

# April 2022

## 15-Minute STEAM

### Rocks Rock!

#### Supplies Provided:

2 rock samples  
Squeeze bottle of vinegar  
Nail  
Black & White construction paper  
Magnifying glass



#### Supplies Needed From Home:

More rocks from your yard, your neighborhood, from the beach, from a hike etc...

#### Marking on Paper

1. Look at the rocks & guess if it will leave a colored mark on the paper or not.
2. "Draw" on paper with various rocks. (Having black and white paper allows you to see the lighter and darker dust from the rocks.)

#### Scratch Test on Rocks

1. Use a nail to attempt to make a mark on the rock. You will notice one of two things:
  - a) the rock will scratch, leaving a line, a crack or dust OR
  - b) the nail will rub off on the rock leaving a silver mark on the rock

If you see a scratch, a line, or dust, this means that your NAIL is HARDER than your ROCK.

If you see a silver line on your rock, this means that your ROCK is HARDER than your NAIL.

#### Is It Limestone?

1. Create a fresh surface for the to test. Use the nail to scratch the surface of the sample. When you scratch the surface you are removing some of the older weathered and making a fresh surface to test.
2. Once you scratch off a small area to test, use a dropper bottle to place a few drops of vinegar on the surface.
3. Look through your magnifier right away to see the bubbles. The bubbles may be small so look closely. If it bubbles, you know that there is the mineral calcite in your rock. This is a great test for limestones and marbles which are made completely of calcite.

taken in part from [lemonlimeadventures.com](http://lemonlimeadventures.com) and [kcedventures.com](http://kcedventures.com)



# The Science

Vinegar is an acid and as it interacts with the calcium carbonate in the limestone, it releases carbon dioxide -- and when carbon dioxide is released in a liquid, it forms bubbles. The chemical reaction with the limestone (calcium carbonate) and vinegar begins to break down the rock into the minute particles of sand, dirt and shells that are part of its' composition.

Rocks that contain calcium carbonate can erode when they encounter acids, and limestone contains calcium carbonate. Vinegar is acetic acid, and limestone is a base. An acid plus a base causes a chemical reaction. So, vinegar combined with limestone creates a chemical reaction.

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## A Little Background on Limestone

Limestone is a sedimentary rock composed mostly of calcium carbonate. In case you didn't know, sedimentary rocks often include fossils and can tell us about the Earth's environment over time. Sedimentary rocks are made up of sand, shells, pebbles, etc.

Limestone is formed in one of two ways--

First, ocean animals such as oysters and mussels use calcium carbonate from seawater to make their shells and bones. When these animals die, the remains settle to the ocean floor and over many years, are compacted into limestone rock.

The second way it forms is through the process of evaporation -- again, as fresh water or salt water creatures die, their shells and bones are broken up and dispersed in water. When that water is in a shallow area such as a stream or cave, it will evaporate due to the environment around it and leave behind the calcium carbonate from the shells and bones.

Limestone can be found in many places around the world since it is formed from ocean water, sea water and fresh water or caves.

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## What is Limestone used for?

Limestone is used to make cement, roads, and fertilizer. In addition, many forms of limestone are strong enough to be used as building materials. People use limestone for making floors, for covering the walls of buildings, and for making monuments.

usage information take from [kids.britannica.com](https://kids.britannica.com)

