

MYP1 Science Unit 1: How Science Works

Core Questions

What piece of equipment is used to measure length?	Metre ruler
What piece of equipment is used to measure mass?	Mass balance
What piece of equipment is used to measure volumes of liquids?	Measuring cylinder
What piece of equipment is used to measure temperature?	Thermometer
Which pieces of equipment are used to hold small volumes of liquid for experiments?	Test tubes and boiling tubes
What piece of equipment is used to transfer small volumes of solids?	Spatula
What piece of equipment is used to heat or set fire to objects?	Bunsen burner
What piece of equipment is used to hold larger volumes of liquids?	Beaker
What piece of equipment is used to transfer small volumes of liquids?	Pipette
What is the unit of length?	Metres (m)
What is the unit of temperature?	Degrees Celcius (oC)
What is the unit of mass?	Kilograms (kg)
What is an accurate measurement?	A measurement that is close to the true value
What is an interval?	The space between measurements on a piece of equipment
How can we increase the accuracy of a measurement?	Use a piece of equipment with closer intervals
What is a scientific theory?	An idea used to explain events
What is a scientific prediction?	An idea that is generated from a theory that can be tested
How are theories proved or disproved?	By collecting evidence

What is evidence?	Information that can be used to prove or disprove a theory
How is evidence generated?	By close observations of nature or by taking measurements from a scientific experiment
What are the three types of variable?	Independent, dependent and controlled
What is an independent variable?	A variable that is changed by the scientist
What is the dependent variable?	The variable that is observed, measured or counted by the scientist
What is a controlled variable?	A variable that is kept the same throughout the experiment.
Why is it important that experiments only have one independent variable?	So that you know what is causing a change to the dependent variable
What is a scientific method?	A set of instructions for carrying out a scientific experiment
What should a scientific method include?	Variables, Numbered instructions, Equipment list, Measurements,
What is a table of results?	A table showing experimental data
What are the key features of a table of results?	Drawn in pencil with a ruler, clear headings, units in heading, independent variable in left column
What is continuous data?	Data that can have any numerical value within a certain range
Why is height continuous data?	Because it can have any value within a certain range
What is categorical data?	Data which has no numbers but can be put into categories (groups)
Why is eye colour categorical data?	Because it cannot be given a numerical value but we can put them in categories e.g. blue, brown
What are charts and graphs?	Ways to present data
When are bar charts used?	If dependent variable is a number and independent variable is categoric
When are line graphs used?	If dependent variable is a number and

	independent variable is continuous
What are the key features of charts and graphs?	All drawn in pencil, on graph paper, title, labelled axes, units in brackets, appropriate scale, uses at least half the page
Which axis does each variable go on?	Independent on the x, dependent on the y
What is a scale?	How the boxes on the graph paper relates to the values
What are some common scales?	Each large box represents 1,2 or 5 as a multiple of 10
What is an anomaly?	A result that does not fit with the rest of the data
How do we deal with anomalies?	Circle them and ignore them from calculations and when connecting points
What can the line show you?	A scientific relationship
What is a scientific relationship?	How the independent variable affects the dependent variable
How can relationships be described?	As x increases/decreases, y increases/decreases
What is a conclusion?	A statement that says whether your prediction was correct
What are the three types of variables?	Dependent, independent, controlled
Which variable is the one that scientists measure as a result of an experiment?	Dependent variable
Which variable is the one that scientists change during an experiment?	Independent variable
Which variables are kept the same during an experiment?	Controlled variable
What do we call an experiment where all the variables are controlled other than the independent variable?	Fair test
What do we call an experiment where lots of variables are changed?	An unfair test

Why are fair tests important?	So you know why your dependent variable is changing
What is a hazard symbol	A symbol used to warn you about dangerous materials
What does it mean if a substance is an irritant?	Can cause soreness to the body
What does it mean if a substance is corrosive?	Can burn or break down substances including your body
What does it mean if a substance is flammable?	It catches fire very easily
What does it mean if a substance is toxic?	It causes severe harm to your body if you inhale it or consume it
What does it mean if a substance is harmful to health?	It can damage your body over a long period of time and make it more likely that you could develop a disease like cancer.
What does it mean if a substance is harmful to the environment?	If it is released into the environment, it will damage living things.