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Science Readers: Content and Literacy in Science—Grade 1

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 (13 pages)

SCIENCE READERS

Content *and* Literacy *in* Science

Grade 1

Teacher's Guide

Teacher Created Materials PUBLISHING

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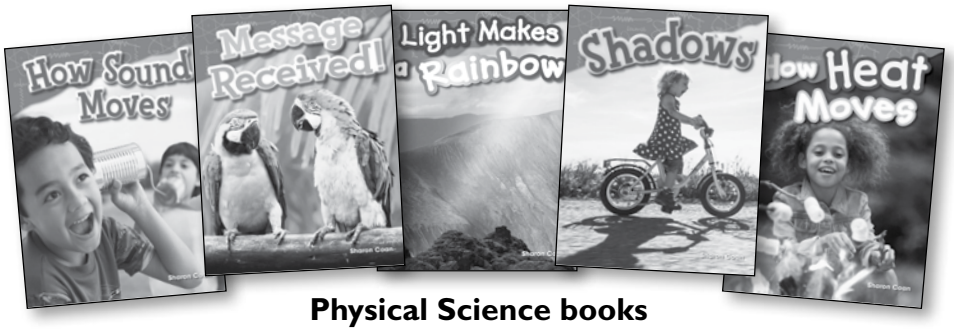
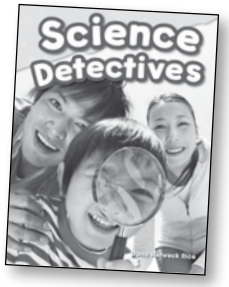
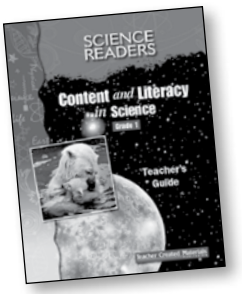


