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Science Readers: Content and Literacy in Science— Kindergarten

This sample includes the following:

- Teacher's Guide Cover** (1 page)
- Table of Contents** (2 pages)
- How to Use This Product** (5 pages)
- Lesson Plan** (11 pages)
- Reader** (12 pages)

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SCIENCE READERS

Content *and* Literacy *in* Science

Kindergarten



Teacher's
Guide

Teacher Created Materials
PUBLISHING

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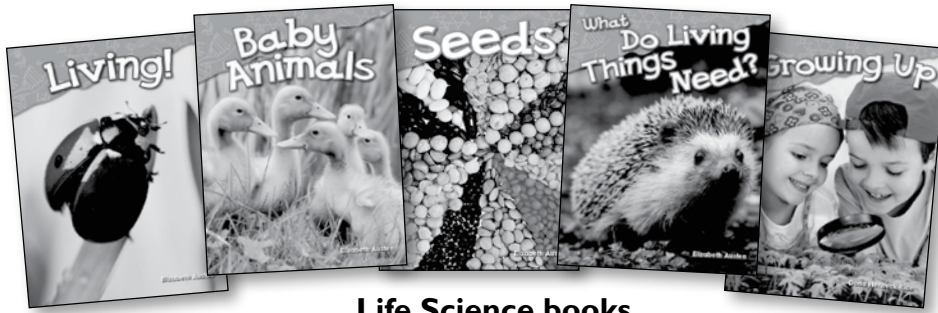
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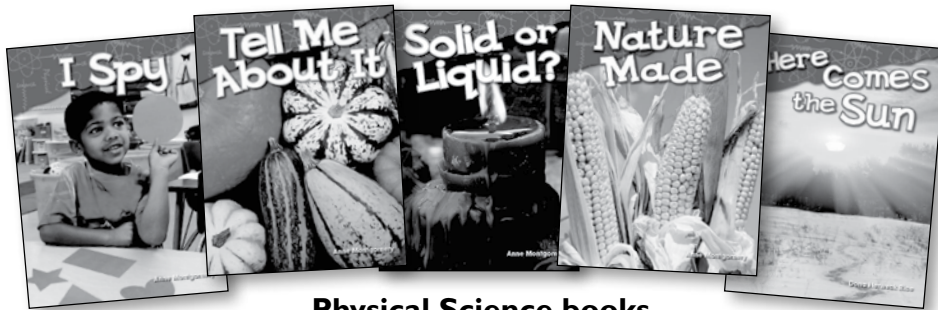
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Kit Components



Life Science books



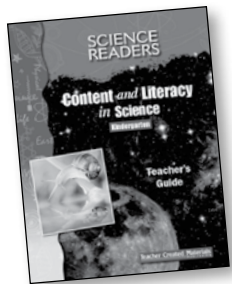
Physical Science books



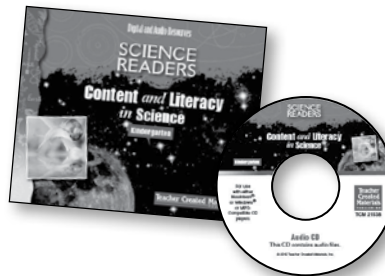
Earth and Space Science books



Scientific Practices book



Teacher's Guide



Digital and Audio Resources

Unit Organization

Overview Page

Living!

Learning Objectives
Students will:

- use the images and the words in the text to understand the book.
- complete sentences about living and nonliving things.
- identify letters for living and nonliving things.

Standards

- Reading:** With prompting and support, describe the relationship between illustrations and the text in which they appear.
- Writing:** Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic.
- Content:** Know that living things and nonliving objects are different.
- Language:** Communicate information, ideas, and concepts necessary for academic success in the content area of Science.

Lesson Timeline

Day	Task
Day 1	Introductory and Lab Activities Summary of Student Learning Activities Sort pictures of living and nonliving things.
Day 2	Before Reading (page 41) Summary of Student Learning Activities Sort pictures of living and nonliving things and practice what the text will say.
Day 3	During Reading (page 42) Summary of Student Learning Activities Complete sentences about living and nonliving things.
Day 4	After Reading (page 43) Summary of Student Learning Activities Identify living and nonliving things.
Day 5	Activity from the Book (page 43) and Assessments (page 45-46) Summary of Student Learning Activities Complete living and nonliving things in a picture and take the assessments.

Science strand

Learning objectives

Standards

Suggested timeline for lesson

Introductory and Lab Activities

Materials

- copies of the *Is It Alive?* activity sheet (page 44)
- copies of *Living and Nonliving Pictures* (pictures.pdf)
- one living and nonliving thing
- markers (permanent only)
- sandwich bags
- glue

Introductory Activity Engage

- Display a living thing, such as a flower, but do not tell students that it is living. Ask students to describe it. Record their responses on the board.
- Then display a nonliving thing, such as a coin, but do not tell them that it is not living. Ask students to describe it. Record their responses on the board. Tell students that they will learn more about how these objects are different.

