

Grade 1 Science

Unit 1: Sun, Moon, and Stars

20 lessons and a unit quiz. Use this pack with the **Sun, Moon, and Stars Student Reader** (print it, or download it once from the course) to teach the whole unit without the internet.

What is in this pack

- A lesson plan for each chapter: the Big Question, words to know, which pages to read, questions to talk over and the activity pages.
- The unit quiz, ready to print.
- Answers for the teacher at the back: every discussion question and the quiz key.

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Lesson schedule

Two or three lessons a week, about 30 minutes each. Tick each one off as you go.

	Lesson	Reader pages	Activity pages
☐	Getting started: Meet the Big Question	PDF pages 6–9	—
☐	Lesson 1.1: What Are Daytime and Nighttime?	PDF pages 10–15	AP 1.1.1
☐	Lesson 1.2: Sunrise, Sunset	—	AP 1.2.1
☐	Lesson 1.3: The Sun Changes Positions	—	AP 1.3.1
☐	Lesson 1.4: Lesson 1 Roundup: The Sun in the Sky	—	AP 1.4.1
☐	Lesson 2.1: What Are Sunrise and Sunset?	PDF pages 16–19	AP 2.1.1, AP 2.1.2
☐	Lesson 2.2: What Time Does the Sun Rise and Set?	—	—
☐	Lesson 2.3: How Can We Present Our Sunrise and Sunset Data?	—	—
☐	Lesson 2.4: What Sunrise and Sunset Patterns Do We See?	—	AP 2.4.1
☐	Lesson 2.5: Lesson 2 Roundup: Daylight Changes Through the Year	—	AP 2.5.1
☐	Lesson 3.1: What Is the Moon?	PDF pages 20–23	—
☐	Lesson 3.2: The Moon on the Move	—	AP 3.2.1
☐	Lesson 3.3: What Is the Motion of the Moon?	—	AP 3.3.1
☐	Lesson 3.4: What Are the Moon’s Phases?	—	AP 3.4.1, AP 3.4.2
☐	Lesson 3.5: Why the Moon’s Appearance Changes	—	AP 3.5.1
☐	Lesson 3.6: Lesson 3 Roundup: Patterns of the Moon	—	AP 3.6.1
☐	Lesson 4.1: What Are Stars?	PDF pages 24–27	AP 4.1.1
☐	Lesson 4.2: The Stars in the Sky	—	AP 4.2.1, AP 4.2.2
☐	Lesson 4.3: How Do the Stars Move?	—	—

	Lesson	Reader pages	Activity pages
☐	Lesson 4.4: Lesson 4 Roundup: Patterns of the Stars	PDF pages 28–38	AP 4.4.1
☐	Unit review and assessment	—	AP UO.1
☐	Words quiz	—	—

Page numbers are the PDF page numbers of the Student Reader file, so they match what your PDF reader shows.

Getting started: Meet the Big Question

THE BIG QUESTION

How do the sun, the moon, and stars appear to change position in the sky?

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 24–31: the steps, materials and timing for this lesson.

Read

Read Student Book, Chapter 1: “The Mysterious Movement of the Moon”: PDF pages 6–9. Look at the pictures and maps together.

Talk it over

1. question generation question board Instructional Resources Student Book Ch. 1 Activity Page Student Book, Chapter 1 “The Mysterious Movement of the Moon” Activity Page Day or Night?
2. Show students the question board. Ask students what they wonder about the moon after reading the chapter about Lin. Record their questions on the question board. (See Know the Standards 2.) Distribute Day or Night?
3. Review student responses on Day or Night?
4. How do you know?
5. LITERAL—What do you notice about the sky in the picture?
6. LITERAL—What else do you see in the sky in the picture?
7. What will happen to the sky?
8. The appearance of the sky is changing all the time. 3 LITERAL—What do you see in the sky?
9. Ask, What do you usually do around this time of the day or evening?
10. He was looking through this same window. 4 LITERAL—What do you see in the sky?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: How do the sun, the moon, and stars appear to change position in the sky?

Lesson 1.1: What Are Daytime and Nighttime?

THE BIG QUESTION

What Are Daytime and Nighttime?

Words to know

- **identify** — to indicate what something is
- **notice** — to see and pay attention to something
- **observe** — to watch something and notice details about it (observation, n. the process of noticing details or a specific detail that is noticed)

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 32–37: the steps, materials and timing for this lesson.

Read

Read Student Book, Chapter 2: “What Causes Night and Day?”: PDF pages 10–15. Look at the pictures and maps together.

Talk it over

1. What happens to the sun at night?
2. CCC 1 DCI ESS1.A What do you notice about where the sun is shining?
3. What happened to Earth?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: What Are Daytime and Nighttime?
- Use one of today's words in a sentence of your own.

Activity pages

- Activity Page 1.1.1: The Sun — Teacher Guide PDF page 194

Lesson 1.2: Sunrise, Sunset

THE BIG QUESTION

When does the sun rise and set?

