

1. Review the graphic of the inside of Earth. Which layer makes up the center of Earth?

- A. crust
- B. mantle
- C. outer core
- D. inner core**

2. As described in the passage, what is Toby, the robotic device, helping scientists uncover?

- A. why Earth is made up of different layers
- B. the size of the large gap in Earth's crust
- C. the reason why part of Earth's surface has disappeared**
- D. how many more holes in Earth's crust are out there

3. Scientist Bramley Murton says "it is like a window into the interior of Earth". Why might the author have chosen to include this quote in the article? He chose the quote because

- A. the language illustrates how the hole offers a clear view into the crust.**
- B. it explains why the hole occurred in that particular spot in the Atlantic Ocean
- C. it persuades more researchers to study the area
- D. the language illustrates the size of the hole in the earth's crust

4. Read the following sentence from the passage: "The crew departed from the Canary Islands, which are located off the northwestern coast of Africa."

In this sentence, the word **departed** most nearly means

- A. arrived
- B. left**
- C. journey
- D. boarded

5. Which statement supports the main idea of this passage?

- A. A robotic device is helping scientist learn about the hole.
- B. Earth's layers get hotter and hotter toward the center.
- C. The gap is located 2,300 miles southwest of the Canary Islands.
- D. Scientists are studying a mysterious hole in Earth's surface.**

6. Which layer of the Earth can be seen from the open hole?

The mantle is exposed in place of Earth's missing crust. [paragraph 1]

7. As a result of their work, what do scientists hope to learn? Cite evidence to support your answer.

Scientists plan to study the film taken with the robotic arm and study the samples extracted to determine why the mantle is showing. [paragraph 2]

8. The question below is an incomplete sentence. Choose the word that best completes the sentence.

The expedition was a rare opportunity for the scientists _____ it isn't often that they get to see the center of the earth!

- A. but
- B. finally
- C. because**
- D. so

Name: _____ Date: _____

1. The author wrote this passage in order to
 - A. encourage the reader to travel to the Canary Islands.
 - B. inform the reader about the study of science.
 - C. encourage the reader to take a boat trip.
 - D. inform the reader about a hole discovered in Earth's crust.

2. The author writes that the scientists are *baffled*. This means
 - A. scientists are making a prediction.
 - B. scientists are confused.
 - C. scientists have a lot of education.
 - D. scientists are hard at work.

3. The hottest part of the Earth is
 - A. the inner core.
 - B. the outer core.
 - C. the mantle.
 - D. the crust.

4. The author writes that the hole in the crust is situated near the Canary Islands. *Situated* means
 - A. threatening.
 - B. shrinking.
 - C. located.
 - D. expanding.

5. What is Earth's mantle? What is it made of?

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Answers may vary. The mantle is one of the four layers of the Earth. It is the section under the crust and above the outer core. Most of the mantle is solid rock.

1. What weather phenomenon does Mrs. Matthews teach her students about?
 - A. polar winds
 - B. polar ice
 - C. polar snow
 - D. polar vortex**

2. What motivates Jamal to start a new club?
 - A. Jamal wants to help reduce global climate change.**
 - B. Jamal thinks that starting a new club will make him cool.
 - C. Jamal wants to earn extra credit in his science class.
 - D. Jamal has a dream about starting a new club.

3. The polar vortex has dangerous effects on the United States. What evidence from the passage supports this conclusion?
 - A. "Previously that week, he had watched the local news anchors on television repeatedly talk about the icy temperatures that were creeping across the country."
 - B. "The cold winds can potentially hit the United States, Europe, and parts of Asia. This time, the polar vortex was affecting the United States."
 - C. "There were car accidents, losses of electricity and new shelters that had opened for those without heat. It was causing quite some trouble."**
 - D. "Jamal left his science class perplexed. Of course he had heard of global warming and global climate change, but he hadn't ever given it much thought."

4. How can Jamal best be described?
 - A. uninterested in science
 - B. concerned and proactive**
 - C. a follower, not a leader
 - D. lazy and unmotivated

5. What is this story mostly about?

- A. **Jamal learns about climate change.**
- B. Jamal falls asleep during science class.
- C. The U.S. experiences a polar vortex.
- D. Jamal goes to the principal's office.

6. Read the following sentences: "Jamal flinched at the piercing sound as he removed all the layers he had put on to **ward off** the chilling weather."

