coyotes
Temperature	needs to live in areas with warm temperatures so it can keep its body warm

Temperature

## Common Collared Lizard



Needs for survival	<b>insects,</b>
Food	<u>insects</u> , including grasshoppers and crickets
Water	only needs a little bit of water to drink occasionally
Avoid predators	roadrunners, coyotes
Temperature	needs to live in areas with warm temperatures so it can keep its body warm

## Desert



What is it like in this environment?	The deserts can be a harsh environment because it is very warm and dry, but many plants and animals live there.
Temperature	warm throughout the year, very hot in the summer
Rain	not much rain
Plants	cacti, small shrubs
Animals	mice, hawks, coyotes, <u>insects</u>

**insects**

The lizard needs insects for **food**, and the desert has **insects**.

The lizard can meet its need for food in this environment, so I will **circle Yes in Column 3.**

Environment	Needs	Can the organism meet this need in this environment?		
Desert	Food	Yes	No	Maybe
	Water	Yes	No	Maybe
	Avoid predators	Yes	No	Maybe
	Temperature	Yes	No	Maybe

Organism: common collared lizard  
 is likely / not likely to survive in a desert environment.

## Common Collared Lizard



Needs for	little bit of water
Food	insects including grasshoppers and crickets
Water	only needs a little bit of water to drink occasionally
Avoid predators	roadrunners, coyotes
Temperature	needs to live in areas with warm temperatures so it can keep its body warm

## Desert



What is it like in this environment?	The deserts can be a harsh environment.
Temperature	not much rain
Rain	hot in the summer, very dry the rest of the year, very little rain
Plants	not much rain
Animals	cacti, small shrubs
	mice, hawks, coyotes, insects

The lizard **needs water, but not much.** The desert **doesn't have a lot of rain,** but I think that is okay for the lizard.

I think the lizard can meet its need for water in the desert. I will **circle Yes in Column 3.**

Environment	Needs	Can the organism meet this need in this environment?		
Desert	Food	Yes	No	Maybe
	Water	Yes	No	Maybe
	Avoid predators	Yes	No	Maybe
	Temperature	Yes	No	Maybe

**Organism:** common collared lizard

is likely / not likely to survive in a desert environment.

## Common Collared Lizard



Needs for survival	
Food	insects, including grasshoppers and crickets
Water	only needs a little bit of water to drink occasionally
Avoid predators	roadrunners, <u>coyotes</u>
Temperature	needs to live in an area with warm temperatures so it can keep its body warm

coyotes

## Desert



What is it like in this environment?	The deserts can be a harsh environment because it is very warm and dry, but many plants and animals live there.
Temperature	warm throughout the year, very hot in the summer
Rain	not much rain
Plants	cacti, small shrubs
Animals	mice, hawks, <u>coyotes</u> , insects

coyotes

One of the lizard's **predators is the coyote**, which lives in the desert. If the lizard can hide or run away, I think **it might survive here**.

I think the lizard might be able to meet its need for **avoiding predators** in the desert, but I am not sure. I will **circle Maybe in Column 3**.

Environment	Needs	Can the organism meet this need in this environment?		
Desert	Food	Yes	No	Maybe
	Water	Yes	No	Maybe
	Avoid predators	Yes	No	Maybe
	Temperature	Yes	No	Maybe

Organism: common collared lizard  
 is likely / not likely to survive in a desert environment.



## Common Collared Lizard



Needs for survival	
Food	insects, including grasshoppers and crickets
Water	only needs a little bit of water to drink occasionally
Avoid predators	roadrunners, coyotes
Temperature	needs to live in areas with warm temperatures so it can keep its body warm

warm temperatures

## Desert



What is it like in this environment?	The deserts can be a harsh environment because it is very warm and dry, but many plants and animals live there.
Temperature	warm throughout the year, very hot in the summer
Rain	not much rain
Plants	cacti, shrubs
Animals	lizards, snakes

warm throughout the year

The lizard **needs to live in warm temperatures** to keep its body warm. The desert has very warm temperatures.

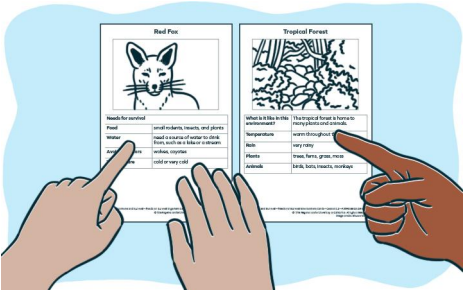
I think the lizard **can meet its temperature need** in the desert environment, so I will **circle Yes in Column 3**.

Environment	Needs	Can the organism meet this need in this environment?		
Desert	Food	Yes	No	Maybe
	Water	Yes	No	Maybe
	Avoid predators	Yes	No	Maybe
	Temperature	Yes	No	Maybe

Organism: common collared lizard

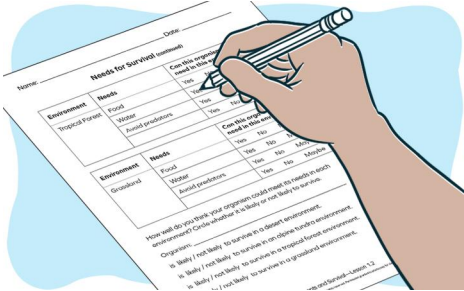
is likely / not likely to survive in a desert environment.

