

# How Science Works

**Topic: Types of variables**

**Format of graph**

What you should already be able to do:

- Know the difference between an independent and dependent variable
- Be able to look at the description of results table to infer dependent and independent variables
- Choose suitable independent and dependent variables for an experiment to investigate simple circuits

Review of terms: input and output

|                             |  |
|-----------------------------|--|
| <b>Variable</b>             | Anything that can change or alter. When something can change the properties, temperature, colour.                          |
| <b>Independent variable</b> | Factor that is changed or varied.  |
| <b>Example</b>              | In an experiment to see what happens when you change the amount of light, the amount of light is the independent variable. |
| <b>Dependent variable</b>   | Anything that is changed or varied as a result of the independent variable.  |
| <b>Example</b>              | When investigating the effect of light on the growth of plants, the height of the plants is the dependent variable.        |

Write down three types of variables described in each of the examples below:

**Example 1:** An experiment to see whether different types of grass grow best for 1 month, 2 months or 3 months. The number of seeds in each grass is the variable.

The number of months are independent variables.

**Example 2:** An experiment to find out how temperature affected how fast sugar dissolves in water. Concentrated sunlight was used to heat the water to different temperatures.

The time taken for the sugar to dissolve is the variable.

**Example 3:** An experiment to see how fast brown eyes with brown eyes.

Colour of eyes is a variable.

**Extension thinking:**

Which type of variable is used to see if other factors affect how fast sugar dissolves in water? What would be used to change the amount of light? How would you know if the amount of light is the same? How would you know if the amount of light is different? How would you know if the amount of light is the same? How would you know if the amount of light is different?

Difficult words for understanding of science phenomena: different ways depending on the type of variable:

- Independent
- Dependent

Draw a flow chart to show how the data collected from the three examples above: