

SUCCESS
ACADEMY
EDUCATION
INSTITUTE

Unbe-leaf-able Organisms:
Plant and Animal Needs
Grade K

Our Vision of Elementary School Science Excellence

Success Academy’s unique commitment to science starts in kindergarten. We strive to cultivate a passion for the sciences early in life, build a comprehensive foundation of knowledge, and teach students to investigate and analyze real-world problems. Our vision of science relies on two related commitments: mastery of a substantive body of scientific knowledge and an inquiry-based approach to accumulating this knowledge. Equipping students with a firm grasp of scientific concepts is central to our model, and students must understand that these concepts aren’t simply plucked from the air, but rather arrived at through scientific thinking and experimentation. To that end, our scholars do science to understand that scientific knowledge comes from posing questions, designing experiments, gathering data, and drawing conclusions. Rather than viewing scientific knowledge as etched in stone, they come to understand that ideas about the world change with new evidence. In addition, our program incorporates [The Next Generation Science Standards](#) (NGSS) and the [BSCS 5E Instructional Model](#).

We believe excellent science classrooms are ones in which students experience curiosity and joy, and make connections between classroom science and the natural world around them. Embedded in our program is the belief that struggle and student-led inquiry are inherent to the mastery process. Through our progressive approach to learning, students realize that unexpected results do not signal failure, but instead present valuable opportunities for new questions.

Through our science program, students learn that science and engineering are creative and exciting fields. They discover that there are countless, fascinating scientific questions to be asked and engineering challenges to be solved—and will be inspired and equipped to seek out answers and solutions. No matter what path students choose to pursue in life, the SA science program will spark curiosity, sharpen problem-solving capabilities, and fuel passion for knowledge.

Essential Questions

The best questions point to and highlight big ideas. They serve as doorways through which learners explore the key concepts, themes, theories, issues, and problems that reside within the content, perhaps as yet unseen: it is through the process of actively “interrogating” the content through provocative questions that students deepen their understanding.¹

Use the essential question to drive the unveiling and mastery of ideas, and ground the unit in an overarching purpose, often as a storyline. Mentioning the essential question or having students answer it at the end of some lessons does not mean the teacher is using it purposefully.

¹ From Wiggins, G., & McTighe, J. (2005). *Understanding by design*. Alexandria, VA: Association for Supervision and Curriculum Development.

Purpose: The Why, What, and How of This Unit

Essential Question: Do plants behave like animals?

Unit Storyline Synopsis:

The division of the plant and animal kingdoms has created the notion that animals are active and plants are passive. Recent research suggests plants are far more engaged in their own survival than previously thought. While plants are not “intelligent” beings, they can react to hundreds of stimuli. In this unit, scholars investigate the behaviors of plants.

Why This Unit?

The study of life sciences ranges from molecules to ecosystems to the entire biosphere. In this unit, scholars focus on organisms. Through gathering evidence, scholars observe and describe patterns of what plants and animals need to live, grow, and thrive. Scholars begin to think about how organisms navigate survival.

All living systems are interconnected and evolving. Within these systems, energy and matter is exchanged. Some changes occur in the blink of an eye, while others take billions of years. During this exchange, living systems change the Earth. Through the study of organisms, scholars begin to explore the concepts of biology, geology, and chemistry. Scholars determine how plants and animals interact with and change their environment.

What is the bottom line?

Science and Engineering Concepts highlighted in this unit:

- **Big Idea: Organization of Matter and Energy Flow in Organisms**
 - Animals need air, water, food, and shelter to survive.
 - Plants need air, water, nutrients, and sunlight to survive.
 - Living things grow, move, and need energy and air.
- **Big Idea: Biogeology**
 - Animals and plants change their environment as they get the resources they need to live.

Science and Engineering Practices (SEP) highlighted in this unit:

- **Analyze and Interpret Data**
 - Scholars analyze patterns and relationships in data to answer scientific questions.
- **Engaging in Argument from Evidence**
 - Scholars use evidence to support a claim.
 - Critique why some evidence is relevant to a scientific question and some is not.

Note: As with any unit, scholars engage in many practices in any given lesson. These practices are highlighted because they appear in the most lessons.

Crosscutting Concepts (CCC) highlighted in this unit:

- **Patterns**
 - Patterns in nature can be observed and used as evidence.

- **Cause and Effect**
 - Events have causes that generate observable patterns.
-

Accountability

Use this [guide](#) and the following conferencing questions, throughout the unit, to assess scholar mastery.