Words to know

- **change** — to become different; to make something different (also n. a difference from something's former condition)
- **direction** — the path along which something moves or the point toward which something is aimed
- **identify** — to indicate what something is
- **move** — to change position (movement, n. the process of changing position)
- **notice** — to see and pay attention to something
- **observe** — to watch something and notice details about it (observation, n. the process of noticing details or a specific detail that is noticed)
- **position** — the spot where a thing is located

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 38–46: the steps, materials and timing for this lesson.

Talk it over

1. Distribute Where Is the Sun?
2. Activity Page • Prompt students to look at their first drawing on Activity Page 1.2.1 from this morning. • Ask, What do you notice about the sun?
3. What direction in the sky did the sun start at?
4. Ask students the following: What direction in the sky was the sun in the morning?
5. Prompt them to bring Activity Page 1.2.1 with writing utensils and something to write on. • Ask, What direction is the sun now?
6. SEP 4 DCI ESS1.A Activity Page • Prompt students to look at their drawing on Activity Page 1.2.1 from this morning. • Ask, What do you notice about the sun?
7. What direction in the sky did the sun start at on both days?
8. Why do you think so?
9. Ask, Do you know what direction the sun is in right now?
10. CCC 1 SEP 4 DCI ESS1.A 38 SUN, MOON, AND STARS • Ask, Where do you see the sun now?
11. Activity Page • Prompt students to look at their drawing on Activity Page 1.2.1 from this morning. • Ask, What do you notice about the sun?
12. AP 1.2.1 • Ask, Was our second prediction correct?

13. What direction will it be later in the day?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: When does the sun rise and set?
- Use one of today's words in a sentence of your own.

Activity pages

- Activity Page 1.2.1: Where Is the Sun? — Teacher Guide PDF page 195

Lesson 1.3: The Sun Changes Positions

THE BIG QUESTION

How does the position of the sun in the sky appear to change?

Words to know

- **change** — to become different; to make something different (also n. a difference from something's former condition)
- **dark** — with little or no light, not light
- **identify** — to indicate what something is
- **light** — the type of energy that makes vision possible (also v. to brighten)
- **move** — to change position (movement, n. the process of changing position)
- **notice** — to see and pay attention to something
- **observe** — to watch something and notice details about it (observation, n. the process of noticing details or a specific detail that is noticed)
- **position** — the spot where a thing is located
- **rise** — to move upward, opposite of set
- **set** — to move down, opposite of rise

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 47–58: the steps, materials and timing for this lesson.

Talk it over

1. LITERAL—Do you see any stars at night when you look up at the sky?
2. INFERENTIAL—How do you know that this picture of the animals is during the daytime?
3. LITERAL—What direction word can we use to tell the location of the sun in the morning?
4. INFERENTIAL—What is the name of the shape of the path that the sun takes as it moves through the sky in a day?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: How does the position of the sun in the sky appear to change?
- Use one of today's words in a sentence of your own.

Activity pages

- Activity Page 1.3.1: Day and Night Activities — Teacher Guide PDF page 196

Lesson 1.4: Lesson 1 Roundup: The Sun in the Sky

THE BIG QUESTION

When and where can you see the sun in the sky?

Words to know

- **change** — to become different; to make something different (also n. a difference from something's former condition)
- **dark** — with little or no light, not light
- **identify** — to indicate what something is
- **move** — to change position (movement, n. the process of changing position)
- **notice** — to see and pay attention to something
- **observe** — to watch something and notice details about it (observation, n. the process of noticing details or a specific detail that is noticed)
- **rise** — to move upward, opposite of set
- **set** — to move down, opposite of rise

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 59–64: the steps, materials and timing for this lesson.

Talk it over

1. Redistribute the completed Where Is the Sun?
2. Distribute What Is the Pattern?
3. Review students' responses on What Is the Pattern?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: When and where can you see the sun in the sky?
- Use one of today's words in a sentence of your own.

Activity pages

- Activity Page 1.4.1: What Is the Pattern? — Teacher Guide PDF page 197

Lesson 2.1: What Are Sunrise and Sunset?

THE BIG QUESTION

What Are Sunrise and Sunset?

Words to know

- **identify** — to indicate what something is
- **investigate** — to observe and study something to collect information
- **notice** — to see and pay attention to something
- **observe** — to watch something and notice details about it (observation, n. the process of noticing details or a specific detail that is noticed)

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 65–73: the steps, materials and timing for this lesson.

Read

Read Student Book, Chapter 3: “Longer and Shorter Times of Daylight”: PDF pages 16–19. Look at the pictures and maps together.

Talk it over

1. Tie to the Anchoring Phenomenon As students work through Lesson 2, they will learn how the amount of daylight changes during the year, just as Lin observes. • Ask, What is daytime?
2. Explain that these times are never the exact same. (See Know the Science 2.) • Ask, How do you think we could find out what time the sun rises and sets?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: What Are Sunrise and Sunset?
- Use one of today's words in a sentence of your own.

