

Modeling a Rock Cycle

The rock cycle is a never-ending process. Igneous rock forms from cooled magma or lava. Weathering breaks rocks into sediments such as pebbles and sand. These small pieces can be compacted and cemented under pressure into sedimentary rock. Under great heat and pressure inside the Earth’s crust, igneous and sedimentary rocks are changed into metamorphic rocks. These rocks are pushed to the Earth’s surface where they are weathered again into sediments to become sedimentary rocks or pushed into the mantle where they melt into magma.

Materials

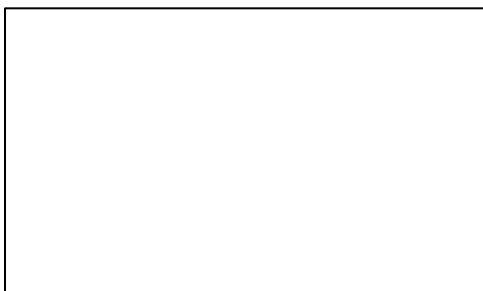
- | | | |
|-------------------------------------|------------------------|--------------------------|
| 3 peeled crayons (different colors) | sheet of aluminum foil | heavy books |
| Hand held pencil sharpener | paper plate | ice cube tray (to share) |
| | timer | microwave (adult use) |

Safety: *The hot materials can cause burns. Be careful.*

Part 1 Weathering Rocks Procedure

- A. Use the pencil sharpener to turn one crayon into shavings. Set the end of the crayon aside.
 - B. Pour the little pieces and shavings on to the aluminum foil.
 - C. Take another color and sharpen into shavings.
 - D. Pour the little pieces and shavings on top of the other color on the foil.
 - E. Repeat with the last color.
1. Describe your observations.

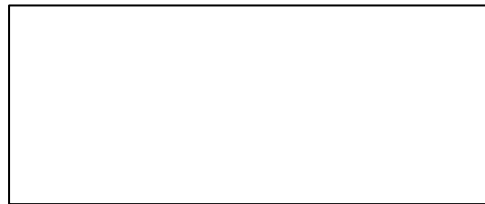
2. Draw and color what you see from the top.
3. Draw and color what you see from the side.



Part 2 Making Sedimentary Rock Procedure

- A. Fold the aluminum foil over your three layers of shavings.
 - B. Place two or three heavy books over the aluminum foil and leave for 3 minutes.
 - C. Take off the books and observe the shavings.
4. Describe your observations.

- 5. Draw and color what you see from the top.
- 6. Draw and color what you see from the side.



Part 3 Making Metamorphic Rock Procedure

- A. Fold the aluminum foil over the shavings again.
 - B. Press very hard on the foil with your hands for 30 seconds, pass to your partner.
 - C. Your partner does the same for another 30 seconds.
 - D. Continue doing this until both partners have done it 4 times.
 - E. Unwrap the aluminum foil and observe the shavings.
7. Describe your observations.



8. Draw and color what you see from the top.

9. Draw and color what you see from the side.



Part 4 Making Igneous Rock Procedure

- A. Place your crayon “metamorphic rock” in an ice cube tray.
- B. Your teacher will microwave the full tray in 30 second intervals until a magma state is reached. (In the real rock cycle, the pressure and heat of the inside of the earth would do this over millions of years.)
- C. Do not touch the tray for at least **10 minutes** (work on questions 13 – 20 while you wait).
- D. Your teacher will give you your crayon “rock” for observation.

10. Describe your observations.

11. Draw and color what you see from the top.

12. Draw and color what you see from the side.



Questions

13. What did your group do to model weathering rocks?

14. What did your group do to make the sedimentary rocks stick together?

15. What did your group do to make the metamorphic rocks stick together?

16. What was the difference between what you did to make sedimentary rocks and what you did to make metamorphic rocks?

17. What did your group do to make the igneous rocks?

18. What was different between what you did to make metamorphic rocks and to make igneous rocks?

Fill in the diagram with: **Sedimentary Rocks, Metamorphic Rocks, and Igneous Rocks**