Lab Activity Explore & Explain

- Before the lesson, print copies of the *Living and Nonliving Pictures* activity sheet (pictures.pdf) from the Digital Resources. Cut out the pictures and put each in an individual sandwich bag. Place students in pairs. Distribute one sandwich bag to each pair.
- Have students study and discuss the images with their partners. Have them discuss how the pictures are similar and how they are different. Ask students to group the images in any way they can.
- Ask students questions about their thinking as they examine the pictures:
 - What do you notice about the pictures?
 - How did you group them?
 - Can you group them a different way?
 - Which things are living? Which things are not living? How are you sure?
 - What do the living things have in common? What do the not-living things have in common?
- As a class, discuss student ideas about living and nonliving things. Discuss which pictures show living nonliving things. Clarify any student misconceptions.
- Distribute copies of the *Is It Alive?* activity sheet (page 44) to students. Read the directions aloud. As students work, ask them to explain how they know which things are living.
 - Have **Below-level learners** and **English language learners** work in a small group in discussion where each student should be placed in the Ticket. Ask students to justify their answers.
 - Challenge **above-level learners** to name additional examples of living and nonliving things.

Materials

Engage students with the Introductory Activity

Explore and Explain the new concept with the Lab Activity

Before Reading

During Reading

After Reading

Materials list

Vocabulary Word Bank

Elaborate on the concept with a vocabulary and a prereading activity

Materials

- copies of the *Is It Alive?* activity sheet (page 44)
- copies of the *Vocabulary Word Bank* (page 45)
- markers
- glue

Before Reading

- Print the *Is It Alive?* activity sheet for the book. Read the directions aloud. Have students complete the activity. Have them discuss their answers with their partners. Ask them to explain how they know which things are living and which things are not living.
- Print the *Vocabulary Word Bank* for the book. Read the directions aloud. Have students complete the activity. Have them discuss their answers with their partners. Ask them to explain how they know which things are living and which things are not living.

During Reading

- Have students study and discuss the images with their partners. Have them discuss how the pictures are similar and how they are different. Ask students to group the images in any way they can.
- Ask students questions about their thinking as they examine the pictures:
 - What do you notice about the pictures?
 - How did you group them?
 - Can you group them a different way?
 - Which things are living? Which things are not living? How are you sure?
 - What do the living things have in common? What do the not-living things have in common?

After Reading

- As a class, discuss student ideas about living and nonliving things. Discuss which pictures show living nonliving things. Clarify any student misconceptions.
- Distribute copies of the *Is It Alive?* activity sheet (page 44) to students. Read the directions aloud. As students work, ask them to explain how they know which things are living.
 - Have **Below-level learners** and **English language learners** work in a small group in discussion where each student should be placed in the Ticket. Ask students to justify their answers.
 - Challenge **above-level learners** to name additional examples of living and nonliving things.

Materials list

Elaborate with an After Reading activity on Day 4

Evaluate with Assessments on Day 5

Student Reproducibles and Assessments

Is It Alive?

Write It!

Living or Not Living?

Living! Quiz

At the Bench

Clear directions

Multiple-choice quiz

Data Analysis activity

Wide write-on lines

Pacing Plan

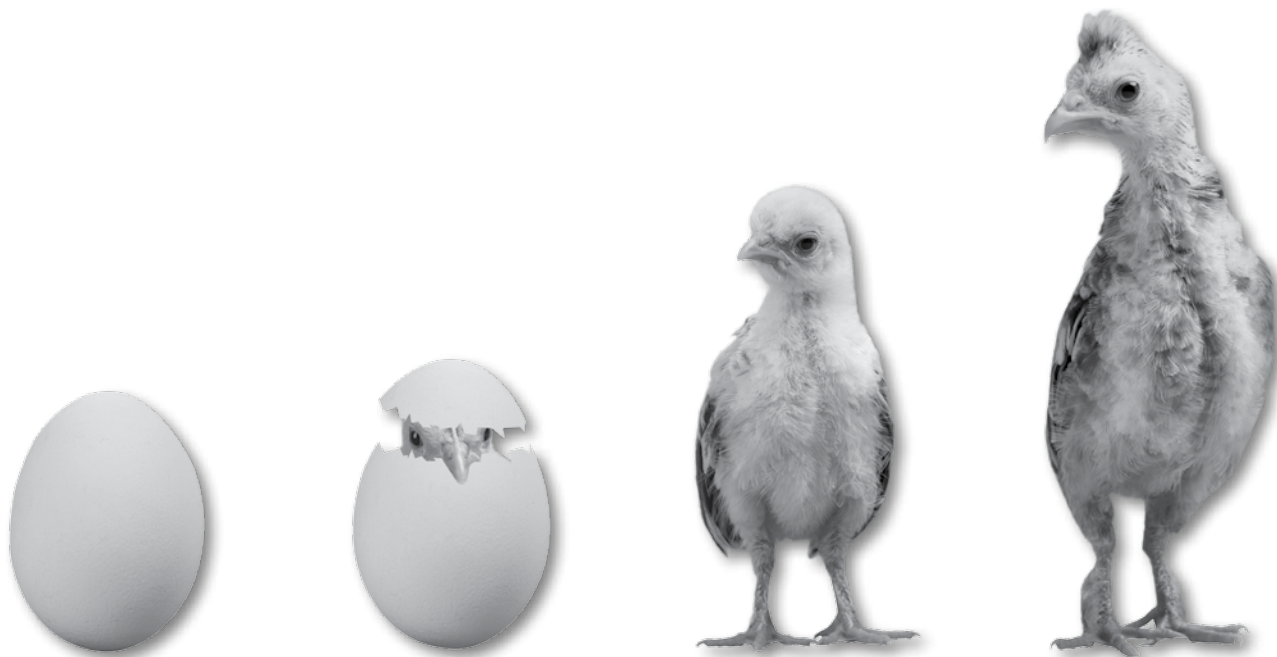
The following pacing plan shows an option for using this product. Teachers should customize this pacing plan according to their students' needs. One lesson has been included for each of the 16 books. Each day of the lesson requires 15 to 30 minutes of time and spans 5 instructional days, for a total of approximately 20–40 hours over the course of 80 days.