Activity pages

- Activity Page 2.1.1: Sunrise, Sunset Sheet — Teacher Guide PDF page 198
- Activity Page 2.1.2: Take-Home Letter — Teacher Guide PDF pages 199–201

Lesson 2.2: What Time Does the Sun Rise and Set?

THE BIG QUESTION

What Time Does the Sun Rise and Set?

Words to know

- **rise** — to move upward, opposite of set
- **set** — to move down, opposite of rise
- **sun** — the star that Earth moves around and that provides Earth with light and heat

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 74-78: the steps, materials and timing for this lesson.

Check for understanding

- Answer the Big Question in a sentence or two: What Time Does the Sun Rise and Set?
- Use one of today's words in a sentence of your own.

Lesson 2.3: How Can We Present Our Sunrise and Sunset Data?

THE BIG QUESTION

How Can We Present Our Sunrise and Sunset Data?

Words to know

- **data** — information that is observed or measured and recorded
- **sunrise** — the time at which the sun appears above the horizon in the morning
- **sunset** — the time when the sun falls below the horizon in the evening

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 79–85: the steps, materials and timing for this lesson.

Check for understanding

- Answer the Big Question in a sentence or two: How Can We Present Our Sunrise and Sunset Data?
- Use one of today's words in a sentence of your own.

Lesson 2.4: What Sunrise and Sunset Patterns Do We See?

THE BIG QUESTION

What Sunrise and Sunset Patterns Do We See?

Words to know

- **identify** — to indicate what something is
- **notice** — to see and pay attention to something
- **observe** — to watch something and notice details about it (observation, n. the process of noticing details or a specific detail that is noticed)
- **predict** — to say that something is expected to happen

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 86–95: the steps, materials and timing for this lesson.

Talk it over

1. internet access and the means to project video for whole-class viewing Ch. 3 Activity Page Activity Page What Did We Learn?
2. Distribute What Did We Learn?
3. Review student responses in the reading questions and on What Did We Learn?
4. Explain that this is a picture of the morning sun that is just starting to come up for the day. (See Know the Standards 1.) LITERAL—What do you notice about the colors of the sky?
5. INFERENTIAL—Why is this an example of a pattern?
6. Summer has the most daylight. 14 LITERAL—What can you do outside at 5:30 p.m. on a summer day?
7. Ask students, How do you know that the sun is going to rise?
8. Or will they get shorter?
9. If necessary, use the following cues: Do you think the sun is going to appear to be higher in the sky or lower in the sky?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: What Sunrise and Sunset Patterns Do We See?
- Use one of today's words in a sentence of your own.

Activity pages

- Activity Page 2.4.1: What Did We Learn? — Teacher Guide PDF page 202

Lesson 2.5: Lesson 2 Roundup: Daylight Changes Through the Year

THE BIG QUESTION

How does the amount of daylight change during the year?

Words to know

- **graph** — a drawing or chart that shows mathematical information with lines, shapes, and colors (also v. to make a chart to show mathematical information) words and phrases are not that you should model for use in isolated drill or memorization
- **identify** — to indicate what something is
- **investigate** — to observe and study something to collect information
- **notice** — to see and pay attention to something
- **observe** — to watch something and notice details about it (observation, n. the process of noticing details or a specific detail that is noticed)
- **predict** — to say that something is expected to happen

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 96–100: the steps, materials and timing for this lesson.

Check for understanding

- Answer the Big Question in a sentence or two: How does the amount of daylight change during the year?
- Use one of today's words in a sentence of your own.

Activity pages

- Activity Page 2.5.1: Draw the Future — Teacher Guide PDF page 203

Lesson 3.1: What Is the Moon?

THE BIG QUESTION

What Is the Moon?

Words to know

- **identify** — to indicate what something is
- **notice** — to see and pay attention to something
- **observe** — to watch something and notice details about it (observation, n. the process of noticing details or a specific detail that is noticed)

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 101–108: the steps, materials and timing for this lesson.

Read

Read Student Book, Chapter 4: “Why Does the Moon Seem to Move?”: PDF pages 20–23. Look at the pictures and maps together.

Talk it over

1. Use question prompts to initiate their discussion, such as the following: What color is the moon?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: What Is the Moon?
- Use one of today's words in a sentence of your own.

Lesson 3.2: The Moon on the Move

THE BIG QUESTION

When and where does the moon rise and set?

Words to know

- **change** — to become different; to make something different (also n. a difference from something's former condition)
- **direction** — the path along which something moves or the point toward which something is aimed
- **identify** — to indicate what something is
- **move** — to change position (movement, n. the process of changing position)
- **notice** — to see and pay attention to something
- **observe** — to watch something and notice details about it (observation, n. the process of noticing details or a specific detail that is noticed)
- **position** — the spot where a thing is located

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 109–117: the steps, materials and timing for this lesson.

