

Name \_\_\_\_\_

## Chemical Weathering - Student Worksheet

### Chemical Weathering - Acid Rain

Water in the atmosphere can dissolve naturally occurring gases such as carbon dioxide, sulphur dioxide and nitrous oxide to create acid rain, which can eat away lime rich rocks such as limestone and marble. Burning fossil fuels such as petrol, gas and coal releases these gases.

Carbon dioxide + water = carbonic acid

Sulfur dioxide + water = sulfuric acid

Nitrous oxide + water = nitric acid

When we place limestone or marble in acid two **process** can be observed.

1. The limestone **dissolves** in the acid
2. A gas **evolves**. Carbon dioxide gas can be seen to bubble through the acid. This is also called **effervescence**.

Many of Fremantle's early houses were built of limestone blocks.

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*The limestone prison, retaining walls and tunnel in Fremantle*

### Materials

- Two small lumps of limestone
- Two clear drinking glasses, jam jars or Petri dishes
- 2 cups of vinegar (acetic acid)

### Method

1. Place the first piece of limestone in plain water. This is the **CONTROL** against which any change is measured
2. Place the second piece of limestone in vinegar to the same height as the first. This is the **EXPERIMENT** where we expect change.
3. Leave the experiment for 5 minutes so that the acid can fill any spaces in the rocks and drive out air.

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4. Observe any changes
5. Leave for a day and repeat your observations

### Observations

Limestone/cement and water

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Limestone/cement and acid

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### Discussion

Why are ancient Greek marble statues removed from their temples, replaced by copies and kept in closed rooms in museums?

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