Physical Science books

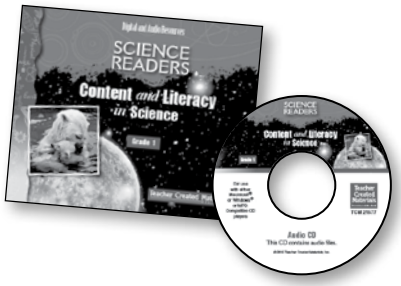
Earth and Space Science books



Scientific Practices book



Teacher's Guide

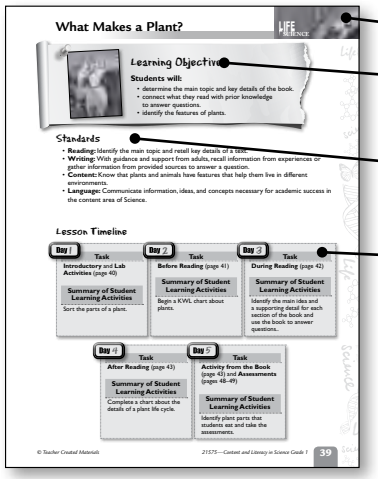


Digital and Audio Resources

How to Use This Product

Unit Organization

Overview Page



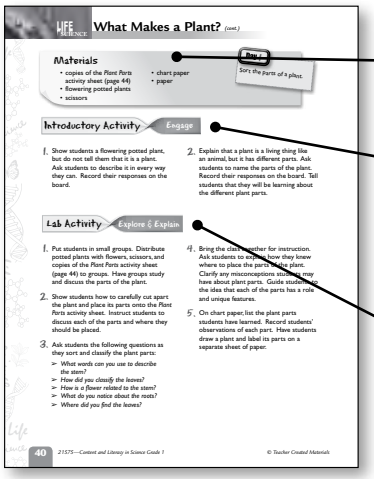
Science strand

Learning objectives

Standards

Suggested timeline for lesson

Introductory and Lab Activities

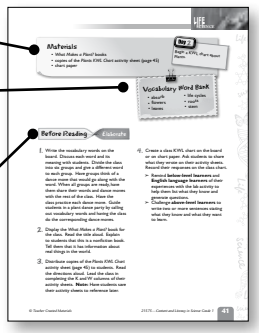


Materials

Engage students with the Introductory Activity

Explore and Explain the new concept with the Lab Activity

Before Reading

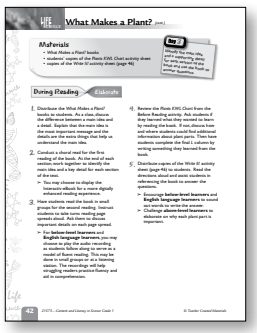


Materials list

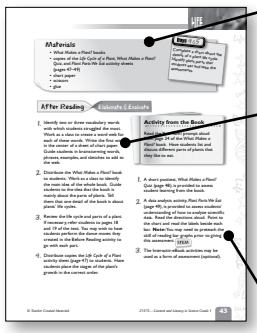
Vocabulary Word Bank

Elaborate on the concept with a vocabulary and a prereading activity

During Reading



After Reading

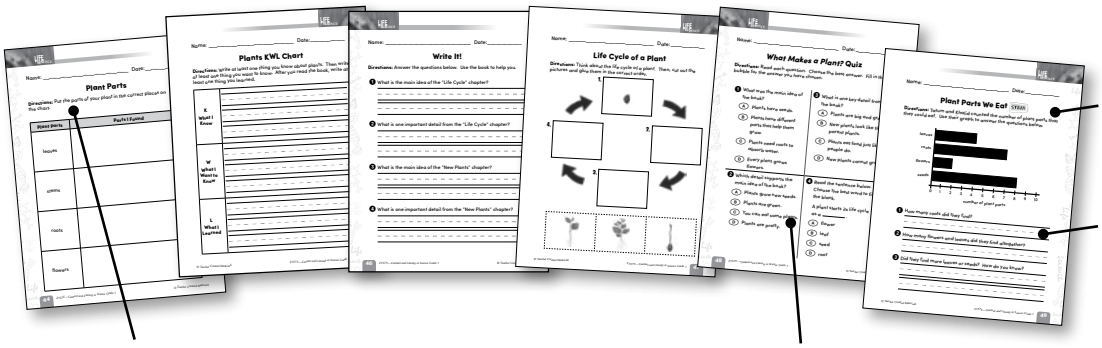


Materials list

Elaborate with an After Reading activity on Day 4

Evaluate with Assessments on Day 5

Student Reproducibles and Assessments



Data Analysis activity

Wide write-on lines

Clear directions

Multiple-choice quiz

How to Use This Product *(cont.)*

Pacing Plan

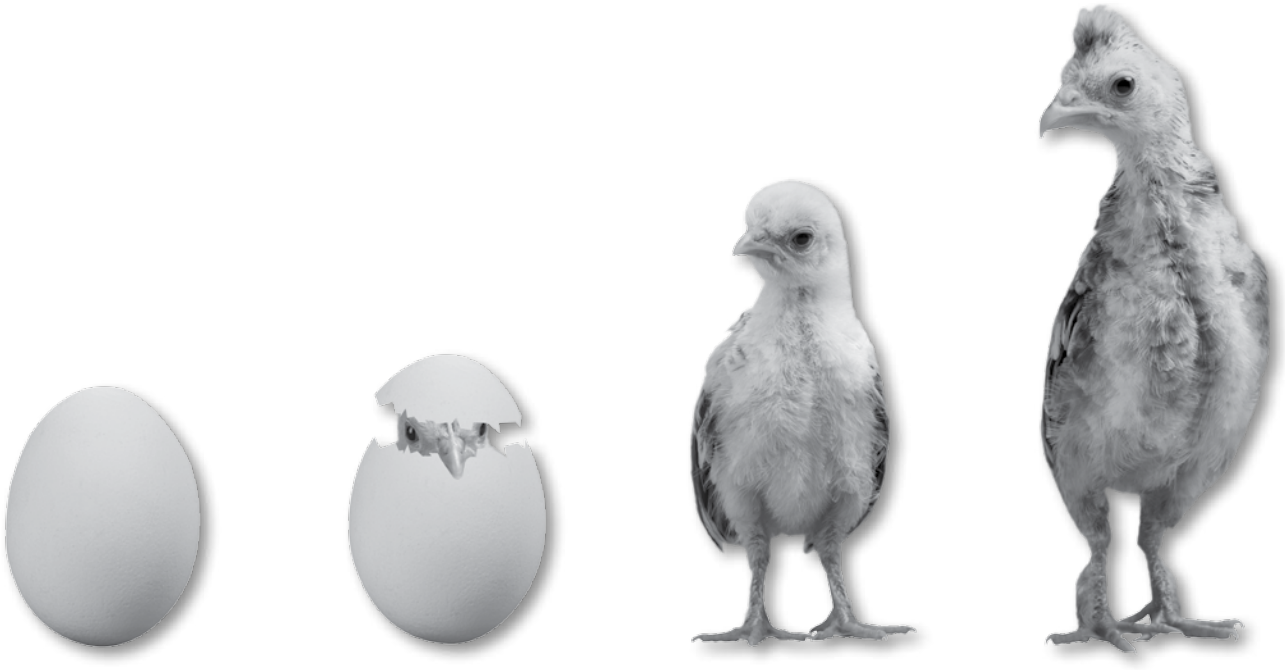
The following pacing plan shows an option for using this product. Teachers should customize this pacing plan according to their students' needs. One lesson has been included for each of the 16 books. Each day of the lesson requires 15 to 30 minutes of time and spans 5 instructional days, for a total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

Instructional Time	Frequency	Setting
20–30 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.

