Earthquakes

Learning Stations

Earthquake Basics

Review the provided information & answer the following questions:

VIDEO: https://www.youtube.com/watch?v=AcH2GP-59ro

- What causes an earthquake to occur?
- Where does an earthquake originate from?
- Describe how faults are related to earthquake occurrences.
- Describe the differences between mainshock, foreshock, and aftershock.
- Explain how a seismograph is used to determine the epicenter of an earthquake.
- Draw a sketch of an earthquake and label the epicenter, focus, and fault.

Use the foam pieces to simulate the formation of an earthquake.

Tsunamis

Review the provided information & answer the following questions:

VIDEO: https://www.youtube.com/watch?v=Wx9vPv-T51I

- What causes a tsunami to form?
- What factors impact how fast a tsunami will travel?
- In which oceans are most tsunamis generated?
- Why doesn't a tsunami hit in just one giant wave? Explain.
- What are some signs that a tsunami could be able to strike?
- What ways have people tried to protect themselves from tsunamis?

VIDEO: https://www.youtube.com/watch?v=3NKujyTwjDs

Use the closed 2 Liter container, place on it's side. Have one person hold in the air. Displace the water by having another person hit the bottle from the bottom. Observe what happens to the water as the energy is transferred.

Seismic Waves

Review the provided information & answer the following questions:

VIDEO: https://www.youtube.com/watch?v=HwY1ICqWGEA
VIDEO: https://www.youtube.com/watch?v=wDfIgoXaXis

- Compare & contrast the 3 main types of seismic waves.
- How are surface waves different from body waves?
- Place the types of waves in order of appearance.
- Explain how the ground material and type of wave impact human structures.

Use the slinky provided and simulate p-waves by pulsing the slinky back and forth. Simulate s-waves by moving one side up and down. Predict how surfaces waves would move using the slinky.

Locating Epicenters

Review the provided information & answer the following questions:

VIDEO: https://www.youtube.com/watch?v=3eFS4WhsrHA
VIDEO: https://www.youtube.com/watch?v=oBS7BKqHRhs

- What is a lag time?
- How do you determine the distance from epicenter using the P & S wave graph?
- Briefly describe how to calculate the location of an epicenter.
- How is the Richter Scale used with relation to earthquake intensity?
- How does the Richter Scale compare to the Mercalli? Which is used more often and why?
- Are we able to predict when an earthquake will occur? Explain.

Use the provided practice problems to practice the "wedge method" and calcualte distances & times from epicenters.