Instructional Time	Frequency	Setting
15–30 min/day	5 days/week	Whole-class, small-group or one-on-one instruction

Day 1	Day 2	Day 3	Day 4	Day 5
Introductory and Lab Activities	Before Reading	During Reading	After Reading	Activity from the Book and Assessments

Lab Safety

To ensure safety in the science classroom, a Science Safety Contract has been provided in the Digital Resources ([safety.pdf](#)). Distribute copies of this contract to students prior to beginning any science instruction. Discuss with students how to be respectful and responsible during science activities. Ask students and their parents/guardians to sign and return the contract for your records.



Science Strands

The books and lessons in this kit cover the three strands of science which encompass the Disciplinary Core Ideas. The icons in the lessons and on the back of the books denote each strand. One book in this kit is devoted completely to scientific practices. This book describes how to think like a scientist and study the natural world.



Differentiation

Students learn best when material is scaffolded appropriately. If a student is confronted with material that is too difficult, he or she may become frustrated and give up. However, if a student is not challenged enough, he or she may become bored and lose interest in the subject. Differentiation is not about making the work easy for students. Instead, it is about challenging all students appropriately.

The books in this kit are leveled to target and support different groups of learners. The chart on page 26 contains specific information on the reading levels of the books included in this kit. The lesson plans for these books have **differentiation strategies** to help **above-, on-, and below-level learners** comprehend the material. These strategies will ensure that students are actively engaged in learning while receiving the support or enrichment that they need.

English language learners have different instructional needs. Although these students may struggle with reading, that is not always the case. **English language learners** need different support depending on their level of English proficiency. The lesson plans in this kit offer suggestions to differentiate instruction for the unique needs of **English language learners**.

SCIENCE READERS

Differentiation Tools in This Kit

- Audio recordings of texts model fluency and support auditory learners.
- An Interactiv-eBook for each book supports students through video, audio, and other digital functions.
- Graphic organizers support visual learners and language learning.
- Hands-on lab activities engage tactile learners.
- Leveled books support above-, on-, and below-level learners.
- Differentiation strategies embedded in each lesson support a variety of learners.

Assessment

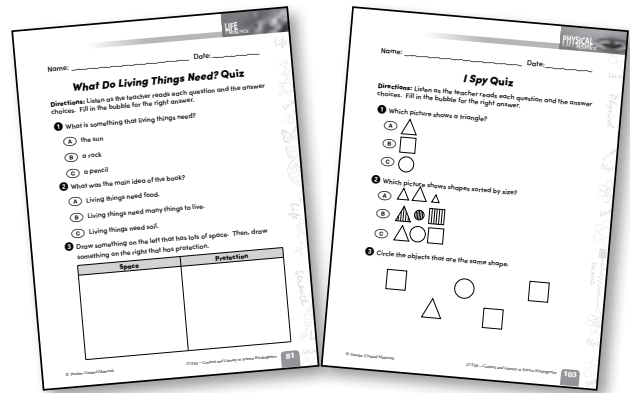
Assessment is an important part of this unit of study. The *Science Readers* series offers multiple assessment opportunities. You can gain insight into students' learning through multiple-choice quizzes, small-group observations, analysis of written assignments, and a culminating activity. These formal and informal assessments provide you with the data needed to make informed decisions about what to teach and how to teach it. This is the best way for you to know who is struggling with various concepts and how to address the difficulties that students are experiencing with the curriculum.