Talk it over

1. Prompt them to bring Activity Page 3.2.1 with writing utensils and something to write on. (See Know the Standards 2.) • Ask, Where do you see the moon now?
2. What side of the sky did the moon appear to rise in?
3. Ask students the following: DCI ESS1.A Where in the sky was the moon in the morning?
4. Where did it go?
5. AP 3.2.1 • Ask Where do you see the moon now?
6. NGSS Elements • Prompt students to look at their drawing on Activity Page 3.2.1 from this morning. • Ask, What do you notice about the moon?
7. What side of the sky did the moon start in on both days?
8. They can use this information to notice a pattern. 108 SUN, MOON, AND STARS What direction does the moon appear to be moving on both days?
9. Why do you think so?
10. Ask, Do you know what direction the moon is in right now?
11. SEP 3 SEP 4 • Ask, Was our first prediction correct?
12. Prompt them to bring Activity Page 3.2.1 with writing utensils and something to write on. (See Know the Standards 8.) • Ask, Where do you see the moon now?

13. Activity Page • Ask, What do you notice about the moon?
14. AP 3.2.1 • Ask, Was our second prediction correct?
15. Where will it move later in the day?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: When and where does the moon rise and set?
- Use one of today's words in a sentence of your own.

Activity pages

- Activity Page 3.2.1: Moon on the Move — Teacher Guide PDF page 204

Lesson 3.3: What Is the Motion of the Moon?

THE BIG QUESTION

What Is the Motion of the Moon?

Words to know

- **bright** — giving off or reflecting a lot of light
- **east** — the direction toward the horizon where the sun rises
- **moon** — the large bright object in the sky that travels around Earth
- **sun** — the star that Earth moves around and that provides Earth with light and heat
- **visible** — able to be seen
- **west** — the direction toward the horizon where the sun sets

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 118–127: the steps, materials and timing for this lesson.

Talk it over

1. LITERAL—Do you see the moon?
2. Ask students to look at the top picture on page 17 and compare the two pictures on the page. (See Know the Standards 1.) LITERAL—Which moon seems brighter between the two pictures?
3. INFERENTIAL—What time of day do you think it is in the top picture and why?
4. Is it rising or setting?
5. LITERAL—What does a full moon look like?
6. LITERAL—What does a crescent moon look like?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: What Is the Motion of the Moon?
- Use one of today's words in a sentence of your own.

Activity pages

- Activity Page 3.3.1: Moon Models — Teacher Guide PDF page 205

Lesson 3.4: What Are the Moon's Phases?

THE BIG QUESTION

What Are the Moon's Phases?

Words to know

- **identify** — to indicate what something is
- **investigate** — to observe and study something to collect information
- **notice** — to see and pay attention to something
- **observe** — to watch something and notice details about it (observation, n. the process of noticing details or a specific detail that is noticed)
- **phase** — a step in a series of events or actions
- **shape** — the form or outline of an object

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 128-135: the steps, materials and timing for this lesson.

Check for understanding

- Answer the Big Question in a sentence or two: What Are the Moon's Phases?
- Use one of today's words in a sentence of your own.

Activity pages

- Activity Page 3.4.1: Moon Phase Sheet — Teacher Guide PDF page 206
- Activity Page 3.4.2: Take-Home Letter — Teacher Guide PDF pages 207-208

Lesson 3.5: Why the Moon's Appearance Changes

THE BIG QUESTION

Why the Moon's Appearance Changes . 130 3.6 Patterns of the Moon 136 Lesson 4: Stars and Their Predictable Patterns 141 4.1 What Are Stars?

Words to know

- **bright** — giving off or reflecting a lot of light
- **east** — the direction toward the horizon where the sun rises
- **shape** — the form or outline of an object
- **visible** — able to be seen
- **west** — the direction toward the horizon where the sun sets

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 136–141: the steps, materials and timing for this lesson.

Check for understanding

- Answer the Big Question in a sentence or two: Why the Moon's Appearance Changes . 130 3.6 Patterns of the Moon 136 Lesson 4: Stars and Their Predictable Patterns 141 4.1 What Are Stars?
- Use one of today's words in a sentence of your own.

Activity pages

- Activity Page 3.5.1: Moon Comic — Teacher Guide PDF page 209

Lesson 3.6: Lesson 3 Roundup: Patterns of the Moon

THE BIG QUESTION

How does the moon's appearance in the sky change?

Words to know

- **graph** — a drawing or chart that shows mathematical information with lines, shapes, and colors (also v. to make a chart to show mathematical information) words and phrases are not that you should model for in isolated drill or memorization
- **identify** — to indicate what something is
- **investigate** — to observe and study something to collect information
- **notice** — to see and pay attention to something
- **observe** — to watch something and notice details about it (observation, n. the process of noticing details or a specific detail that is noticed)

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 142–146: the steps, materials and timing for this lesson.

