

# Bell Work

- **OH NO! The ground just started shaking!**
- Everything is moving around. You realize you are not in a safe place.
- What do you do?
- Write a paragraph response in your composition book detailing what you would do to keep yourself safe if you were in an earthquake.
- \*When you finish, make sure you have a dry erase board, marker, pencil, and notes ready to go!

# Objective

**I can explain why earthquakes occur.**

**SPI 0707.7.6** Describe the relationship between plate movements and earthquakes, mountain building, volcanoes, and sea floor spreading.

# Essential Questions

- What is an earthquake?
- What causes an earthquake?
- Where are earthquakes likely to occur?

# What Mastery Looks Like

Which is the best description of where earthquakes are likely to occur?

- A** in the middle of a continent
- B** along a coastline
- C** along two plate boundaries
- D** in the middle of an ocean

- China 1976 242,000 people die
- Iran 1990 50,000 people die
- India 1993 30,000 people die
- Japan 1995 5,378 people die
- India 2001 20,000 people die
- Iran 2003 30,000 people die
- Haiti 2010 316,000 people die

- <https://www.youtube.com/watch?v=AhG4-gXrnVM> Watch until 4:00.

# What is an earthquake?

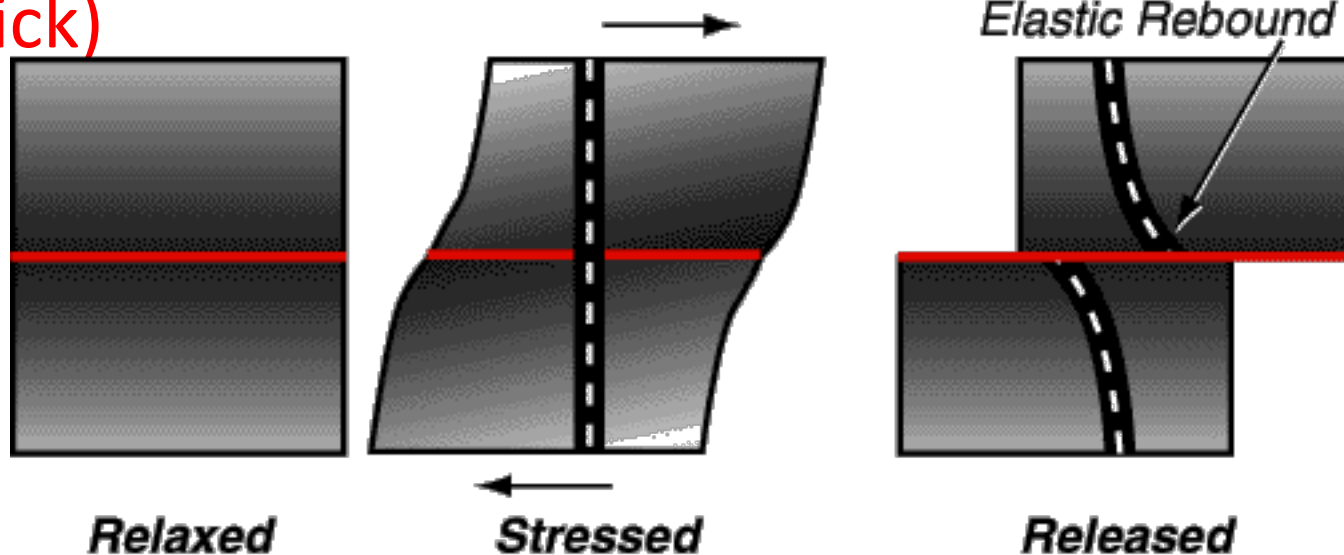
## What causes an earthquake?

- Write on your white board how you would explain...
  - What an earthquake is
  - Why an earthquake occurs
- An earthquake is movement of the ground that occurs when rocks inside Earth pass their elastic limit, break suddenly, and experience elastic rebound.
- Hmm, elastic rebound. Does that remind you of anything in real life?

# What is elastic rebound?

- If enough force is applied, rocks become strained, which causes them to change shape.
- They may even BREAK.
- The ends may SNAP back.
- This snapping back is called elastic rebound.