As used in this sentence, what does the phrase "**ward off**" most nearly mean?

- A. to increase
- B. to eliminate
- C. to welcome
- D. **to repel**

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

Jamal is concerned about the effects of global climate change, _____ he proposes a new club to raise awareness about the issue.

- A. **so**
- B. ultimately
- C. however
- D. namely

8. According to Jamal, what are some things that individuals can do to help limit climate change?

Individuals can recycle, take public transportation, and turn off the lights when not using them.

9. Explain how global warming causes the polar jet stream to weaken.

In the summer, global warming causes glaciers in the Arctic Ocean to melt and the water to warm up. In the winter months, the ocean gives off that heat into the atmosphere, which weakens the cold jet stream of air that circulates above the Arctic Ocean.

10. Explain what Jamal hopes to achieve with his new club, and whether this will help limit global climate change. Support your answer with details from the passage.

Answers may vary and should be supported by the passage. Students should indicate that Jamal hopes the club will help students learn about new ways to reduce global climate change, motivate people to approach local government about new policies that support a healthy environment, and bring local experts to the school to discuss new technological options that can reduce electricity expenditure as well as the school's carbon footprint. Students may answer that this club will help limit global climate change if enough people get involved, or they may answer that it will not help because it takes a large number of people to reduce global climate change.

1. What is tilted relative to the earth's path around the sun, according to the article?
- A. the sun's position in space
 - B. Mars's axis of rotation
 - C. the sun's axis of rotation
 - D. the earth's axis of rotation**
2. How does the earth's tilt in the summer contrast with its tilt in the winter?
- A. The earth is tilted away from the sun in the summer but towards the sun in the winter.
 - B. The earth is tilted slightly towards the sun in the summer and much farther towards the sun in the winter.
 - C. The earth is tilted towards the sun in the summer but away from the sun in the winter.**
 - D. The earth is tilted slightly away from the sun in the summer and much farther away from the sun in the winter.

3. Read Fact 1 and look at the image next to it.

"The earth rotates about its axis once every 24 hours. In the morning we are facing towards the sun, and at night we are facing away from the sun."

Based on this information, what can you conclude about the curved arrow in the diagram?

- A. The arrow represents the earth's rotation.**
 - B. The arrow represents the earth's axis.
 - C. The arrow represents the earth's tilt.
 - D. The arrow represents the earth's equator.
4. Look at the two diagrams of the earth at the end of the article. What might the red line in each diagram represent?
- A. a place on the earth that receives less light in winter than in summer
 - B. the earth's rotation
 - C. the earth's axis**
 - D. the earth's path around the sun

5. What is the main idea of this text?

- A. The earth rotates around the sun approximately every 365 days.
- B. The earth rotates around its axis once every 24 hours.
- C. The axis around which the earth rotates is tilted by 23.5 degrees relative to the earth's path around the sun.
- D. Winter is colder than summer because earth's axis of rotation is tilted.**

6. Read these sentences from the text.

"The earth rotates about its axis once every 24 hours. In the morning we are facing towards the sun, and at night we are facing away from the sun."

What is the meaning of "rotates" as it is used here?

- A. rises
- B. falls
- C. shrinks
- D. turns**

7. Read these sentences from the text.

"The earth's axis of rotation is tilted relative to the earth's path around the sun. As a result we are tilted towards the sun in the summer and away from the sun in the winter."

Which word or phrase could replace "as a result" without changing the meaning of these sentences?

- A. consequently**
- B. primarily
- C. for example
- D. however

8. Look at the two diagrams of the earth at the end of the article. They show the same spot (red circle) in the winter and in the summer. What is the difference between the amount of light the same spot receives in the winter and in the summer?

The same spot receives much less light in the winter than in the summer.

9. What is an effect of the difference between the amount of light the same spot (red

circle) receives in the winter and in the summer?

The same spot is colder in the winter than in the summer.

10. Imagine that the earth's axis of rotation changed so that the same spot (red circle) received the same amount of light in the winter and in the summer. What effect might that change have on the temperature in that spot? Support your answer with evidence from the text.

The temperature in that spot would probably become about the same in the winter and in the summer. If the difference between the amount of light the spot receives in the winter and summer accounts for the difference in the temperature of winter and summer there, then eliminating the difference in light would eliminate the difference in temperature.