1. What evidence do you see on the surface of the Earth that indicates its dynamic nature?
   cloud shapes

2. Describe the shapes and flow of the blue and yellow materials.
   the blue and yellow materials look like strings of liquid and they move up and down in a cycle, symbolizing convection in the mantle.

3. What is a seismometer and how have they helped geologists?
   Seismometers are instruments that measure earthquakes. They have helped geologists infer what the inner Earth is like.

4. What type(s) of material do P waves pass through? Solid & liquid

5. What type(s) of material do S waves pass through? solid

6. Which type of wave moves faster? P waves

7. What type of material do P waves move faster through, solid or liquid? solid

8. Observe the seismic pattern of the P and S waves. What type(s) of material is this planet made of? Solid and liquid

9. What is the shadow zone? The area where P and S waves do not arrive

10. Watch the paths taken by P and S waves in this planet model. Sketch the layers of this planet and label them as solid or liquid. Solid

11. Watch the paths taken by P and S waves in this planet model; be sure to consider the speed of the P wave in different materials. Sketch the layers of this planet and label them as solid or liquid. Solid then liquid
12. What happens to the size of the shadow zone as the diameter of the liquid core increases? The size of the shadow zone increases as the diameter of the liquid core increases.

13. Observe the paths taken by P and S waves through Earth. Sketch the layers on your diagram and indicate if they are solid or liquid. Solid then liquid

14. Waves move quicker in areas that tend to be cooler or consist of rocks that are dense. Waves moving slowly indicate less dense rocks that are warmer.

15. Where are the cool and the hot regions of the mantle located?
Hot regions are along earthquake fault lines, while cool regions are generally farther north and in the middle of continents.

16. What does this tomographic model indicate about the underlying structure of South America?
South America is made up of cooler, dense rock which allows waves to travel faster, causing more damage when earthquakes occur.

17. What is a Mantle Plume?
Convection takes the form of subducting plates and upwelling, approximately axisymmetric plumes.