# Investigating Needs for Survival



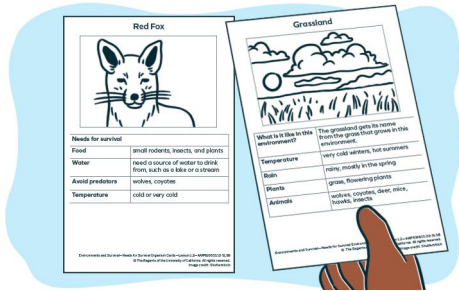
## Choose Cards

Each pair chooses **one organism card**. Place the other organism cards to the side. Also choose **one environment card** to start with.



## Complete Table

Use the information on the cards to decide if the organism can meet its needs in that environment. **Complete the table** in your notebook.



## Repeat

Once finished, keep the same organism card and **choose a new environment card**. Repeat the process for all four environments.

## Activity 3

# Making Inferences About Survival



### Desert



What is it like in this environment?	The desert can be a harsh environment because it is very warm and dry, but many plants and animals live there.
Temperature	warm throughout the year, very hot in the summer
Rain	not much rain

### Tropical Forest



What is it like in this environment?	The tropical forest is home to many plants and animals.
Temperature	warm throughout the year
Rain	very rainy
Plants	trees, ferns, grass, moss
Animals	birds, bats, insects, monkeys

### Grassland



What is it like in this environment?	The grassland gets its name from the grass that grows in this environment.
Temperature	very cold winters, hot summers
Rain	rainy, mostly in the spring
Plants	grass, flowering plants
Animals	wolves, coyotes, deer, mice, hawks, insects

### Alpine Tundra



What is it like in this environment?	This environment is located at very high altitudes, so it is a harsh environment where trees cannot grow.
Temperature	extremely cold in winter, cold in summer
Rain	some rain
Plants	short grasses, flowering plants, shrubs
Animals	coyote, elk, marmot, insects

Environments and Survival—Needs for Survival Environment Cards—Lesson 1.2—AMPS06A03.09-3L38  
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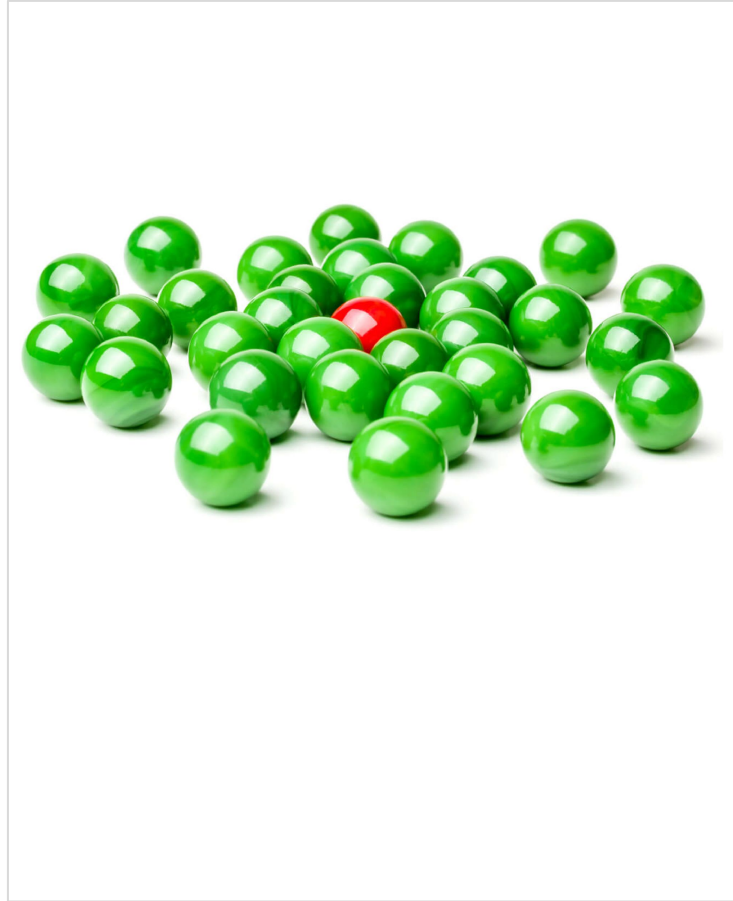
How likely do you think it is that your **organism** would **survive** in each environment?



Let's think about what it means for something to be likely to happen.



Do you think it is likely to rain in this place? Why or why not?



Imagine you are picking one of these marbles with your eyes closed. Are you **likely** to pick a **red marble**? Why or why not?





Is this **fish likely to survive** in this environment? Why or why not?





# Vocabulary



**inference**

something you figure out based on observations  
and what you already know

Name: \_\_\_\_\_ Date: \_\_\_\_\_

**Needs for Survival** (continued)

Environment	Needs	Can this organism meet this need in this environment?
Tropical Forest	Food	Yes   No   Maybe
	Water	Yes   No   Maybe
	Avoid predators	Yes   No   Maybe
		Yes   No   Maybe

Environment	Needs	Can this organism meet this need in this environment?
Grassland	Food	Yes   No   Maybe
	Water	Yes   No   Maybe
	Avoid predators	Yes   No   Maybe
		Yes   No   Maybe

How well do you think your organism could meet its needs in each environment? Circle whether it is likely or not likely to survive.