How to Use This Product *(cont.)*

Assessment

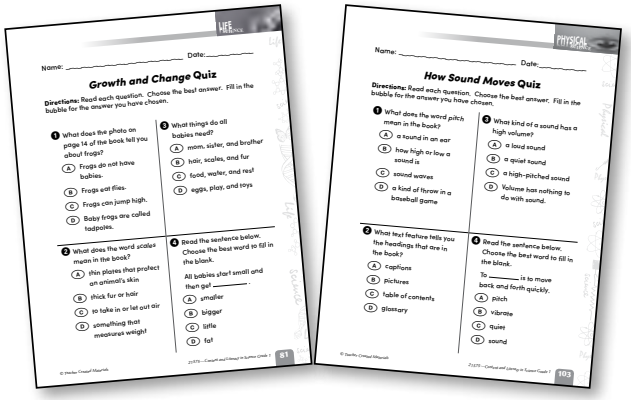
Assessment is an important part of this unit of study. The *Science Readers* series offers multiple assessment opportunities. You can gain insight into students' learning through multiple-choice quizzes, small-group observations, analysis of written assignments, and a culminating activity. These formal 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.

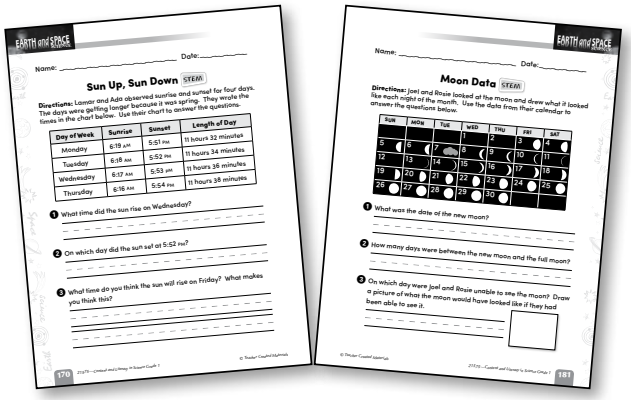
Data Analysis Activities—Each activity includes content-related data and text-dependent questions. These questions help students develop and strengthen critical thinking skills.

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.

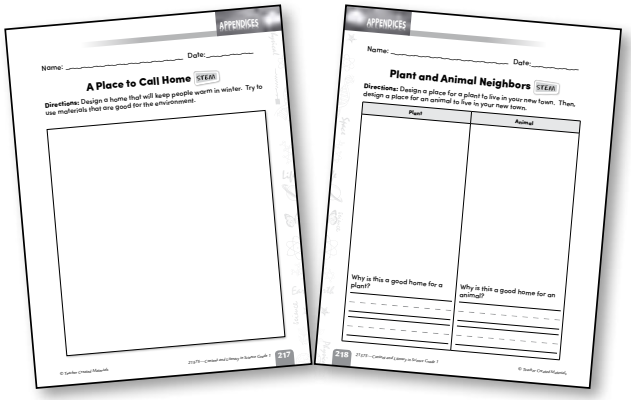
Progress Monitoring—There are several points throughout each lesson where useful evaluations can be made. These evaluations can be made based on group, paired, and individual discussions and activities.



Multiple-Choice Quizzes



Data Analysis Activity



Culminating Activity

Earth and Moon

Learning Objectives

Students will:

- use text features to locate facts and information in the book.
- recall information from the text and experiences to answer a question.
- identify patterns of the moon and Earth.

Standards

- **Reading:** Know and use various text features to locate key facts or information in a text.
- **Writing:** With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.
- **Content:** Use observations of the sun, moon, and stars to describe patterns that can be predicted.
- **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 172)

Summary of Student Learning Activities

Observe how the moon's shadow creates the phases that we see.

Day 2

Task

Before Reading (page 173)

Summary of Student Learning Activities

Preview the book and hunt for text features.

Day 3

Task

During Reading (page 174)

Summary of Student Learning Activities

Use text features to locate information and answer a question using information from the book.

Day 4

Task

After Reading (page 175)

Summary of Student Learning Activities

Practice using the index to find information in the book.

Day 5

Task

Activity from the Book (page 175) and **Assessments** (pages 180–181)

Summary of Student Learning Activities

Create a chart listing the phases of the moon that they observed and take the assessments.