Multiple-Choice Quizzes—At the end of each book's lesson in this Teacher's Guide is a short quiz with multiple-choice questions. These short assessments may be used as open-book evaluations or as review quizzes in which students read and study the content prior to taking the quiz. Additionally, the quizzes may be used as a more formal assessment to provide evidence of learning.

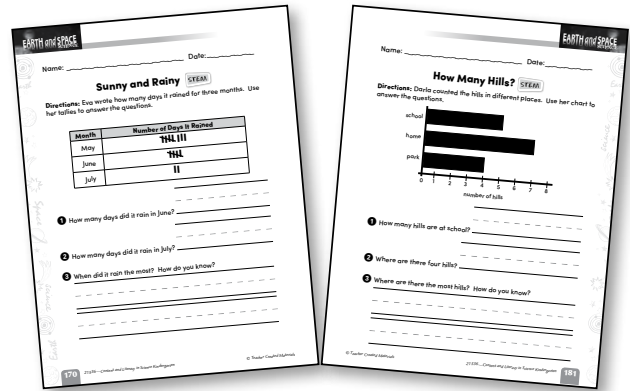
Data Analysis Activities—Each activity includes content-related data and text-dependent questions. These questions help students develop and strengthen critical thinking skills.

Culminating Activity—The culminating activity asks students to apply what they have learned throughout the units in an engaging and interactive way. Students use what they have learned to create new ideas in a real-life context.

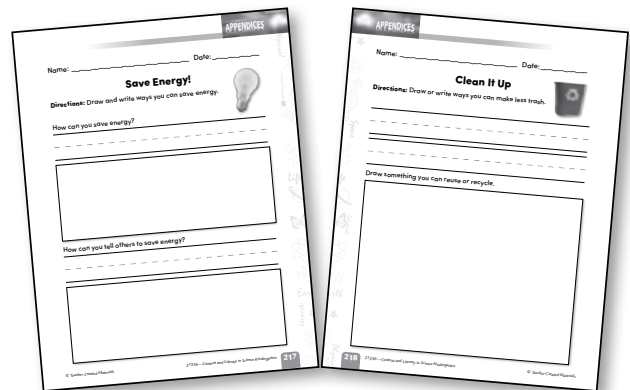
Progress Monitoring—There are several points throughout each lesson where useful evaluations can be made. These evaluations can be made based on group, paired, and individual discussions and activities.



Multiple-Choice Quizzes



Data Analysis Activity



Culminating Activity



Learning Objectives

Students will:

- identify the main idea of the book.
- complete sentences about what living things need.
- identify what living things need to survive.

Standards

- **Reading:** With prompting and support, identify the main topic and retell key details of a text.
- **Writing:** Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic.
- **Content:** Use observations to describe patterns of what plants and animals (including humans) need to survive.
- **Language:** Communicate information, ideas, and concepts necessary for academic success in the content area of Science.

Lesson Timeline

Day 1
Task
Introductory and Lab Activities (page 73)

Summary of Student Learning Activities

Observe how plants fare with and without water.

Day 2
Task
Before Reading (page 74)

Summary of Student Learning Activities

Make predictions about the main idea.

Day 3
Task
During Reading (page 75)

Summary of Student Learning Activities

Identify the main idea of the book and complete sentences about living things.

Day 4
Task
After Reading (page 76)

Summary of Student Learning Activities

Identify what living things need to survive.

Day 5
Task
Activity from the Book (page 76) and **Assessments** (pages 81–82)

Summary of Student Learning Activities

Determine whether different plants have what they need and take the assessments.



Materials

- copies of the *Who Needs Water?* activity sheet (page 77)
- goldfish (or picture of a goldfish)
- two potted plants (not a succulent or cactus)

Day 1

Observe how plants fare with and without water.

Introductory Activity

Engage

1. Present students with a plant, a goldfish (or a picture of a goldfish), and a person (yourself). Ask students to spend 20 seconds silently thinking about what these different living things need to stay alive.
2. Write *plant*, *fish*, and *person* on the board. Underneath each heading, write student ideas for what each one needs to live. If there is something that they all need (such as water), write it in each column. Then, tell students that they are going to learn more about what living things need.

Lab Activity

Explore & Explain

1. Tell students that, as a class, they will be conducting an experiment. One plant will be watered every day, and another plant will not be watered at all.
2. Every day, have students take turns giving the wet plant approximately one tablespoon of water.
3. Once the dry plant is visibly wilted, bring both plants to the front of the room and ask students to discuss what happened in small groups.
4. Ask students questions about their thinking as they talk about the plants. Use the questions to guide students to the idea that without water, living things cannot survive:
 - Which plant looks better to you?
 - Why do you think it is doing better?
 - What do you think would happen if we watered the dry plant?
 - What does this tell you about what living things need?
5. Bring the class together and have volunteers from each group share their thoughts about the experiment. Write *with water* and *without water* on the board. Under *with water* invite students to guide you in drawing the plant that was watered every day. Under *without water*, ask students to help you draw the wilted plant. Add descriptive words the students use next to each drawing.
6. Lead a class discussion about living things. Explain to students that all living things need water. Help students identify examples of living things.
7. Distribute copies of the *Who Needs Water?* activity sheet (page 77) to students. Read the directions aloud. Have students circle the pictures of things that need water.

