GRADE 6

Strong reading skills

are the foundation learning!

Is your child struggling with reading comprehension, fluency, or vocabulary?

Brighterly's expert reading tutors make lessons fun, personalized, and effective - whether your child is just starting out or ready to level up their literacy skills.

From phonics to reading confidence, we're here to help your child love reading - and get better at it every day.

Why Learn with Brighterly? ✨

- ✍️ Assessment-Based Learning
- 🧩 Custom Curriculum
- 🙌 Homework Support
- 💻 Engaging Platform

Read the passage "The Science Behind Earthquakes" carefully. Then answer the following questions based on your understanding of the text. Use evidence from the text when required.

The Science Behind Earthquakes

Earthquakes are among Earth's most dramatic natural phenomena, often striking without warning and with great force. They occur when energy that has accumulated within the Earth's crust over extended periods is abruptly discharged. This typically takes place along **fault lines** — fractures where tectonic plates meet and interact.

Tectonic plates are massive segments of the Earth's lithosphere that slowly drift atop the more fluid asthenosphere beneath them. As these plates grind, slide, or collide, they don't do so seamlessly. Instead, **friction** between them causes stress to build up. Eventually, the force becomes too strong for the rocks to hold together, and they fracture. The sudden release of this built-up energy sends **seismic waves** radiating outward, causing the ground to tremble — an event we recognize as an earthquake.

The strength of an earthquake can vary widely. Some are so mild they go unnoticed, while others can lead to devastating consequences — toppling buildings, triggering landslides, and reshaping landscapes. The **magnitude** of an earthquake is measured using the **Richter scale**, while seismologists also analyze its intensity and duration through instruments called **seismographs**.

The exact point within the Earth where the rupture occurs is known as the **focus** (or hypocenter), while the point directly above it on the Earth's surface is referred to as the **epicenter**. The closer a location is to the epicenter, the more severe the shaking it experiences.

Understanding the science of earthquakes is essential not only for academic study but also for public safety. By monitoring seismic activity, scientists can map high-risk zones and assess patterns in plate behavior. Although predicting the exact time and location of an earthquake remains beyond our current abilities, advances in geological technology have enabled early warning systems to be developed in many countries.

In sum, while earthquakes cannot be prevented, our growing understanding of how they work allows communities to better prepare for and respond to these powerful natural forces.

Read the passage "The Science Behind Earthquakes" carefully. Then answer the following questions based on your understanding of the text. Use evidence from the text when required.

Part A: Multiple Choice

Circle the letter of the correct answer for each question

Q1: What causes the release of energy that leads to an earthquake?

A. Shifting winds in the upper atmosphere

B. Sudden movement of magma from Earth's core

C. Fracturing of rocks due to stress at plate boundaries

D. Melting of tectonic plates under high heat

Q2: Which of the following best defines a fault line?

A. A ridge between mountains

B. A crack in the ocean floor where magma rises

C. A boundary where tectonic plates interact

D. A system that records earthquake data

Q3: What is the relationship between the focus and the epicenter of an earthquake?

A. The focus is in the sky, and the epicenter is underground

B. The epicenter is the cause, and the focus is the result

C. The focus is the underground origin, and the epicenter is its surface projection

D. The epicenter occurs before the focus in most quake

Q4: How do engineers help reduce earthquake damage?

A. By creating escape tunnels

B. By cooling tectonic plates

C. By designing buildings that resist seismic forces

D. By increasing the speed of plate movement

Part B: Vocabulary in Context

Choose the best meaning of the bold word based on how it is used in the passage. Then write your answer on the line provided.

Q5: What does the word **resilience** most likely mean in the sentence: "Engineers now design buildings with seismic resilience..."

Answer: _____

Q6: What is the meaning of the word **radiating** in the sentence: "Seismic waves radiate outward, causing the ground to tremble..."

Answer: _____

Part C – Short Answer

Answer each question in 1–2 complete sentences. Use your own words and refer to details from the passage.

Q7: **Why is it difficult to predict the exact time and location of an earthquake?**

Q8: **Why is studying the movement of tectonic plates important for public safety?**

Q9: **What role do seismographs play in understanding earthquakes?**

Part D – Extended Response (5 points)

Write one or more paragraphs to answer the following question. Use at least two facts from the passage and explain how science and engineering help communities stay safe.

Q7: Explain how both science and engineering work together to reduce the risks and damage caused by earthquakes.

Be sure to include:

- At least **two facts** from the passage
- An example of **how this knowledge helps people**
- **Clear and complete sentences**

✅ Right Answers

Part A: Multiple Choice

Circle the letter of the correct answer for each question

Q1: What causes the release of energy that leads to an earthquake?

A. Shifting winds in the upper atmosphere

B. Sudden movement of magma from Earth's core

C. Fracturing of rocks due to stress at plate boundaries

D. Melting of tectonic plates under high heat

Answer: C. Fracturing of rocks due to stress at plate boundaries

Q2: Which of the following best defines a fault line?

A. A ridge between mountains

B. A crack in the ocean floor where magma rises

C. A boundary where tectonic plates interact

D. A system that records earthquake data

Answer: C. A boundary where tectonic plates interact

Q3: What is the relationship between the focus and the epicenter of an earthquake?

A. The focus is in the sky, and the epicenter is underground

B. The epicenter is the cause, and the focus is the result

C. The focus is the underground origin, and the epicenter is its surface projection

D. The epicenter occurs before the focus in most quake

Answer: C. A boundary where tectonic plates interact

Q4: How do engineers help reduce earthquake damage?

A. By creating escape tunnels

B. By cooling tectonic plates

C. By designing buildings that resist seismic forces

D. By increasing the speed of plate movement

Answer: C. By designing buildings that resist seismic forces

Part B: Vocabulary in Context

Choose the best meaning of the bold word based on how it is used in the passage. Then write your answer on the line provided.

Q5: What does the word **resilience** most likely mean in the sentence: "Engineers now design buildings with seismic resilience..."

Resilience:

Correct answer: Strength and ability to recover from shaking or damage.

(Accept variations like: "ability to resist or recover from earthquake damage.")

Q6: What is the meaning of the word **radiating** in the sentence: "Seismic waves radiate outward, causing the ground to tremble..."

Radiating:

Correct answer: Spreading out in all directions.

(Accept: "moving outward in all directions from a central point.")

Part C – Short Answer

Answer each question in 1–2 complete sentences. Use your own words and refer to details from the passage.

Q7: Why is it difficult to predict the exact time and location of an earthquake?

Sample Answer: Earthquakes occur when stress suddenly overcomes friction between tectonic plates, and current technology can't detect the exact moment this will happen.

Q8: Why is studying the movement of tectonic plates important for public safety?

Sample Answer: It helps scientists identify high-risk zones and improve early warning systems to reduce injuries and deaths.

Q9: What role do seismographs play in understanding earthquakes?

Sample Answer: Seismographs detect and measure seismic waves, helping scientists determine an earthquake's magnitude, location, and duration.

Part D – Extended Response (5 points)

Q10: **Sample Answer:** Scientists study the behavior of tectonic plates and monitor seismic activity to understand where earthquakes are most likely to occur. They use tools like seismographs and maps of fault lines to identify danger zones. Engineers use this information to design earthquake-resistant buildings that can withstand strong ground motion. For example, in earthquake-prone areas, structures are made to sway without collapsing. Governments also use this research to create safety plans and drills. By combining science and engineering, communities can better prepare for earthquakes and save lives.