CA NGSS TIME Prescreen Review Guide

Exploring Organisms, Grade 1

Building Blocks OF SCIENCE™ | 3D

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Exploring Organisms

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Building Blocks OF SCIENCE™ 3D

This prescreen tool uses one Building Blocks of Science™ 3D unit to provide a roadmap of how the program meets the criteria of the CA NGSS* Toolkit of Instructional Materials Evaluation. Each page of this document highlights features the Teacher's Guide, with page references from the printed version. All the information found in the printed Teacher's Guide is also accessible in the digital version of the Teacher's Guide, which you can view at www.carolina.com/bbs3dreview. Both versions of the Teacher's Guide will be provided to all teachers who implement Building Blocks of Science 3D. In addition to the digital support, the equipment for the investigations is also part of the all-inclusive package that teachers receive.

To help with your review, here's an overview of the program's organization:

- Building Blocks of Science 3D consists of 18 units that cover grade the CA NGSS Performance Expectations and the three dimensions
- There are three units per grade level
- Each unit is divided into lessons, each lesson is divided into investigations

The cornerstone of each lesson is a phenomena-based, hands-on, three-dimensional learning experience **for all students.** Each all-inclusive unit includes:

- Investigative phenomena that provides real-world context for each lesson
- Notebook prompts that help students use data and ideas to develop evidence-based claims
- Informational texts that support the science content—in English and in Spanish
- Thought-provoking questions in every investigation for the teacher to ask to support students' sensemaking
- A comprehensive assessment system that provides formative, summative, pre- and post-assessments
- A complete digital version for every classroom—instantly access instruction, simulations, literacy, assessments and more at www.carolina.com/bbs3dreview

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CA NGSS TIME Prescreen Review Guide

Table of Contents

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Leveled literacy

All-inclusive, phenomena-based science

Building Blocks of Science™ 3D has already been reviewed by the Instructional Materials Advisory Panel (IMAP) and the Content Review Panel (CRP). They determined that Building Blocks of Science 3D meets the requirements of Chapter 13 of the CA Science Framework. This takes the verification of program requirements as outlined by the Framework out of adoption committee's responsibility, allowing the committee time to focus on developing a district lens for review.

Exploring Organisms, Grade 1

The examples in this prescreen tool are reflective of formatting and features that consistently appear throughout each unit in the program.

You can review the scope and sequence of instruction for the entire unit in the Evidence of Instructional Scaffolding chart at the end of this Reviewer's Guide and in the unit's Teacher's Guide (pgs. xxv-xxix).

To access these features online, **visit www.carolina.com/bbs3dreview** and click on ***Exploring Organisms***.

Criteria	Evidence from Exploring Organisms
Use Phenomena/Problems Materials provide relevant and authentic learning contexts through which students: • engage as directly as possible with phenomena or problems to ask and answer their questions as well as questions from other sources; and • have the potential to use the three dimensions to make sense of phenomena or design solutions to problems.	The **Anchoring Phenomenon** for the unit is the survival of plants and animals based on their environment and access to resources. **1.** The unit begins instruction in Lesson 1 with an **Anchoring Phenomenon** (pg. 32) narrative, which is shared with the class. The **Phenomena Video** (pg. 32) accompanies this narrative. It is found at www.carolina.com/bbs3dreview • **Click on:** Unit Title > Unit Overview > Digital Resources **2.** A lesson-specific **Investigative Phenomenon** (pg. 32) opens each lesson. Students ask questions that they want to answer and that will be revisited at the end of each lesson in the Phenomena discussion (pg. 44). **3. Investigation** titles are posed as a question to set a problem for students to solve (pg. 43). **4. Investigations** always put phenomena in students' hands. They are asked to gather and analyze information, share their learning with others, and provide claims based on evidence (pg. 33). **5. Tell Me More** prompts at the end of each Investigation provide opportunities for formative assessment as students complete a task in which they apply their learning to additional phenomena, which helps students to develop more complex and complete understandings over time (pg. 42). **6. Using three dimensions:** The 3Ds are listed at the start of each investigation and are integrated into instruction at point of use (pg. 40).

Examples

ANCHORING PHENOMENON

Students may have experience caring for something, such as a garden or a pet, and can recognize some of the needs that plants and animals have. However, they may not make connections between those needs and their own needs. All living things have parents and express the same foundational needs: air, water, food, and shelter. Beyond these similarities, different types of plants and animals vary in their dependence on parents, patterns of growth, and structures. The anchoring phenomenon for *Exploring Organisms* is the survival of plants and animals based on their environment and access to resources.

Read the investigative phenomenon aloud to the class. Encourage students to generate questions about what they hear. Keep track of students' questions on a class chart, or have students record the questions in their science notebooks. Refer to these questions at the end of the lesson and throughout the unit to support the unit's anchoring phenomenon.

Investigative Phenomenon Lesson 1: You plant three different seeds in your backyard. One seed is planted in soil in the sunlight; it is supposed to grow into a sunflower. The second seed is planted in soil in the shade; it is supposed to grow into an oak tree. The third seed is planted in a pot with soil. The pot is put in a place with no sunlight. The seed is supposed to grow into a cactus. A few weeks later, you notice that only the sunflower and the oak tree plants have grown. The sunflower is much taller than the oak tree and has more leaves. What does this make you wonder?

Anticipated Questions:

- Why did the sunflower grow taller than the oak tree?
- Why didn't the cactus seed grow?
- How does the Sun affect plants?

Phenomena Video: Watch the phenomena video for *Exploring Organisms* as a class. As you watch, encourage students to record questions in their science notebooks about what they see in the video. At the end of the video, create a class chart of students' questions. Save this chart to refer to at the end of the unit.

1. Phenomena (pg. 32)

INVESTIGATION OVERVIEW

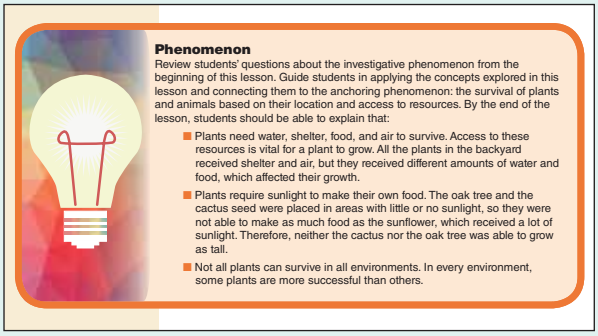
Investigation A: Pre-Unit Assessment: How Can You Tell If Something Is Living or Nonliving?
Students categorize living and nonliving things using cards and come to recognize the characteristics of living things.
- **Teacher Preparation:** 10 minutes
- **Lesson:** 30 minutes

Investigation B: How Does a Seed Grow into a Bean Plant?
Students discuss plants as living things and plant bean seeds.
- **Teacher Preparation:** 10 minutes
- **Lesson:** 30 minutes

Investigation C: What Do Living Things Need to Survive?
Students consider the needs of living things as they create a Venn diagram to compare plants and animals.
- **Teacher Preparation:** 5 minutes
- **Lesson:** 30 minutes

Investigation D: How Do Living Things Access Resources to Survive?
Students consider the structures that plants and animals need to access resources in their environment.
- **Teacher Preparation:** 20 minutes
- **Lesson:** 30 minutes

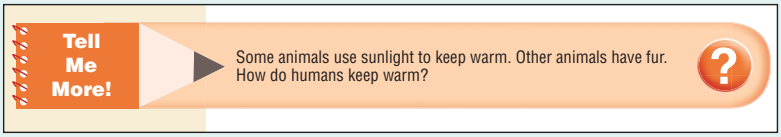
4. Phenomena in students' hands (pg. 33)



Phenomenon
Review students' questions about the investigative phenomenon from the beginning of this lesson. Guide students in applying the concepts explored in this lesson and connecting them to the anchoring phenomenon: the survival of plants and animals based on their location and access to resources. By the end of the lesson, students should be able to explain that:

- Plants need water, shelter, food, and air to survive. Access to these resources is vital for a plant to grow. All the plants in the backyard received shelter and air, but they received different amounts of water and food, which affected their growth.
- Plants require sunlight to make their own food. The oak tree and the cactus seed were placed in areas with little or no sunlight, so they were not able to make as much food as the sunflower, which received a lot of sunlight. Therefore, neither the cactus nor the oak tree was able to grow as tall.
- Not all plants can survive in all environments. In every environment, some plants are more successful than others.

