

Rock Cycle Crayon Lab

Purpose:

- Summarize the rock cycle.
- Analyze and predict the sequence of events in the rock cycle.
- Represent the natural world using models and identify their limitations.

Background Information:

- Weathering is the breakdown of rocks and minerals at and just below the Earth's surface; can be physical or chemical.
- Sediment is soil, sand, and minerals that are transported and deposited by wind and water.
- Erosion is the movement of soil and rock material by agents such as water and wind.
- Deposition is the geological process by which wind, water, or ice create a sediment deposit by laying down material that has been eroded and transported from another location.
- Lava is rock found on Earth's surface that is in its molten form.
- Magma is molten rock beneath Earth's surface.
- Igneous rocks are formed from the cooling and crystallization of magma. Igneous rocks can be extrusive, meaning that they cooled on or very near the Earth's surface. Igneous rocks can also be intrusive, meaning that they cooled below Earth's surface.
- Sedimentary rocks are formed by the deposition of sediments and the compaction and cementation below Earth's surface.
- Metamorphic rocks form when sedimentary or igneous rocks are changed by temperature and pressure within the crust of the Earth.

Materials:

- Four crayons, each a different color
- Coin or pencil sharpener
- 10cm x 10cm square of aluminum foil
- Hot plate
- Tongs
- Beaker of water
- Goggles
- Heat resistant gloves

Procedure and Observations:

1. Put on your goggles. Tie back loose hair and pull up long sleeves.
2. Fill your beaker with water (approximately 200mL).
3. Turn on the hot plate and place the beaker on it to warm the water.
4. Each crayon represents an igneous rock. How is each crayon like this type of rock? _____

-
5. What is a limitation of using a crayon to represent this type of rock? _____

 6. Using a coin or pencil sharpener, shave off pieces from each of the four crayons. Make sure to keep the colors separate. What process does this represent? _____
 7. What do the shavings represent? _____
 8. Gently blow the shavings. What process does this represent? _____
 9. Drop the shavings onto a piece of foil. What process does this represent? _____
 10. Fold the foil over and press between your hands until the shavings stick together. What process does this represent? _____
 11. What type of rock does this produce? _____
 12. How is your model like this type of rock? _____

 13. What is a limitation of using a crayon to represent this type of rock? _____

 14. Shape the aluminum foil into a boat. Save a piece of the rock model you made and place the rest of it in the aluminum foil.
 15. Place the aluminum foil in the beaker so that it is floating on the water. As soon as the crayons begin to melt, remove the aluminum foil with tongs and place it on the lab table.
 16. Using the heat resistant gloves, fold the foil over and apply pressure.
 17. What process does that represent? _____
 18. What type of rock does this process produce? _____
 19. How is your model like this type of rock? _____

 20. What is a limitation of using a crayon to represent this type of rock? _____

21. Save a piece of the rock model you made and place the rest of it in the aluminum foil. Now heat the crayon rock using the same process until the crayon rock is completely melted and the colors have blended. Let the crayon rock cool.
22. What process does this represent? _____
23. What type of rock does this process produce? _____
24. How is your model like this type of rock? _____
25. Clean up you lab supplies.

Conclusion:

- Draw a picture of the rock cycle below. Include the following words: weathering, erosion, deposition, compaction and cementation, metamorphism (heat and pressure), melting, cooling, solidification, sediment, sedimentary rock, igneous rock, metamorphic rock, and magma.