Day 2

Make predictions about the main idea.

Materials

- *What Do Living Things Need?* books
- copies of the *What Will It Be?* activity sheet (page 78)
- half-sheets of paper

Vocabulary Word Bank

- protection
- space

Before Reading

Elaborate

1. Write the vocabulary words on the board. Explain the meaning of each word and provide examples.
2. Put students in small groups. Distribute half sheets of paper to each group. On one side, have students write the word *protection* and draw a picture that will help them remember its meaning. On the other side, have them write *space* and draw a picture to help them remember its meaning.
3. Invite students to show their pictures to the class. Have students keep their papers to reference during the unit.
4. Show the class the *What Do Living Things Need?* book. Read the title aloud and describe the front cover. Flip through a few pages of the book and show students the pictures. Ask them to consider what the book might be about. Explain that this is the main idea. Tell them that the cover and pictures should give them clues.
5. Distribute copies of the *What Will It Be?* activity sheet (page 78) to students. Read the directions aloud. Ask students to share their predictions with you.
 - Have **below-level learners** and **English language learners** dictate their labels to you. Write what they dictate and then have them trace over your words.
 - Challenge **above-level learners** to write their predictions as sentences.



Materials

- *What Do Living Things Need?* books
- copies of the *What They Need* activity sheet (page 79)

Day 3

Identify the main idea of the book and complete sentences about living things.

During Reading

Elaborate

1. Distribute the *What Do Living Things Need?* books to students. Read the book aloud as students follow along. Pause after each page spread to discuss the specific living things on the pages and answer any questions students may have.
2. Remind students of their predictions about the main idea from the Before Reading activity. Have students discuss whether their predictions were correct.
 - You may choose to display the Interactiv-eBook for a more digitally enhanced reading experience.
3. Have students read in pairs for the second reading. Instruct students to take turns reading pages with their partners.
 - For **below-level learners** and **English language learners**, you may choose to play the audio recording as students follow along to serve as a model of fluent reading. This may be done in small groups or at a listening station. The recordings will help struggling readers practice fluency and aid in comprehension.
4. After students have finished reading, ask them what the book is mainly about. Guide students to understand that the main idea is that living things need many things to live. Help them list examples from the book that support this idea.
5. Distribute copies of the *What They Need* activity sheet (page 79) to students. Read the directions aloud. Have students use the words in the Word Bank to complete the sentences.
 - Have **below-level learners** and **English language learners** use the beginning sounds of each word to determine which words match the pictures.
 - Have **above-level learners** write their own sentences about what living things need.



Materials

- *What Do Living Things Need?* books
- copies of the *Needs in Nature, What Do Living Things Need? Quiz*, and *How Much Water?* activity sheets (pages 80–82)

Days 4&5

Identify what living things need to survive. Determine whether different plants have what they need and take the assessments.

After Reading

Elaborate & Evaluate

1. Read aloud the sentence frames below to help students review the vocabulary words. Instruct them to complete the sentence with the correct vocabulary word. You may wish to use vocabulary words from other units of study to extend the activity.
 - > Some animals have tough shells for _____.
 - > Animals need _____ to move.
 - > Animals may change colors for _____.
 - > Plants need _____ to grow.
2. Distribute the *What Do Living Things Need?* books and copies of the *Needs in Nature* activity sheet (page 80) to students. Read the directions aloud. Model for students how to label an image by drawing a line toward it. Assist students as needed. Encourage them to use the book's text and pictures if they need help.

Activity from the Book

Read the Your Turn! prompt aloud from page 22 of the *What Do Living Things Need?* book. Have students look at plants and decide whether or not they have everything they need.

1. A short posttest, *What Do Living Things Need? Quiz* (page 81), is provided to assess student learning from the book.
2. A data analysis activity, *How Much Water?* (page 82), is provided to assess students' understanding of how to analyze scientific data. Read the directions aloud. Point to the chart and read the labels beside each bar. Explain to students that the chart shows how much water the plant needed in different months. **STEM**
3. Read each question aloud. Provide time for students to complete the assessment. You may wish to have students dictate their answers to you as needed. **Note:** You may need to preteach the skill of reading bar graphs before giving this assessment.
4. The Interactiv-eBook activities may be used as a form of assessment (optional).



Name: _____ Date: _____

Who Needs Water?