- What do animals need to survive?
 - What do plants need to survive?
 - What makes something living versus nonliving?
 - How do animals/plants get what they need to live? What is one effect animals/plants have on their environment?
-

Safety

Plan carefully for safety in all lessons.

- Students may have allergies to plants, soils, earthworms or food. Check the allergy list before ordering materials.
 - Students should always use hand sanitizer or wash hands after they touch plants, soil, or earthworms.
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Intellectual Prep

In addition to the resources linked throughout the guide, use the following materials to help you understand content at an sophisticated level.

- [Characteristics of Living Things](#), *Science Learning Hub*
 - [The Intelligent Plant](#) by Michael Pollan, *The New Yorker*
 - [Plants or Animals? These Organisms Defy Categories](#) by Jodi Paps, *Newsweek*
-

Unit Storyline

Engage: Scholars watch a video of a [Venus Fly Trap](#) snapping its “jaws” shut around its prey. But are these plants just the exception to the rule? Scholars are challenged for the rest of the unit to determine if plants behave like animals.

- **Lesson 1: What Is An Organism?** *Scholars are introduced to the question of the unit through the venus fly trap video and draw their own “living thing.”*
- **Lesson 2: What’s Your Habitat?** *All organisms, from bears to cows to microbes, need certain resources to live. What in scholars’ homes do they need to survive?*
- **Lesson 3: Planting Seeds** *To determine what plants need to survive, scholars plant seeds setting up an experiment that will last throughout the unit.*
- **Read Aloud: Is It Living or Nonliving?** Sheila Rivera
This short book names items as living and nonliving and leaves scholars with the question “Is a tree living or nonliving?”

Explore: To discover what drives plant behavior, scholars first investigate natural resources and explore what plants and animals need to survive. Scholars are left questioning, what is alive?

- **Lesson 4: What Do Animals Need?** *Just as humans go to the store to get food, animals need*

certain resources to survive. Scholars investigate animals' habitats.

- **Lesson 5: What Do Plants Need?** *The amount of water a plant gets affects its growth and its resistance to insects and disease. Scholars consider what else plants need to survive.*
- **Lesson 6: Is It Alive?** *There are over 8.7 million living species on Earth. What distinguishes the living from the nonliving?*
- **Read Aloud: *The Life Cycle of an Earthworm*** Bobbie Kalman
A great nonfiction read. Suggested sections are Wonderful Worms, Earthworms Everywhere, and Eating Everything.

Explain: How does the new knowledge of living things learned in the Explore Section help scholars determine if plants behave like animals? Here, scholars gather concrete information about how plants and animals acquire what they need to live, grow, and thrive. At the end of the Explain Section, scholars confirm plants behave like animals because they are both living things.

- **Lesson 7: Plant and Animal Growth** *From birth through age 5, a child undergoes the most cognitive growth, but do plants grow even though they do not have cognitive capabilities?*
- **Lesson 8: Plant and Animal Movement** *Animals move their whole body, while plants stay rooted in one place, but is there more to plant movement than meets the eye?*
- **Lesson 9: Plant and Animal Eating and Drinking** *Most plants get nutrients from soil, but some consume animals! In this lesson, scholars investigate how plants and animals get their food and water.*
- **Lesson 10: Changing Habitats** *Living things affect our planet. Here, students learn how plants and animals change their environment as they get the resources needed for survival.*
- **Read Aloud: *What's Alive?*** Kathleen Weidner Zoehfeld.
What's Alive? details what living things are and are not.

Elaborate: Scholars have determined that plants and animals are both living things. But can scholars apply their understanding to a new scenario through the story of Marty the Martian?

- **Lesson 11: Marty the Martian Debate** *Scholars participate in a debate to prosecute or defend a martian who believes a car is alive.*
- **Lesson 12: Moving to Mars** *Mars is a terrestrial planet with an average temperature of about -80 degrees Fahrenheit. Can scholars design a habitat on this barren planet to support life?*
- **Read Aloud: *Living or Nonliving?*** Kelli L. Hicks
This book goes further in depth to define specific characteristics of living things.

Evaluate: Scholars synthesize their understanding of organisms and compile the evidence to determine if coral and fungi are living things.

- **Lesson 13: Copycat Coral** *Coral are organisms related to sea anemones and jellyfish. Scholars investigate if these organisms are plants or animals*
- **Lesson 14: There's a Fungus Among Us** *Fungi are omnivores more closely related to animals than plants. Can scholars determine if these organisms are alive?*

Lesson 1: What Is An Organism?

