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الملف Worksheet about Earths internal structure

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Name:

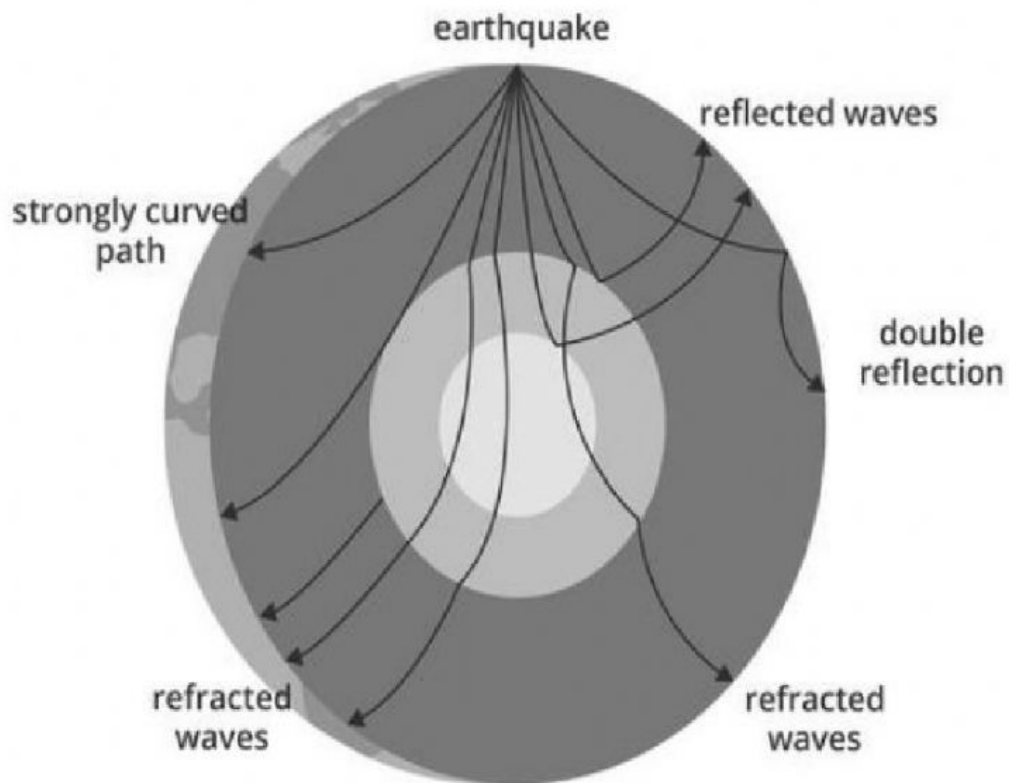
Section:

### Activity 2: Asynchronous 1

**General Instructions:** Study the given texts below, then answer the following questions for Asynchronous 2.

#### Seismic Waves

- Earthquakes produce **seismic waves** that travel through rocks.
- Since seismic waves do not travel in straight lines, their paths can be used to determine the medium in which they traveled.



Seismic waves are reflected and refracted as they travel through the interior

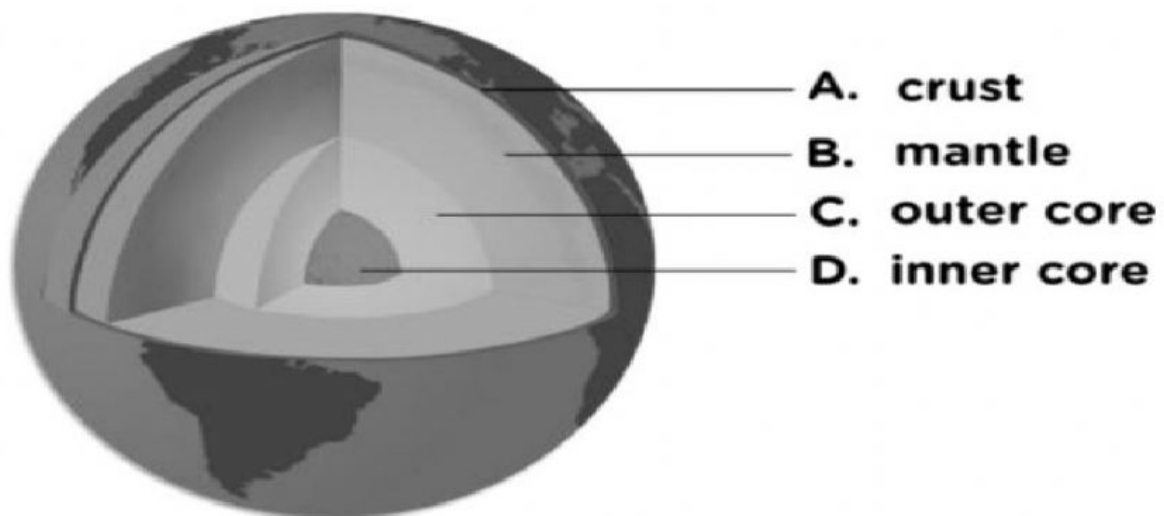
Seismic waves can either be body or surface waves.