Talk it over

1. Distribute What Will the Moon Look Like?
2. Or did you use data?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: How does the moon's appearance in the sky change?
- Use one of today's words in a sentence of your own.

Activity pages

- Activity Page 3.6.1: What Will the Moon Look Like? — Teacher Guide PDF page 210

Lesson 4.1: What Are Stars?

THE BIG QUESTION

What Are Stars?

Words to know

- **identify** — to indicate what something is
- **notice** — to see and pay attention to something
- **observe** — to watch something and notice details about it (observation, n. the process of noticing details or a specific detail that is noticed)

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 147–153: the steps, materials and timing for this lesson.

Read

Read Student Book, Chapter 5: “How Does the Starry Sky Change?”: PDF pages 24–27. Look at the pictures and maps together.

Talk it over

1. Is it easier for them to see the light on the ceiling now?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: What Are Stars?
- Use one of today's words in a sentence of your own.

Activity pages

- Activity Page 4.1.1: Connect the Dots — Teacher Guide PDF page 211

Lesson 4.2: The Stars in the Sky

THE BIG QUESTION

Where does the same star appear in the sky at different times during the night?

Words to know

- **change** — to become different; to make something different (also n. a difference from something's former condition)
- **direction** — the path along which something moves or the point toward which something is aimed
- **identify** — to indicate what something is
- **move** — to change position (movement, n. the process of changing position)
- **notice** — to see and pay attention to something
- **observe** — to watch something and notice details about it (observation, n. the process of noticing details or a specific detail that is noticed)
- **point of reference** — something that is used to understand something else through a comparison Polaris (North Star), n. the brightest star in the constellation Ursa Minor, visible straight above Earth's North Pole

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 154–159: the steps, materials and timing for this lesson.

Check for understanding

- Answer the Big Question in a sentence or two: Where does the same star appear in the sky at different times during the night?
- Use one of today's words in a sentence of your own.

Activity pages

- Activity Page 4.2.1: The Big Dipper — Teacher Guide PDF page 212
- Activity Page 4.2.2: Big Dipper Investigation — Teacher Guide PDF page 213

Lesson 4.3: How Do the Stars Move?

THE BIG QUESTION

How Do the Stars Move?

Words to know

- **bright** — giving off or reflecting a lot of light
- **north** — the direction to the left of someone facing east and opposite of south, in line with Earth's North Pole
- **visible** — able to be seen

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 160–170: the steps, materials and timing for this lesson.

Talk it over

1. LITERAL—How many stars are in the sky?
2. Still, it is hard to tell them apart. 21 LITERAL—When can you see a lot of stars?
3. LITERAL—Do the stars disappear from the sky during the day?
4. LITERAL—When did people start making star pictures?
5. INFERENTIAL—What do the star images on the page look like?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: How Do the Stars Move?
- Use one of today's words in a sentence of your own.

Lesson 4.4: Lesson 4 Roundup: Patterns of the Stars

THE BIG QUESTION

How do stars seem to move in the night sky?

Words to know

- **graph** — a drawing or chart that shows mathematical information with lines, shapes, and colors (also v. to make a chart to show mathematical information) words and phrases are not that you should model for in isolated drill or memorization
- **identify** — to indicate what something is
- **investigate** — to observe and study something to collect information
- **notice** — to see and pay attention to something
- **observe** — to watch something and notice details about it (observation, n. the process of noticing details or a specific detail that is noticed)

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 171–191: the steps, materials and timing for this lesson.

Read

Read Student Book, Chapter 6: “Science in Action”: PDF pages 28–38. Look at the pictures and maps together.

Talk it over

1. Distribute What Will the Sky Look Like?
2. LITERAL—What kinds of objects can you see in the sky?
3. The ceiling turns into an image of the sky. (See Know the Standards 2.)
INFERENTIAL—What do you think you can learn from being at a planetarium?
4. It represents where stars are positioned in the sky. (See Know the Standards 4.)
LITERAL—What can the projection from a planetarium show?
5. UNIT SUPPLEMENT | SCIENCE IN ACTION: MEETING AN ASTRONOMER 181
LITERAL—What are the lights that twinkle in the sky?
6. They imagined different pictures made from stars in the night sky. 28 LITERAL—When did the Chinese astronomers Shi Shen, Gan De, and Wu Xian live?
7. LITERAL—How did this star chart work?
8. When did he live?
9. A telescope makes faraway objects look closer so that people can see them better and study them. (See Know the Standards 5.) INFERENTIAL—How do you think Galileo’s discoveries influenced what we know about stars today?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: How do stars seem to move in the night sky?
- Use one of today's words in a sentence of your own.

