UNIT OVERVIEW

The world is made up of both living and non-living things. The Living/Non-Living unit helps students explore the important differences between the two. The term *living thing* refers to things that are now or once were alive. A *non-living thing* is anything that was never alive. In order for something to be classified as living, it must grow and develop, use energy, reproduce, be made of cells, respond to its environment, and adapt. While many things meet one or more of these criteria, a living thing must meet all of the criteria. Living and non-living things interact with each other all the time.

Certain reading resources are provided at three reading levels within the unit to support differentiated instruction. Other resources are provided as a set, with different titles offered at each reading level. Dots on student resources indicate the reading level as follows:

- low reading level
- middle reading level
- high reading level

THE BIG IDEA

Humans rely on a wide variety of living and non-living things. But we have to take care of living things differently from non-living things. Plants need water, light, and air to grow. We need plants to use for food, clothing, and much more. Animals require food, water, air, and shelter. We use animals for food, clothing, labor, companionship, and much more. As humans, we have the ability and responsibility to care for ourselves and other living things so that our own needs are met and to ensure that the world will always be full of diverse living things.

Other topics

This unit also addresses topics such as: non-living components of living things, nurse logs, sea stars, babies and parents, and cells.

SPARK

The spark is designed to get students thinking about the unit's topics and to generate curiosity and discussion.

Materials

- chalkboard or interactive whiteboard
- variety of familiar living and non-living items, including a live plant
- (optional) magazines with pictures of living things

Activity

Display a variety of familiar objects in front of the class. Ask students to think about which ones are living and which ones are non-living. Don't elicit responses or reasons at this time.

Draw a large T-chart on the board with the headings Living and Non-Living. Be sure students understand the meaning of the prefix "non-" in the word *non-living.* Ask volunteers to choose one of the displayed objects and tell you where on the chart they think you should list it. Don't open their selections to discussion at this time; simply gather students' first impressions and record them. To supplement the objects on display, you might also hold up pictures from magazines and have students evaluate them.

Once the chart has a good number of items listed, ask the class to review the chart and discuss any items they think might belong on the other side of the chart. Whenever there is a consensus, erase an item from one side and move it to the other. Try to refrain from providing "correct" answers, as this activity is intended solely to get students thinking about unit concepts, not to provide final explanations.

Below are questions to spark discussion.

How did you decide to put certain items on one side or the other?

Was it difficult to decide where to place certain items on the chart? Which ones? Why?

Do you think any items should be listed on both sides of our chart? Explain.

If the plant died, would you move it from the "living" side to the "non-living" side, or would it still be a living thing?

A hamburger is made up of meat from a cow, vegetables from plants, and a bun made from other plants. Would you call it a living thing? Why or why not?

Use this activity to begin an introductory discussion about living and non-living things. Explain that scientists have come up with some helpful ways to determine whether something is a living thing or a non-living thing. Throughout the unit, students will learn more about how to tell the difference between living and non-living things.

Many of the unit's vocabulary terms are related to the spark activity and can be introduced during the spark. For vocabulary work, see the Vocabulary section in this *Unit Guide*.

PRIOR KNOWLEDGE

Invite students to explain their understanding of what it means to be a living thing and to identify any familiar living things. Discuss what makes a living thing different from a non-living thing.

Probing Questions to Think About

Use the following questions to have students begin thinking of what they know about living things.

- What are some examples of living things?
- What are some examples of non-living things?
- How can you tell if something is a living or non-living thing?
- Is there a difference between living things and things that are alive?
- Is there a difference between non-living things and dead things?
- Can a living thing ever become a non-living thing?
- Can a non-living thing ever become a living thing?
- If you were writing rules that explain how to tell whether something is living or not, what would they be? Start each rule with "All living things . . ."

Tell students they will learn more about these topics soon.

UNIT MATERIALS

Each unit provides a wide variety of resources related to the unit topic. Students may read books and other passages, work in groups to complete hands-on experiments and investigations, discuss science ideas as a class, watch videos, complete writing tasks, and take assessments.

Resources are available for printing or projecting, and many student resources are also available for students to access digitally on Kids A-Z.

Selected unit resources are available in more than one language.

For a complete list of materials provided with the unit, see the Living/Non-Living unit page on the Science A–Z website.

VOCABULARY

Use the terms below for vocabulary development throughout the unit. They can be found in boldface in the *Nonfiction Book*, the *Quick Reads*, and/or other unit resources. These terms and definitions are available on *Vocabulary Cards* for student practice. Additional vocabulary lists are provided in the teaching tips for *Investigation Packs* and *FOCUS Books*.

Core Science Terms

These terms are crucial to understanding the unit.

adapt	to change because of new conditions
cells	tiny parts of living things that carry everything needed for life
change	to become different
develop	to grow or expand
energy	the ability to do work or to make a change
living	alive now or once was alive
non-living	not alive now and never was alive
reproduce	to make another living thing of the same kind
respond	to react to something that happens

Other Key Science Terms

The following vocabulary is not essential for comprehending the unit but may enrich students' vocabulary.

alive	living right now
characteristic	any feature that helps identify something
dead	no longer alive
environment	all of the conditions that affect a living thing
grow	to get bigger
hair	thin strands that grow from the skin of a person or other animal
nail	a thin, hard covering at the tip of a finger or toe
nurse log	a fallen, dead tree that provides a home and food for other living things
skin	the body covering of a person or other animal

Vocabulary Activities

You may choose to introduce all the terms that will be encountered in the unit before assigning any of the reading components. *Vocabulary Cards* with the key science terms and definitions are provided. Dots on the cards indicate the reading levels of the *Nonfiction Book* or the *Quick Reads* in which each term can be found. If all level dots appear, the term may come from another resource in the unit. Students can use these cards to review and practice the terms in small groups or pairs. The cards can also be used for center activity games such as Concentration.

