

Investigating the maths inside:

Modelling climate changes

Activity 1

How do you measure rain?



What could happen if we get too much rain?

What could happen if we get too little rain?

# Introduction

There is a saying “climate is what you expect and weather is what you get”.

Major changes in climate can mean major changes in rainfall (either increasing or decreasing) which in turn can affect agriculture, amenity and infrastructure needs.

# How much is a millimetre of rain?

Rain is measured in millimetres (a length measure) not millilitres (a volume measure). Why?

How much is a millimetre of rain? Guess or estimate, then discuss and check your answers.

## Find a square metre

Using chalk, draw some squares and rectangles on the ground that are approximately one square metre in area. Then measure the sides of the shapes drawn and calculate the area exactly.

How close in area were your shapes to a square metre?

Now draw some circles and triangles. Again, calculate the areas accurately using the appropriate measurements. How close were your shapes to a square metre? Which shape was hardest to estimate? Why?

Now draw a square and a rectangle that are **exactly** one square metre in size.

## Find a cubic metre

Using a tape measure or ruler find some shapes that are approximately one cubic metre in volume. What objects did you find?

How many millimetres of rain will it take to fill a cubic metre? Brainstorm some suggestions and then check your answer. How many litres of water are required to fill the cubic metre? Is there a connection between measuring rainfall in millimetres and the volume of water required for that measurement? Explain your thinking.

# Make a rain gauge

Rainfall is measured using a rain gauge, but rain gauges are not in cubic metres!

Make a rain gauge out of an empty plastic drink bottle (or an ice-cream container or a bucket,). Your teacher will show you a video of one method.



## Calibrate it!

What is the most important fact to know to make an accurate rain gauge? Explain your thinking. Will the scale on a gauge made out of a water bottle be the same as the scale on a gauge made out of a bucket? Why? Why not?

How can you test your rain gauge?