OCR (B) Biology GCSE

B7.1 - What needs to be considered when investigating a phenomenon scientifically?

Flashcards

What is a hypothesis?

What is a hypothesis?

A tentative explanation for an observed scientific phenomenon.

How is the hypothesis used?

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The hypothesis is used to make a prediction about the outcome of a particular experiment.
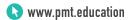
How is a prediction (based on a hypothesis) tested?

How is a prediction (based on a hypothesis) tested?

By planning an appropriate experiment, carrying out the experiment and collecting valid data to see if the prediction is true.

Explain what is meant by the term 'independent variable'.

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An independent variable is one which is changed throughout the experiment to see what effect it has on the outcome.

Explain what is meant by the term 'dependent variable'.

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The dependent variable is the variable that is measured and changes during the experiment due to the effects of the independent variable, i.e. it is 'dependent'.

What are 'controlled variables'?

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Variables that are kept constant in the experiment to ensure the results are valid (i.e. so it is a fair test).

Define the term 'precision'.

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Precision refers to how close together the results are. It usually applies when repeat measurements are made. The more precise the results, the closer together they are.

What does accuracy mean in terms of data?

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If the data is accurate, it means the results are close to the true value.

Define what is meant by validity.

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The data is valid if the experiment was appropriate and carried out correctly. For example, if the control variables are not kept constant, it is not a fair test, therefore the data is not valid.

Why is a large sample size needed?

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Large samples reduce the effects of random errors on the data and analysis. We can also identify outliers and anomalies easily with large sample sizes, which makes the data more accurate. By taking repeat measurements, we can see if the data is repeatable.

What is a hazard?

What is a hazard?

Something that can potentially cause harm.

What is the purpose of a risk assessment?

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A risk assessment identifies hazards associated with the experiment and ways to minimise the risk posed by them.