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Study Guide Quarter 1 2nd Science Assessment 2009-10
Lab Terms, Earth's Layers, Tectonic Plate Movements

Essential Learning #1 Students will know and be able to use lab terms when writing a scientific lab report.

1. Title The very first part of a scientific lab report. This is the name of the experiment.
2. Dependent Variable This is a measurement in your experiment. It is what happened because of what you changed in the independent variable. This will be like the growth of a plant, the distance flown, the temperature change.
3. Procedures Steps that include everything you did in the experiment so anyone should be able to duplicate what you did.
4. Control group This is the part of the lab that is use to compare your results to. This is a standard for comparison. Many experiments will include this so you can compare your results to it.
5. Constants These are all the things that are exactly the same in the experimental and control group. For example, same size beaker, same amount of water, etc.
6. Background Info This is what you already know. It could be from experience, observations, notes or research.
7. Hypothesis This is your educated or best guess as to what you think will happen in your experiment.
8. Materials This is a list of supplies and the amount of each that you will need to complete the lab.
9. Problem This is the question that you are trying to answer by doing your experiment. This must be testable and measurable, and written as a question.
10. Independent Variable This is the one thing that makes the experimental group different from the control group. This is what "I" (person doing the experiment) changes. This is sometimes called the manipulated variable.

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11. If then These words are often used when writing a hypothesis.

12. Conclusion This tells how your results compared with your hypothesis. This part of the lab write up should include questions for further study about your experiment.

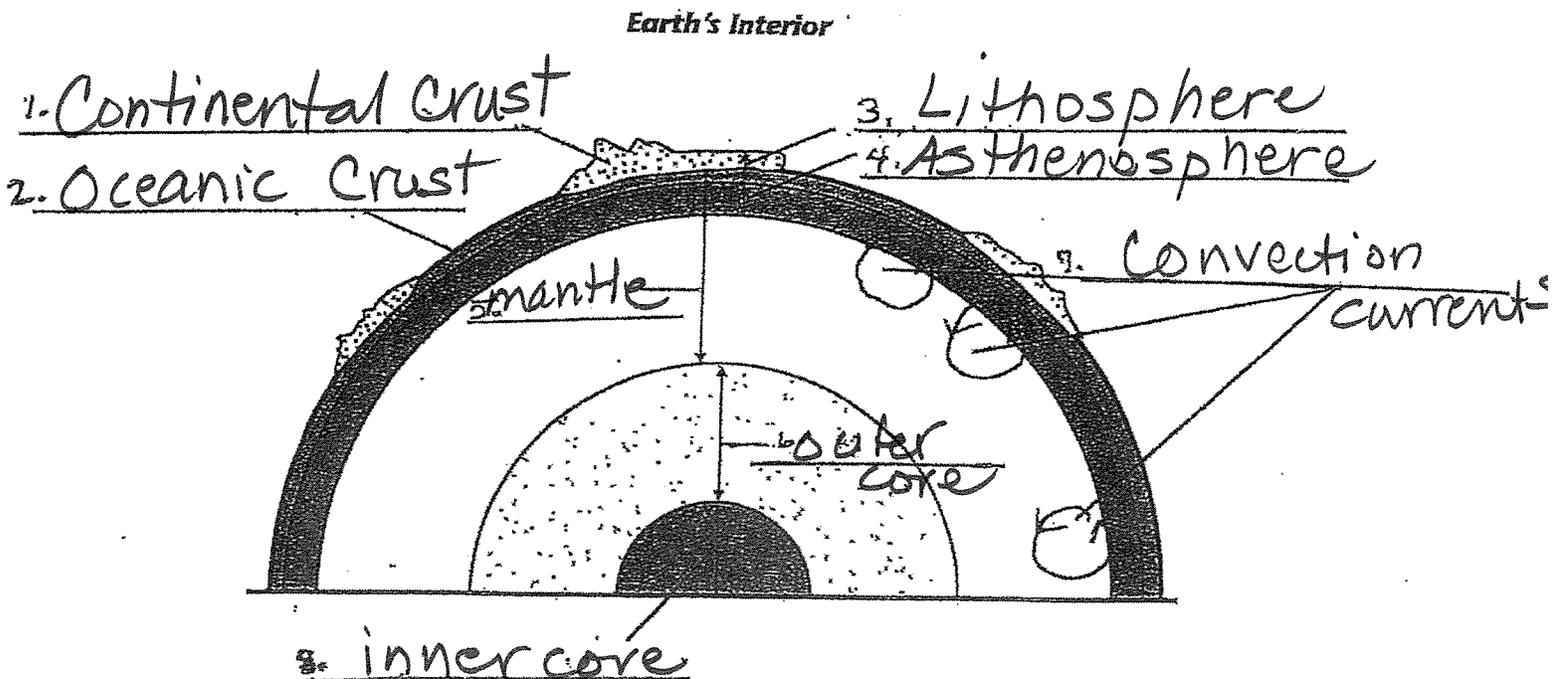
13. Observations These are things you notice by using your senses while doing the experiment.

14. Data This can be qualitative or quantitative. This is information gathered or collected when doing an investigation.

15. Data Table This is the chart where you will record your data.

16. Problem This is the part of the lab report that your hypothesis predicts the answer to.

Essential Learning #2 Students will identify and describe the properties of the solid Earth and its layers.