Activity pages

- Activity Page 4.4.1: What Will the Sky Look Like? — Teacher Guide PDF page 214

UNIT REVIEW

Unit review and assessment

- Activity page answer key (for the teacher): Teacher Guide PDF pages 215–216
- Activity Page UO.1 — Teacher Guide PDF page 193

WORDS QUIZ

Sun, Moon, and Stars

Name: _____ Date: _____

Circle the letter of the best answer.

1. Which word means “able to be seen”?

- a) visible
- b) light
- c) point of reference
- d) moon

2. Which word means “to watch something and notice details about it (observation, n. the process of noticing details or a specific detail that is noticed)”?

- a) observe
- b) direction
- c) east
- d) point of reference

3. Which word means “the time at which the sun appears above the horizon in the morning”?

- a) sun
- b) direction
- c) predict
- d) sunrise

4. Which word means “something that is used to understand something else through a comparison Polaris (North Star), n. the brightest star in the constellation Ursa Minor, visible straight above Earth’s North Pole”?

- a) point of reference
- b) identify
- c) constellation
- d) notice

5. Which word means “the time when the sun falls below the horizon in the evening”?

- a) direction
- b) set
- c) sunset
- d) daylight

6. Which word means “a group of stars that make a recognizable pattern”?

- a) constellation
- b) south
- c) move
- d) graph

- 7.** Which word means “to indicate what something is”?
- a) graph
 - b) circle
 - c) identify
 - d) direction
- 8.** Which word means “to move upward, opposite of set”?
- a) rise
 - b) sky
 - c) circle
 - d) notice
- 9.** Which word means “to see and pay attention to something”?
- a) notice
 - b) phase
 - c) predictable
 - d) new moon
- 10.** Which word means “a reliable system of traits or a set of repeating details”?
- a) sun
 - b) pattern
 - c) moon
 - d) universe
- 11.** Which word means “the space over Earth where the sun, moon, stars, and clouds appear”?
- a) light
 - b) position
 - c) sky
 - d) investigate
- 12.** Which word means “to observe and study something to collect information”?
- a) data
 - b) investigate
 - c) move
 - d) direction

Answers

Getting started: Meet the Big Question

1. **question generation question board Instructional Resources Student Book Ch. 1 Activity Page Student Book, Chapter 1 “The Mysterious Movement of the Moon” Activity Page Day or Night?**
UO.1
2. **Show students the question board. Ask students what they wonder about the moon after reading the chapter about Lin. Record their questions on the question board. (See Know the Standards 2.) Distribute Day or Night?**
AP UO.1
3. **Review student responses on Day or Night?**
AP UO.1
4. **How do you know?**
No, because sometimes the sun is over there and later it is over here
5. **LITERAL—What do you notice about the sky in the picture?**
It is mostly dark blue; it has some orange color at the bottom. LITERAL—What is the sun doing in the picture?
6. **LITERAL—What else do you see in the sky in the picture?**
The moon
7. **What will happen to the sky?**
It is going to come all the way up. The sky will get lighter. Page 3
8. **The appearance of the sky is changing all the time. 3 LITERAL—What do you see in the sky?**
The moon LITERAL—What does the sky look like now?
9. **Ask, What do you usually do around this time of the day or evening?**
Have dinner, go inside
10. **He was looking through this same window. 4 LITERAL—What do you see in the sky?**
Nothing! It is dark. INFERENTIAL—Why do you think you cannot see the moon now?

Lesson 1.1: What Are Daytime and Nighttime?

1. **What happens to the sun at night?**
It goes down or away. CHALLENGE—Challenge students to pantomime they are the morning sun. Suggest that students also describe other activities that happen once the sun comes out that are not seen when the sun is not out.
2. **CCC 1 DCI ESS1.A What do you notice about where the sun is shining?**
The light is shining on the United States.
3. **What happened to Earth?**
It turned. Is it daytime or nighttime in the United States now? How do you know?

Lesson 1.2: Sunrise, Sunset

1. Distribute Where Is the Sun?

AP 1.2.1

2. Activity Page • Prompt students to look at their first drawing on Activity Page 1.2.1 from this morning. • Ask, What do you notice about the sun?

It seems to have moved; it changed positions.

3. What direction in the sky did the sun start at?

East What direction does the sun appear to be moving in?

4. Ask students the following: What direction in the sky was the sun in the morning?

The east What direction was the sun later in the day?

5. Prompt them to bring Activity Page 1.2.1 with writing utensils and something to write on. • Ask, What direction is the sun now?

It is to the west.

6. SEP 4 DCI ESS1.A Activity Page • Prompt students to look at their drawing on Activity Page 1.2.1 from this morning. • Ask, What do you notice about the sun?

It seems to have moved; it changed positions.

7. What direction in the sky did the sun start at on both days?

East What direction does the sun appear to be moving in on both days?

8. Why do you think so?

It will be more in the west, because it was in the west yesterday afternoon and the afternoon before.

