

Rocks vs. Water

Geology activity (Grade range 2-5)

What you need...

- Chalk
- Limestone gravel (Iowa's primary bedrock) a handful of gravel
- Glass
- Tap water or rainwater
- Vinegar (white vinegar will work better than malt vinegar)

What to do...

1. If the limestone is not in small pieces, break it up carefully with a hammer.
2. Wash the pieces of limestone with clean rainwater and spread them
3. Clean the clear glass well and place it under the lower end of the trough to catch several drops of water that have soaked through the limestone.
4. Let the water evaporate from the glass.
5. Examine the dry glass. What do you see? Is it still perfectly clean? If not, what is on it?
6. What if this same process occurs with mountains of limestone and millions of gallons of rainwater? What happens? What has this to do with the formation of limestone caverns?
7. Repeat the activity, using vinegar in the place of rainwater at step 5. If you notice any difference in the amount of material deposited on the glass, try to explain why.

Teacher Information...

Water containing weak acids will actually dissolve limestone, as is witnessed by the formation of many caves and caverns, both large and small. Once caverns have been formed, water keeps dripping into them and the rock material comes out of solution forming stalagmites and stalactites.

The dissolving process is speeded up as the acid content increases. This is demonstrated by the use of vinegar. The acid involved is mostly carbonic acid, formed when water dissolves carbon dioxide. Other acids are contained in some air pollutants and washed out of the air by rain. This is called acid rain, and it can be harmful to plant and animal life and water supplies.