Scholars watch a video of plant behavior and draw their favorite organism.

Lesson Objective

- Scholars begin to describe what living things need to survive.

Materials Needed

- For the teacher: chart paper, markers
- For each group: crayons or colored pencils

Prep

- Materials prep:
 - Show the [Do Plants Behave Like Animals?](#) video (from 2:07 to 4:56).
 - For Discourse, set up a KWL chart about living things to add to throughout the unit. Don't know what a KWL Chart is? Check [this](#) out!
-

Launch

- Watch the [Do Plants Behave Like Animals?](#) video (from 2:07 to 4:56). *What do you know about plants and animals?*
- *Animals are organisms, but what about plants? Define **organism**. Today, we will begin investigating by drawing and describing your favorite living thing.*

Activity

- Scholars draw and describe a living thing in their lab notebook.
- As scholars are working, ask them about the living thing they chose and why. Press scholars to explain how they know it is living.

Discourse

- **Debrief activity:** Scholars share their drawings. *How do you know it is an organism?*
 - Record responses on the KWL chart.
- **Introduce the essential question:** Do plants behave like animals?
 - Record initial scholar thoughts to come back and revise throughout the unit.

Accountability (Informal)

- Study scholars' drawings to assess scholars' understanding of living things coming into the unit.
-

Lesson 2: What's Your Habitat?

Scholars are introduced to habitats and consider what they need to survive.

Lesson Objective

- Scholars can begin to describe what living things need from their habitat to survive.

Materials Needed

- For each group: crayons or colored pencils

Prep

- Materials prep:
 - Show the [Habitats: What is a Habitat?](#) video.
-

Launch

- Watch the [Habitats: What is a Habitat?](#) video (2:20–3:00). *What is similar or different about the bears' habitats?* Define **habitat**.
- *Humans are a type of animal! Today, you are going to draw your natural home, or habitat, and identify what helps you survive.* Define **survive**.

Activity

- Scholars draw their habitats and record the most important things for survival.
- As scholars are working, look for scholar work that includes and omits the basic needs for survival.

[**Engagement Tip:** If time allows, draw a large mural of scholars' combined habitat. Perhaps a whole neighborhood will emerge.]

Discourse

- **Debrief activity:** Scholars share habitats and discuss similarities and differences.
 - Press scholars to provide evidence for why they included certain components.
- **Make connections to the essential question:** *Why were there similarities in the habitats?*
 - *A habitat provides a living thing with everything it needs to survive. Your home and the surrounding neighborhood provides you with: shelter, food, water, and air.*
- **Make broader connections:** Scholars add a habitat to their living thing from Lesson 1 in their Lab Notebook. *What did you include in your habitat for your living thing? Why?*

Accountability (Conferencing Question)

- During the Activity, use the first [conferencing question](#) and potential scholar responses to assess understanding of the associated big idea:
 - What do animals need to survive?
-

Lesson 3: Planting Seeds

Scholars plant seeds that will grow throughout the unit to determine what plants need to survive.

Lesson Objective

- Scholars can begin to describe what plants need from their habitat to survive.

Materials Needed

- For the teacher: watering can
- For each group: Wisconsin Fast Plants Seeds (Petite), cup, potting soil, spoons, water

Prep

- Materials prep:
 - Determine when to complete this lesson by testing how fast the Wisconsin Fast Plants grow. For example, if they bud in one day, do not do this lesson on a Friday.
 - Identify where in the classroom your plants will be stored and obtain light (sunlight or artificial).
- Intellectual prep:
 - Read about the origin, life cycle, and care instructions for [Wisconsin Fast Plants](#).
 - **Clarification:** All plants do not need soil to survive, but most do for obtaining water and nutrients.

[**Materials Tip:** Scholars will revisit these plants throughout the unit. Consider planting additional seeds to ensure they grow.]

Launch

- *Yesterday, we discussed what an animal habitat includes. Today, we will plant seeds to determine what a plant requires. What similarities and differences might plant and animal habitats have?*
- *We will compare how plants respond to light, water, and soil. Assign groups experimental conditions (dark/no water; dark/with water; light/no water; light/with water; light/with water/no soil) and locations for planted seeds.*

Activity

- Scholars set up their experimental conditions. If adding soil, they fill cups halfway using a spoon and add their seeds, ensuring it is in the soil.
- Scholars put their plants in various places throughout the room and record their predictions for which plants will survive in their habitat.