9. Ask, Do you know what direction the sun is in right now?

East

10. CCC 1 SEP 4 DCI ESS1.A 38 SUN, MOON, AND STARS • Ask, Where do you see the sun now?

It is to the right, or the west.

11. Activity Page • Prompt students to look at their drawing on Activity Page 1.2.1 from this morning. • Ask, What do you notice about the sun?

It seems to have moved; it appears to have changed positions.

12. AP 1.2.1 • Ask, Was our second prediction correct?

Yes

13. What direction will it be later in the day?

It will be in the east in the morning and in the west later in the day. Activity Page

Lesson 1.3: The Sun Changes Positions

1. LITERAL—Do you see any stars at night when you look up at the sky?

Yes, if it's not cloudy

2. INFERENTIAL—How do you know that this picture of the animals is during the daytime?

The sunlight is shining, so you can see the animals. EVALUATIVE—Which time of the day do you prefer, daytime or nighttime? Explain your choice.

3. **LITERAL—What direction word can we use to tell the location of the sun in the morning?**

East LITERAL—What direction word can we use to tell the location of the sun in the afternoon or evening?

4. **INFERENTIAL—What is the name of the shape of the path that the sun takes as it moves through the sky in a day?**

It appears to move like an arc or a half circle; it appears to move like a rainbow shape.

INFERENTIAL—Look at the direction words of east and west on the picture. What direction would a person looking toward the tree and the water be facing?

Lesson 1.4: Lesson 1 Roundup: The Sun in the Sky

1. **Redistribute the completed Where Is the Sun?**

AP 1.2.1

2. **Distribute What Is the Pattern?**

AP 1.4.1

3. **Review students' responses on What Is the Pattern?**

AP 1.4.1

Lesson 2.1: What Are Sunrise and Sunset?

1. **Tie to the Anchoring Phenomenon As students work through Lesson 2, they will learn how the amount of daylight changes during the year, just as Lin observes. • Ask, What is daytime?**

It's when the sun is shining on Earth.

2. **Explain that these times are never the exact same. (See Know the Science 2.) • Ask, How do you think we could find out what time the sun rises and sets?**

We can go outside and watch the sun come up or go down and look at the time.

(Times are also published in the newspaper and online.)

Lesson 2.4: What Sunrise and Sunset Patterns Do We See?

1. **internet access and the means to project video for whole-class viewing Ch. 3 Activity Page Activity Page What Did We Learn?**

AP 2.4.1

2. **Distribute What Did We Learn?**

AP 2.4.1

3. **Review student responses in the reading questions and on What Did We Learn?**

AP 2.4.1

4. **Explain that this is a picture of the morning sun that is just starting to come up for the day. (See Know the Standards 1.) LITERAL—What do you notice**

about the colors of the sky?

They are orange and yellow at the bottom. They are blue up at the top.

INFERENTIAL—What do you think will happen to the sun in this picture?

5. **INFERENTIAL—Why is this an example of a pattern?**

It is something that happens in the sky every day. EVALUATIVE—Explain which you prefer more, a sunrise or a sunset.

6. **Summer has the most daylight. 14 LITERAL—What can you do outside at 5:30 p.m. on a summer day?**

You can play outside for longer. EVALUATIVE—Do you prefer longer days or shorter days? Why?

7. **Ask students, How do you know that the sun is going to rise?**

Because it rises every day LESSON 2.4 | WHAT SUNRISE AND SUNSET PATTERNS DO WE SEE?

8. **Or will they get shorter?**

Longer (Teacher Note: until the solstice) CORE VOCABULARY—Compare and contrast sunrise and sunset by asking these questions. Which happens in the morning?

9. **If necessary, use the following cues: Do you think the sun is going to appear to be higher in the sky or lower in the sky?**

We think the sun will look lower. Do you think the sun is going to appear to stay in the same spot in the sky or move?

Lesson 3.1: What Is the Moon?

1. **Use question prompts to initiate their discussion, such as the following:**

What color is the moon?

White or gray

Lesson 3.2: The Moon on the Move

1. **Prompt them to bring Activity Page 3.2.1 with writing utensils and something to write on. (See Know the Standards 2.) • Ask, Where do you see the moon now?**

It's more west.

2. **What side of the sky did the moon appear to rise in?**

East What side of the sky did the moon appear to move toward?

3. **Ask students the following: DCI ESS1.A Where in the sky was the moon in the morning?**

East

4. **Where did it go?**

Yes, to the west

5. **AP 3.2.1 • Ask Where do you see the moon now?**

To the right of where it was in the morning

6. **NGSS Elements • Prompt students to look at their drawing on Activity Page 3.2.1 from this morning. • Ask, What do you notice about the moon?**

It seems to have moved.

7. **What side of the sky did the moon start in on both days?**

East

8. **They can use this information to notice a pattern. 108 SUN, MOON, AND STARS What direction does the moon appear to be moving on both days?**

West Monitor Progress

9. **Why do you think so?**

It will be in the east, because it was in the east for the other two days we saw it.