Organism: \_\_\_\_\_

is likely / not likely to survive in a desert environment.

is likely / not likely to survive in an alpine tundra environment.

is likely / not likely to survive in a tropical forest environment.

is likely / not likely to survive in a grassland environment.

Turn to page 5 in your notebooks.

You'll make an **inference** about whether your organism is **likely to survive** in each of the environments.

We can make an **inference** about the common collared **lizard** **surviving** in the **desert**.

Environment	Needs	Can the organism meet this need in this environment?		
Desert	Food	Yes	No	Maybe
	Water	Yes	No	Maybe
	Avoid predators	Yes	No	Maybe
	Temperature	Yes	No	Maybe

**Organism:** common collared lizard  
is **likely** / not likely to survive in a desert environment.

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Needs for Survival (continued)

Environment	Needs	Can this organism meet this need in this environment?		
Tropical Forest	Food	Yes	No	Maybe
	Water	Yes	No	Maybe
	Avoid predators	Yes	No	Maybe
		Yes	No	Maybe

Environment	Needs	Can this organism meet this need in this environment?		
Grassland	Food	Yes	No	Maybe
	Water	Yes	No	Maybe
	Avoid predators	Yes	No	Maybe
		Yes	No	Maybe

How well do you think your organism could meet its needs in each environment? Circle whether it is likely or not likely to survive.

Organism: \_\_\_\_\_

is likely / not likely to survive in a desert environment.

is likely / not likely to survive in an alpine tundra environment.

is likely / not likely to survive in a tropical forest environment.

is likely / not likely to survive in a grassland environment.



Record an inference about whether your organism is likely to survive in each environment.

Remember that we are investigating this question:

What makes organisms in a population more likely to survive or less likely to survive?

When scientists want to understand **how or why something happens**, they need to figure out all the **different parts that work together** to make it happen.

The parts and the way those parts work together is called a **system**.

# End of Lesson



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Amplify.

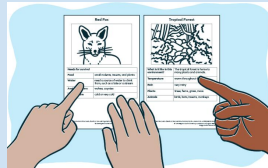
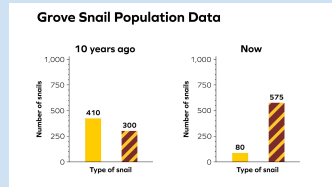
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# Gathering evidence

## Environments and Survival, 1.2

Why are snails with yellow shells not surviving well?

What makes organisms in a population more likely to survive or less likely to survive?



Environment	Needs	Can the organism meet this need in this environment?		
Desert	Food	Yes	No	Maybe
	Water	Yes	No	Maybe
	Avoid predators	Yes	No	Maybe
Organism:		Yes	No	Maybe
Is likely / not likely to survive in a desert environment.				



What have students figured out so far?

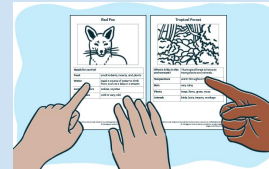
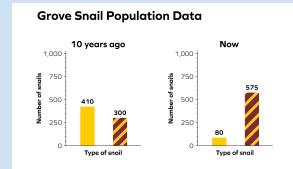


# Evidence sources work together

## Investigating and discussing observations

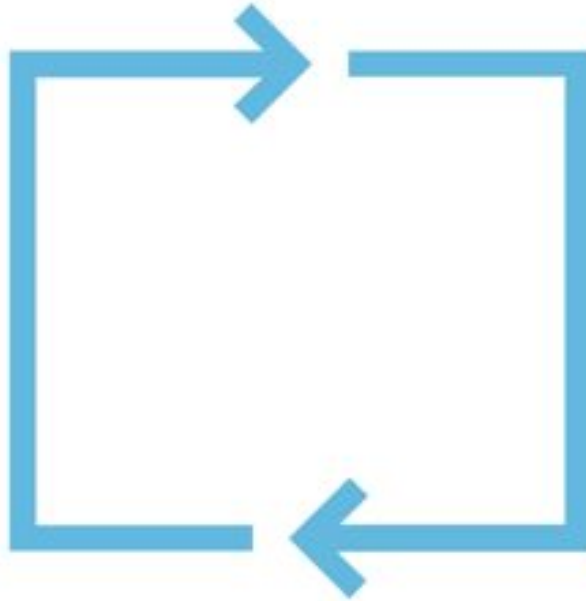
How do these activities  
**work together** to  
support understanding of  
how different substances  
are different?

Investigation Question: What makes organisms in a population more likely to survive or less likely to survive?



# Multimodal learning

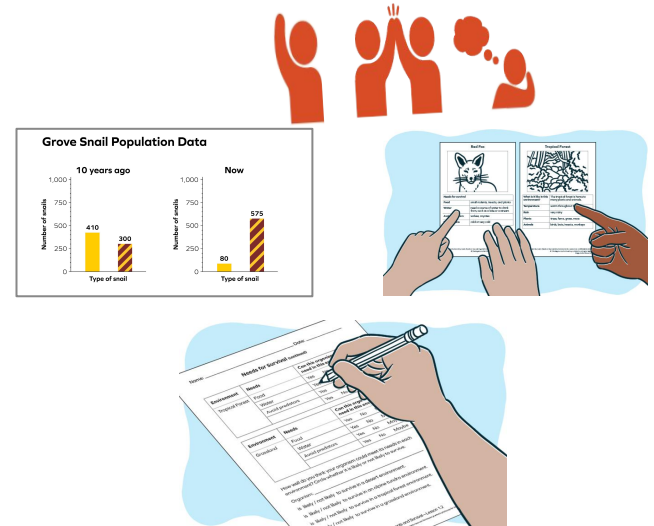
Gathering evidence over multiple lessons