The *Word Work* activity sheets offer fun puzzles and practice with key vocabulary terms from the unit. For further vocabulary practice and reinforcement, you can choose from the vocabulary *Graphic Organizers*. To build customized vocabulary lessons with terms related to the topic, see Vocabulary A-Z.

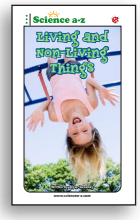
Students can use the *Word Smart* vocabulary *Graphic Organizer* to organize information on the science terms. You may want to assign each student one to three words to share his or her *Word Smart* knowledge with classmates. Students who have the same word should first compare their *Word Smart* sheets with each other and then report to the larger group.

The science terms can be used in oral practice. Have students use each term in a spoken sentence.

As students read, encourage them to create a science dictionary by recording new vocabulary terms and definitions in their *SAZ Journal*.

BACKGROUND AND MISCONCEPTIONS

Use this section as a resource for more background knowledge on unit content and to clarify the content for students if misconceptions arise. Refer to Using the Internet below for more ways to extend the learning.



Q: *Is a "living thing" the same as something that is "alive"?*

A: No, there is a distinction between these terms. To say that something is *alive* means that it is currently living, and it generally refers to a whole organism. *Living things* make up a broader category that includes things that once were alive (but are now dead) as well as parts of things that are or once were alive.

Q: *Is my hair a living thing? What about my fingernails?*

A: This question again gets at the distinction between the terms *living* and *alive.* As one of the *Quick Reads* in this unit explains, hair and fingernails are not alive, but they are considered living things because they are part of a living thing. Similar differences should be noted between the terms *non-living* and *dead.* Our ancestors from hundreds of years ago are dead, but in science terms, they are considered living things because when they were alive, they met all the criteria of living things.

Q: *Are all things that move living things?*

A: No. Windmills, cars, and clouds can all move, but they are non-living. At the same time, not all living things show obvious movement. Mushrooms do not appear to move but they are living things. (In fact, there is movement within a mushroom, although the whole mushroom does not get up and walk across a lawn.) This misconception is one of many examples of how students might take one characteristic of living things and try to establish their own rule for how to define all living things. They might state that all living things breathe, make noise, eat food, or have skin and blood. But when students discover that there are contradictory examples, they may come to understand the need for the broad criteria used in this unit. All these criteria must apply for something to be considered living.

Q: *So is there a difference between science's definition of* living *and common usage?*

A: Yes, there is. If we walk through a forest and pass fallen leaves or an animal carcass, we might casually consider these things to be non-living because they are dead. But in science, these things were once alive, so they are considered living things.

Q: *Aren't some things hard to classify?*

A: Indeed they are. Items such as a piece of cotton fabric or a bowl of tuna salad come from living things that once were alive. But these items have been changed from their natural form into something new, so they are no longer considered living things. A cotton plant and a tuna fish are living things, but these are not the items in question. The fabric and the salad are non-living things.

Q: *Are all non-living things* human-made?

A: No. Many natural items are also non-living, such as rocks and minerals, water, and air.

Q: *Do living things only consist of plants, fish, birds, amphibians, reptiles, and mammals?*

A: No. While these organisms may come to students' minds first—and all these are living things—there are many others, such as insects, worms, crustaceans, fungi, protozoa, and bacteria.

EXTENSION ACTIVITIES

Using the Internet

Most search engines will yield many results when *living and non-living things* is entered. You can also search for either term separately, but when combined, you are more likely to find suitable resources related to this unit. Be aware that some sites may not be educational or intended for the elementary classroom. More specific inquiries are recommended, such as:

- Is _____ a living thing?
- classification of living things
- living vs. non-living
- oldest living thing
- largest living thing
- the differences between living and non-living things

Projects and Activities

- **Field Trip:** Take students on a living/non-living nature walk. Have them list and/or draw many of the items they see on either a page of living things or a page of non-living things.
- **Arts:** Have students create two self-portraits by gluing objects or clipped pictures from magazines onto construction paper in the shape of their face. One should be made of non-living things, and the other should be made of (preapproved) living things and/or pictures of living things.
- **Writing:** Help students create a living/non-living book of their own in which pages alternate between "_____ is a living thing." and "_____ is a non-living thing." Students may choose the items for each page and add illustrations. See Writing A-Z for extensive writing instruction.
- **Writing/Project:** Divide the class into two teams, one in charge of living things and the other in charge of non-living things. Challenge the teams to come up with things in their category that start with each letter of the alphabet. The team that comes up with an item for the most letters in the alphabet within a given time wins the challenge.
- **Home Connection/Project:** Have students draw a picture of a real animal and a stuffed animal and explain why one is a living thing and the other is non-living. You might invite some students to bring both animals to class to let them demonstrate the differences firsthand.

- **English Language Learners:** Have students teach each other the words for common living and non-living things in their primary language.
- **Community Service:** Help students take part in an effort to add living things to their neighborhood, such as planting trees or building a safe habitat for wild animals.
- **Literature:** Have students review a variety of picture books and evaluate which aspects of the photos or illustrations show living things and which show non-living things. You might also discuss the difference between real and imaginary living things.
- **Research/Home Connection:** Students can conduct research as a family/home project or in the library/media center to extend the learning about a topic in one of the *Quick Reads* or other unit resources.