

**Acid rain: the evidence**

Some countries produce large amounts of acidic gases. Do they suffer the worst effects of acid rain?

In this activity you will:

- investigate how acid rain affects the acidity of lakes
- analyse data on air pollution by different countries

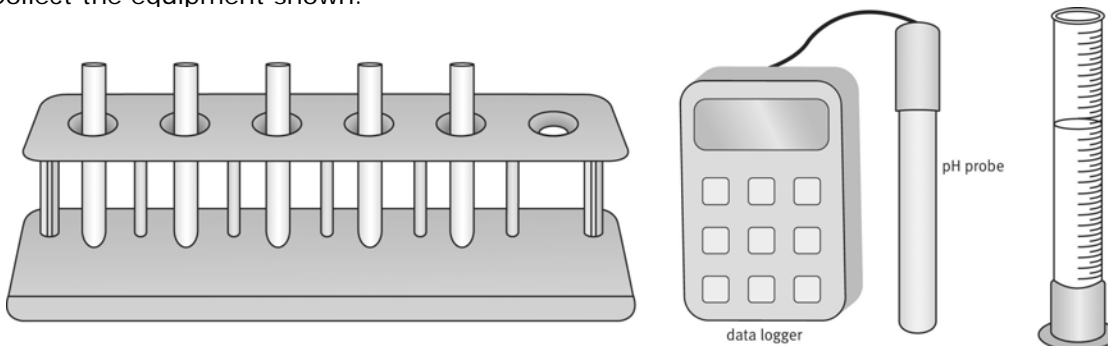
This will help you to understand the link between acidic gases in the air and the problems of acid rain.

**Collecting evidence – lake water samples**

You have been given water samples from lakes in five different countries, and a map showing where they are.

Find out if the lakes have been affected by acid rain. Test each sample like this:

- 1 Collect the equipment shown.



- 2 Carefully transfer 15 cm<sup>3</sup> of each lake water sample into each test tube.
- 3 Measure the pH of each sample using the data logger.
- 4 Record your results in a table like this:

Country	pH of lake water sample
Belgium	
France	
Great Britain	
The Netherlands	
Sweden	

- 5 Look carefully at your results. Which countries do you think produce the most amounts of acidic gases that contribute to acid rain?

Give a reason for your answer.

**SAFETY**

Do not get any solution on yourself. Wash it off if you do.

**Analysing evidence – data on sulfur pollution**

This table was taken from an independent report about acid rain damage.

It outlines how much sulfur pollution is produced from different countries in Europe.

Country	Sulfur pollution in 2003 (millions of tonnes)
Belgium	153
France	492
Great Britain	979
Netherlands	65
Sweden	52

- Draw a bar chart to present this data.
  - What will your axes be?
  - What will your scales be?
- From this evidence alone:
  - which countries produce the most amounts of acidic gases?
  - which contribute to acid rain?
- Are these the same countries as those suggested from your lake water sample data?
 

If not, suggest an explanation for the difference and write down a hypothesis.
- What further evidence would you need to test your hypothesis?

**Extension**

- What are the limitations of the evidence you have analysed?
- What effects could the changing pH of the lake water samples have on organisms living in the lake?

(Read 'pH for life' on page xx of your textbook.)