Earth and Moon *(cont.)*

Materials

- copies of the *Lab Observations* activity sheet (page 176)
- paper
- coloring supplies
- ball
- lamp

Day 1

Observe how the moon's shadow creates the phases that we see.

Introductory Activity — Engage

1. Have students close their eyes and imagine that they are outside at night. Ask them what they see. When students mention the moon, ask everyone to picture in their heads what the moon looks like.
2. Have students open their eyes and draw a picture of the moon on a sheet of paper.
3. Have students share their drawings. Remind them of the other shapes the moon may have, such as a circle, a partial circle, or a crescent. Explain that the moon looks different each night and they will learn why.

Lab Activity — Explore & Explain

1. Before the activity, darken the room. Place a lamp without a shade in the center of the room. You may wish to do this activity as a whole class or place students in small groups, providing space to conduct the observations. Distribute a playground ball to each group. Tell students to pretend that the ball is the moon, the lamp is the sun, and they are Earth.
2. Instruct students to hold the ball slightly above their heads, if necessary, to keep their own shadows from interfering. Have them spin slowly in a circle while holding the ball. Ask them to discuss the shapes that the shadows make on the ball.
3. Ask questions to guide students to the idea that only the part of the moon that is lit by the sun can be seen.
   - ➢ *What shadows do you see on the ball?*
   - ➢ *What do you notice about the shapes the shadows make?*
   - ➢ *How are the moon and the ball the same and different?*
   - ➢ *What happens to the shadow as you spin?*
4. Bring the class together for instruction. Ask students to share their understanding of why the moon looks different. Explain how the moon's shadow creates the different shapes, or phases, that we see. Clarify any misconceptions students may have about the moon.
5. Distribute copies of the *Lab Observations* activity sheet (page 176) to students. Read the directions aloud. Have students draw the ball's shadows from four different locations.

Materials

- *Earth and Moon* books
- copies of the *Hunting for Text Features* activity sheet (page 177)
- index cards
- chart paper

Day 2

Preview the book and hunt for text features.

Vocabulary Word Bank

- axis
- full moon
- new moon
- phases
- planet
- rotates

Before Reading — Elaborate

1. Write the vocabulary words on index cards. Discuss the words and explain their definitions. Then, place students in small groups and distribute a set of index cards to each group.

2. Ask groups to sort the words on the cards in a way that makes sense. After groups have finished, have each group explain how they arranged the words.

3. Display the *Earth and Moon* book for students and read the title aloud. Explain that nonfiction books use text features to help readers understand the text and find information.

4. Create a list of text features on chart paper. Be sure to list *captions*, *headings*, *sidebars*, *bold words*, *glossary*, *index*, and *table of contents*. Explain the purpose of each. Have students help you identify examples of each text feature in the book. **Note:** Save the list of text features to use later in the lesson.

   ➢ Pull **below-level learners** and **English language learners** into a group. Have them create a visual glossary for the text features by drawing a small sketch or illustration of each text feature and labeling it.

5. Distribute the *Earth and Moon* books and copies of the *Hunting for Text Features* activity sheet (page 177) to students. Read the directions aloud. Have students work in small groups to complete a text features scavenger hunt, noting the page numbers where they find each feature.

Earth and Moon *(cont.)*

Materials

- *Earth and Moon* books
- copies of the *Earth and Moon Words* and *A Day on Earth* activity sheets (pages 178–179)

Day 3

Use text features to locate information and answer a question using information from the book.

During Reading — Elaborate

1. Distribute the *Earth and Moon* books to students. Conduct a choral reading for the first reading of the book. Point out the text features on the pages as you read. Then, discuss how and why authors include text features and how they help readers locate information in a text.

2. Ask students what they know about a glossary. Model how to use the glossary. Think aloud to explain how a glossary can help a reader determine the meaning of unknown words.
   - ➢ 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 aloud with their partners. Ask them to discuss which text features in the book would be the most helpful when trying to locate information.

4. Distribute copies of the *Earth and Moon Words* activity sheet (page 178) to students. Read the directions aloud. Have pairs use the glossary to complete the activity sheet together.
   - ➢ 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.

5. Distribute copies of the *A Day on Earth* activity sheet (page 179) to students. Read the directions aloud. Lead the class in examining and analyzing the text features on page 7 of the book. Have students write what they learned from each text feature.
   - ➢ Have **above-level learners** create another text feature that would help readers understand the text on page 7.

Materials

- *Earth and Moon* books
- copies of the *Earth and Moon Quiz* and *Moon Data* activity sheets (pages 180–181)

Days 4&5

Practice using the index to find information in the book. Create a chart listing the phases of the moon that they observed and take the assessments.