2. Phenomena (pg. 44)



5. Formative Assessment (pg. 42)

Investigation D

HOW DO LIVING THINGS ACCESS RESOURCES TO SURVIVE?

MATERIALS

- **Student**

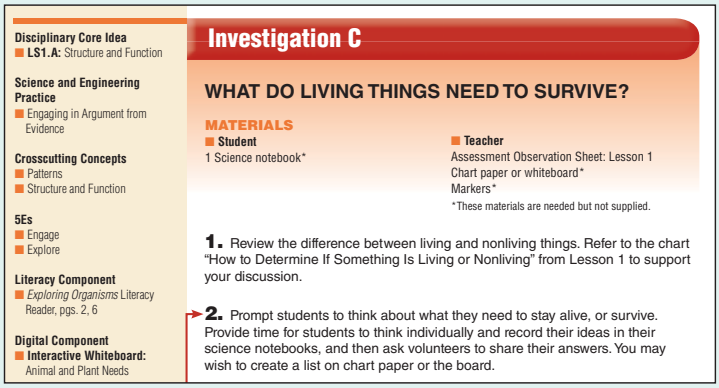
1 Science notebook*
1 Student Investigation Sheet 1D: *How Does This Body Part Help?*

- **Teacher**

1 Student Investigation Sheet 1D: *How Does This Body Part Help?* (Teacher's Version)
Assessment Observation Sheet: Lesson 1

*These materials are needed but not supplied.

3. Investigations as questions (pg.43)



Disciplinary Core Idea
- **LS1.A:** Structure and Function

Science and Engineering Practice
- Engaging in Argument from Evidence

Crosscutting Concepts
- Patterns
- Structure and Function

5Es
- Engage
- Explore

Literacy Component
- *Exploring Organisms* Literacy Reader, pgs. 2, 6

Digital Component
- **Interactive Whiteboard:** Animal and Plant Needs

Investigation C

WHAT DO LIVING THINGS NEED TO SURVIVE?

MATERIALS

- **Student**

1 Science notebook*

- **Teacher**

Assessment Observation Sheet: Lesson 1
Chart paper or whiteboard*
Markers*

*These materials are needed but not supplied.

1. Review the difference between living and nonliving things. Refer to the chart "How to Determine If Something Is Living or Nonliving" from Lesson 1 to support your discussion.

2. Prompt students to think about what they need to stay alive, or survive. Provide time for students to think individually and record their ideas in their science notebooks, and then ask volunteers to share their answers. You may wish to create a list on chart paper or the board.

6. Integrated three dimensions (pg. 40)

Exploring Organisms, Grade 1

To access these features online, visit **www.carolina.com/bbs3dreview** and click on ***Exploring Organisms***.

Criteria	Evidence from Exploring Organisms
Presence of Logical Sequence Student learning across the three dimensions is: • arranged in a logical sequence; and • sufficient and appropriate for students to figure out the phenomena or problems	**Exploring Organisms** is a grade 1 life science unit. This unit supports NGSS Performance Expectations and provides connections to life science and engineering: • **1-LS1-1; 1-LS1-2; 1-LS3-1; K-2-ETS1-2** **1. NGSS** for the unit (pg. vi) **2. Evidence of Instructional Scaffolding** (pgs. xxv–xxix) **3. Investigations** refer to previous learnings and provide multiple opportunities to use the 3Ds to make sense of phenomena and problems (Investigation D, pg. 43, Step 1) to build a conceptual progression upon prior learning. **4. Tell Me More** prompts at the end of each investigation provide opportunities for formative assessment as students complete a task in which they apply their learning to additional phenomena, developing more complex and complete understandings over time (pg. 44). **5. Notebooking** tasks for each investigation provide authentic opportunities for students to share evidence-based arguments and reasoning (pgs. 97-99, Student investigation Sheet 4B).

Examples

Next Generation Science Standards

The Building Blocks of Science unit *Exploring Organisms* integrates process skills as defined by the Next Generation Science Standards (NGSS).

Performance Expectations
- **1-LS1-1:** Use materials to design a solution to a human problem by mimicking how plants and/ or animals use their external parts to help them survive, grow, and meet their needs.
- **1-LS1-2:** Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.
- **1-LS3-1:** Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.
- **K-2-ETS1-2:** Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.

Disciplinary Core Ideas
- **LS1.A:** Structure and Function
- **LS1.B:** Growth and Development of Organisms
- **LS1.D:** Information Processing
- **LS3.A:** Inheritance of Traits
- **LS3.B:** Variation of Traits
- **ETS1.B:** Developing Possible Solutions

Science and Engineering Practices
- Developing and Using Models
- Constructing Explanations and Designing Solutions
- Engaging in Argument from Evidence
- Obtaining, Evaluating, and Communicating Information

Crosscutting Concepts
- Patterns
- Structure and Function

1. NGSS for unit (pg. vi)

Evidence of Instructional Scaffolding

Scaffolding is a crucial yet natural element in all classrooms. Building Blocks of Science strives to simplify this instructional strategy by integrating this guided process into each unit, systematically building upon student knowledge, using hands-on learning to reinforce concepts, and employing student-driven inquiry. These strategies introduce new concepts and, with practice and review, lead students toward mastery. It is important to integrate scaffolding not only throughout the unit but also throughout each lesson. As students demonstrate understanding of a concept, they should be encouraged to take a leadership role in class or to attempt assignments independently. Additionally, scaffolding reveals opportunities for differentiation. Below-level learners require more reinforcement as they learn new skills, so the process toward mastery will need to be adjusted. Above-level learners do not need as much support and achieve mastery more quickly; therefore, these students can be assigned more independent study.

	Lesson 1	Lesson 2
OBJECTIVES	■ Distinguish between living and nonliving things in the environment. ■ Identify the needs of living things. ■ Draw connections between body structures and their functions to explain how they are used to meet an organism's needs. ■ Recognize patterns in structures and their functions. ■ Set up an environment and make predictions about the growth of a bean plant.	■ Draw conclusions about insect on their observable structures. ■ Identify plant and animal adapt and how they are influenced by environment. ■ Mimic organisms' structures to their adaptations.
SCAFFOLDING	Students should know: ■ Living and nonliving things exist on Earth. ■ Nonliving things have never been alive, but they do interact with living things, which are alive or have been alive at one time. ■ All living things, or organisms, have the same basic needs: air, water, food, and shelter. ■ Plants begin as seeds. ■ Organisms have body parts, or structures, that help them survive and meet their needs.	Students should know: ■ Insects are animals, and their bo often display similar patterns. ■ Organisms have adaptations, wh are structures and repetitive beh that help them survive in a spec environment. ■ Adaptations vary for organisms different environments. ■ Humans have structures that all them to communicate in comple ■ Organisms have specialized stru that help them to survive in their environments.

2. Evidence of Instructional Scaffolding (pg. xxii)

Investigation D

HOW DO LIVING THINGS ACCESS RESOURCES TO SURVIVE?