(stick)



# Faults

- **A fault is a fracture (break) that occurs when rocks break.**
- **A rule to remember...**
  - **Plate boundaries are always faults, but not all faults are plate boundaries.**
  - The movement of the plates next to each other distorts the crust in the region of the boundaries creating systems of earthquake faults.**

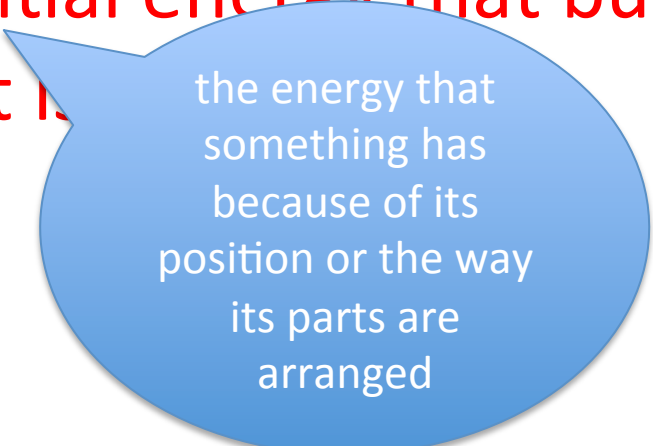


# White Board Question

- In your own words, explain elastic rebound on your white board.

# Where do Earthquakes Occur?

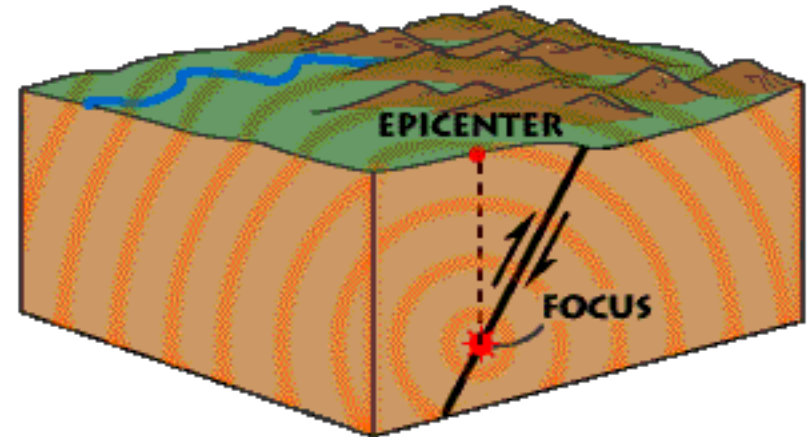
- On your white board, write your prediction.
- Movement along a fault releases strain energy.
- Using context clues, what do you think STRAIN energy is? (Discuss with your group)
- Strain energy is potential energy that builds up in the rock when it is



the energy that something has because of its position or the way its parts are arranged

# Where do earthquakes occur?

- When the potential energy is released, it moves outward from the fault in the form of seismic waves.
- The point where the energy is first released and movement first occurs is called the **focus**.
- The point where on Earth's surface located directly above the earthquake focus is called the **epicenter**.