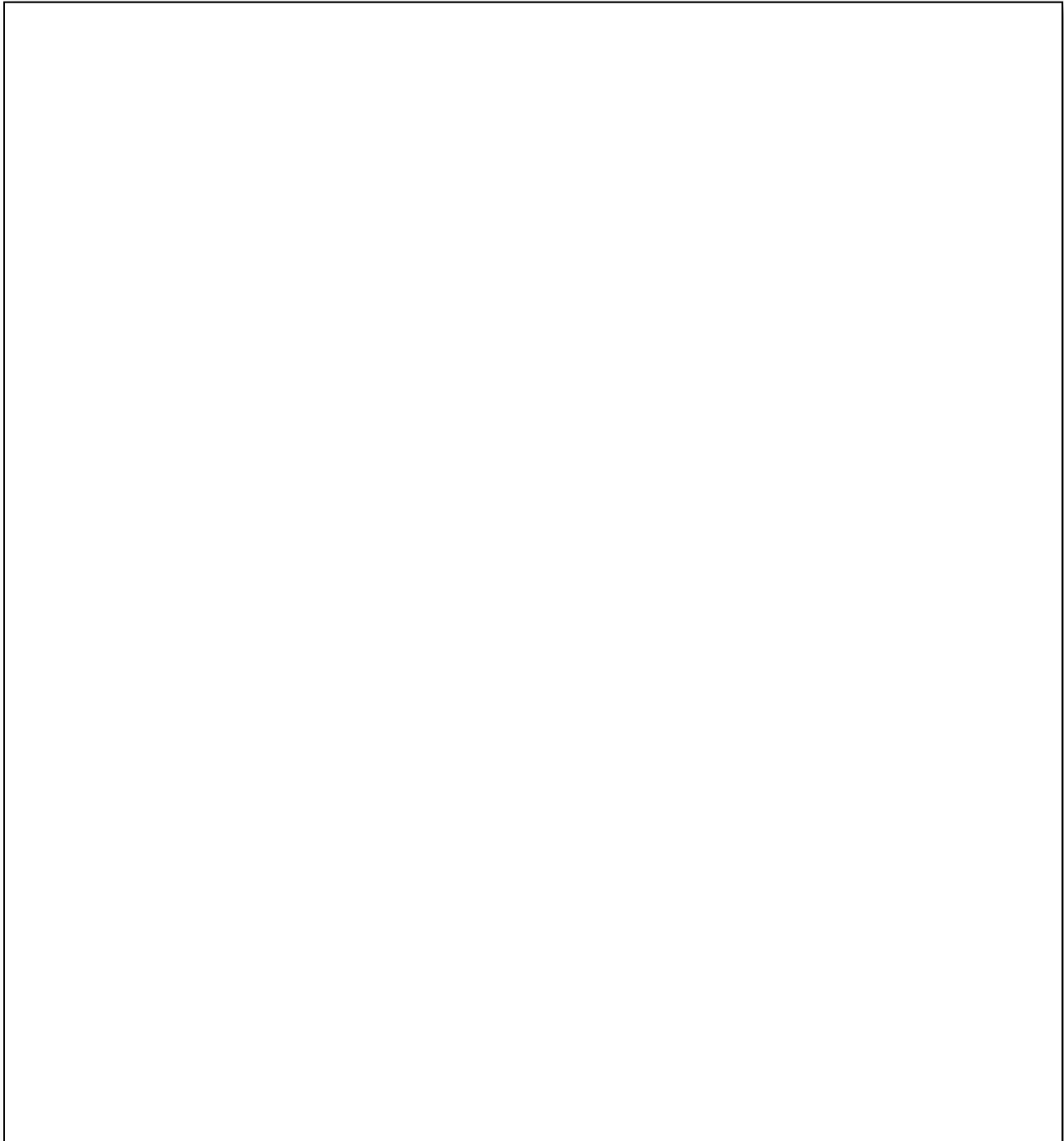
Directions: Circle the things below that need water to live.



Name: _____ Date: _____

What Will It Be?

Directions: What do you think the book will be about? Draw a picture and label it.





Name: _____ Date: _____

What They Need

Directions: Complete the sentences below. Use the words in the Word Bank to help you.