MATERIALS
- **Student**

1 Science notebook*
1 Student Investigation Sheet 1D: *How Does This Body Part Help?*
- **Teacher**

1 Student Investigation Sheet 1D: *How Does This Body Part Help?* (Teacher's Version)
Assessment Observation Sheet: Lesson 1

*These materials are needed but not supplied.

1. Review the needs of living things. Make sure students list air, food, water, and shelter. Remind students that the resources available depend on the environment the organism lives in.

3. Build on prior learning (pg. 43)

Tell Me More! What is a resource that a bird needs but a rabbit does not? ?

4. Apply new learning (pg. 44)

Student Investigation Sheet 4B: Can You Prove They Are Family?

Name: _____ Date: _____

A. Predict

I think animal babies look _____ their parents.

B. Evidence

Animal Parent

Hoja de investigación para el alumno 4B: ¿Puedes demostrar que son familiares?

Nombre: _____ Fecha: _____

A. Predice

Creo que los animales bebés son _____ a sus padres.

B. Evidencia

Padre y bebé animal #1: _____

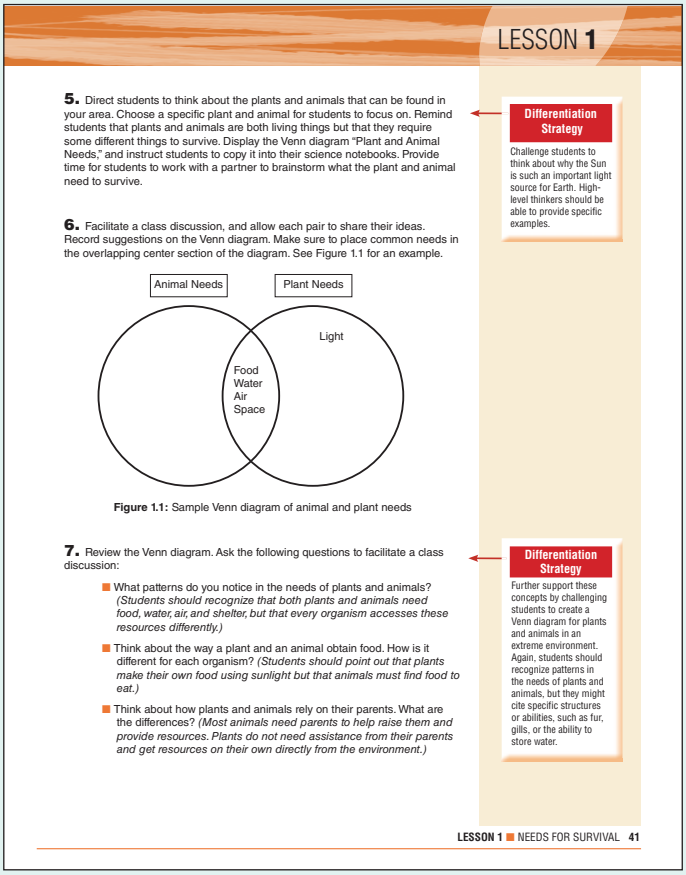
5. Notebooking (Student Investigation Sheet 4B, Parts A and B)

Exploring Organisms, Grade 1

To access these features online, visit **www.carolina.com/bbs3dreview** and click on ***Exploring Organisms***.

Criteria	Evidence from Exploring Organisms
Students Are Figuring Out Materials position students to make sense of phenomena and design solutions to problems by: • asking and answering questions that link learning over time; and • using the three dimensions to link prior knowledge and negotiate new understandings and abilities.	**1.** Each investigation provides an opportunity for students to make sense of phenomena (Investigation C, pgs. 41-42, Steps 6–7: Students discuss a Venn diagram of plant and animal needs, compare and contrast, look for patterns, and engage in argument using evidence). **2.** Opportunities to engineer **design solutions** are integrated into the instruction (pgs. 122-124); students work in groups to design and build a structure that solves a problem an organism might face in its environment.

Examples



LESSON 1

5. Direct students to think about the plants and animals that can be found in your area. Choose a specific plant and animal for students to focus on. Remind students that plants and animals are both living things but that they require some different things to survive. Display the Venn diagram "Plant and Animal Needs," and instruct students to copy it into their science notebooks. Provide time for students to work with a partner to brainstorm what the plant and animal need to survive.

Differentiation Strategy

Challenge students to think about why the Sun is such an important light source for Earth. High-level thinkers should be able to provide specific examples.

6. Facilitate a class discussion, and allow each pair to share their ideas. Record suggestions on the Venn diagram. Make sure to place common needs in the overlapping center section of the diagram. See Figure 1.1 for an example.

Figure 1.1: Sample Venn diagram of animal and plant needs

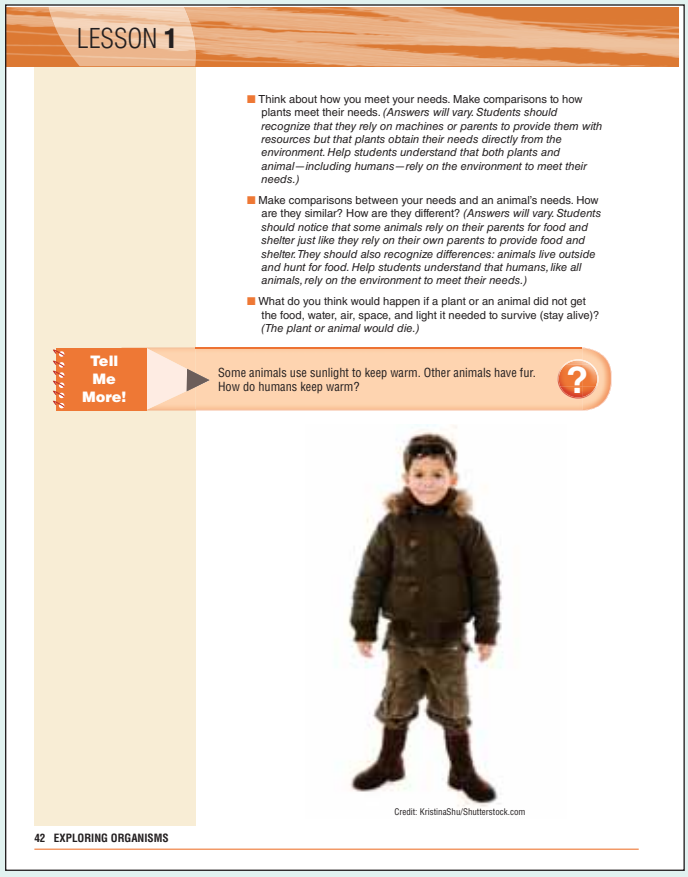
7. Review the Venn diagram. Ask the following questions to facilitate a class discussion:

- What patterns do you notice in the needs of plants and animals? *(Students should recognize that both plants and animals need food, water, air, and shelter, but that every organism accesses these resources differently.)*
- Think about the way a plant and an animal obtain food. How is it different for each organism? *(Students should point out that plants make their own food using sunlight but that animals must find food to eat.)*
- Think about how plants and animals rely on their parents. What are the differences? *(Most animals need parents to help raise them and provide resources. Plants do not need assistance from their parents and get resources on their own directly from the environment.)*

Differentiation Strategy

Further support these concepts by challenging students to create a Venn diagram for plants and animals in an extreme environment. Again, students should recognize patterns in the needs of plants and animals, but they might cite specific structures or abilities, such as fur, gills, or the ability to store water.

