The Ever-Changing Sky

By Megan McGibney

Look up at the sky. You will see the sun. It is bright and shiny, warming everything in the world. Look up at the sky again at night. You may see the stars. They are also bright and shiny, glimmering in the dark sky. You may also see the moon. It looks bright and shiny, reflecting light from the sun. People have always looked up at the sky with wonder. Some have even studied the sun, moon and stars. These people, called astronomers, have learned that those objects in the sky do not stay in the same place all the time.

The earth revolves around the sun and also rotates on itself. It takes just under 24 hours for the earth to complete one rotation on itself — a day, that's right! And guess how long it takes the earth to revolve around the sun? A little over 365 days. That's a year, with an extra quarter of a day.

Let's take a closer look at the moon. The earth does not revolve around the moon. Instead, the moon revolves around the earth. As a result, the moon's phases, or the different ways the moon appears to us here on earth, change over a period of about four weeks. This four week period starts and ends with the new moon. The new moon cannot be seen because the side of the moon lit by the sun is facing away from the earth. This is because the moon is directly between the sun and the earth at this time. After that comes the half moon, which is when we see half of the side of the moon lit by the sun. Then comes the full moon, when we can see the entire side of the moon lit up by the sun. This is because the sun, moon and earth nearly line up, and the sunlit part of the moon is facing the earth.

Sometimes the way the sun, moon and earth are positioned causes an event known as an eclipse. There are two types of eclipses. A lunar eclipse happens when the earth passes between the moon and the sun and the earth blocks the moon from the sun. The earth's shadow may block the entire moon or just part of the moon from view. A solar eclipse happens when the moon passes between the earth and the sun. A solar eclipse can block part of the sun or the entire sun from the earth's view.

Because of the regular orbit of the moon around the earth and the regular orbit of the earth around the sun, astronomers can predict when an eclipse happens even many years into the future.

Name: _____ Date: _____

1. What does the earth revolve around?

A the moon
B the sun
C the stars
D meteors

2. What does the author describe in the passage?

A how long it takes the sun to revolve around the earth
B when the next solar eclipse will occur
C how long it takes the earth to revolve around the sun
D the movement of other planets in our solar system

3. The phases of the moon are caused by the moon's orbit around the earth. Which details from the text support this conclusion?

A It takes 24 hours for the earth to complete one rotation on itself.
B A lunar eclipse occurs when the earth passes between the moon and the sun and the earth blocks the moon from the sun.
C The direction the sunlit side of the moon facing the earth changes as the moon revolves around the earth.
D The moon changes from a new moon to a half moon to a full moon.

4. What blocks the sun during a solar eclipse?

A the moon
B the earth
C the earth's shadow
D a nearby meteor

5. What is this passage mostly about?

A solar and lunar eclipses
B the solar calendar
C phases of the moon
D the movement of the earth and the moon

6. Read the following sentences: "It takes just under 24 hours for the earth to complete one rotation on itself — a day, **that's right**! And guess how long it takes the earth to revolve around the sun?"

Why does the author say "**that's right!**"?

A because the author thinks the reader has made the connection between the rotation of the earth around itself and the length of a day
B because the author was talking to someone while writing the passage
C because the author wants to reassure the reader
D because the author is waiting for an answer from the reader

7. Choose the answer that best completes the sentence below.

The moon goes through different phases in a month, _____ full moon, half moon, and new moon.

A but
B including
C first
D as a result

8. When does a full moon occur?

_____

_____

_____

_____

9. Why can astronomers predict eclipses?

_____

_____

_____

_____

10. Give two examples of how the sky is ever-changing.

_____

_____

_____

_____

Teacher Guide & Answers

Passage Reading Level: Lexile 870

1. What does the earth revolve around?

- **A** the moon
- **B** **the sun**
- **C** the stars
- **D** meteors

2. What does the author describe in the passage?

- **A** how long it takes the sun to revolve around the earth
- **B** when the next solar eclipse will occur
- **C** **how long it takes the earth to revolve around the sun**
- **D** the movement of other planets in our solar system

3. The phases of the moon are caused by the moon's orbit around the earth. Which details from the text support this conclusion?

- **A** It takes 24 hours for the earth to complete one rotation on itself.
- **B** A lunar eclipse occurs when the earth passes between the moon and the sun and the earth blocks the moon from the sun.
- **C** **The direction the sunlit side of the moon facing the earth changes as the moon revolves around the earth.**
- **D** The moon changes from a new moon to a half moon to a full moon.

4. What blocks the sun during a solar eclipse?

- **A** **the moon**
- **B** the earth
- **C** the earth's shadow
- **D** a nearby meteor

5. What is this passage mostly about?

- **A** solar and lunar eclipses
- **B** the solar calendar
- **C** phases of the moon
- **D** **the movement of the earth and the moon**

6. Read the following sentences: "It takes just under 24 hours for the earth to complete one rotation on itself — a day, **that's right**! And guess how long it takes the earth to revolve around the sun?"

Why does the author say "**that's right!**"?

A **because the author thinks the reader has made the connection between the rotation of the earth around itself and the length of a day**
B because the author was talking to someone while writing the passage
C because the author wants to reassure the reader
D because the author is waiting for an answer from the reader

7. Choose the answer that best completes the sentence below.

The moon goes through different phases in a month, _____ full moon, half moon, and new moon.

A but
B **including**
C first
D as a result

8. When does a full moon occur?

Suggested answer: A full moon occurs when the sun, moon, and earth nearly line up, and the sunlit part of the moon is facing the earth.

9. Why can astronomers predict eclipses?

Suggested answer: Astronomers can predict eclipses because of the regular orbit of the moon around the earth and the regular orbit of the earth around the sun.

10. Give two examples of how the sky is ever-changing.

Suggested answer: Answers may vary, as long as they are supported by the text. Students should say that the sky is ever-changing because objects in it do not stay in the same place all the time. Students may cite the example of the earth rotating around itself and revolving around the sun. They may mention how the moon revolves around the earth, which changes how the moon appears to us in the night sky. They may also mention solar and lunar eclipses.