After Reading — Elaborate & Evaluate

1. Review the meanings of the vocabulary words with students. Then, use the words in sentences. Use some of the words correctly, and some of them incorrectly. Have students respond by either showing you a thumbs up if they think you used the word correctly, or a thumbs down if you used the word incorrectly.

2. Distribute the *Earth and Moon* books to students. Select one word from the index on page 23. Explain to students that the index shows where to find topics in the book, whereas the glossary gives the meanings of words. Model how to find the page on which the word appears and find it in the text.

3. Hold index races where a student calls out a topic and the remaining students race to find it in the text using the index. Discuss each topic. Ask students to explain how the index helped them find the topics more quickly than if they searched page by page.

Activity from the Book

Read the Your Turn! prompt aloud from page 24 of the *Earth and Moon* book. Have students work in pairs to discuss the phases of the moon, and create a chart listing all the phases they have seen.

1. A short posttest, *Earth and Moon Quiz* (page 180), is provided to assess student learning from the book.

2. A data analysis activity, *Moon Data* (page 181), is provided to assess students' understanding of how to analyze scientific data. Read the directions aloud. Point to the calendar and read the labels for the days of the week. Explain that the data is on a calendar with days and dates listed for the month of April. Explain to students that the chart shows what the moon looked like each of the days. **Note:** You may need to preteach reading calendars prior to giving this assessment.

STEM

3. The Interactiv-eBook activities may be used as a form of assessment (optional).

Name: _____ Date:_____

Lab Observations

Directions: Draw a ball's shadow at four different locations. Then, answer the question below.

1	3
2	4

What did you learn about why the moon looks different each night?

Name: _____ Date:_____

Hunting for Text Features

Directions: Write the page number where you find each text feature in the book.

Text Feature	Page
table of contents	
heading	
caption	
sidebar	
bold print	
glossary	
index	

Name: _____ Date:_____

Earth and Moon Words

Directions: Read the words below. Write each word below the matching definition.

axis	full moon	new moon	phases	planet	rotates

1. the eight shapes of the lit side of the moon

2. a large, round object in space that travels around a star

3. the moon when it looks completely dark

4. turns or spins

5. the imaginary line that Earth spins around

6. the moon when it looks like a complete bright circle

Name: _____ Date:_____

A Day on Earth

Directions: Write what you learned from each text feature on page 7.

Text Feature	What I Learned
picture	
sidebar	
caption	

Name: _____ Date:_____

Earth and Moon Quiz

Directions: Read each question. Choose the best answer. Fill in the bubble for the answer you have chosen.

1 What does the word *rotates* mean?

- (A) wiggles around
- (B) stays still
- (C) turns or spins
- (D) becomes a star

2 Which text feature helps you find the page on which a word appears?

- (A) glossary
- (B) caption
- (C) chart
- (D) index

3 What happens as Earth rotates?

- (A) Night turns into day and day turns into night.
- (B) It is daytime everywhere on Earth.
- (C) The moon orbits the sun.
- (D) The sun rotates, too.

4 Read the sentence below. Choose the best word to fill in the blank.

It takes 24 _____ for Earth to make one full turn.

- (A) seconds
- (B) hours
- (C) days
- (D) years

Name: _____ Date:_____

Moon Data STEM

Directions: Joel and Rosie looked at the moon and drew what it looked like each night of the month. Use the data from their calendar to answer the questions below.

SUN	MON	TUE	WED	THU	FRI	SAT
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

1. What was the date of the new moon?

_____

_____

2. How many days were between the new moon and the full moon?

_____

_____

3. On which day were Joel and Rosie unable to see the moon? Draw a picture of what the moon would have looked like if they had been able to see it.