LESSON 1 ■ NEEDS FOR SURVIVAL 41



LESSON 1

- Think about how you meet your needs. Make comparisons to how plants meet their needs. *(Answers will vary. Students should recognize that they rely on machines or parents to provide them with resources but that plants obtain their needs directly from the environment. Help students understand that both plants and animal—including humans—rely on the environment to meet their needs.)*
- Make comparisons between your needs and an animal's needs. How are they similar? How are they different? *(Answers will vary. Students should notice that some animals rely on their parents for food and shelter just like they rely on their own parents to provide food and shelter. They should also recognize differences: animals live outside and hunt for food. Help students understand that humans, like all animals, rely on the environment to meet their needs.)*
- What do you think would happen if a plant or an animal did not get the food, water, air, space, and light it needed to survive (stay alive)? *(The plant or animal would die.)*

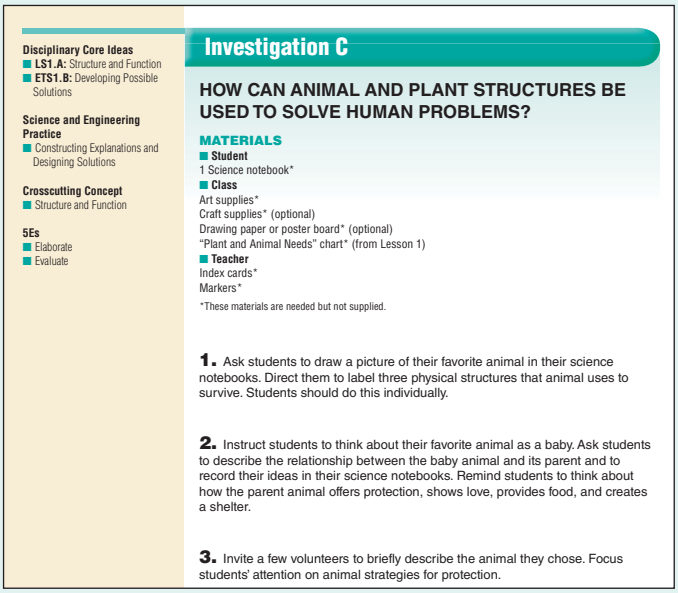
Tell Me More!

Some animals use sunlight to keep warm. Other animals have fur. How do humans keep warm?

Credit: KristinaShu/Shutterstock.com

42 EXPLORING ORGANISMS

1. Making sense of phenomena (pgs. 41-42)



Disciplinary Core Ideas
- **LS1.A:** Structure and Function
- **ETS1.B:** Developing Possible Solutions

Science and Engineering Practice
- Constructing Explanations and Designing Solutions

Crosscutting Concept
- Structure and Function

5Es
- Elaborate
- Evaluate

Investigation C

HOW CAN ANIMAL AND PLANT STRUCTURES BE USED TO SOLVE HUMAN PROBLEMS?

MATERIALS

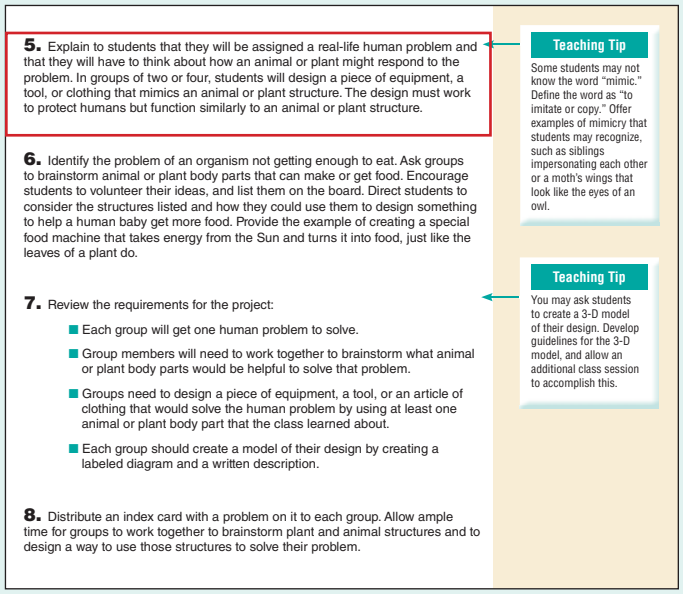
- **Student**
  1 Science notebook*
- **Class**
  Art supplies*
  Craft supplies* (optional)
  Drawing paper or poster board* (optional)
  "Plant and Animal Needs" chart* (from Lesson 1)
- **Teacher**
  Index cards*
  Markers*

*These materials are needed but not supplied.

1. Ask students to draw a picture of their favorite animal in their science notebooks. Direct them to label three physical structures that animal uses to survive. Students should do this individually.

2. Instruct students to think about their favorite animal as a baby. Ask students to describe the relationship between the baby animal and its parent and to record their ideas in their science notebooks. Remind students to think about how the parent animal offers protection, shows love, provides food, and creates a shelter.

3. Invite a few volunteers to briefly describe the animal they chose. Focus students' attention on animal strategies for protection.



5. Explain to students that they will be assigned a real-life human problem and that they will have to think about how an animal or plant might respond to the problem. In groups of two or four, students will design a piece of equipment, a tool, or clothing that mimics an animal or plant structure. The design must work to protect humans but function similarly to an animal or plant structure.

Teaching Tip

Some students may not know the word "mimic." Define the word as "to imitate or copy." Offer examples of mimicry that students may recognize, such as siblings impersonating each other or a moth's wings that look like the eyes of an owl.

6. Identify the problem of an organism not getting enough to eat. Ask groups to brainstorm animal or plant body parts that can make or get food. Encourage students to volunteer their ideas, and list them on the board. Direct students to consider the structures listed and how they could use them to design something to help a human baby get more food. Provide the example of creating a special food machine that takes energy from the Sun and turns it into food, just like the leaves of a plant do.

7. Review the requirements for the project:

- Each group will get one human problem to solve.
- Group members will need to work together to brainstorm what animal or plant body parts would be helpful to solve that problem.
- Groups need to design a piece of equipment, a tool, or an article of clothing that would solve the human problem by using at least one animal or plant body part that the class learned about.
- Each group should create a model of their design by creating a labeled diagram and a written description.

Teaching Tip

You may ask students to create a 3-D model of their design. Develop guidelines for the 3-D model, and allow an additional class session to accomplish this.

8. Distribute an index card with a problem on it to each group. Allow ample time for groups to work together to brainstorm plant and animal structures and to design a way to use those structures to solve their problem.

2. Three dimensions applied to engineering challenge (pgs. 122-123)

Exploring Organisms, Grade 1

To access these features online, visit **www.carolina.com/bbs3dreview** and click on ***Exploring Organisms***.

Criteria	Evidence from Exploring Organisms
Three-dimensional Performances Materials include assessments designed to: • match the targeted learning goals; and • elicit evidence of students' use of the three dimensions to make sense of phenomena and/or to design solutions to problems.	Three-dimensional assessment system provides 3D assessment throughout the unit to monitor new growth over time. **1. Pre-Assessment:** Lesson 1, Investigation A (pgs. 36–37): Students draw upon prior knowledge to develop a chart to share their ideas about how you know if something is living (pg. 36). **2. Formative assessment** opportunities are part of every lesson. The Tell Me More prompt on page 37 focuses on the 3Ds listed on page 36. **3. Assessment Strategies** at the end of every lesson describe ways to use Student Investigation Sheets and Tell Me More prompts to assess the 3Ds (p. 46). Also available digitally at www.carolina.com/bbs3dreview • **Click on:** Unit Title > Unit Overview > Digital Resources **4. Summative assessments** in every unit's final lesson provide a performance task for group assessment of 3Ds (pgs. 122-124) and a written assessment (after Student Investigation Sheet 5B). A scenario-based assessment is also available online at www.carolina.com/bbs3dreview • **Click on:** Unit Title > Unit Overview > Digital Resources **5. Summative Assessment Remediation Strategies** lists lessons to revisit for Performance Expectations-specific remediation based on individual assessment items (chart follows the Summative Assessment Answer Key)

Examples

Investigation A

PRE-UNIT ASSESSMENT: HOW CAN YOU TELL IF SOMETHING IS LIVING OR NONLIVING?