Discourse

- **Debrief activity:** Why do you think your plant will/will not survive?
- **Make connections to the essential question:** Do plants and animals need the same resources to survive?
 - *Plants and animals both get what they need to survive in their habitat. Unlike animals, plants do not need shelter. As our plants change, we will determine what they need to survive.*
- **Make broader connections:** Why are we using different experimental conditions for the seeds?

Accountability (Conferencing Question)

- During the activity, use the second [conferencing question](#) and potential scholar responses to assess understanding of the associated big idea:
 - What do plants need to survive?
-

Lesson 4: What Do Animals Need?

Scholars explore photos of animals obtaining natural resources to determine what animals need to survive.

Lesson Objective

- Scholars can describe what animals need from their habitat to survive.

Materials Needed

- For the teacher: Ziploc filled with air, cup of water, soil, toy car
- For each group: Find pictures of animals for students to use for this lesson

Prep

- Materials prep:
 - Display Ziploc filled with air, a cup of water, soil, toy car for the Launch.
 - Print and cut out pictures of animals
-

Launch

- Show scholars the Ziploc filled with air, a cup of water, soil, and the toy car. *Which of these items are natural resources? Why?* Define **natural resources**.
- *Today, we are going to look at pictures of animals and determine what animals need to survive from their habitats.*

Activity

- Scholars examine pictures and conclude what animals need to stay alive. In lab notebooks, scholars identify what natural resource each animal is relying on.
- As scholars are working, identify scholars who both accurately and inaccurately identify the resources to share during discourse.

Discourse

- **Debrief activity:** Share scholar lab notebooks. *What patterns did you observe in the natural resources animals use in their habitats?*
 - *All living things live in places that they can get what they need to survive. Animals need air, water, food, and shelter to survive.*
- **Make connections to the essential question:** How do animals get the resources they need to survive?
 - *An animals' habitat is within an environment. Define **environment**. Here, an animal can get all the resources they need to survive. Tomorrow, we will revisit our plant seeds from Lesson 3. We will conclude what plants need to survive.*
- **Make broader connections:** Do animals and humans need the same resources to survive? Why?

Accountability (Conferencing Question)

- During the activity, use the first [conferencing question](#) and potential scholar responses to assess understanding of the associated big idea:
 - What do animals need to survive?
-

Lesson 5: What Do Plants Need?

Scholars revisit their experimental plant set-ups to determine what plants need to survive.

Lesson Objective

- Scholars can describe what plants need from their habitat to survive.

Materials Needed

- For each group: plant experiment set ups from Lesson 3, crayons or colored pencils

Prep

- Materials prep:
 - Determine when to complete the lesson based on plant growth. Scholars should have a chance to observe all plants.
 - Show this [picture](#).

[Materials Tip: Continue to keep plants alive for the discourse in Lesson 7]

Launch

- Show a [picture](#) of dead plants in a garden. *Is this plant alive? Why or why not?*
- Remind scholars about their Plant Needs experiment. *Which plants do you think survived? Why?*
- *Today, we are going to revisit our plants from Lesson 3 and draw conclusions about what plants need to survive.*

Activity

- Scholars observe and record experimental results in their lab notebook.
- As scholars are working, press scholars to compare plant and animal needs.

Discourse

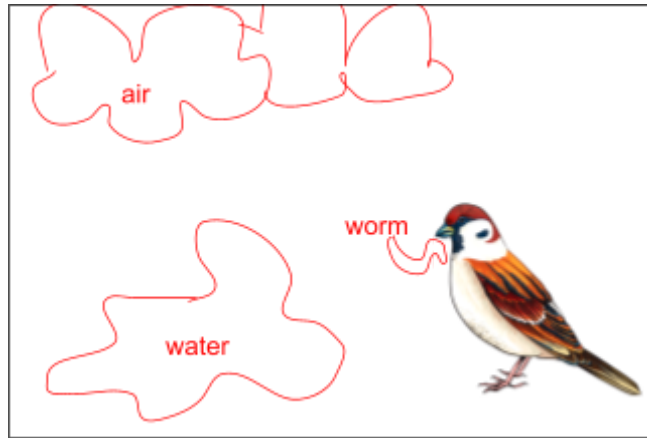
- **Debrief activity:** *What did the plant responses tell us about plant needs?*
 - *All living things live in habitats where they can get what they need to survive. Plants need air, water, sunlight, and nutrients (from soil) to survive.*
- **Make connections to the essential question:** What is similar or different about what plants and animals need to survive? Why?

