



## Effects on Buildings



*Essential Question: What materials should architects consider using for buildings in areas affected by acid rain?*

### Overview

As you learned in the last reading, acid rain affects animal and plant life. It also affects the buildings where we live and work. It contributes to the corrosion of metals such as bronze. It contributes to the deterioration of paint. It also contributes to the erosion of stone such as marble and limestone. These effects damage buildings, bridges, statues, monuments, tombstones, and cars. Some U.S. car manufacturers use acid-resistant paints to reduce the damage caused by acid rain. This costs an average of \$5 for each new vehicle or \$61 million per year. In this lab, you will look at the effects of acid rain on building materials, including limestone and metal.

### Materials

For the class:

- 1 gallon of distilled water
- 2 100-mL bottles of universal indicator solution
- 1 16-oz bottle of vinegar
- 1 electronic mass scale
- 5 steel wool pads
- 1 2-lb bag of granite
- 1 2-lb bag of marble
- 2 1-lb bag of sandstone
- 1 3-lb bag of limestone
- 1 roll of invisible tape

For each group:

- pH paper
- 10 10-oz plastic cups
- watch glass

### Safety

Follow standard safety rules and school safety rules for laboratory activities.

### Procedure:

#### **Part A: Indicators**

1. Create a table to record the pH and the color with universal indicator for vinegar and distilled water.