

Directions

Throughout this activity, all students should NOT eat the candy and follow all rules given by your teacher.

Process A: Weathering

1. Place a sheet of paper in front of you. Each student will have their own paper.
2. Each group member takes a starburst of a different color and removes the wrapper.
3. Use small scissors to weather your starburst, forming a pile of chips and flakes on your sheet of paper.

The Starburst candy represents

any rock (sedimentary, igneous, or metamorphic)

The small chopped up pieces of candy represent

sediment

4. Your group will have accumulated three or four piles of different colored sediments.

What is this process called?

weathering

What processes might cause similar weathering to rocks in nature?

wind,
water (rain, waves, floods, hurricanes, etc)
gravity (falling, friction / rubbing, pressure
ice: glaciers, frost,
plants (roots)
changes in temperature

Where does this process occur? (on the surface of the earth or deep inside...)

on the surface of the earth

Process B: Erosion and Deposition

1. Take turns depositing different colors of sediments into the cup.

What is it called when sediment accumulates in layers?

deposition

Process C: Formation of Sedimentary Rock

1. Complete the process of sedimentation, place a candy wrapper on top of the sediment and press down evenly on the sediment.
2. Take the rock out of the cup and observe the edges.
3. **Take and insert a picture of your “sedimentary rock” below:**



Compare your candy rock with the sedimentary rocks. What do they have in common?

mixed colors (sediment), rough or bumpy, crack/holes/pores, layer

Process D: Formation of Metamorphic Rock

1. Gently place the rest of your candy rock into a plastic bag, and reseal, being careful to push out all excess air.
2. Take turns pressing the candy in the ziploc with your warm hands. After flattening the candy,

fold it in half and press again.

3. Place a small piece of the rock on the group paper plate in the section with the actual metamorphic rock sample.

Where do you think the natural process that STEP 2 is a model of takes place?

deep inside the earth

Cut the rock in half and observe the edges. Take and insert a picture of your metamorphic rock.



Compare your “rock” with a sample of a metamorphic rock. Record your comparison below:

Mixed but blended colors, smoother, harder than sedimentary rock, less crumbly

Process E: Formation of Igneous Rock

1. The teacher will place the candy rocks in a glass beaker and set the beaker in a hot pot full of water.
2. When the candy rock completely melts, the teacher will pour a small amount on wax paper for your group.
3. When the rock has cooled and solidified, make observations.
4. Place the candy rock on the group paper plate in the section with the actual igneous rock sample.

Where do you think the natural melting process that this step is a model of takes place?

Very deep inside the earth in the mantle or in a magma chamber

5. Once solid, observe your “igneous rock.” Take and insert a picture of your “igneous” rock below:

Conclusion:

Which types of rocks weather **to form the sedimentary rocks**?

any kind of rock can be weathered into sediment

Which types of rocks **will form a metamorphic rock** if partially melted, placed under great pressure, and deformed?

any kind of rock--sedimentary, igneous or metamorphic

Which types of rocks can completely melt and **form igneous rocks**?

any kind of rock--sedimentary, igneous or metamorphic

Rock Cycle

1. Does the rock cycle have one beginning and one endpoint? Explain your answer.

No, the rock cycle is a CYCLE. There is no beginning and there is no end. Any kind of rock can be weathered to sediment, and any kind of rock can be heated or melted. Any kind of rock can cool, either inside the earth or on the surface. Once a rock has undergone a change, it can still be subjected to other changes and processes.

2. Is the rock cycle a slow process or a fast process? Explain your answer.

Some parts are very slow. Weathering, eroding, deposition, compacting and cementation can take about 20 million years. Processes like the uplift of igneous rocks within the earth's crust are much slower and are measured in terms of millions of years. Some processes are quicker, like magma cooling on the earth's surface.

3. What factors control the rate of change in the formation of sedimentary rocks?

Weathering and erosion and deposition

4. What factors control the rate of change in the formation of metamorphic rocks?

The temperature and amount of pressure

5. What factors control the rate of change in the formation of igneous rocks?

the rate at which the rock is cooling and the beginning material that the rock was made of

6. What are the various processes in the rock cycle? In other words, what can happen to a rock during its lifetime?

1. weathering
2. getting hotter/melting
3. intense pressure
4. compaction
5. cementation
6. cooling
7. erosion
8. deposition
9. uplift (shifting due to plate tectonics)

~~7. You have now taken your candy “rock” through one pathway of the rock cycle! Use this experience to diagram the pathway you modeled through the rock cycle. Draw and label on a separate piece of paper. ***~~