MATERIALS

- **Student**

1 Science notebook*

- **Team of two students**

1 Living vs. Nonliving Card Set

- **Teacher**

1 Pair of scissors*
12 Resealable plastic bags
Chart paper or whiteboard*
Markers*
Assessment Observation Sheet: Lesson 1

*These materials are needed but not supplied.

1. Introduce the unit to students by asking them to answer the following questions with a partner:

- Is everything on this planet considered to be living?
- What are some examples of living things?
- How can you tell that something is living?

1. Pre-assessment (pg. 36)

Is grass a living or nonliving thing? Explain why.

Tell Me More!

2. Formative assessment (pg. 37)

EVALUATION/ASSESSMENT

1. Investigation A

- Use students' responses to the Tell Me More question to determine their ability to recognize grass as a plant and therefore a living thing. It is important to note the misconception that plants are not living. If students appear to struggle with this concept, provide supplemental review.

2. Investigation B

- Use Student Investigation Sheet 1B: *Are Beans Seeds?* to assess students' understanding of plant growth. You may want to revisit this investigation sheet in later lessons.
- Use students' responses to the Tell Me More question to determine if they can provide an example of how an animal obtains food. Identify high- and low-level learners based on the complexity of the response.

3. Investigation C

- Use students' responses to the Tell Me More question to gauge their ability to draw distinctions between humans and animals by citing the need for clothing to keep warm.

4. Investigation D

- Use Student Investigation Sheet 1D: *How Does This Body Part Help?* to determine how well students can identify how certain structures are used for survival. Make sure students recognize that some structures can have many beneficial functions.
- Use students' responses to the Tell Me More question to assess their ability to compare two animals and identify their different needs and structures.

5. Refer to the Assessment Observation Sheet where you recorded observations during this lesson to formatively assess your class, and adjust instruction as needed.

6. Refer to the General Rubric in Appendix A to assess individual progress.

3. Assessment Strategies (pg. 46)

LESSON **5**

Disciplinary Core Ideas
- **LS1.A:** Structure and Function
- **ETS1.B:** Developing Possible Solutions

Science and Engineering Practice
- Constructing Explanations and Designing Solutions

Crosscutting Concept
- Structure and Function

5Es
- Elaborate
- Evaluate

Investigation C

HOW CAN ANIMAL AND PLANT STRUCTURES BE USED TO SOLVE HUMAN PROBLEMS?

MATERIALS

- **Student**

1 Science notebook*

- **Class**

Art supplies*
Craft supplies* (optional)
Drawing paper or poster board* (optional)
"Plant and Animal Needs" chart* (from Lesson 1)

- **Teacher**

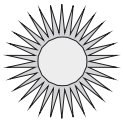
Index cards*
Markers*

*These materials are needed but not supplied.

1. Ask students to draw a picture of their favorite animal in their science notebooks. Direct them to label three physical structures that animal uses to survive. Students should do this individually.

4. Summative assessment (pg. 122)

10. Circle the things that plants need to live and grow.

11. Eagle babies often fight with each other. The mother lets them fight. What does fighting help the eagle babies learn?

4. Summative assessment (pg. 136)

Summative Assessment Remediation Strategies

The chart below shows which lessons support the unit's performance expectations. Based on the outcome of each student's summative assessment, you can develop remediation strategies using the relevant lessons from the unit.

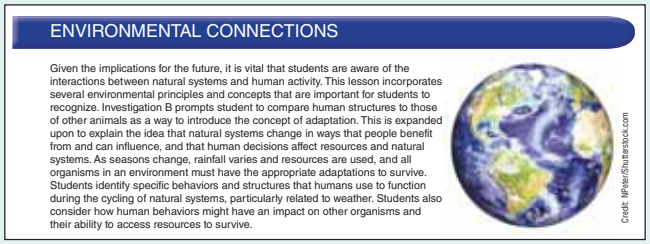
Summative Assessment Item Number	Performance Expectation Addressed	Lessons to Revisit
1	1-LS3-1	Lesson 4
2	1-LS3-1	Lesson 1, Lesson 2
3	1-LS3-1	Lesson 4
4	1-LS1-1	Lesson 2, Lesson 5
5	1-LS1-2	Lesson 3
6	1-LS1-2	Lesson 3
7	1-LS1-1	Lesson 1
8	1-LS1-2	Lesson 3
9	1-LS3-1	Lesson 4
10	1-LS1-1	Lesson 1
11	1-LS1-2	Lesson 3
12	1-LS1-1	Lesson 2, Lesson 5

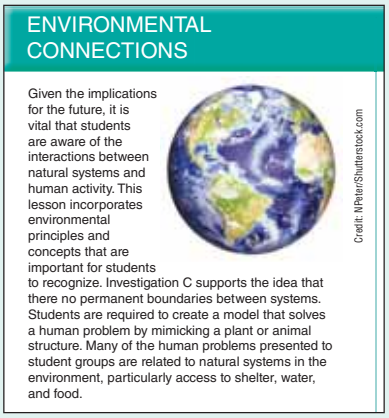
5. Summative Assessment Remediation Strategies (pg. 143)

Exploring Organisms, Grade 1

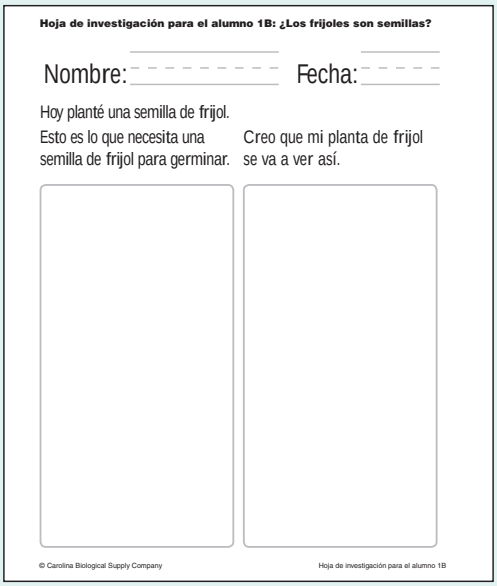
To access these features online, visit **www.carolina.com/bbs3dreview** and click on ***Exploring Organisms***.

District Lens and Helpful Supports	Evidence from Exploring Organisms
1. Environmental Principles and Concepts (EP&Cs)	Units include EP&Cs at the end of relevant lessons (pgs. 46, 65, 125). A complete correlation of Building Blocks of Science 3D to the California Environmental Principles and Concepts is available at www.carolina.com/cascience • **Click on:** Building Blocks of Science 3D > Correlations
2. Spanish Teacher and Student Materials	All student-facing materials are available in Spanish in both print and digital formats. Teacher instruction is also available in Spanish.





Coming soon: Digital Spanish Teacher's Guide



District Lens and Helpful Supports	Evidence from Exploring Organisms
3. 5Es	The 5Es are identified for each lesson: • Lesson Overview Charts (pgs. xxv-xxix) • Side column at the start of each investigation
4. Alignment to ELA Programs and ELD Standards	Correlations to Benchmark, Wonders, and CA ELD Standards are found at www.carolina.com/cascience • **Click on:** Building Blocks of Science 3D > Correlations
5. Common Core Math and ELA	The Language Arts and Math Standards are identified for each lesson: • Lesson Overview Charts (pgs. xxv-xxix)

Lesson 1: Needs for Survival

Investigation Overview

Investigation A: Pre-Unit Assessment: How Can You Tell If Something Is Living or Nonliving?