**Do,  
Talk,  
Read,  
Write,  
Visualize**

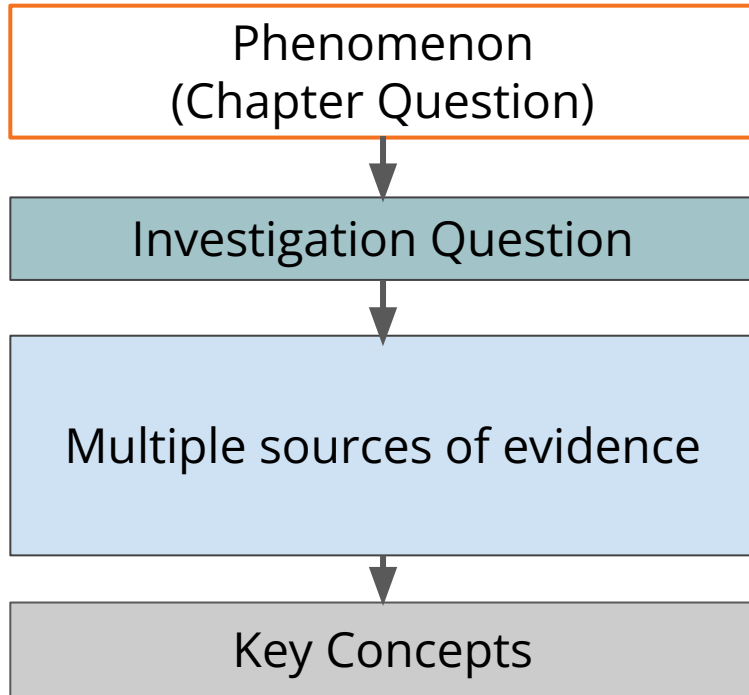
# Evidence sources work together

**Teacher tip:** Every evidence source plays an important role in student learning. Be sure to teach every activity in order!



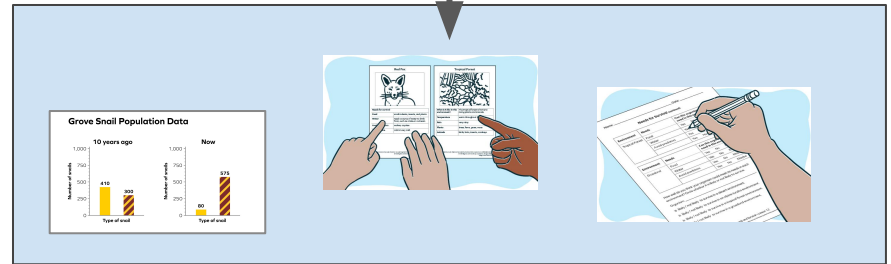
# Coherence Flowchart

## A diagram of student learning



Chapter Question: Why are the wolves different even though they are all from the same species?

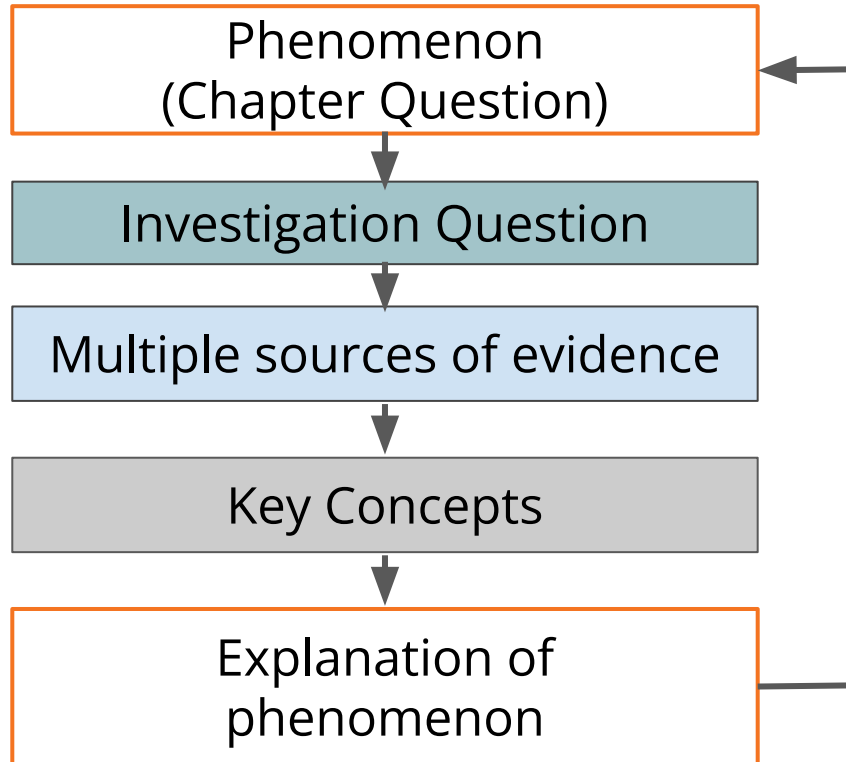
Investigation Question: What makes organisms in a population more likely to survive or less likely to survive?



