

**Directions:** You will be responsible for researching and becoming an expert about one of the layers of the Earth! Use the sheet below to help guide you.

**HOME GROUP:** This is the group you will be *reporting your findings* to. Everyone in this group will be split up to meet with their expert groups until the **last day** of this project. Once you meet back up with your home group, you will take turns sharing the information that you found. You will record the information shared on your Layers of the Earth foldable. Names: \_\_\_\_\_

1. **Mantle Expert:** \_\_\_\_\_

- a. If the layers are ranked in order from **least dense to most dense**, would your layer be first, second, third or fourth? second Why? the crust is less dense than the mantle, but the inner core and outer core
- b. What is the **composition** of your layer? the mantle is made up of silicon iron, magnesium, and oxygen
- c. Your layer contains part of one sub-layer and all of the other. What are they? lithosphere & asthenosphere What is so important about these sub-layers? the lithosphere makes up the tectonic plates and the plasticity of the asthenosphere allows the plates to move
- d. A very important **process** happens in the mantle. What is it? convection currents  
 Explain the process: this is a cycle where material becomes heated, increasing the volume and decreasing the density. The material then  
 What does this process cause? the movement of the tectonic plates.

e. What are **four important vocabulary words** associated with your layer? For each, explain why that word is important for your layer.

- i. Word: \_\_\_\_\_ Importance: \_\_\_\_\_
- ii. Word: \_\_\_\_\_ Importance: \_\_\_\_\_
- iii. Word: \_\_\_\_\_ Importance: \_\_\_\_\_
- iv. Word: \_\_\_\_\_ Importance: \_\_\_\_\_

2. **Crust Expert:** \_\_\_\_\_

- a. If the layers are ranked in order from **least dense to most dense**, would your layer be first, second, third or fourth? first Why? the crust is the least dense layer, so it will "float" to the top
- b. What is the **composition** of your layer? continental crust is mostly granite, oceanic crust is mostly basalt
- c. Your layer can be broken into different types. What are they? continental & oceanic What is the difference between them? oceanic crust, due to its composition, is more dense than continental crust
- d. Your layer contains almost one entire sub-layer. What is it? lithosphere What is so important about that sub-layer? the lithosphere is broken into gigantic tectonic plates that slowly move on Earth's surface

floats to the top of the cooler material. Once it's there it cools again, decreases the volume and thus increasing the density. This will cause it to sink again.

C (5) H

answers may vary - see vocab posters

e. What are **four important vocabulary words** associated with your layer? For each, explain why that word is important for your layer.

- i. Word: \_\_\_\_\_ Importance: \_\_\_\_\_
- ii. Word: \_\_\_\_\_ Importance: \_\_\_\_\_
- iii. Word: \_\_\_\_\_ Importance: \_\_\_\_\_
- iv. Word: \_\_\_\_\_ Importance: \_\_\_\_\_

3. **Core Expert:** \_\_\_\_\_

- a. If the layers are ranked in order from **least dense to most dense**, would your layer be first, second, third or fourth? 3rd & 4th Why? the core is made of very dense metals.
- b. What is the **composition** of your layer? mostly iron & nickel
- c. Your layer contains is typically broken into **two** layers. What are they? inner core & outer core. What is the difference between these two layers? the outer core is the 3rd layer & is liquid, inner is 4th & solid
- d. What are **four important vocabulary words** associated with your layer? For each, explain why that word is important for your layer.
  - i. Word: \_\_\_\_\_ Importance: \_\_\_\_\_
  - ii. Word: \_\_\_\_\_ Importance: \_\_\_\_\_
  - iii. Word: \_\_\_\_\_ Importance: \_\_\_\_\_
  - e. Word: \_\_\_\_\_ Importance: \_\_\_\_\_

4. **Process Expert:** \_\_\_\_\_

- a. Why are the layers ranked in the order that they are? due to their different composition and density of that material
- b. How do we know about the different layers and what they're made of? We studied the way seismic waves travel through the Earth
- c. What process occurs in the mantle? convection Explain what this process causes on the surface of the Earth: the movement of material in the mantle causes the tectonic plates to move very slowly across the Earth's surface
- d. How is new crust formed- through what process? divergent boundary Explain: At a divergent boundary, two plates move apart, exposing hot, melted rock which
- e. How is crust destroyed- through what process? convergence Explain: At a convergent boundary, two plates collide and destroy crust. hardens to form new crust.
- f. What process occurs in the outer core? convection How does this protect our Earth? It is believed that convection currents in the outer core, coupled with the spinning of the inner core within the outer core, cause our magnetic field. This protects us from solar wind/radiation from space.

answers may vary - see vocab posters

answers may vary - see vocab posters