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9. Earth's solid inner core is surrounded by the hot, molten metal of which layer? outer core
10. The asthenosphere is part of which layer of Earth? mantle
11. Pressure, temperature and density increase with depth toward the center of earth. In which layer would you expect temperature to be the greatest?
inner core
12. According to the theory of plate tectonics, which layer of earth is broken into separate sections called plates? Lithosphere
13. Which layer of Earth is made up partly of ^{crust} ~~crust~~ and partly of mantle material? Lithosphere
14. To study Earth's interior; geologists often rely on indirect methods, such as evidence from SEISMIC WAVES
15. The transfer of heat by the movement of heated fluid is called convection
16. Alfred Wegener provided evidence from landforms, fossils and climate in support of his hypothesis of Continental drift and the super-continent called Pangaea.
17. Two types of crust are Oceanic and Continental. Which type is denser? Oceanic
18. The outermost thin layer of Earth, where all life is found, is called the crust.
19. Earth's magnetic field is thought to originate in the outer core.
20. radiation, conduction, and convection are three types of heat transfer.

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21. You hold an ice cube in your hand and it begins to melt. What type of heat transfer is occurring? Conduction

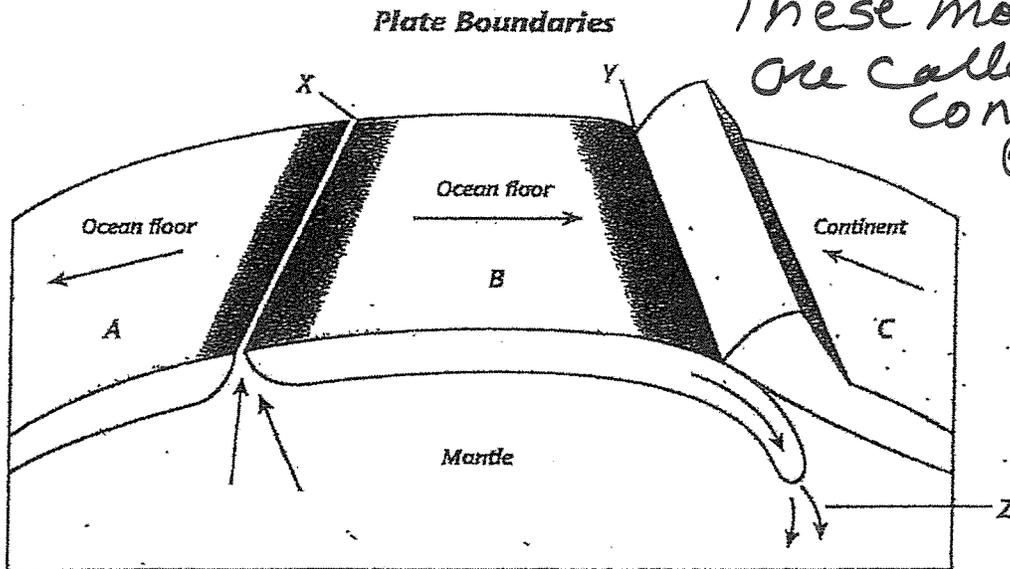
22. The sun has heated the leather seats in your car. What type of heat transfer has occurred? radiation

23. Explain how changes in temperature, volume and density can result in convection currents.

As molecules are heated, the temp. increases & the molecules spread out & move faster. As they do this they increase in volume, becoming less dense so they rise. Once they are further away from the heat they slow down, take up less space, & become more dense and they sink back down to the heat source to start all over again -

Essential Learning #3 Students will understand plate movements and their effects on the earth.

These movements are called convection currents.



1. In the diagram, there are 3 plates, Plate A, Plate B and Plate C. What type of crust makes up each plate?

A - oceanic B oceanic C continental

2. What causes the tectonic plates to move around?

convection currents in mantle produced by heat from the core

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3. What features (landforms) are likely to occur on C, close to the plate edge?

Mountains, volcanoes,

4. Which type of boundary occurs at Z?

Convergent boundary

4. Describe what is happening at Z. Your answer must contain the following words: melting, mantle, subduction, more dense, less dense, continental crust, oceanic crust, convergent boundary.

This is a subduction zone. Plate B is oceanic crust and is more dense than Plate C (continental crust). When plate B sinks into the mantle it will begin to melt under the less dense cont. crust. This will produce a build up of magma in the mantle that can result in volcanoes. These plates form a convergent boundary.

5. What is happening at X? Your answer must include these words; magma, mantle, lithosphere, sea floor spreading, mid-ocean ridge, divergent plate boundary.

X represents where the sea floor is spreading. The two plates form a divergent plate boundary because they are moving away from mid-ocean ridge. Through the crack, magma from the mantle will ooze through the lithosphere onto the sea floor, cool & harden forming new crust - pushing the sea floor away from the new crust.

6. What feature of the ocean floor is shown at Y?

Deep ocean trench

7. What is a fault?

a crack in Earth's crust.
This can be at the edges of plates
or in the middle of a plate.

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8. What is a subduction zone?

The area where one edge of a plate is pushed or sinks beneath the edge of another plate.

9. Why are many volcanoes found close to subduction zones?

The subducting plate will melt into magma and with the increase in magma it "leaks" for a weak place to spew out.

10. What is the Ring of Fire?

area around the edges of the Pacific plate where many volcanoes occur.

11. Name the tectonic plate that includes the United States.

N. American Plate

12. Draw 3 simple diagrams that show the different ways that plates move at their boundaries. Name the type boundary shown in each picture that you draw.



divergent



convergent



Transform