homes

food

protection

water

1

Living things need

_____.

2

Living things need

_____.

3

Living things need

_____.

4

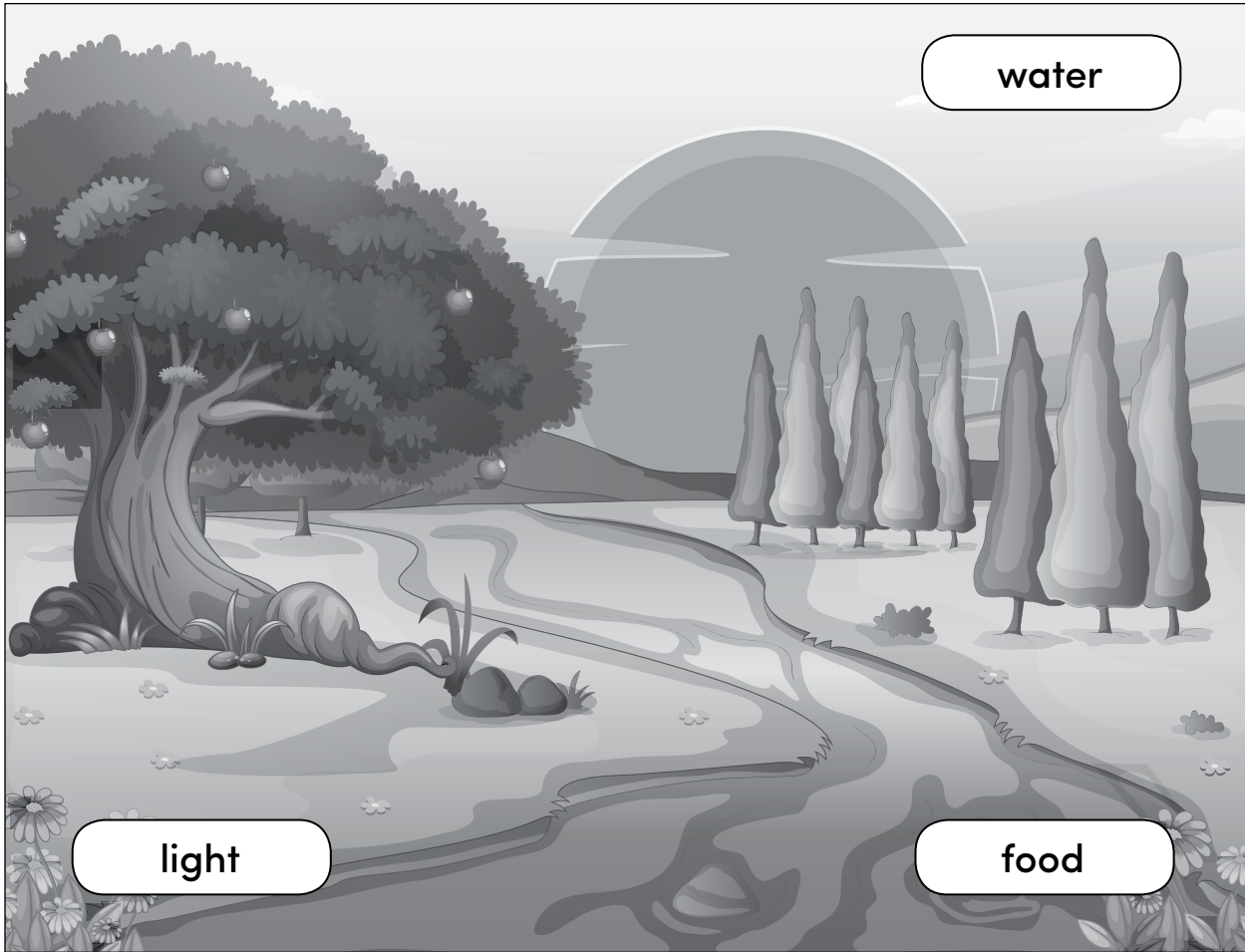
Living things need

_____.

Name: _____ Date: _____

Needs in Nature

Directions: Read the words below. Draw a line from each word to the matching part of the picture.



Do more! Can you see any more things that living things need? Label them in the picture.



Name: _____ Date: _____

What Do Living Things Need? Quiz

Directions: Listen as the teacher reads each question and the answer choices. Fill in the bubble for the right answer.

1 What is something that living things need?

- A the sun
- B a rock
- C a pencil

2 What was the main idea of the book?

- A Living things need food.
- B Living things need many things to live.
- C Living things need soil.

3 Draw something on the left that has lots of space. Then, draw something on the right that has protection.

Space	Protection

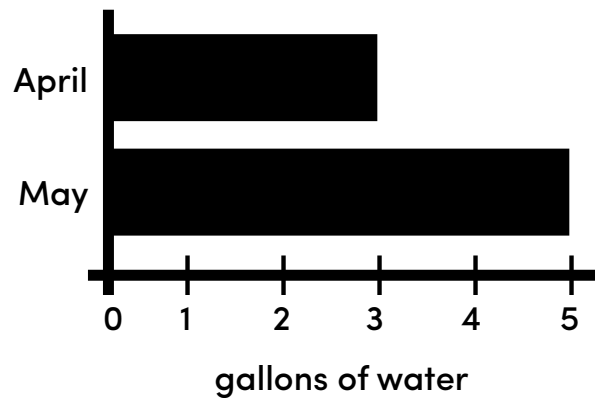


Name: _____ Date: _____

How Much Water?