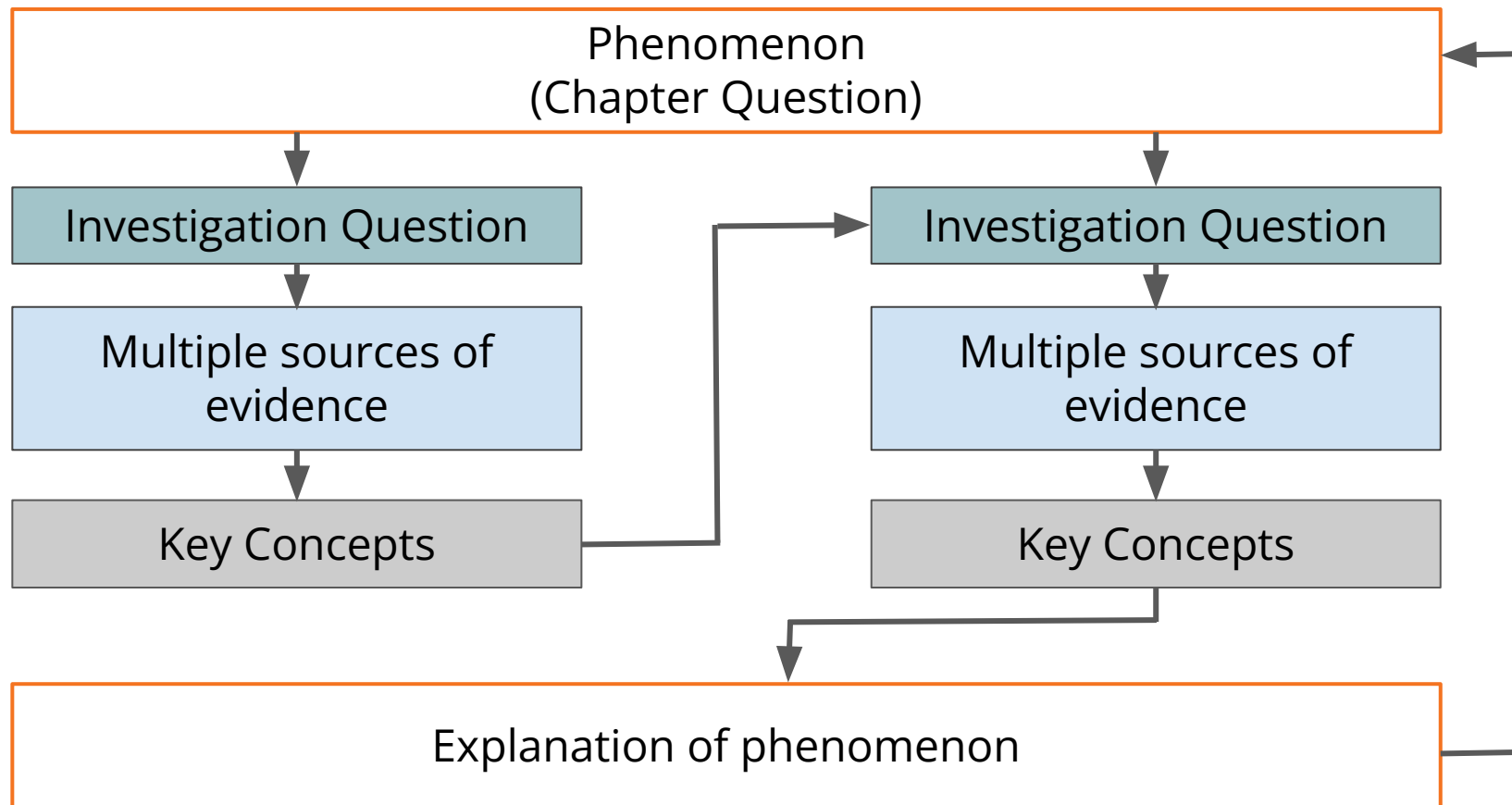
Students figure out: Organisms have similar traits

# Coherence Flowchart

A diagram of student learning



# Coherence Flowchart



**Unit Design Problem**

*Problem students  
work to solve*

**Chapter-level Anchor  
Phenomenon**  
*Chapter 1 Question*

**Investigation Question**

**Evidence sources  
and reflection  
opportunities**

**Key concepts**

**Application of key  
concepts to the problem**

**Explanation that  
students can make  
to answer the  
Chapter 1 Question**

## Environments and Survival: Snails, Robots, and Biomimicry

We want to use what we learn about grove snails to design effective solutions to problems.  
*How can learning about how grove snails survive help engineers design effective solutions to problems?*

The number of snails with yellow shells now is smaller than it was 10 years ago.  
*Why are snails with yellow shells not surviving well?*

*What makes organisms in a population more likely to survive or less likely to survive? (1.2—1.4)*  
(Note: See Lesson Overviews for lesson-level Investigative Phenomena)

- Investigate organisms' survival needs (1.2)
- Make inferences about organisms' likelihood to survive in different environments (1.2)
- Read *Earthworms Underground* (1.3)
- Discuss how traits can help organisms survive (1.3)
- Use Concept Mapping routine to discuss relationships among concepts (1.3)
- Use the Survival Mode to investigate how environment affects an organism's likelihood of survival (1.4)
- Use the Data Tool to graph population change in the Survival Model, then analyze the data (1.4)
- Think-Pair-Share about the Survival Model (1.4)

