

Y11 SCIENCE MARGINAL GAINS: THE 100 DAY COUNTDOWN

Revision can seem daunting, so here it is broken down into 1% chunks. Complete as many as possible and it WILL improve your performance. Cross it off once you have completed!

Compare aerobic and anaerobic respiration.	Describe the effects of pH and temperature on enzyme activity.	Explain how alcohol and faulty brakes affect the stopping distance of the car.	Explain how the properties of α , β and γ radiation affect the level of the hazard at different distances.	Outline a plan the student could use to make pure, dry, crystals of copper sulfate from the insoluble metal oxide and dilute acid.	Describe and explain how crude oil is separated into fractions by fractional distillation.	Compare the structure and bonding in sodium chloride and hydrogen chloride.	Explain how the water molecules in an iceberg could end up as water in a lake.	Explain how the different structure of arteries and veins relates to their different functions.	Describe how current and potential difference act differently in series and parallel circuits.
Explain the activities of humans that have led to the changes in sea ice from 1979 to 2016.	Describe the model now used for the structure of an atom. Include the sub-atomic particles, their masses and charges.	Describe how ions, water and sugar are obtained and transported through plants.	Describe how quadrats should be used to estimate the number of dandelion plants in a field.	Describe the energy changes that happen during a bungee jump.	Compare the position of sub-atomic particles in the plum pudding model and nuclear model.	Explain how the cactus is better adapted for living in hot, dry conditions.	Explain why metals conduct electricity. Refer to structure and bonding in your answer.	Describe how carbon monoxide is produced from fuels.	Explain how lifestyle and medical risks factors increase the chance of developing coronary heart disease.
How does the size of a potassium atom compare with the size of a sodium atom?	Describe the ways in which the human body defends itself against bacteria.	Describe why as a swimmer dives forwards off a boat, the boat moves backwards. Refer to forces in your answer.	Describe how carbon from the atmosphere is cycled through living organisms.	Describe how the water from rivers and lakes is treated to make it safe to drink.	During exercise, the concentration of carbon dioxide in the blood increases. Explain what causes this increase.	Explain why graphite is slippery and can conduct electricity.	Explain why fluorine is a gas at room temperature.	Explain how the use of ionising radiation in hospitals can be both useful and harmful.	Compare the two different isotopes of carbon, carbon-12 and carbon-14.
Plan an experiment that would allow the student to determine the density of an irregular object.	Describe why diffusion is important to animals and plants. Include examples of substance that diffuse in both animals and plants.	Describe the difference between the function of a receptor and the function of an effector. Give an example of each.	Explain why stopping smoking will improve a person's health.	Describe the change in forces acting on a skydiver as they open their parachute.	Describe an experiment the student could do to measure the specific heat capacity of a metal.	When fertiliser goes into a river, the concentration of oxygen dissolved in the water decreases. Explain why.	Write a plan to investigate the relationship between force applied and extension of a spring.	Explain the differences between antibody production after the vaccine injection and after exposure to the measles virus.	Plan a chromatography experiment to investigate the colours in an ink.
Explain the process by which water molecules would enter the root hair cell.	Explain how the surface and atmosphere of the early Earth have changed to form the surface and atmosphere today.	Describe the type of cell division that produces gametes.	Describe how a calcium atom and an oxygen atom forms calcium oxide.	Explain why stents help to protect a heart attack.	Explain the change in resistance of a thermistor as the temperature changes.	Describe what happens when potassium reacts with iodine to produce potassium iodide.	Explain the function of each part of the plug.	Explain how the shape of the red blood cells in a person with sickle cell disease could affect how much oxygen reaches their muscles.	Explain why the electrolysis of aluminium oxide produces large quantities of carbon dioxide.
Explain how coronary heart disease can cause a heart attack.	Give two ways the lungs are adapted for efficient exchange of gases. Describe how each adaptation helps to maintain efficient gas exchange.	Explain the possible consequences of a future increase in carbon dioxide emissions.	Describe a method to test leaves for the presence of starch.	Describe a method to investigate how light intensity affects the rate of photosynthesis in pondweed.	Explain in terms of particles, how sweating helps athletes to cool down.	Give two similarities and two differences between sound waves and light waves.	Explain why the reactivity of the elements increases going down Group 1 from lithium to rubidium.	Explain how starch in the sweet potato is produced from carbon dioxide in the air.	A student bangs two bricks together. The sound wave reflects off the wall and travels back to the students. Describe how to determine the speed of sound.
Yeast is used in the brewing and baking industries. Why is yeast used in these industries?	Describe a method to determine the mass of dissolved solids in a 100 cm ³ sample of river water.	Explain why potassium chloride has a high melting point.	Describe how the arrangement of the sodium atoms changes as the sodium goes from solid to liquid to gas.	Sodium chloride solution is electrolysed. Explain why the sodium ions are attracted to the negative electrode.	Explain how the percentages of nitrogen, oxygen and carbon dioxide have changed from Earth's early atmosphere.	Explain how the change in blood flow to an athlete's muscles helps them to run.	Explain the process of simple distillation to separate mixtures.	Explain how an increase in heart rate could cause the decrease in lactic acid concentration.	Describe how biological classification systems have changed over time.
The heart rate increases during exercise, increasing blood flow to the muscles. Explain why this increase in heart rate is necessary.	Explain why mixing peat with air leads to the release of carbon dioxide.	Explain the changes in the arrangement and movement of the particles of the air as the temperature decreased.	Celery was left in water with red dye for three hours. After three hours the leaves of the celery were dark red. Explain how the leaves became dark red.	Explain why the reactivity of the elements decreases going down Group 7 from fluorine to iodine.	Explain why chlorine is more reactive than bromine.	Compare the processes of anaerobic respiration in muscle and plant cells.	Describe how some safety features that are in modern cars protect us from harm. Refer to forces in your answer.	Describe the processes that need to happen to test a new drug before it can be used to treat all patients with the disease.	Describe the differences between the properties of the sound waves produced by the motor and the water waves in the ripple tank.
Plan an investigation to find the accurate volume of hydrogen produced from magnesium and hydrochloric acid.	Explain how the surface area of the reactants affects the rate of chemical reactions.	Describe how groundwater and sea water are treated to produce potable water.	Describe how pathogens cause infections and how the immune system defends the body against pathogens.	Explain how the adaptations of Arctic animals help them to survive in cold conditions.	Suggest why pure water does not conduct electricity.	Explain why the total positive charge in every atom of an element is always the same.	Describe a method to investigate the effect of caffeine on reaction time.	At the end of the race, the athlete is covered with a 'space blanket' made from shiny foil to prevent him from cooling too quickly. Explain how this works.	Compare the electronic structure of sodium and of chlorine.