

Changes to the Earth Formation of Red Rock Canyon

Estimated Time: 20 minutes; 3 day experiment

Grade Range: 4th grade

What You Need:

- Plastic cups
- A bottle of carbonated water or soda
- Masking tape
- Pen
- 3 similar rocks (small enough to fit in your hand)

New Words

- Sandstone** - a common rock that is sand held together by clay.
- Iron** - a metal commonly found in rocks
- Rust** - the red or orange coating that Sandstone: a common rock that is sand held together by clay.
- Iron:** a metal commonly found in rocks
- Rust:** the red or orange coating that forms on the surface of iron when it is open to air and moisture, which is water in the air.
- Chemical Weathering:** a process that changes the shape of rocks using a chemical reaction

Have you ever seen red rocks or been to Red Rock? Have you ever wondered how and why those rocks are red? During this lesson, we are going to find out!

What are some of the causes behind the formation of Red Rock Canyon?

The red color of some of the Sandstone is because of iron in the rock. Exposure to the air causes the rock to go through a chemical reaction or change in the chemicals. Have you ever seen rust on metal? This is what happened to the rocks! This is not a short process; it can take millions of years. This process is called chemical weathering.

<https://www.redrockcanyonlv.org/wp-content/uploads/2012/09/red-rock-canyon6.jpg>



Here is another image of a rock in Red Rock Canyon. What do you notice that is similar to the rocks in the other picture? What do you think is different?



Today we will be starting our own experiment to see how chemicals can affect rocks. Now is when you'll need to get the materials, we need for our experiment;

Directions:

1. Fill one cup with carbonated water or soda (seltzer water works as an example)
2. Fill a different cup with just regular tap water.
3. Place masking tape on the cups and label them "rock and tap water" and "rock and carbonated water" on the correct cups.
4. From here, you will place similar-looking rocks in each cup. You can also place a 3rd rock in a 3rd completely empty cup to compare your test rocks afterward.
5. Allow the cups to stay like this for 3 days.
6. After 3 days have passed, take out the rocks and answer the following questions

1. Feel all 3 of the rocks. Do they feel different from each other? Describe how each of the rocks feel.

2. Now, let's test each rock. Take the rock that had nothing done to it and try to scratch (draw) the rock that was in normal tap water. What do you notice about the rocks?

3. Let's test the final rock, the one in carbonated water. Take your rock that was not in any water and scratch (draw) the carbonated rock. What do you notice? Does the carbonated rock look any different from the tap water rock we first tested?
