

S6E5. Students will investigate the scientific view of how the earth's surface is formed.

A. Compare and contrast the Earth's crust, mantle, and core including temperature, density, and composition.

**1. What are the differences between the layers of the earth when you think of density, composition and temperature?**

Crust: Density  
Temperature  
Composition

Mantle: Density  
Temperature  
Composition

Core: Density  
Temperature  
Composition

**2. What part of the earth's layers generates the magnetic field and how do we know that the magnetic poles have changed in the past?**

**3. How far down have humans drilled?**

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B. Investigate the contribution of minerals to rock composition.

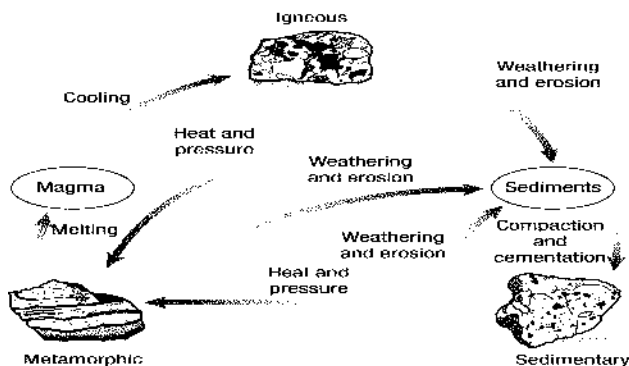
**4. What does each characteristic of a mineral mean when trying to describe it's physical properties?**

chemical composition -  
luster-  
streak color-  
crystalline structure-  
cleavage-  
hardness-  
color-

**5. A mineral is a solid, non-living, natural occurring substance with a definite composition.**

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c. Classify rocks by their process of formation.



6. The rock cycle indicates that each type of rock can provide materials to make other rocks, form other rocks and be changed by forces at Earth's surface.
7. Rocks are affected by heat and pressure. Where does this heat and pressure come from?
8. Rocks found on Earth are generally classified as sedimentary, metamorphic, or igneous. What causes rocks to be changed?
9. Why aren't sedimentary rocks are found on the Moon?
10. What does the formation of metamorphic rocks depends on?
11. What does the formation of sedimentary rocks depends on?
12. What does the formation of igneous rocks depends on?

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13. What is a hot spot when talking about plate tectonics and where would you find an example of this?
14. In the geologic process what has caused changes in Georgia landscape over the last 10,000 – 20,000 years?
15. What is the difference between:
  1. divergent boundaries
  2. convergent boundaries
  3. transform boundaries

16. What causes lithospheric plates to move on earth?

17. What are most earthquakes are caused by?

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C. Explain the effects of physical processes on geological features including oceans.

18. Why is the Atlantic Ocean growing by a few centimeters a year?

19. What is a seismograph and how many do you need to determine where the earthquakes epicenter is?

20. What does the theory of plate tectonics attempts to explain?

**21. What plate tectonic action would explain each one of these?**

1. a volcano under the sea
2. a mountain range near the seacoast
3. a deep underwater gorge near a continental shelf

**22. What is sediment?**

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*D. Describe how fossils show evidence of the changing surface and climate of the Earth.*

**23. What evidence do scientists use to determine how old the Earth is?**

**24. What facts do scientists have to explain continental drift?**

**25. If there has been no folding or bending of the rock layers, which is older a fossil found on the bottom layer or the top layer of a soil sample?**

**26. How do scientists explain ocean fossils found on the top of a mountain?**

*S6E5. Students will investigate the scientific view of how the earth's surface is formed. f. Describe soil as consisting of weathered rocks and decomposed organic material.*

**27. What are the basic components of soil?**

**28. What are the different types of soil profiles would you find in:**

1. Desert –
2. Tropical
3. Temperate
4. Arctic

**29. What do you find in each of these basic layers of soil?**

- A) subsoil
- B) bedrock
- C) topsoil
- D) clay

**30. If you were to place a bunch of soil in a jar with water, shake it up, and let it settle what would the layers look like then it settled? Use these words to label this picture: silt, sand, pebbles.**