STEM

Directions: Sandra takes care her flowers. She waters them when they get dry. She wrote how much water she gave them in April and in May. Use her chart to answer the questions.



- 1 How many gallons of water did the plants need in April?

_____ gallons

- 2 How many gallons of water did the plants need in May?

_____ gallons

- 3 When did the plants need more water? How do you know?

What
**Do Living
Things
Need?**



Elizabeth Austen



Living things
need light.



Living things
need food.



Living things
need water.





Living things
need air.



Living things
need **space**.



Living things
need homes.





Living things
need **protection.**



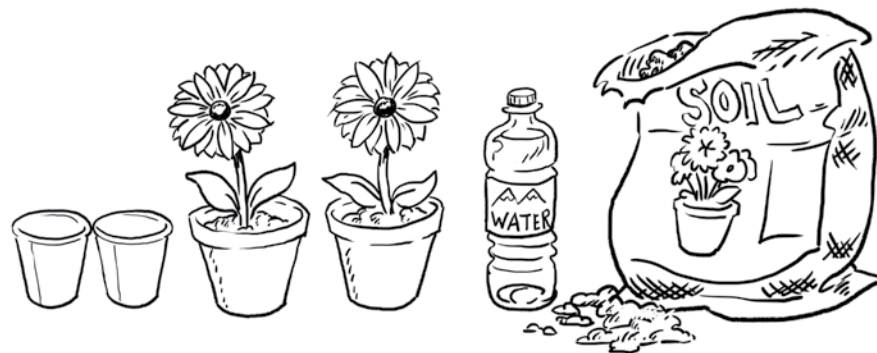
Living things need
other living things.

Let's Do Science!

What do living things need?
Try this!

What to Get

- ❑ 2 paper cups
- ❑ 2 potted flowers
- ❑ soil
- ❑ water



What to Do

- 1 Plant the flowers in the cups. Put them in a sunny place.



- 2 Water one cup each day. Do not water the other cup.



- 3 After a few days, what do you see? Is there a difference between the flowers?



Glossary

protection—a thing that keeps something safe

space—an empty area



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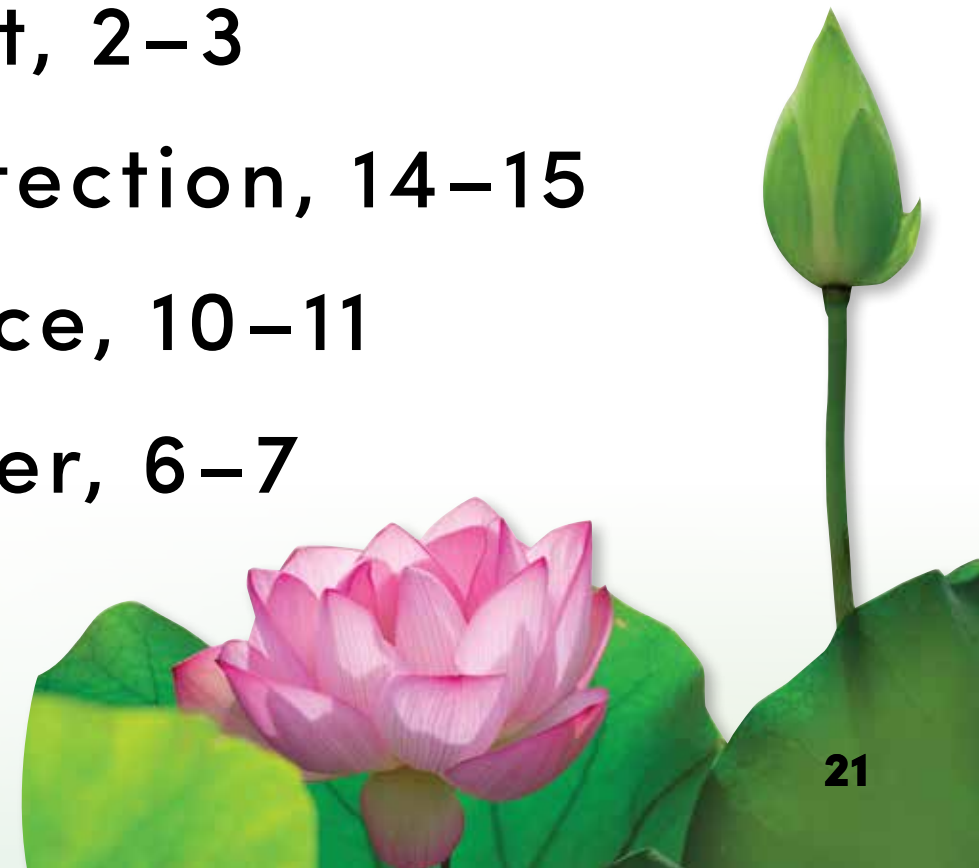
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Your Turn!



Look at some plants. What plants have everything they need? What plants do not? How can you tell?