_____

_____

Earth and Moon

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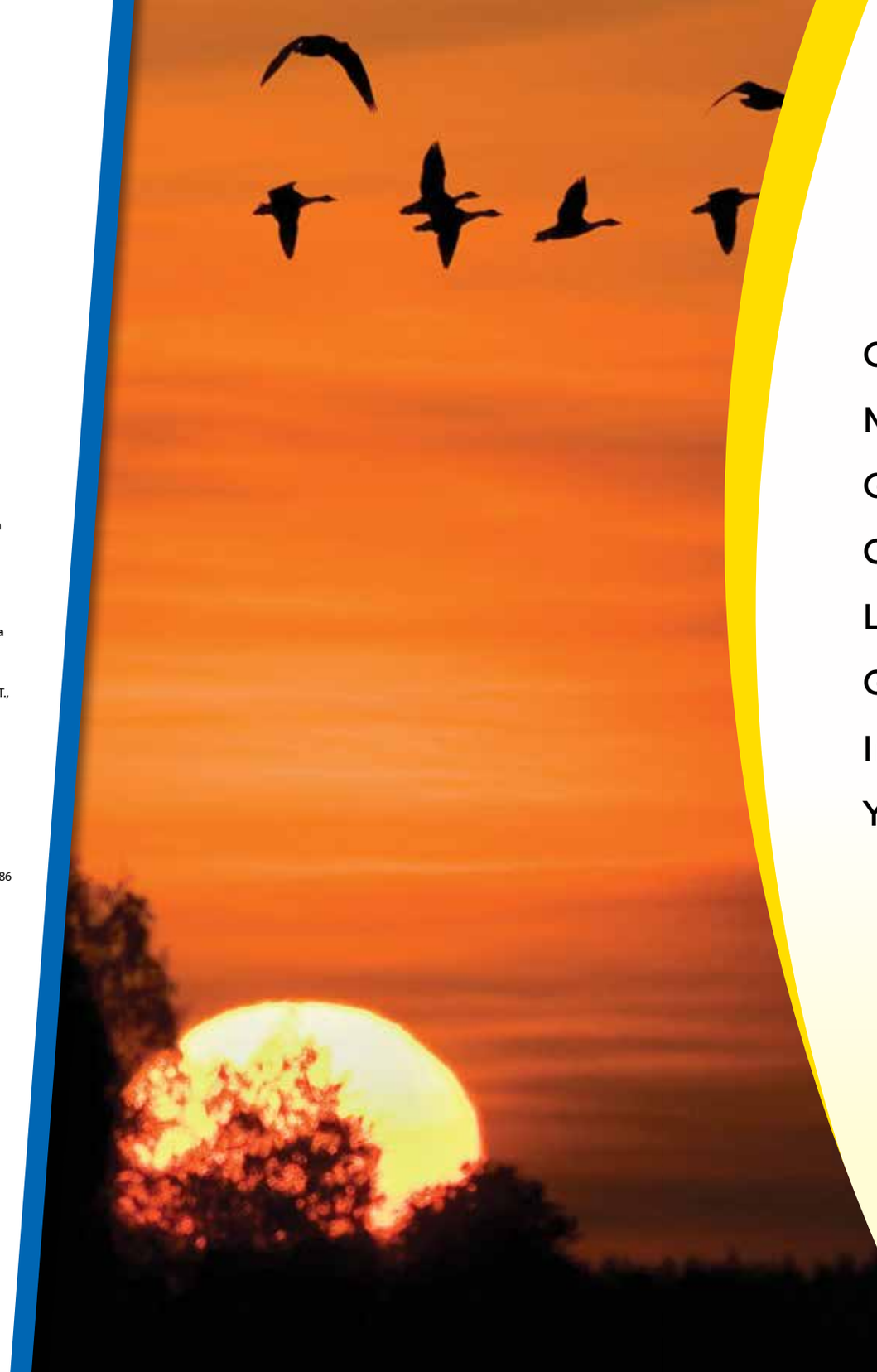

