

Command Words in GCSE Science

Command	Meaning	Example 1	Example 2
Compare	Describe both the similarities and differences between two or more things.	Both graphite and graphene comprise hexagonal rings of carbon atoms that are covalently bonded to three other carbon atoms in a giant lattice structure. Graphene is different to graphite because it is a 2D structure as it's only one atom thick.	Both aerobic and anaerobic respiration use glucose and release energy although aerobic respiration releases more. Also, aerobic respiration produces carbon dioxide and water whereas anaerobic respiration produces lactic acid.
Describe*	Recall accurate facts about an object, event or process.	The plum pudding model of the atom consists of a ball of positive charge with negative electrons dotted throughout	<i>(E.g. include data from the graph in your answer).</i> The temperature increased for 1 minute before remaining constant for two minutes. It then rose again for three minutes.
Design	Set out how something will be done.	The student will need to use the same volume and concentration of acid to ensure a fair test. They can change the temperature using a water bath and measure how much gas is produced in 20s.	
Evaluate <i>(often a 6 mark question)</i>	Use your own knowledge and the information provided to come up with arguments for and against something and then add a summary.	One advantage of using hydrogen fuel cells is that the only emission produced is water. Petrol makes carbon dioxide and nitrogen oxides when burnt. Carbon dioxide is a greenhouse gas and nitrogen oxides contribute to acid rain. One disadvantage is hydrogen is difficult to store. Overall, I think fuel cells are the better option, provided we can find a suitable source of hydrogen.	Power stations that emit less carbon dioxide cause less global warming. Coal and geothermal power stations contribute to global warming, whereas nuclear power doesn't. Sulfur dioxide causes acid rain meaning coal power stations contribute to acid rain, whereas geothermal and nuclear power stations don't. Radioactive waste, which has a long half-life and remains radioactive for a long time, needs burying. Overall, I think nuclear power is the best option, provided we can store its waste material safely.
Explain*	State something more clearly; give the reason(s) for it.	Potassium is more reactive than sodium because potassium has more electron shells resulting in a weaker attraction between the nucleus and the outer electron meaning it is lost more easily.	Bile helps the digestion of milk by neutralising acid and emulsifying fats so that they have a greater surface area thereby allowing enzymes to work more effectively.
Justify	Use evidence (data, statements, quotes) from the question to support your answer.	Glass is a much better material for milk bottles than plastic because each bottle can be re-used 25 times instead of once and new bottles can be made using up to 50% recycled material. Plastic bottles are only made up of 10% recycled material.	
Plan <i>(often a 6 mark question)</i>	Write a method.	Add an excess of the metal oxide to the acid and stir to make sure all of the acid has reacted. Filter the mixture to remove the excess oxide. Heat the filtrate to form a saturated solution. Transfer to a crystallising dish and leave for the crystals to slowly form as the water evaporates.	Measure the object's mass using a mass balance. Fill a displacement can with water, ensuring it is levelled with the can's spout. Place the object in the can and collect the displaced water in a measuring cylinder to determine its volume. Calculate density = mass/volume
Show	Use evidence (data, statements, quotes) from the question and/or your own knowledge to reach a conclusion.	The nail in test tube two rusted the most. You can tell this because the mass increased by the greatest amount from 8.45g to 8.91g.	
Suggest*	Apply your knowledge and understanding from a similar situation to the one presented.	The student could change the method to investigate the rate of reaction at 40°C by putting both of the reactants in a water bath.	<i>Suggest how needing less oxygen helps the animal to conserve water. Less water is lost from respiration.</i>

*These are the most common command words