### *Body Waves*

- **Body waves** travel through Earth's interior.
- Body waves can be classified as primary wave (also P wave) or secondary wave (also S wave).
  - **Primary waves** are longitudinal waves where the particle motion is parallel to the direction of the wave. It can travel through solids, liquids, and gases.
  - **Secondary waves** are transverse waves whether the direction of the particle motion is perpendicular to the direction of the wave. It can only travel through solid materials.

### *Surface Waves*

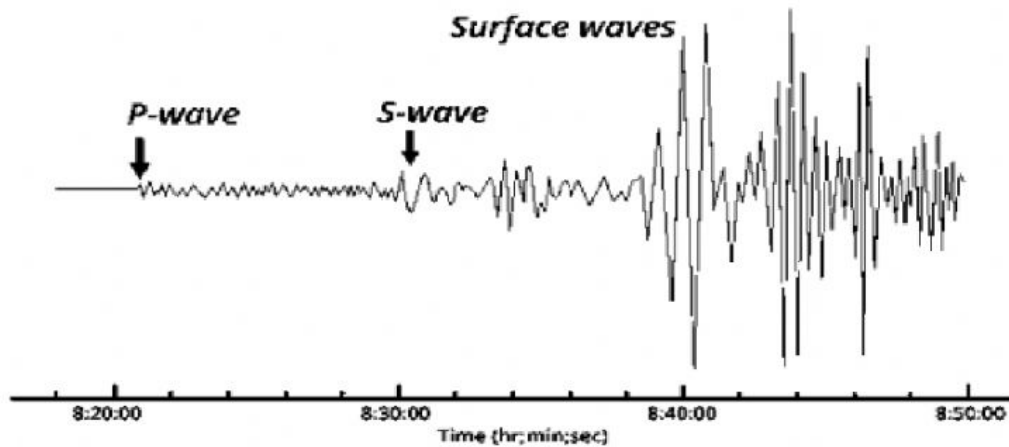
- **Surface waves** can only penetrate rocks at shallow depths.
- Surface waves can be classified as Rayleigh wave or Love waves.
  - **Love waves** travel in side-by-side motion.
  - **Rayleigh waves** travel in a elliptical motion and it is the last type of seismic wave recorded by seismograph.
- The velocities of primary and secondary waves change as they travel in the interior of Earth. By examining these velocities, scientists were able to determine that underneath, there exist layers that differ physically.



- The **crust**, the uppermost layer, is rigid, thin and is comparable to the skin of an apple.
- The **mantle** lies below the crust and is composed of a solid upper part and partially molten rock layer in its lower portion.
- The **core** is the innermost layer and is divided into liquid outer and solid inner layer.

## Seismogram

- Seismologists need at least three seismographs from different stations to determine the location of the epicenter.



Seismogram containing types of seismic waves.

- Based on a given seismographic data, one could determine the distance of a certain seismographic station from the epicenter.
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**Activity 3; Asynchronous 2**

**Instructions.** Fill in the missing information that will correctly complete the statement refer to the word box below for the answers. Note: Words can be used multiple times as long as it fits with the sentence.

Body waves	Crust	Liquid outer
Mantle	Partially molten rocks	Primary waves
Refract	Secondary waves	Seismic waves
Solid Inner	Solids	Surface waves
	Waves	

During earthquakes, (1) \_\_\_\_\_ are produced. These can be classified as (2) \_\_\_\_\_, which can penetrate through the interior, and (3) \_\_\_\_\_, which can only travel near the earth's surface. Only the (4) \_\_\_\_\_ are used to study the earth's internal structure. (5) \_\_\_\_\_ can travel in all types of media while (6) \_\_\_\_\_ can only travel through (7) \_\_\_\_\_. As these waves travel through earth's interior, the (8) \_\_\_\_\_ change and these waves (9) \_\_\_\_\_. Through studying these waves, scientists were able to identify to differentiate the different layers of the earth. (10) \_\_\_\_\_ is the outermost rocky layer. The next layer (11) \_\_\_\_\_ which is composed of (12) \_\_\_\_\_ materials. Lastly, the innermost layer of the earth is composed of (13) \_\_\_\_\_ and (14) \_\_\_\_\_. (15) \_\_\_\_\_ was used to differentiate its parts since it can selectively travel through media.