

Knowledge Organiser: Year 7: - Introduction into Science

Section 1: Key Words

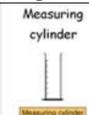
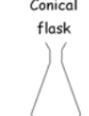
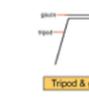
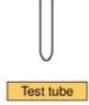
Key Word	Definition
Hazard	A danger or risk
Equipment	Something you use during a practical or experiment
Variable	Something that can have different amounts or types
Control Variable	The factor that are kept the same to make the experiment valid
Independent Variable	The factor in the experiment that you (the scientist) changes
Dependent Variable	The factor in the experiment that depends on what you change (the value you record)
Accuracy	How close a result comes to the true value
Precision	Closeness of two or more measurements to each other
Reliable	There is small variation in the results
Repeatable	If the same scientist can do the experiment again using the same equipment and method and get the same results
Reproducible	If a different scientist can repeat the experiment again and get the same results
Analysis	Detailed examination of something, often to find a pattern or trend
Evaluation	To consider the advantages (what went well) and disadvantages (what went wrong)
Valid	If only one variable has been changed the results are valid

Section 2: Hazards



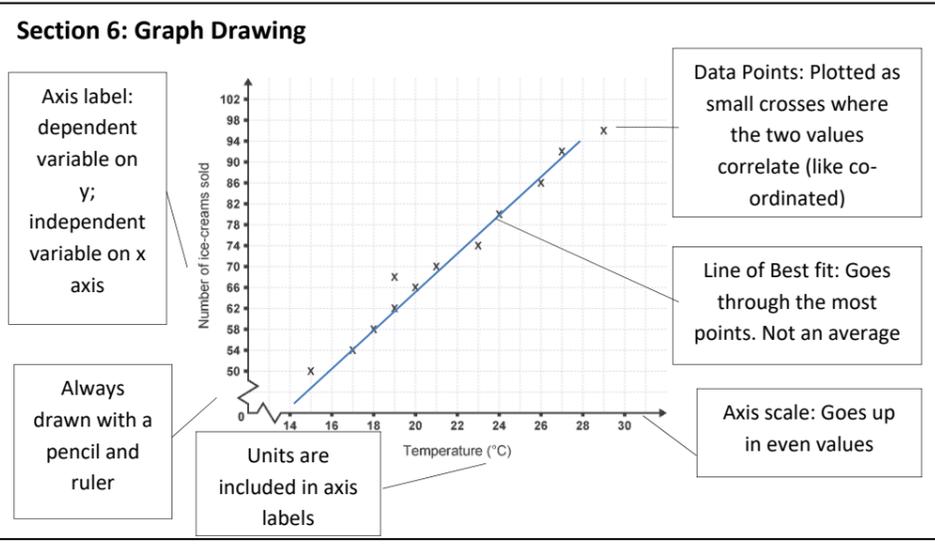
	Hazard	description
1	explosive	Can explode
2	Flammable	Catches fire easily
3	Oxidising	Provides oxygen to make other substances burn faster
4	Compressed gas	Gas is kept under pressure
5	Corrosive	Can burn skin or material
6	Toxic	Poisonous if ingested
7	Danger	Irritant can cause illness
8	Carcinogenic	Causes cancer
9	Danger to the environment	Unwanted effects on plants and animals

Section 3: Equipment

Equipment	Diagram	Use
Measuring cylinder		To measure liquids. They come in different sizes so make sure to use the most appropriate for the volume required
Conical flask		Reaction vessel
Evaporating basin		evaporate excess solvents - most commonly water - to produce a concentrated solution or a solid precipitate of the dissolved substance
Clamp and stand		hold, or clamp, laboratory glassware and other equipment in place, so that they do not fall down or come apart
Stop watch		To time intervals or the length of a reaction
Filter paper and funnel		separating solids from liquids via the laboratory process of filtering/filtration
Bunsen burner		To heat
Beaker		Used for various purposes—preparing solutions, decanting supernatant fluids, holding waste fluids prior to disposal, performing simple reaction etc
Tripod and gauze		support or hold the flasks and beakers during experiments. Most of the time a <u>wire gauze</u> is required to be placed on top of the tripod in order to allow the glassware to be placed on top of it.
Test tube		handle chemicals

Section 4: Method Writing

What to Include	Why Do you need to Include it
Step-by-step	Clear instruction that is easily followed
Equipment list	All equipment, chemical are known before so they can be collected
Measurements (amounts)	So you know the volumes/masses needed – help make it a valid test
Timings	To you know how long to leave something – help make it a valid test
Repeats	Helps make the experiment reliable and identifies anomalies
Intervals	So you know when to take reading, should always be evenly spaced
Diagram	To illustrate experimental set up



Section 5: Completing a practical sensibly and safely

Precaution taken	Why Take it
No running in lab	Could fall and/or spill/drop something
Wearing safety glasses	Prevent chemicals getting in your eyes
Carrying equipment with two hands	Reduce chance of dropping/spilling
Put equipment back when not using it	Prevent clutter, mixing up of equipment. Spillages, knocks, breakages
Move unused items out of the way	Prevent clutter, knocks, breakages
No eating or drinking	Prevent contamination and ingestion of chemicals
Tie hair back	Prevent getting in way/catching fire

Section 8: Percentages and Converting Units

Percentages	Work out the simple percentages(10%, 50%) and add/divide /subtract
Converting from Kilo(grams) to (grams)	Times by 1000
Converting from (grams) to kilo(grams)	Divide by 1000
Converting minutes into seconds	Times by 60

Section 7: Analysis and Evaluation

	Description	Example
Analysis	Describe a trend or pattern shown in data	As the temperature increased the time decreased
Evaluation	What went well with the experiment, when went wrong and how you can improve it	Using the stop watch as inaccurate because the reaction time of the person affected the results