Accountability (Exit Ticket)

Assignment:

Below is a picture of a bird with no habitat!

1. Draw and label the habitat by adding **three different** natural resources the bird needs to survive.



Scoring:

1. Award 1 point for each different natural resource included that the bird needs to survive.
 - a. Note: Drawings should be graded holistically. A scholar can still receive credit if a label is missing but it is clear to the grader what resource the scholar is including.
-

Lesson 6: Is It Alive?

Scholars observe two types of worms to determine what is living and nonliving.

Lesson Objective

- Scholars can describe the characteristics of living things.

Materials Needed

- For the teacher: a living plant and a plastic plant
- For each group: earthworm in a tray, gummy worm in a tray, crayons or colored pencils
- For each scholar: a straw, popsicle stick, magnifying glass

Prep

- Materials prep:
 - Poke air holes in the plastic tray for the earthworm.
 - Show the [It's Alive](#) video.
 - Living things KWL chart for discourse.
-

Launch

- Show scholars the two plants. *Are either of these alive? Why do you think this?*
- *Today you will investigate the question what are the characteristics of a living thing? We will observe two worms and determine if they are both alive.*

Activity

- Scholars look at each worm with a magnifying glass, touch them with the popsicle stick, and then blow through the straw. They should record their observations in their Lab Notebook.
- As scholars are working, identify scholars to share their work during discourse.

Discourse

- **Debrief activity:** What evidence supported your conclusion of which worm was alive?
- **Make connections to the essential question:** Compare and contrast the living plant and earthworm. *Are both of these alive? Why?*
 - Add conclusions about the characteristics of living things to your KWL chart.
 - Watch the [It's Alive](#) video.

Accountability (Conferencing Question)

- During the activity, use the first and third [conferencing question](#) and potential scholar responses to assess understanding of the associated Big Idea:
 - What do animals need to survive?
 - What makes something living versus nonliving?
-

Lesson 7: Plant and Animal Growth

Scholars gather evidence to determine if plants grow like animals.

Lesson Objective

- Scholars can describe the characteristics of living things.

Materials Needed

- For the teacher: plants from Lesson 3
- For each group: create a handout that includes images demonstrating examples of plant and animal growth (i.e. turtle life cycle, sunflower life cycle, etc)

Prep

- Materials prep:
 - Show time-lapsed videos of growth in [Sophia Grows](#), [Time Lapse of Sun Flower](#), and [Phototropism in Tomato Plant](#).
-

Launch

- Watch time-lapse videos of growth in [Sophia Grows](#) (0:00–0:54) and [Time Lapse of Sun Flower](#) (0:00–1:40). *How are the videos of the plant and animal similar?*
- *In the next three lessons, we will be gathering evidence to determine if plants are alive. Today, we will compare and contrast plant and animal growth.*

Activity

- Scholars record observations from the resource and answer questions about if both plants and animals grow.
- As scholars are working, identify scholars drawing conclusions about why plants are alive.

Discourse

- **Debrief activity:** Compare and contrast plant and animal growth. *Are both plants and animals alive? What is your evidence?*
- **Make connections to the essential question:** Watch the [Phototropism in Tomato Plant](#) video. *Does the video provide evidence that plants are alive?*
 - *Tomorrow, we will investigate plant and animal movement to determine if plants move like animals.*
- **Make broader connections:** Show scholars seeds used to plant in Lesson 3 and plants now. Discuss how plants have changed and grown.

Accountability (Conferencing Question)

- During the activity, use the third [conferencing question](#) and potential scholar responses to assess understanding of the associated big idea:
 - What makes something living versus nonliving?
-

Lesson 8: Plant and Animal Movement

Scholars gather evidence to determine if plants move like animals.

Lesson Objective

- Scholars can describe the characteristics of living things.