5Es: Engage

Students categorize living and nonliving things using cards and come to recognize the characteristics of living things.

- **Teacher Preparation:** 10 minutes
- **Lesson:** 30 minutes

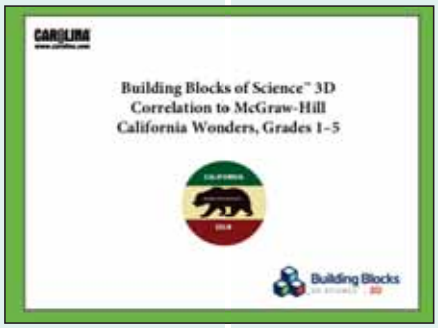
Tell Me More! Is grass a living or nonliving thing? Explain why.

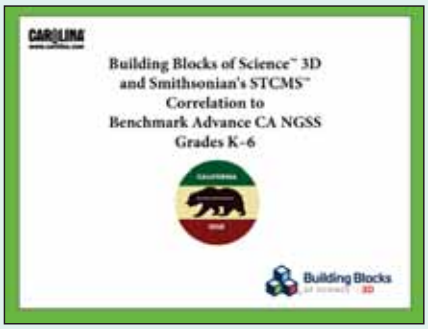
Investigation B: How Does a Seed Grow into a Bean Plant?

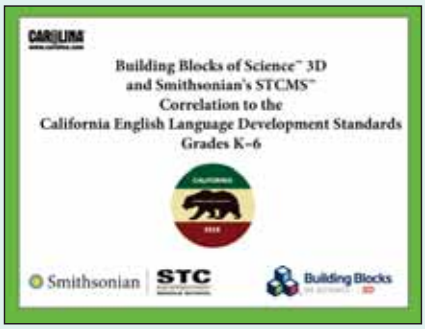
5Es: Engage, Explore

Students discuss plants as living things and plant bean seeds.

- **Teacher Preparation:** 10 minutes
- **Lesson:** 30 minutes







Language and Math Standards

Language Arts

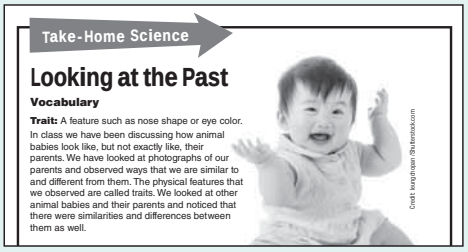
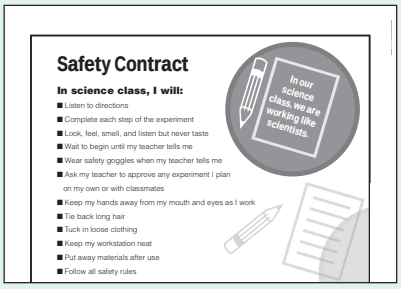
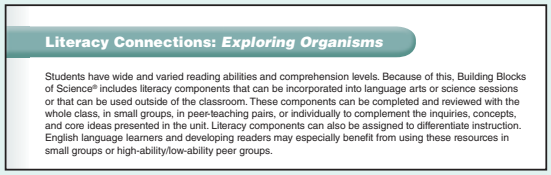
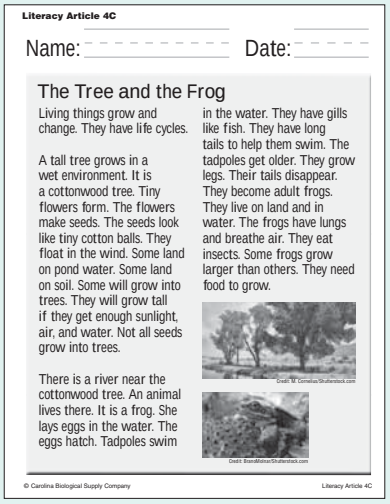
- **RI.1.1:** Key Ideas and Details
- **SL.1.4:** Presentation of Knowledge and Ideas
- **SL.1.5:** Presentation of Knowledge and Ideas

Math

- **1.OA.D.8:** Work with addition and subtraction equations.

Exploring Organisms, Grade 1

To access these features online, visit **www.carolina.com/bbs3dreview** and click on ***Exploring Organisms***.

District Lens and Helpful Supports	Evidence from Exploring Organisms
6. Take-Home Science	Take-Home Science Activities reinforce learning. 
7. Safety	Safety, pgs. xvii-xviii 
8. Literacy Support	• Literacy Articles provide additional informational text to support investigations. • Literacy Connections (pgs. 148-150) provide additional literacy strategies  
9. Science in the News	Pull phenomena from today's news into your classroom with these projects (pgs. 151-153). **Teacher Sheet: Science in the News Article Report** To help students understand a concept, it is often helpful to associate it with an event or phenomenon. Depending on the topic, students may be able to draw connections to recent events in the news or to historical events in your area. Using a literacy tool like an article report is a helpful way to bring in literacy, reading comprehension, and science topics at any grade level. Science in the News articles can be assigned at any point during a unit to assist students in seeing the "real-world connection" to a particular concept. These articles should be provided by the teacher in lower grades, but students in grades 3–5 may be ready for the challenge of selecting their own articles independently. The following guidelines will help you find appropriate articles. If you ask students to locate their own articles, you may wish to provide some of these guidelines along with the specific requirements for the assignment. Students at all grades are provided with an article report sheet to help them analyze their article and draw connections between it and the unit concepts. For students in grades 3–5, a rubric is provided in this appendix to help them to evaluate an article for bias and credibility.

District Lens and Helpful Supports	Evidence from Exploring Organisms
10. Innovators in Science	A diverse group of STEM professionals have impacted science. These scientists and engineers help students see themselves in these careers. Accessible at www.carolina.com/bbs3dreview • **Click on:** Unit Overview > Unit Resources > Digital Resources > Innovators in Science
11. Rubrics for Science	Appendix A, pg. 146
12. Literacy Connections	Appendix B, pgs. 148-150

General Rubric

	Exploration	Vocabulary	Concept Building	Science Notebook
4	Student displays a high level of interest by asking questions, building on concepts, and testing ideas. Provides input and participates in group settings.	Student uses a rich and varied vocabulary that includes appropriate scientific vocabulary that is used in an accurate manner. Writing displays a deep level of understanding of a concept.	Student's responses indicate a higher level of thinking by drawing connections between unit concepts and phenomena. Claims are supported with strong evidence and reasoning.	Student's entries display informative, in-depth responses that demonstrate an understanding of the content. Diagrams are detailed and labeled when applicable. Student draws strong conclusions.
3	Student remains engaged by participating, building on concepts, and testing ideas. Rarely asks questions but is cooperative in group settings.	Student uses a varied vocabulary that includes appropriate scientific vocabulary. Writing accurately describes a concept or experience.	Student's responses during investigations, conversations, and class discussions reflect growth of knowledge. Student understands concepts but may not be able to make strong connections. Claims are supported with evidence and reasoning.	Student's entries provide accurate and descriptive responses. Visual aids, such as data tables and diagrams, are included when applicable. Student draws a conclusion.

Literacy Connections: *Exploring Organisms*

Students have wide and varied reading abilities and comprehension levels. Because of this, Building Blocks of Science® includes literacy components that can be incorporated into language arts or science sessions or that can be used outside of the classroom. These components can be completed and reviewed with the whole class, in small groups, in peer-teaching pairs, or individually to complement the inquiries, concepts, and core ideas presented in the unit. Literacy components can also be assigned to differentiate instruction. English language learners and developing readers may especially benefit from using these resources in small groups or high-ability/low-ability peer groups.