- When it's easy for organisms to meet their needs in their environment, they are likely to survive. (1.4)
- When it's hard for organisms to meet their needs in their environment, they are not likely to survive. (1.4)

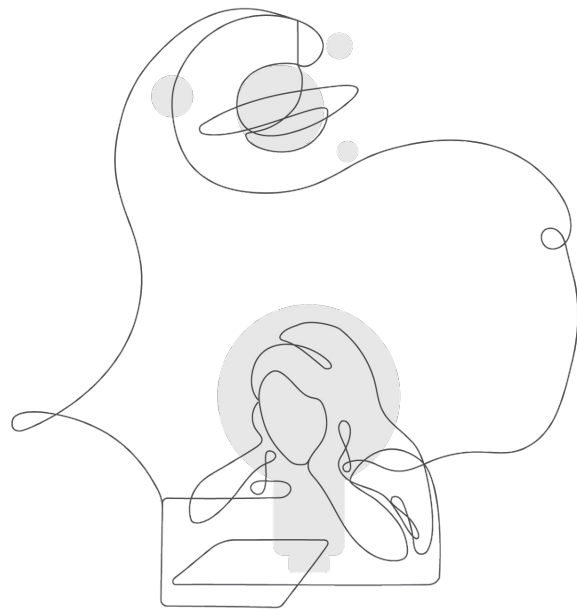
- Use data about grove snails' environment to make inferences about their likelihood of survival (1.5)
- Shared write an explanation to answer the Chapter 1 Question (1.5)

In a specific snail population, the snails with yellow shells are less likely to survive because it is harder for them to avoid song thrush birds in their environment. Organisms are more likely to survive if they can meet their needs in their environment, and avoiding predators is one of those needs. The snails with yellow shells are less able to avoid being eaten by the birds, so they are less likely to survive.

# Explore the Coherence Flowchart

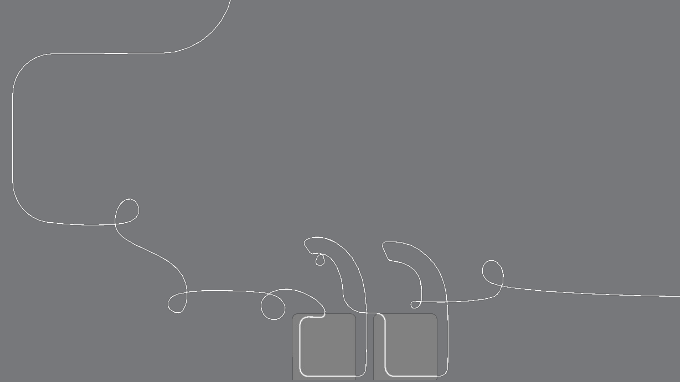
Skim the Chapter 1 Coherence Flowchart of your first unit.

How can the Coherence Flowchart serve you as a planning tool as you begin teaching Amplify Science?





# Questions?







## Plan for the day: Part 2

- Teaching and Learning in an Amplify Science Lesson
- Instructional Approach Reflection
- **Planning a Lesson**
- Closing

# Navigate to the Lesson Brief



## Lesson 1.2: Investigating Needs for Survival

 Printable Lesson Guide

Lesson Brief  
(3 Activities)

1 TEACHER-LED DISCUSSION  
Introducing Needs for  
Survival

2 HANDS-ON  
Investigating Needs for  
Survival

3 TEACHER-LED DISCUSSION  
Making Inferences About  
Survival








RESET LESSON

Overview  
Materials &  
Preparation  
Differentiation  
Standards  
Vocabulary  
Unplugged?

### Overview

In this lesson, students start to think about the relationship between an organism and its environment. To begin, as students are introduced to the question they will investigate in Chapter 1, they consider what organisms need in order to survive. Students complete the Investigating Needs for Survival activity in which they investigate an organism with particular needs. Students read about four different environments and consider whether their organism can meet its needs in each environment. Then, using everyday examples, students are introduced to using the language of *likely* to support making inferences about the likelihood, or probability, of the occurrence of a specific event. This prepares students to engage in the scientific practice of making inferences as they determine the likelihood that their organism will survive in each of the four environments. The purpose of this lesson is for students to begin developing the understanding that organisms' likelihood of survival depends on their ability to meet their needs in their environment.

### Digital Resources

-  Classroom Slides 1.2 | PowerPoint
-  Classroom Slides 1.2 | Google Slides
-  All Projections
-  Hands-On Flexension lesson guide: Underwater Environments
-  Hands-On Flexension copymaster: Underwater Environments
-  Environments and Survival Investigation Notebook, pages 4–5
-  Eliciting and Leveraging Students' Prior Knowledge, Personal Experiences, and Cultural Backgrounds

# 4 Steps for Starting Your Lesson

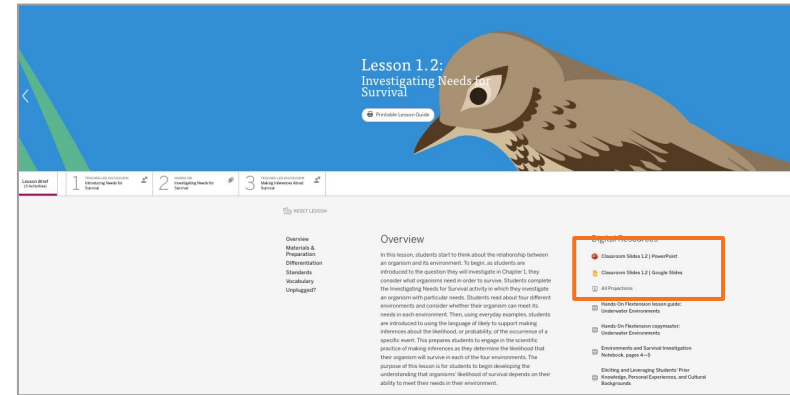
1. Download **Classroom Slides** and review them.
2. Read the **Overview**.
3. Review the **Materials & Preparation** document.
4. Read the **Differentiation** document.