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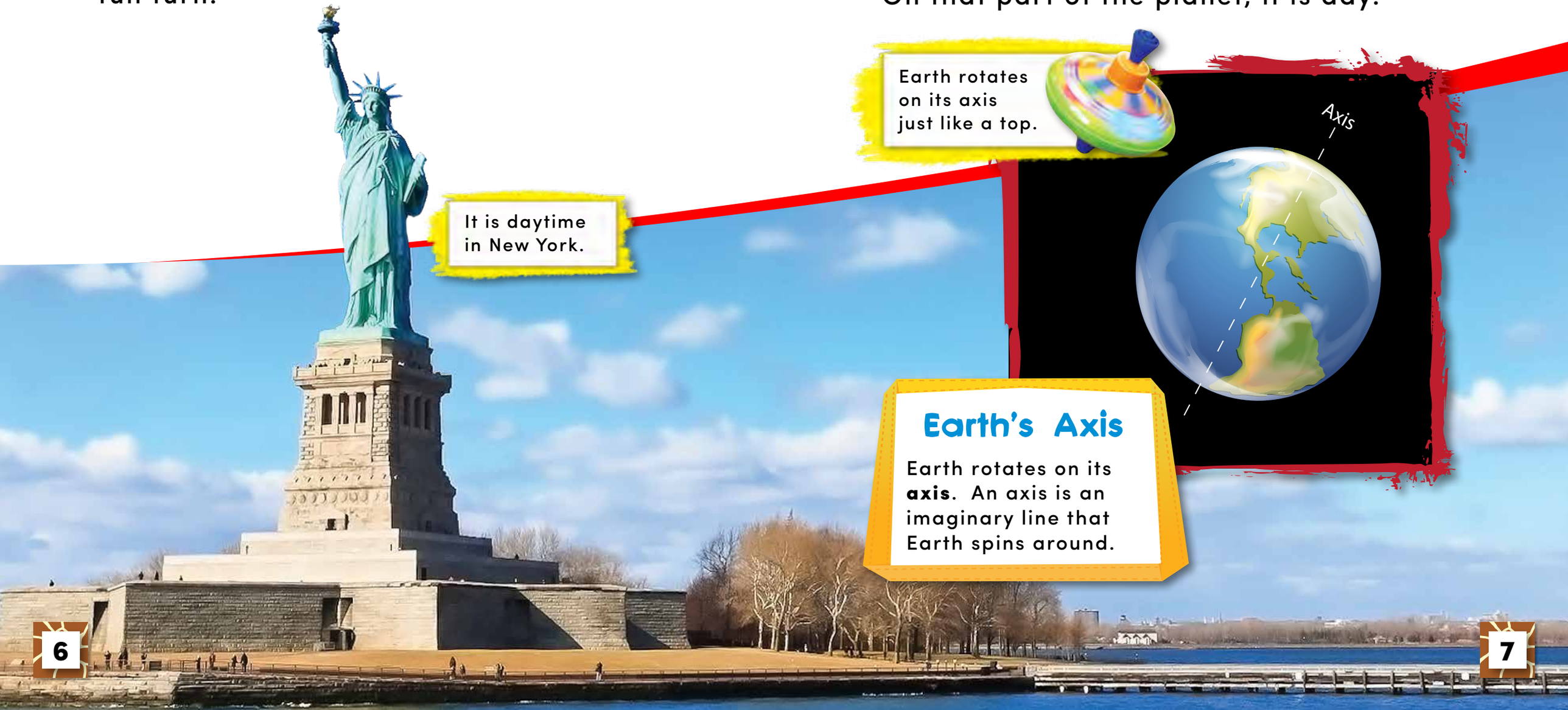
Our Home

We all live on Earth. Earth is a round **planet** in space that **rotates** (ROH-teytz), or spins. It also travels around a big bright star called the sun.

Night and Day

You cannot feel it, but Earth is always moving. It takes 24 hours to make one full turn.

As it rotates, the part of Earth that faces the sun gets light and warmth. On that part of the planet, it is day.



Earth's Axis

Earth rotates on its **axis**. An axis is an imaginary line that Earth spins around.

At the same time, the other part of Earth faces away from the sun. On that part of Earth it is night.

It is daytime on one side of Earth.
It is nighttime on the other side.

As Earth rotates, night turns into day and day turns into night.

It is nighttime in China.

In the morning, the sun appears to rise. It rises in the east. The sun reaches its highest point in the afternoon.

In the evening, the sun appears to sink in the sky. It sets in the west.

afternoon

morning

evening

Goodnight, Moon

As the sun sets, the moon becomes easier to see in the sky. It does not always look the same. It changes every night!

