

Unit 3 Handout \_\_\_\_\_

Lesson 2: Waves and Earthquakes

**Purpose:** To provide background on the connection between waves and earthquakes.

**Guiding Questions:** - How is energy from an earthquake transferred?  
- What are the different types of waves generated by an earthquake?

**Background.** On our previous handout, we observed that waves travel outward from a central point. This is true of earthquakes, too. The **focus**, or the zone where rock is displaced to cause the earthquake, of the earthquake is the center of where the waves will travel from. The waves will travel in all directions from that point. Scientists have identified different types of waves and this sheet will help you understand the differences between those waves.

**What is a wave?**

A **wave** is one or more of a series of \_\_\_\_\_ passing along a \_\_\_\_\_ or through a \_\_\_\_\_. It is a transfer of \_\_\_\_\_.

Waves have certain properties. A wave can travel \_\_\_\_\_ a \_\_\_\_\_ without the material itself \_\_\_\_\_ with the wave. Second, a wave can originate at one point and then travel outward in all directions.

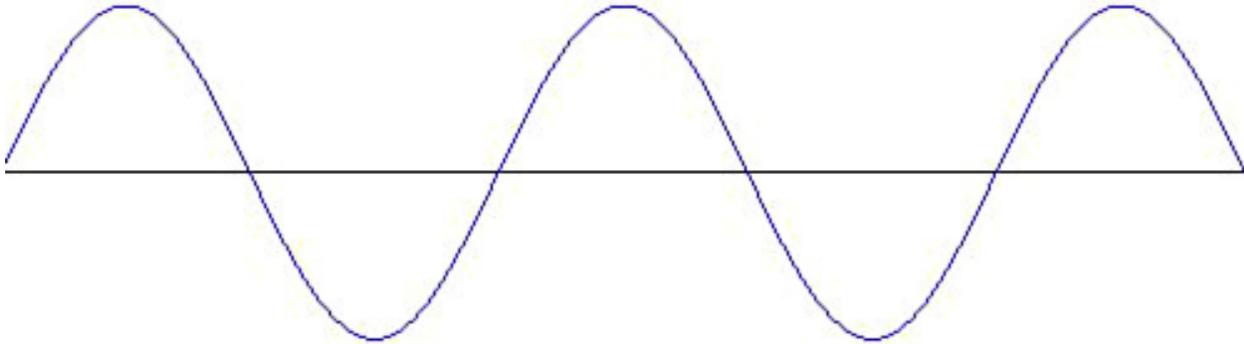
**What are the parts of a wave?**

To help us understand waves, scientists have given different parts of a wave names.

- **Amplitude:** the \_\_\_\_\_ from the resting line to the \_\_\_\_\_ or the \_\_\_\_\_.
- **Crest:** the \_\_\_\_\_ point of a wave above the resting line.
- **Trough:** the \_\_\_\_\_ point of a wave below the resting line.
- **Wavelength:** the \_\_\_\_\_ between one \_\_\_\_\_ and the next or one \_\_\_\_\_ and the next.

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Here are the parts you need to label on the diagram below: amplitude, crest, trough, wavelength.



### What are the types of earthquake waves?

There are two main categories of earthquake waves: \_\_\_\_\_ waves and \_\_\_\_\_ waves. **Body waves** move through the earth, often \_\_\_\_\_ to the ground. **Surface waves** mainly travel at or below the earth's surface (up to 1000km), often \_\_\_\_\_ to the ground.

There are different types of body waves. One type of a body wave is called a \_\_\_\_\_. Like sound waves, they compress and expand the material through which they travel. These are known as compression\* waves. An easy way to think of this is their action of \_\_\_\_\_ and \_\_\_\_\_.

Another type of body wave is called an \_\_\_\_\_. Rather than compress, these waves cause \_\_\_\_\_ movement that is perpendicular to the surface of the planet. These are known as transverse\* waves.

*\*You are expected to know the waves as P or S waves. The terms compression and transverse can help you describe them, but don't call the waves by these words.*

Name .....

Period .....

Date .....

<b>Wave Type:</b>	<b>Description</b>	<b>Direction and Action</b>	<b>Drawing</b>
<b>Body P-Wave</b>			
<b>Body S-Wave</b>			
<b>Surface Wave</b>			