Materials Needed

- For the teacher: plants from Lesson 3

Prep

- Materials prep:
 - Show the videos: [Positive Phototropism](#), [Negative Gravitropism](#), [The Sensitive Plant](#), [Twining Motion of Vines](#), [Life Science-Types of Animal Movement](#), and [Hungry Venus Flytraps](#).
 - Intellectual prep:
 - Read [Tropisms](#) and watch the associated video from *Britannica*.
-

Launch

- Show scholars plants from Lesson 3. *Do these plants move? What is your evidence?*
- *Today, we will gather more evidence to determine if plants are alive. We will determine if plants move like animals.*

Activity

- Scholars watch the following videos and record their observations.
 - Plant videos: [Positive Phototropism](#), [Negative Gravitropism](#) (0:10–0:56), [The Sensitive Plant](#) (1:55–3:00), [Twining Motion of Vines](#)
 - Animal video: [Life Science-Types of Animal Movement](#) (0:00–2:29)
- Scholars answer questions in their lab notebooks.
- As scholars are working, pause videos to reflect on observations and ask: *Is the organism moving? Does this prove the organism is alive?*

Discourse

- **Debrief activity:** Compare and contrast plant and animal movement.
 - Do plants move like animals? What is your evidence?
- **Make connections to the essential question:** Watch [Hungry Venus Flytraps](#) video. *How do plants get food? Is this similar or different to animals?*
 - *We know both plants and animals need energy and water to survive. But do they obtain these resources in the same way? Tomorrow, we will research this question.*
- **Make broader connections:** Why has it been more difficult for scientists to research plant movement?

Accountability (Exit Ticket)

Assignment:

Alex is making a list of natural resources that plants need to survive.

Plant Needs:

- Food
- Air
-

1. Circle the **two** natural resources below that Alex needs to add to his list. [2]



Scoring:

1. Award 1 point each for selecting sunlight and water.

Lesson 9: Plant and Animal Eating and Drinking

Scholars gather evidence to determine if plants get food and water like animals.

Lesson Objective

- Scholars can describe the characteristics of living things.

Materials Needed

- For the teacher: plants from Lesson 3

Prep

- Materials prep:
 - Show the videos: [How Plants Find Food](#), [The Carnivorous Plant](#) and [How Animals Get Their Food](#).
-

Launch

- Show scholars plants from Lesson 3. *How do these plants get the food and water they need to survive? What is your evidence?*
- *We will determine if both plants and animals are alive. Today, we will gather evidence by comparing and contrasting how plants and animals gather food.*

Activity

- Scholars watch the following videos and record their observations.
 - Plant videos: [How Plants Find Food](#) (5:24-8:04) and [The Carnivorous Plant](#) (0:34-2:15)
 - Animal videos: [How Animals Get Their Food](#) (0:18-3:14, 5:45-7:55)
- As scholars are working, pause videos to reflect on observations and ask: *Is the organism eating/drinking? Does this prove the organism is alive?*

Discourse

- **Debrief activity:** Compare and contrast plants and animals eating and drinking.
 - Do plants eat or drink like animals? What is your evidence?
- **Make connections to the essential question:** Are plants and animals the same?
 - *Both plants and animals are living things that grow and change, need energy from food, and require water and air. They use resources from their habitats to survive.*
- **Make broader connections:** What characteristics make a plant appear to be nonliving?

Accountability (Conferencing Question)

- During the activity, use the fourth set of [conferencing questions](#) and potential scholar responses to assess understanding of the associated big idea:
 - How do animals/plants get what they need to live?
 - What is one effect animals/plants have on their environment?
-

Lesson 10: Changing Habitats

Scholars observe how organisms change their environment to support conclusions about how they meet their needs for survival.

Lesson Objective

- Scholars can support an argument of how plants and animals can change the environment to meet their needs.

Materials Needed

- For each group: compile images into a one-sheet that demonstrate examples of animals and plants making changes to their environments (examples could include: a tree whose roots disrupt a concrete sidewalk, a dog digging in the sand, a house covered in ivy, etc.)

Prep

- Materials prep:
 - Print images compiled in the “Materials Needed” section above for each group.
- Intellectual prep:
 - Read the article “Science and Children” from *The Art of Augmentation* by Donna Ross, Douglas Fisher, and Nancy Frey. Determine how the language frames for augmentation can support your class.
 - Available for free for National Science Teachers Association members [here](#).