The screenshot shows the interface for Lesson 1.2: Investigating Needs for Survival. At the top, there's a header with the lesson title and a 'Pivotal Lesson Guide' button. Below this is a navigation bar with four tabs: 'Lesson Brief (3 Activities)', '1. TALKER LEO DISCUSSION: Investigating Needs for Survival', '2. HANDS-ON: Investigating Needs for Survival', and '3. TALKER LEO DISCUSSION: Making Inferences About Survival'. The main content area is divided into three sections: 'Overview', 'Materials & Preparation', and 'Digital Resources'. The 'Overview' section contains text about the lesson's purpose. The 'Materials & Preparation' section lists various resources like 'Classroom Slides 1.2 | PowerPoint', 'Classroom Slides 1.2 | Google Slides', 'Hands On Flexension lesson guide: Underwater Environments', 'Hands On Flexension copymaster: Underwater Environments', 'Environments and Survival Investigation Notebook, pages 4-8', and 'Elotting and Leveraging Students' Prior Knowledge, Personal Experiences, and Cultural Backgrounds'. Four orange arrows with numbers 1 through 4 point to specific elements: Arrow 1 points to the 'Classroom Slides 1.2 | PowerPoint' link in the Digital Resources section. Arrow 2 points to the 'Overview' section header. Arrow 3 points to the 'Materials & Preparation' section header. Arrow 4 points to the 'Differentiation' link in the Materials & Preparation section.

# Preparing to teach

## Classroom Slides

1. Open the Classroom Slides under the Digital Resources.
2. Read through the Classroom Slides including the **presenter notes** to gain a better understanding of the lesson.
3. Consider:
  - What features of the Classroom Slides will support you in teaching this lesson?



# Using Classroom Slides as a planning tool

**Teacher tip:** Classroom Slides are a great visual summary of a lesson. Many teachers download and flip through a lesson's Classroom Slides deck to preview what happens in the lesson.

This is a useful first step for preparing to teach the lesson.

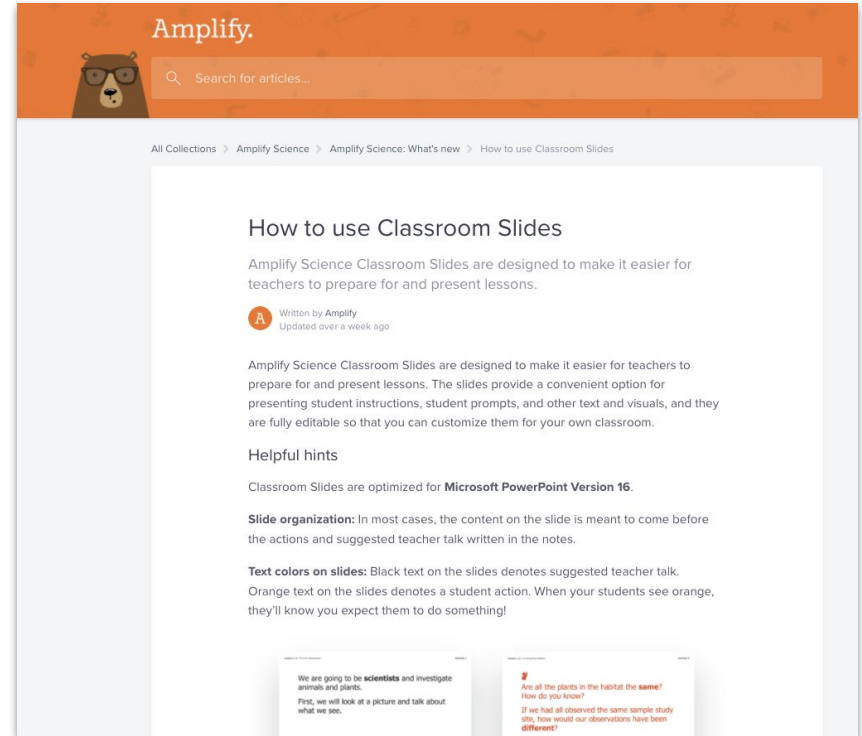
The Classroom Slides deck for Grade 3 | Environments and Survival, Lesson 1.2: Investigating Needs, includes the following slides:

- Table of Contents:**
  - Grade 3 | Environments and Survival Lesson 1.2: Investigating Needs for Survival
  - Activity 1: Introducing Needs for Survival
  - Let's look at the graphs and discuss what the bar graphs show us about the number of snails with yellow shells this year versus 10 years ago.
  - Grove Snail Population Data
  - Vocabulary: organism
  - Vocabulary: survive
- Title Slide:** Grade 3 | Environments and Survival Lesson 1.2: Investigating Needs
- Activity 1: Introducing Needs for Survival**
- Let's look at the graphs and discuss what the bar graphs show us about the number of snails with yellow shells this year versus 10 years ago.**
- Grove Snail Population Data:**