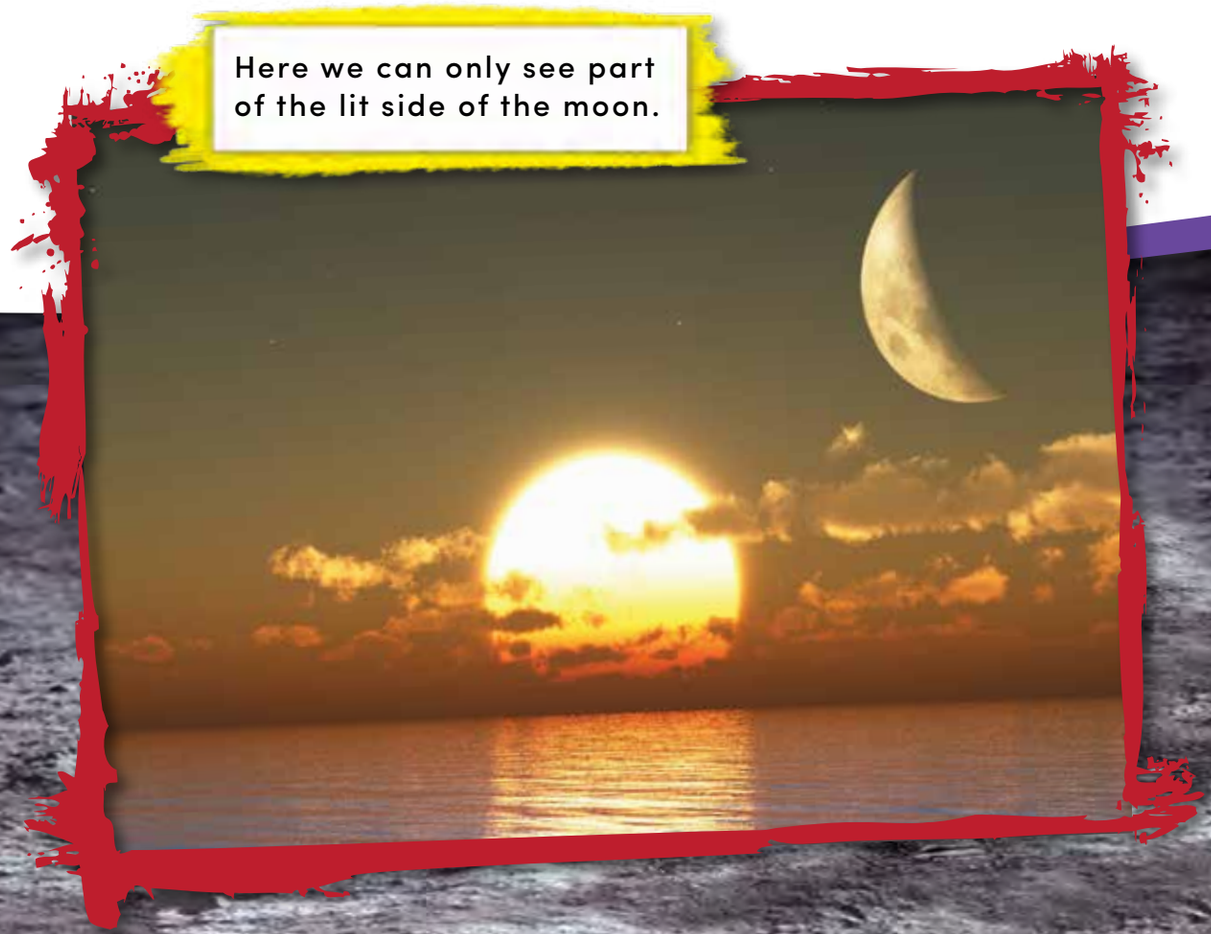
Day or Night

We mainly see the moon at night. But sometimes we can see it during the day.

The moon changes because it travels around Earth. These changes are called **phases** (FEY-zez).

This shows the moon's phases.

The sun lights half the moon, just like it lights Earth. The other half of the moon is in darkness.



As the moon moves around Earth, we see part of the lit side.

Moon Walk

Only 12 people have walked on the moon.

About once a month, the entire sunlit side of the moon faces Earth. This phase is called a **full moon**.

When the sunlit part is facing away from Earth, we cannot see the moon. This phase is called a **new moon**.

A new moon looks as though there is no moon in the sky.

On the Move!

Earth is constantly on the move. So is the moon! Because of all this movement, we have days and nights. We have different phases of the moon. And we have a special place to call home.

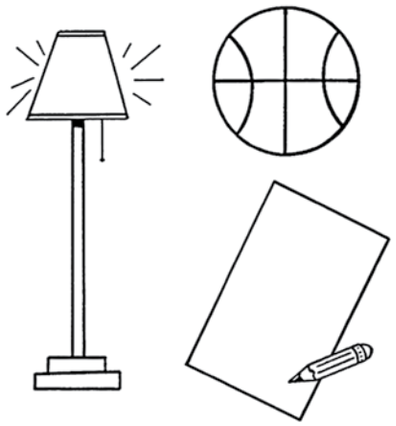
This is what Earth looks like from the moon.

Let's Do Science!

Why does the moon look different at times? Try this and see!

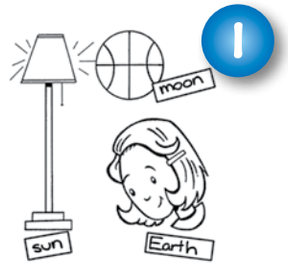
What to Get

- ball
- lamp
- paper and pencil



What to Do

1. Pretend that the ball is the moon, your head is Earth, and the lamp is the sun. Put the lamp in the middle of the room with all other lights off.



2. Hold up the ball and move it in front of the light.

3. Slowly spin all the way around. Notice the shadows on the ball. They are like shadows on the moon.

4. Draw pictures of the shadows you saw. Look at your drawings. What do you notice?

Glossary

axis—the imaginary line that Earth spins around

full moon—the moon when it looks like a complete bright circle

new moon—the moon when it looks completely dark

phases—the eight shapes of the lit side of the moon

planet—a large, round object in space that travels around a star

rotates—turns or spins

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Your Turn!

Phases of the Moon

Look for the moon each day. Draw its shape. Notice how it changes. How many phases can you see?