

Practical skills

What is the independent variable?

Practical skills

What is the dependent variable?

Practical skills

What is a control experiment for an enzyme investigation?

Practical skills

How many values of the independent variable should a plan include?

Practical skills

How does Cambridge separate a quantity and its unit in a table or on an axis?

Practical skills

Where do units go in a results table?

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Give the formula for percentage change.

Practical skills

How many decimal places should readings in one column have?

The variable that is observed or measured in an experiment.

The variable that is changed in an experiment by the scientist.

Usually at least five, evenly spaced, each repeated at least three times.

The same set-up with boiled (denatured) enzyme, to show that any change is caused by the active enzyme.

In the column headings only, never in the body of the table.

With a solidus (slash): time / s, temperature / °C.

The same number, matching the precision of the measuring instrument, for example 2.50 g not 2.5 g.

$$\frac{(\text{final value} - \text{starting value})}{\text{starting value}} \times 100$$

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Bar chart or histogram: which has bars that touch?

Practical skills

How much of the grid should a graph's scales use?

Practical skills

How should points be plotted on a graph?

Practical skills

What is interpolation?

Practical skills

Name four rules for a biological drawing.

Practical skills

State the formula for magnification.

Practical skills

How do you find the actual size of a specimen from a photograph?

Practical skills **Supplement**

How many micrometres are in 1 mm?

More than half in both directions, with 2 cm representing 1, 2 or 5 units.

A histogram (continuous data). A bar chart (categorical or discrete data) has equal-width bars that do not touch.

Reading a value from a graph between the plotted points.

As small crosses (×) or encircled dots (⊙), accurate to half of the smallest square.

magnification = image size ÷ actual size. It has no unit and is written as, for example, ×3.

Sharp pencil, clear unbroken lines; large, using most of the space; no shading or colour; ruled label lines that touch the feature.

1000 μm. Multiply mm by 1000 to get μm.

Measure the image in mm, then actual size = image size ÷ magnification.

Practical skills

What is an anomalous result?

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What should you do with an anomalous result?

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Improvement: a lamp heats the water around pondweed.

Practical skills

Limewater: what does it test for and what is the result?

Practical skills

Hydrogencarbonate indicator colours

Practical skills

Litmus colours in acid and alkali

Practical skills

How do you find the pH of a solution with universal indicator?

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Why are quadrats placed at random?

Repeat the test if possible, leave it out of the mean, and ignore it when drawing a best-fit line.

A result that does not fit the pattern of the other results.

Carbon dioxide. It turns from colourless to milky (cloudy white).

Put a heat shield (beaker of water) between lamp and plant, or use a thermostatically controlled water bath.

Red in acid, blue in alkali.

Red: carbon dioxide at the level in air.
Yellow: more carbon dioxide. Purple: less carbon dioxide.

To avoid bias, so the sample is representative.

Add a few drops, compare the colour with a pH colour chart and read off the pH. Green means pH 7 (neutral).

Practical skills

How do you place a quadrat at random?

Practical skills

Why use a large sample size?

It makes the results more representative and reduces the effect of any unusual sample.

Make a grid with two tape measures at right angles and use random numbers to choose coordinates.