District Lens and Helpful Supports	Evidence from Exploring Organisms
13. Differentiated Instruction	• Cross-curricular Extensions (pg. 45) • Teaching Tips (pg. 36) • Differentiated Strategies (pg. 41)
14. Teacher Preparation and Support	• Background Information (pg. 35) • Teacher Preparation for investigations (pg. 34) • Teacher Answer Keys (pg. 50) • Teaching Tips (pg. 37)

EXTENSIONS

Changing Plant Resources
If there are leftover bean seeds, set up an investigation in which the plants are grown in different conditions. Encourage students to think about what plants need to survive, and create an experiment to test how a plant will grow with limited access to that resource. For example, you might grow a plant in a dark area of the room, grow a plant without soil or water, or place a plastic bag over a plant to limit its access to oxygen.

Teaching Tip

Clarify misconceptions related to the term "nonliving" by explaining that nonliving things have never been living at any time. Many students may confuse nonliving things with dead things. To further enforce this, hold up an object, like a marker or a piece of paper, and ask if it has ever been living. Encourage students to ask this question when categorizing into living and nonliving.

Differentiation Strategy

Further support these concepts by challenging students to create a Venn diagram for plants and animals in an extreme environment. Again, students should recognize patterns in the needs of plants and animals, but they might cite specific structures or abilities, such as fur, gills, or the ability to store water.

BACKGROUND INFORMATION

Our world is made up of **living** and **nonliving** things. Nonliving things are objects that are not alive and will never be alive, such as rocks, dirt, clouds, stuffed animals, and computers. Some nonliving things, such as water, air, and temperature, are in constant interaction with living things and are vital to their survival.

We refer to living things as **organisms**. **Plants**, **animals**, bacteria, and fungi are examples of organisms, but students will focus on plants and animals in this unit. In order to be considered living, a thing must have been alive at some point in its existence on Earth. A common misconception is that **dead** plants or animals are nonliving. For example, dinosaurs exist solely as fossils, but they are still considered living things. Students often struggle with the concept of death, and this should be addressed at the appropriate time during this lesson.

Teaching Tip

Ensure that the list includes the ideas that living things grow, reproduce, and need food and air. Prompt students as needed if any of these concepts are missing from the list.

TEACHER PREPARATION

PLANNING AHEAD

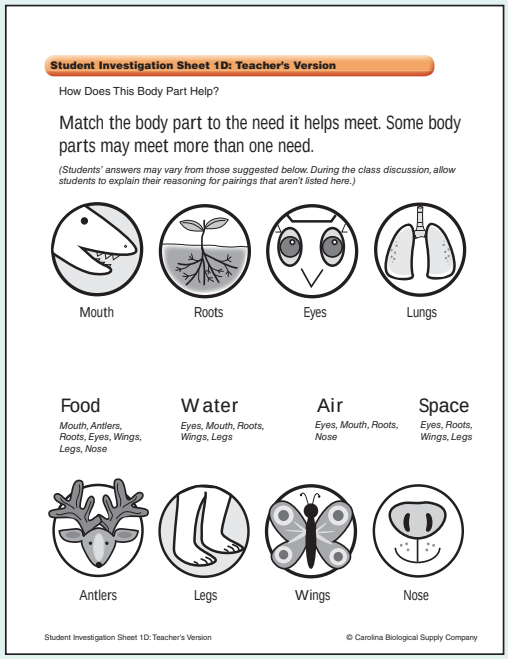
Advance Preparation for Lesson 3

As soon as possible after receiving this kit, plant two bean seeds using a planter cup, a Petri dish half, and some moistened Seed Starter Mix from the kit. Follow the planting directions in Investigation B of this lesson. The earlier you plant these seeds, the better, because students will be drawing comparisons between plants. It is important that this "parent" plant be larger and more developed than students' plants. Care for this plant as the unit progresses, but do not display it for the class until Lesson 3.

Investigation A

1. Locate the 12 sets of Living vs. Nonliving Cards provided in the kit. Cut apart the cards on each sheet to make 12 sets of 20 cards. Each set will include 2 category cards and 18 picture cards. Place each set of cards in a resealable plastic bag.

NOTE: Consider laminating these sheets before cutting out the cards for student use. This will increase their longevity over many uses.



Student Investigation Sheet 1D: Teacher's Version

How Does This Body Part Help?

Match the body part to the need it helps meet. Some body parts may meet more than one need.

(Students' answers may vary from those suggested below. During the class discussion, allow students to explain their reasoning for pairings that aren't listed here.)

Mouth Roots Eyes Lungs

Food: *Mouth, Antlers, Roots, Eyes, Wings, Legs, Nose*
Water: *Eyes, Mouth, Roots, Wings, Legs*
Air: *Eyes, Mouth, Roots, Nose*
Space: *Eyes, Roots, Wings, Legs*

Antlers Legs Wings Nose

Summary of Evidence for *Exploring Organisms*

How does a phenomenon/problem organize the learning?

The unit begins with a class discussion of an **Anchoring Phenomenon** and a viewing of a Phenomena Video to generate student-driven questions about the unit's central phenomena. Each lesson kicks off with an **Investigative Phenomenon**, sparking student questions that can be explored through that lesson's investigations, which put phenomena directly into students' hands. Questions are provided for the teacher to help guide instruction, dispel misconceptions, and connect concepts to prior learning as students engage with the unit's the three dimensions through hands-on investigations, data gathering and analysis, notebooking, and discourse.

How are learning opportunities sequenced to enable students to make sense of the phenomena or problems?

The sequence is clearly presented in the **Evidence of Instructional Scaffolding** chart in the front of the Teacher's Guide. Performance Expectations were initially mapped out along with the Crosscutting Concepts, Science and Engineering Practices, and Disciplinary Core Ideas to ensure grade-level instruction of NGSS. Each lesson connects to the previous, creating a seamless, connected instructional path for students. Where appropriate, engineering and other science-discipline PEs are integrated to eliminate any "silos of science." Students experience science and engineering as an integrated whole.

What is the path of student thinking from their prior knowledge to the expected three-dimensional learning outcomes?

By starting with an **Anchoring Phenomenon** and a **Pre-Assessment** lesson to tap into students' prior knowledge, the teacher is able to evaluate what understandings students bring to the sequence of learning for the new unit. Teacher questioning strategies are built into each investigation to tie to the unit's three dimensions, clarify any misconceptions, and help students make meaning out of what they discover in the investigations.

How do students show/demonstrate their three-dimensional understanding of the phenomenon?

- **Pre-Unit Assessment and Post-Unit Assessment Opportunities:** The pre-unit assessment asks students to draw upon previous knowledge, allowing teachers to gauge their levels of understanding. The post-unit assessment touches upon the topics and concepts from the entire unit and evaluates students' learning. Students are asked to compare the pre-unit assessment and post-unit assessment activities to evaluate growth.
- **Formative Assessment Strategies:** At the end of each lesson, specific strategies are listed for each investigation. These include ways to utilize Student Investigation Sheets and Tell Me More prompts as assessment tools. In lower grades, an Assessment Observation Sheet lists what to look for as you work with small groups of students.
- **Literacy and Digital Components:** These resources can be assigned to differentiate assignments and to assess student progress as needed.
- **General Rubric: Appendix A** includes a rubric that provides an expected progression of skills and understanding of science content. These guidelines can be used to assess students throughout the course of the unit.
- **Summative Assessment:** This unit-specific, cumulative assessment allows students to demonstrate their understanding of content presented by responding to questions in a variety of formats. Each question is aligned to performance expectations and provides insight on students' understanding of the concepts addressed. An answer key is provided, as well as a chart that indicates the performance expectation addressed by each question and lessons to revisit if remediation is required.
- **Digital Scenario-based Assessment:** This digital assessment resource supplies phenomena-driven questions that apply the unit's learning to new, authentic situations. It provides an alternative form of summative assessment that can be administered and corrected by the computer. Scores are sent to a report for the teacher.