Type of shell	10 years ago	Now
Yellow	400	800
Other	200	100
- Vocabulary: organism**  
a living thing, such as a plant or an animal
- Vocabulary: survive**  
to stay alive
- What do organisms need to survive?**
- Today we are going to investigate this question:**  
What makes organisms in a population more likely to survive or less likely to survive?
- We are going to be using an Investigation Notebook like scientists use.**

# Teaching with Classroom Slides

This detailed guide on the Amplify Science Help Site includes tips for teaching with Classroom Slides and information about the different symbols and activity types you'll find in the slide deck.



Lesson ____		Activity Overview		From the Lesson at a glance in the overview
What is the purpose of this lesson?		Activity 1 (##min)		
	From the lesson overview			
What will students learn?		Activity 2 (##min)		
3-D Statement (identify SEP, CCC, and DCI):	From the lesson standards	Activity 3 (##min)		
Student Resources:	From the lesson materials and preparation	Activity 4 (##min)		
Assessment Opportunities:	From the lesson at a glance in the overview or classroom slides	Activity 5 (##min)		



Lesson <u>1.2</u>	Activity Overview	
<p><b>What is the purpose of this lesson?</b></p> <p>The purpose of this lesson is for students to begin developing the understanding that organisms' likelihood of survival depends on their ability to meet their needs in their environment.</p>	<p><b>Activity 1</b> <b>(10 min)</b></p>	<p>Introducing Needs for Survival</p>
<p><b>What will students learn?</b></p> <p>Different organisms have different needs for survival. Scientists make inferences based on what they observe and what they already know. Organisms and the environment in which they live are a system. Studying systems helps scientists figure out how things in the natural world work.</p>	<p><b>Activity 2</b> <b>(30 min)</b></p>	<p>Investigating Needs for Survival</p>
<p><b>3-D Statement (identify SEP, CCC, and DCI):</b></p> <p>Using images and text, students investigate the relationship between an organism's environment and its survival (systems and system models) and infer how specific organisms' traits help them meet their survival needs (structure and function).</p>	<p><b>Activity 3</b> <b>(20 min)</b></p>	<p>Making Inferences about Survival</p>
<p><b>Student Resources:</b></p> <p>For Each Group of Four Students: 1 set of Needs for Survival Organism Cards, clipped together (4 cards/set), 1 set of Needs for Survival Environment Cards, clipped together (4 cards/set)</p>	<p><b>Activity 4</b> <b>(# min)</b></p>	
<p><b>Assessment Opportunities:</b></p> <p>On-the-Fly, Activity 3</p>	<p><b>Activity 5</b> <b>(##min)</b></p>	

# Questions?





## Plan for the day: Part 2

- Teaching and Learning in an Amplify Science Lesson
- Instructional Approach Reflection
- Planning a Lesson
- Closing

# Additional resources

## Welcome, caregivers!

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We hope you enjoy learning more about Amplify Science and what students are learning in science this year.

[Para acceder a este sitio en español haga clic aquí.](#)

Amplify welcomes you and your learner to the Science program for the new school year. We are very excited to



Grades 6-8



[Caregivers](#)

# LAUSD Microsite-

## <https://amplify.com/laUSD-science>

### Welcome to Amplify Science!

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This site contains supporting resources designed for the LAUSD Amplify Science adoption for grades TK–8.

- Access the [Amplify Science Program Hub](#) (To help orient you to the new design, watch this [video](#) and view this [reference guide](#).)
- Find out more about [Amplify Science@Home](#)
- Share the [Caregiver Hub](#) (Eng/Span) with your families
- For LAUSD ES Teachers- [Amplify Science & Benchmark Advance Crosswalk](#)
- Instructional guidance for a [Responsive Relaunch of Amplify Science in 21-22](#)

Click the button below to preview the digital Teacher's Guide, and check back for exciting updates to this site!

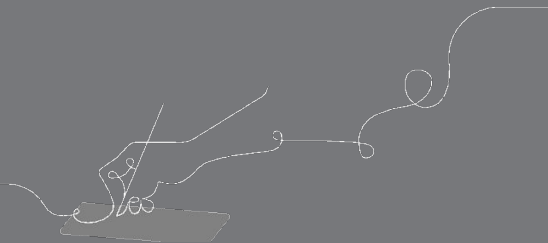


# Overarching goals

By the end of this workshop, you will be able to:

- ❑ Describe what teaching and learning look like in Amplify Science.
- ❑ Prepare to teach using Amplify Science resources.

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# Closing reflection

Based on our work today in Part 2, share:

**Head:** something you'll keep in mind

**Heart:** something you're feeling

**Feet:** something you're planning to do

# Additional resources and ongoing support

## Customer Care

Seek information specific to enrollment and rosters, technical support, materials and kits, and teaching support, weekdays 7AM-10PM EST and weekends 10AM-6PM EST.



help@amplify.com



800-823-1969



Amplify Chat





# Please provide feedback!

**Presenter name:**

**Workshop title:**

Part 1: Unit 3 Internalization

Part 2: Guided Planning (Planning for a Lesson)

**Modality:**

Remote