Launch

- *Today, we will answer the question, why do both plants and animals change their environment? You will need to find evidence to support your response. Your presentation will answer the following questions:*
 - *Why do both plants and animals change their environment? (Claim)*
 - *What supports your claim? (Evidence)*
 - *Why did you decide on this reason? (Rationale)*

Activity

- Scholars identify why each organism is changing their habitat. Scholars gather evidence from the resource and previous labs in their lab notebooks to defend their claim.
- As scholars are working, press scholars to explain how they chose their evidence.
- Scholars present their position to the class. Ask scholars:
 - *What evidence was presented? Was all the evidence relevant to the question?*
 - *Do you agree or disagree with the argument based on the evidence?*

Discourse

- **Debrief presentations:**
 - Did your position change after the presentations? Why or why not?
 - How could you improve your argument?
- **Discuss essential question:** Do plants behave like animals?
 - *Plants behave like animals because they are living organisms! Both plants and animals have certain behaviors to get the resources they need to survive and thrive.*

Accountability (Conferencing Question)

- During the activity, use the fourth set of [conferencing questions](#) and potential scholar responses to assess understanding of the associated big idea:
 - How do animals/plants get what they need to live?
 - What is one effect animals/plants have on their environment?
-

Lesson 11: Marty the Martian Debate

Scholars listen to *Marty the Martian* story to defend or critique his belief that a car is a living thing.

Lesson Objective

- Scholars can describe the characteristics of living things.

Materials Needed

- For the teacher: [Marty the Martian Story](#)

Prep

- Materials prep:
 - Print the [Marty the Martian Story](#) for the Launch.
 - Determine how scholars will be split into defenders and prosecutors for the debate.
 - Intellectual prep:
 - Read the [Art of Argumentation](#) article and determine how the “Language Frames for Argumentation” can support your class.
-

Launch

- Read the [Marty the Martian Story](#). *You will work with your group to prosecute or defend Marty. You will construct your case and pick evidence from the unit to support your response. In your presentation, you will answer the following questions:*
 - *What is your position—is the car living or nonliving? (Claim)*
 - *What supports your position? (Evidence)*
 - *Complete this sentence: All living things must ____; a car ____, therefore it [is / is not] a living thing. (Reasoning)*
- Assign scholars positions for the debate.

Activity

- Scholars conduct research to defend their claim using the story and previous labs, recording their evidence in their lab notebooks.
- As scholars are working, press scholars to explain the evidence they are choosing and how it supports their position.
- Scholars debate and present their positions and evidence to the class.

Discourse

- **Debrief debate:**
 - Did your position on whether the car is living or nonliving change? Why or why not?
 - What pieces of evidence were most convincing during the debate? Why?

Accountability (Exit Ticket)

Assignment:

A class is discussing living and nonliving things.

1. Circle the statement below that is correct. [1]

Betsy: Animals are living because they need food. All living things need energy to survive.

Tamira: Plants are not living because they don't grow or move. All living things grow and move.

Seth: Plants and animals are living because they need love. All living things need love to survive.

Scoring:

1. Award 1 point for selecting **Betsy's** statement.
-

Lesson 12: Moving to Mars

Scholars design a Mars colony where plants and animals can survive.

Lesson Objective

- Scholars can describe what plants and animals need from their habitats to survive.

Materials Needed

- For each group: crayons or colored pencils

Prep

- Materials prep:
 - Show the [Mars Fact Sheet](#).
-

Launch

- *Marty the Martian is from Mars! The environment on Mars is very different from Earth. In order to go to Mars and present your case to his species, we need to first design a habitat so an organism from Earth could survive here.*
- Discuss [Mars Fact Sheet](#).

Activity

- Scholars design a habitat for plants and animals to survive on Mars.
- As scholars are working, press scholars to explain what they are including in their habitats and why.

Discourse

- **Debrief activity:** Have scholars share and critique designs. *What did you consider when creating your habitat?*
- **Make connections to the essential question:** How might the environment on Mars change if plants and animals were brought here?
 - *Animals would need shelter to live in, so the surface may begin to have buildings. The soil on Mars might change if plants were grown in the ground.*

Accountability (Exit Ticket)

Assignment:

Some animals live beneath your feet! Underground habitats keep animals dry and warm. These animals come above ground to get resources they need to survive.

Navigate to this picture of an [underground habitat](#) and make copies for each scholar's exit ticket.

Circle one animal. Use this animal to answer the questions.

1. How does this animal change the environment? [1]
The turtle dug a hole to lay its eggs.
2. What is one resource this animal needs from above ground? [1]
water/ air/ food

Scoring:

1. Award 1 point for an explanation detailing a reasonable change in environment related to the animal chosen.
 2. Award 1 point for identifying a natural resource animals need to survive.
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Lesson 13: Copycat Coral

Scholars determine if coral are living and whether they are a plant or animal.

