



HOME DEMO NO. 10

Acid Attack

New rocks constantly form inside the Earth and get pushed up by earthquakes, volcanoes, and the constant shifting of tectonic plates. Erosion is the natural process that wears down these rocks, constantly changing the face of planet Earth. Erosion and mountain building have gone on since the Earth was born.

When carbon dioxide in the atmosphere dissolves into raindrops, it causes the rain to become a natural acid. It can dissolve and erode rocks: it's acid rain. Here's an experiment to see how chemical erosion works.

What you need:

1. Lemon juice
2. Vinegar
3. Three pieces of regular white chalk

What you do:

1. Place one piece of chalk in a glass of lemon juice.
Note: for each glass, the chalk should be about three-fourths submerged in the liquid.
2. Place the other piece of chalk in a glass of vinegar.
3. Place the last piece in a glass of plain tap water.
4. Check back on the glasses over the next few days.

What's happening?

Lemon juice and vinegar are acids. Chalk is made of rock called limestone, which contains a chemical called calcium carbonate, which chemists write as CaCO_3 . Acids react quickly with the limestone, breaking apart the calcium (Ca) and the carbonate (CO_3) to form calcium and carbon dioxide gas (CO_2).

Acid rain is a much weaker acid than vinegar or lemon juice. But since acid rain falls week after week, year after year, it can eat away at rocks, eroding them. By the way, when humans burn coal with sulfur in it, rain makes the smoke turn into powerful sulfuric acid. This human-made acid rain can be very tough on a forest.