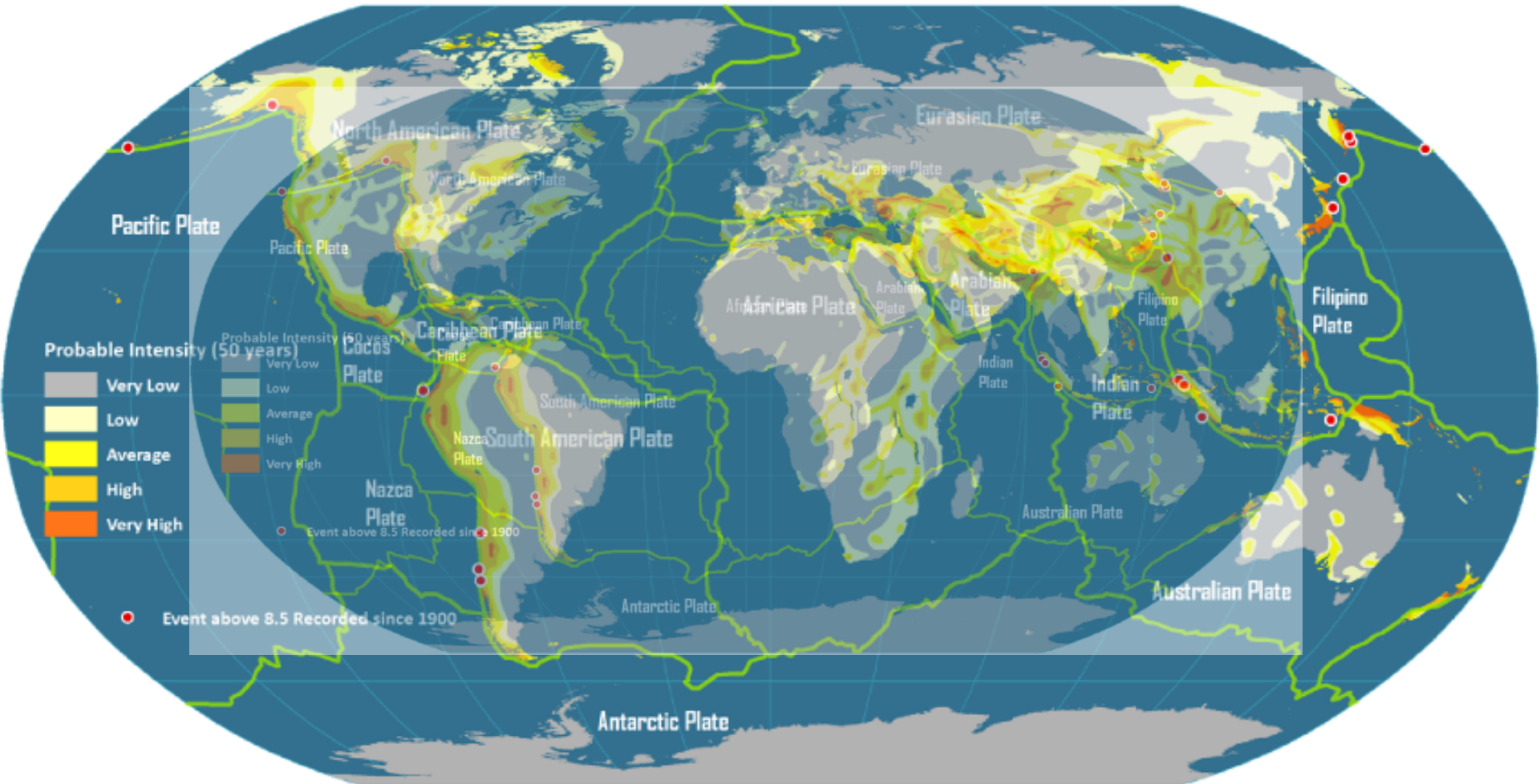
# White Board Questions

- What is the name of the location where an earthquake's first movements happen?
  - focus
- What is the name of the location on Earth's surface directly above the earthquake's focus?
  - epicenter
- What happens to rocks after their elastic limit is passed?
  - Rocks will bend or break.

# Prediction

- Knowing what you now know about the Earth, where are most earthquakes going to occur?  
Discuss with your group.
- They are going to happen near plate boundaries and along fault lines.
- Do you want to see some proof?

# Where Earthquakes Occur



# Brain Buddies

- In just a moment, I will tell you to move to your brain buddy.
- You will read an excerpt or some facts about earthquakes. On the back of your slip of paper, you will write one sentence, in your own words, that will tell the class the most important or interesting information from the article. **BE PREPARED TO SHARE!**
- You should be able to transition silently.

# Exit Assessment

- Return to your desk.
- Watch the Study Jam.
  - <http://studyjams.scholastic.com/studyjams/jams/science/rocks-minerals-landforms/earthquakes.htm>
- Answer the quiz questions on your white board.