

Sunrise, Sunset...or Not?



The sun rises, and the sun sets. It's nice to know we can rely on the sun to come up in the morning and go down at night. The sun is a wonderful thing. It is a star, and its light shines onto our planet. It is the ultimate source of energy. It heats our planet and makes life on Earth possible.

Without the sun, trees and plants wouldn't get the light energy they need to grow. Without this light, we humans would have a hard time finding enough food to eat. We can always rely on the sun.

The sun rises, and the sun sets. Summer days may be longer than winter days, but the sun always seems to do the same thing: it goes down at night and comes up for the day. But that's not always true.

In some parts of the world, the sun can be up in the sky for the entire day. During the summer in Earth's Northern Hemisphere, the Northern Hemisphere is tilted towards the sun so much that the sun in northern Alaska never goes below the horizon. In Barrow, Alaska, the sun doesn't even set for almost three months! This phenomenon is called midnight sun. Try sleeping through that!

During the winter in Earth's Northern Hemisphere, the Northern Hemisphere is tilted in such a way that the sun doesn't come over the horizon in northern Alaska for over two months. Northern Alaska is located in the Arctic Circle, an area at the top of the earth. Although the sun never comes up during this part of the winter in the Arctic Circle, enough light shines so that you don't need a flashlight to walk around outside. This phenomenon is called polar night.

It may be hard for people to get through these times of very little or prolonged sunlight. But plants and wildlife have adapted to these long days and long nights. Some animals hibernate for the winter, and others travel south to where there is more sunlight. Insects like mosquitos usually take a break during the night, but with a 24-hour sun, they can stay active and multiply. The birds that eat these insects now have plenty of food all day long for themselves and their baby chicks. Some plants in the Arctic Circle grow nonstop during the long days. Animals like caribou benefit from this growing season and easily find plants to eat.

But you don't want too much of a good thing. If you spend too much time in the sun, you can get a painful sunburn, even in the winter. Plants not used to a lot of sunlight can receive too much sunlight and stop growing.

Most animals, including us, are used to a regular sunrise and sunset. The placement of the sun definitely helps remind us when to brush our teeth, take a bath, and go to sleep!

Name: _____ Date: _____

1. What is the sun?

- A a planet that is between Mars and Saturn
- B a planet that is between Venus and Mars
- C a star that can only be seen from northern Alaska
- D a star that shines light onto our planet

2. Midnight sun in Northern Alaska is an effect described in the passage. What is its cause?

- A animals moving south in the winter
- B getting a sunburn in the winter
- C brushing your teeth at sunset
- D Northern Hemisphere tilting toward the sun

3. Plants and wildlife have adapted to the long days when the sun never goes below the horizon.

What evidence from the passage supports this statement?

- A "The sun is a wonderful thing. It is a star, and its light shines onto our planet."
- B "Although the sun never comes up during this part of the winter in the Arctic Circle, enough light shines so that you don't need a flashlight to walk around outside. This phenomenon is called polar night."
- C "Some plants in the Arctic Circle grow nonstop during the long days. Animals like caribou benefit from this growing season and easily find plants to eat."
- D "Most animals, including us, are used to a regular sunrise and sunset. The sun definitely helps remind us when to brush our teeth, take a bath and go to sleep."

4. Based on the text, how does the Northern Hemisphere tilt during the Northern Hemisphere's winter months?

- A away from the sun
- B towards the sun
- C away from the moon
- D towards the moon

5. What is this passage mostly about?

- A the town of Barrow, Alaska and what people there do in the summer
- B sunrise, sunset, midnight sun, and polar night
- C mosquitos, caribou, adult birds, and baby chicks
- D brushing your teeth, taking baths, and going to sleep

6. Read the following sentences: "During the summer, the Earth is tilted to the sun so much that the sun in northern Alaska never goes below the horizon. In Barrow, Alaska, the sun doesn't even set for almost three months! This **phenomenon** is called midnight sun."

What does the word "**phenomenon**" mean above?

- A large body of water
- B event or occurrence
- C big problem or disaster
- D the study of stars, planets, and space

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

Midnight sun is when the sun never sets; _____, polar night is when the sun never rises.

- A for instance
- B most importantly
- C in contrast
- D in the end

8. How does the Northern Hemisphere of the Earth tilt when Northern Alaska is experiencing the midnight sun?

9. How does the Northern Hemisphere of the Earth tilt when Northern Alaska is experiencing the polar night? Use information from the text to support your answer.

10. How does the Earth's tilt affect the Earth? Use information from the text to support your answer.

Teacher Guide & Answers**Passage Reading Level:** Lexile 840**1.** What is the sun?

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- B** a planet that is between Venus and Mars
- C** a star that can only be seen from northern Alaska
- D** **a star that shines light onto our planet**

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- A** animals moving south in the winter
- B** getting a sunburn in the winter
- C** brushing your teeth at sunset
- D** **Northern Hemisphere tilting toward the sun**

3. Plants and wildlife have adapted to the long days when the sun never goes below the horizon.

What evidence from the passage supports this statement?

- A** "The sun is a wonderful thing. It is a star, and its light shines onto our planet."
- B** "Although the sun never comes up during this part of the winter in the Arctic Circle, enough light shines so that you don't need a flashlight to walk around outside. This phenomenon is called polar night."
- C** **"Some plants in the Arctic Circle grow nonstop during the long days. Animals like caribou benefit from this growing season and easily find plants to eat."**
- D** "Most animals, including us, are used to a regular sunrise and sunset. The sun definitely helps remind us when to brush our teeth, take a bath and go to sleep."

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8. How does the Northern Hemisphere of the Earth tilt when Northern Alaska is experiencing the midnight sun?

Suggested answer: The Northern Hemisphere is tilted towards the sun.

9. How does the Northern Hemisphere of the Earth tilt when Northern Alaska is experiencing the polar night? Use information from the text to support your answer.

Suggested answer: The Northern Hemisphere is tilted away from the sun. The text states "the Northern Hemisphere is tilted in such a way that the sun doesn't come over the horizon in northern Alaska for over two months." Furthermore, the Northern Hemisphere is tilted *towards* the sun when Northern Alaska is experiencing the midnight sun so the opposite is most likely the case when Northern Alaska is experiencing the polar night. Based on these two pieces of information, students can conclude that the Northern Hemisphere is tilted away from the sun when Northern Alaska is experiencing the polar night.

10. How does the Earth's tilt affect the Earth? Use information from the text to support your answer.

Suggested answer: Answers may vary and should be supported by the text. Students should generally explain that the Earth's tilt affects how much sunlight a hemisphere receives, impacting its people and wildlife.