Evidence of Instructional Scaffolding

Scaffolding is a crucial yet natural element in all classrooms. Building Blocks of Science strives to simplify this instructional strategy by integrating this guided process into each unit, systematically building upon student knowledge, using hands-on learning to reinforce concepts, and employing student-driven inquiry. These strategies introduce new concepts and, with practice and review, lead students toward mastery. It is important to integrate scaffolding not only throughout the unit but also throughout each lesson. As students demonstrate understanding of a concept, they should be encouraged to take a leadership role in class or to attempt assignments independently. Additionally, scaffolding reveals opportunities for differentiation. Below-level learners require more reinforcement as they learn new skills, so the process toward mastery will need to be adjusted. Above-level learners do not need as much support and achieve mastery more quickly; therefore, these students can be assigned more independent study.

	Lesson 1 ▸	Lesson 2 ▸
OBJECTIVES	■ Distinguish between living and nonliving things in the environment. ■ Identify the needs of living things. ■ Draw connections between body structures and their functions to explain how they are used to meet an organism's needs. ■ Recognize patterns in structures and their functions. ■ Set up an environment and make predictions about the growth of a bean plant.	■ Draw conclusions about insects based on their observable structures. ■ Identify plant and animal adaptations and how they are influenced by the environment. ■ Mimic organisms' structures to explain their adaptations.
SCAFFOLDING	Students should know: ■ Living and nonliving things exist on Earth. ■ Nonliving things have never been alive, but they do interact with living things, which are alive or have been alive at one time. ■ All living things, or organisms, have the same basic needs: air, water, food, and shelter. ■ Plants begin as seeds. ■ Organisms have body parts, or structures, that help them survive and meet their needs.	Students should know: ■ Insects are animals, and their bodies often display similar patterns. ■ Organisms have adaptations, which are structures and repetitive behaviors that help them survive in a specific environment. ■ Adaptations vary for organisms in different environments. ■ Humans have structures that allow them to communicate in complex ways. ■ Organisms have specialized structures that help them to survive in their environments.

Lesson 3 ▸	Lesson 4 ▸	Lesson 5
■ Identify the ways parents care for their young. ■ Recognize that some but not all organisms require assistance from their parents during development. ■ Use text and media to determine patterns in the animal kingdom between parents and their offspring that provide offspring with a better chance at survival. ■ Use oral and written communication skills to explain that organisms develop at different rates and that some animal parents need to care for their offspring longer than others.	■ Compare similarities and differences between oneself and one's parents. ■ Use patterns to explain how traits are inherited, or passed, from parents to offspring. ■ Identify similarities and differences between animal offspring and their parents. ■ Observe a bean plant to collect evidence of the similarities and differences between plant parents and plant offspring. ■ Construct an evidence-based account that young plants and animals are similar but not identical to their parents.	■ Draw and label plant structures from a bean plant and describe their functions. ■ Identify specific adaptations of organisms and how they help the organism survive in its specific environment. ■ Design a solution to a human problem by mimicking how plants and/or animals use their external structures to help them survive. ■ Evaluate learning from throughout the unit about organisms, and compare that knowledge to initial ideas from the beginning of the unit.
Students should know: ■ Organisms develop at different rates. ■ Some organisms develop inside their mother, others develop in eggs, and others develop from seeds. ■ Though organisms have adaptations, they may not have the skills to survive on their own after they are born. ■ Plants do not rely on their parents to help them get the resources they need to grow and develop. ■ The relationship between a baby and its parent differs among animals. Animal parents can provide care by teaching, showing love, feeding, and protecting.	Students should know: ■ Humans share traits with their family members, especially their parents and siblings. ■ A baby gets its traits from both its mother and father. ■ Most animal babies look similar to but not exactly like their parents. ■ Some animals take a long time to develop before they look like their parents. ■ Plants will look similar to but not exactly like the parent plant.	Students should know: ■ Specialized structures that help an organism survive in its particular environment are often adaptations. ■ Organisms living in the same environment often have similar structures. ■ Plants begin as seeds and develop stems, roots, leaves, and other specialized structures. ■ Plant structures vary based on the size, location, and type of plant. ■ Some types of plants and animals have structures that act similarly to human structures.

Building Blocks OF SCIENCE™ | 3D

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Learning Framework

Kindergarten	**Push, Pull, Go** *K-PS2-1; K-PS2-2; K-2-ETS1-1; K-2-ETS1-2*	**Living Things and Their Needs** *K-LS1-1; K-ESS2-2; K-ESS3-1; K-ESS3-3; K-2-ETS1-2*	**Weather and Sky** *K-PS1-1; K-PS3-1; K-PS3-2; K-ESS2-1; K-ESS3-2; K-2-ETS1-1; K-2-ETS1-2*
1st Grade	**Light and Sound Waves** *1-PS4-1; 1-PS4-2; 1-PS4-3; 1-PS4-4; K-2-ETS1-1; K-2-ETS1-2*	**Exploring Organisms** *1-LS1-1; 1-LS1-2; 1-LS3-1; K-2-ETS1-2*	**Sky Watchers** *1-ESS1-1; 1-ESS1-2*
2nd Grade	**Matter** *2-PS1-1; 2-PS1-2; 2-PS1-3; 2-PS1-4; K-2-ETS1-1; K-2-ETS1-2*	**Ecosystem Diversity** *2-LS2-1; 2-LS2-2; 2-LS4-1; K-2-ETS1-2; K-2-ETS1-3*	**Earth Materials** *2-PS1-1; 2-ESS1-1; 2-ESS2-1; 2-ESS2-2; 2-ESS2-3; K-2-ETS1-1; K-2-ETS1-2*
3rd Grade	**Forces and Interactions** *3-PS2-1; 3-PS2-2; 3-PS2-3; 3-PS2-4; 3-5-ETS1-1; 3-5 ETS1-2*	**Life in Ecosystems** *3-LS1-1; 3-LS2-1; 3-LS3-1; 3-LS3-2; 3-LS4-1; 3-LS4-2; 3-LS4-3; 3-LS4-4; 3-5-ETS1-2*	**Weather and Climate Patterns** *3-ESS2-1; 3-ESS2-2; 3-ESS2-3; 3-ESS3-1; 3-5-ETS1-2*
4th Grade	**Energy Works** *4-PS3-1; 4-PS3-2; 4-PS3-3; 4-PS3-4; 4-PS4-1; 4-PS4-3; 4-ESS3-1; 3-5 ETS1-2; 3-5-ETS1-3*	**Plant and Animal Structures** *4-LS1-1; 4-LS1-2; 4-PS4-2; 3-5-ETS1-2*	**Changing Earth** *4-ESS1-1; 4-ESS2-1; 4-ESS2-2; 4-ESS3-2; 3-5-ETS1-2*
5th Grade	**Structure and Properties of Matter** *5-PS1-1; 5-PS1-2; 5-PS1-3; 5-PS1-4; 3-5-ETS1-2*	**Matter and Energy in Ecosystems** *5-PS3-1; 5-LS1-1; 5-LS2-1; 5-ESS2-1; 5-ESS3-1; 3-5-ETS1-3*	**Earth and Space Systems** *5-PS2-1; 5-ESS1-1; 5-ESS1-2; 5-ESS2-1; 5-ESS2-2; 5-ESS3-1; 3-5-ETS1-2*

Have questions? Please join us at www.carolina.com/bbs or www.carolina.com/cascience, or contact us at cascience@carolina.com.

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