10. **Ask, Do you know what direction the moon is in right now?**

East

11. **SEP 3 SEP 4 • Ask, Was our first prediction correct?**

Yes

12. **Prompt them to bring Activity Page 3.2.1 with writing utensils and something to write on. (See Know the Standards 8.) • Ask, Where do you see the moon now?**

To the right or west

13. **Activity Page • Ask, What do you notice about the moon?**

It seems to have moved.

14. **AP 3.2.1 • Ask, Was our second prediction correct?**

Yes

15. **Where will it move later in the day?**

It will be in the east in the morning, and it will be in the west later in the day.

Lesson 3.3: What Is the Motion of the Moon?

1. **LITERAL—Do you see the moon?**

Yes

2. **Ask students to look at the top picture on page 17 and compare the two pictures on the page. (See Know the Standards 1.) LITERAL—Which moon seems brighter between the two pictures?**

The moon in the top picture seems brighter. INFERENTIAL—Why do you think the moon seems brighter in the top picture?

3. **INFERENTIAL—What time of day do you think it is in the top picture and why?**

I think it is nighttime, because the sky is very dark.

4. **Is it rising or setting?**

It is rising. INFERENTIAL—How do you know?

5. **LITERAL—What does a full moon look like?**

It has a complete circle shape. LITERAL—What does a quarter moon look like?

6. **LITERAL—What does a crescent moon look like?**

It looks like a banana; it looks like the white part of a fingernail. LITERAL—What does a

new moon look like?

Lesson 3.6: Lesson 3 Roundup: Patterns of the Moon

1. **Distribute What Will the Moon Look Like?**

AP 3.6.1

2. **Or did you use data?**

We used data.

Lesson 4.1: What Are Stars?

1. **Is it easier for them to see the light on the ceiling now?**

Yes, we can see the light from the flashlight.

Lesson 4.3: How Do the Stars Move?

1. **LITERAL—How many stars are in the sky?**

There are many billions of stars in the sky. LITERAL—Are stars close to Earth or far away from Earth?

2. **Still, it is hard to tell them apart. 21 LITERAL—When can you see a lot of stars?**

You can see the stars at nighttime. LITERAL—Can you see a lot of stars in the daytime?

3. **LITERAL—Do the stars disappear from the sky during the day?**

No, the stars are always in the sky, and they do not go away.

4. **LITERAL—When did people start making star pictures?**

People started making star pictures a long time ago. INFERENTIAL—Do you think all of the stars in the sky belong to a constellation? Why or why not?

5. **INFERENTIAL—What do the star images on the page look like?**

Accept students' impressions. The people who identified these constellations thought the top image looked like a person holding a bow and arrow and the bottom image looked like a scorpion.

Lesson 4.4: Lesson 4 Roundup: Patterns of the Stars

1. **Distribute What Will the Sky Look Like?**

AP 4.4.1

2. **LITERAL—What kinds of objects can you see in the sky?**

The sun, the moon, and stars

3. **The ceiling turns into an image of the sky. (See Know the Standards 2.)**

INFERENTIAL—What do you think you can learn from being at a planetarium?

You can learn where things are in the sky. You can learn about what the sky looks like.
Page 26

4. **It represents where stars are positioned in the sky. (See Know the Standards 4.) LITERAL—What can the projection from a planetarium show?**

It can show what the sky looked like in the past or will look like in the future. It can show the sky from any place on Earth, at any time.

5. **UNIT SUPPLEMENT | SCIENCE IN ACTION: MEETING AN ASTRONOMER 181**

LITERAL—What are the lights that twinkle in the sky?

Some are stars, and others are planets. **INFERENTIAL—**Why do you think people made maps of the stars?

6. **They imagined different pictures made from stars in the night sky. 28**

LITERAL—When did the Chinese astronomers Shi Shen, Gan De, and Wu Xian live?

More than 2,000 years ago **LITERAL—**What did these astronomers do?

7. **LITERAL—How did this star chart work?**

It used lines to connect groups of stars together into constellations.

INFERENTIAL—Since this star chart was made over two thousand years ago, do you think it still applies to the sky today?

8. **When did he live?**

He was an Italian astronomer who lived more than 400 years ago. **LITERAL—**What did Galileo use to study the sky?

9. **A telescope makes faraway objects look closer so that people can see them better and study them. (See Know the Standards 5.) INFERENTIAL—How do you think Galileo’s discoveries influenced what we know about stars today?**

He discovered that there are more stars in the sky. This helped us know more about space and what is out there. **SUPPORT—**Draw student attention to the picture on the page, of the moon drawing. Explain that this is a moon drawing that Galileo drew based on what he discovered about the moon. Ask students to look at the drawing. Then have them tell you what they notice about the moon.

Unit quiz key

1. a 2. a 3. d 4. a 5. c 6. a 7. c 8. a 9. a 10. b 11. c 12. b