Lesson Objective

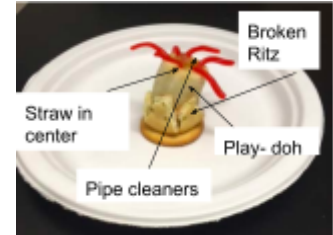
- Scholars understand plants and animals are living things that change their environment as they get the resources they need to survive.

Materials Needed

- For each group: 3 crackers, 6 pieces of pipe cleaner, 1/3 plastic straw, play dough, deli tray

Prep

- Materials prep:
 - Cut the pipe cleaners and straws. Break one cracker into pieces. Put together coral models so when finished, they resemble the picture.
 - Show the [Coral Reef Wonderland](#) and [Coral Reefs 101](#) videos.
- Intellectual prep:
 - Read [Are Corals Animals or Plants?](#) by the NOAA and explore the [Coral](#) page from *National Geographic* to learn more about coral.



Launch

- *Coral live in oceans habitats and, although may seem simple, are complex organisms. Watch the [Coral Reef Wonderland](#) video. Why are we using a model of coral?*
- *Today, you will observe a model of a coral to determine if it is a living thing and, if so, if it is a plant or an animal.*

Activity

- Scholars investigate coral, by observing a coral polyp model and recording observations.
- As scholars are working, press scholars to explain the conclusions they are drawing about coral.

Discourse

- **Debrief activity:** Are coral living? How do you know?
 - How are coral similar to plants and/or animals? How are they different?
- **Make connections to the essential question:** Do coral behave like plants or animals?
 - *Corals are animals since they don't make their own food. They hunt and filter feed, an inactive form of eating. Corals come in many shapes and sizes with different mechanisms to feed and grow. Corals move by bending and twisting, while others have polyps or branches.*
- **Make broader connections:** Watch the [Coral Reefs 101](#) video. *What additional evidence about coral supports your conclusions?*

Accountability (Conferencing Question)

- During the activity, use the fourth set of [conferencing questions](#) and potential scholar responses to assess understanding of the associated big idea:
 - How do animals/plants get what they need to live?
 - What is one effect animals/plants have on their environment?

Lesson 14: There's a Fungus Among Us

Scholars determine if fungi are living and why they are neither a plant or an animal.

Lesson Objective

- Scholars understand plants and animals are living things that change their environment as they get the resources they need to survive.

Materials Needed

- For each group: 2–3 store-bought mushrooms

Prep

- Materials prep:
 - Show the [Fungi: Why Mushrooms Are Awesome](#) video.
 - Intellectual prep:
 - Read [Fungus](#) and watch the associated videos from *Britannica* to learn more about fungi.
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Launch

- *I am very curious about a food in the grocery store- a mushroom. I looked online and it is called a fungus. Watch the [Fungi: Why Mushrooms Are Awesome](#) video (0:00–2:17).*
- *Today, you will observe a fungi to determine why it is a living thing and what makes it different from a plant or an animal.*

Activity

- Scholars investigate mushrooms and record observations.
- As scholars are working, press scholars to explain the conclusions they are drawing about the mushrooms.

Discourse

- **Debrief activity:** Why are fungi living?
 - How are fungi different from plants and animals? What is your evidence?
 - **Make connections to the essential question:** Do all living things behave like plants? Animals?
 - **Make broader connections:** Watch the remaining [Fungi: Why Mushrooms Are Awesome](#) video (2:17–3:48). *Why do fungi grow on top of other living things?*
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Read-Aloud Lessons

Determine the best timing within the unit to use the science read-alouds.

- ***Is It Living or Nonliving?*** Sheila Rivera
This short book names items as living and nonliving and leaves scholars with the question “Is a tree living or nonliving?”
 - ***The Life Cycle of an Earthworm*** Bobbie Kalman
A great nonfiction read. Suggested sections are Wonderful Worms, Earthworms Everywhere, and Eating Everything.
 - ***Living or Nonliving?*** Kelli L. Hicks
This book goes further in depth to define specific characteristics of living things.
 - ***What’s Alive?*** Kathleen Weidner Zoehfeld
The book details what is alive and what living things need to stay healthy.
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Unit Vocabulary

- **environment** – the surroundings in which a plant or animal lives
 - **habitat** – is the natural home of a specific living thing
 - **natural resource** – materials from Earth
 - **organism** – is a living thing
 - **survive** – to be living
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Extra Resources

- [Lab Notebook](#)