



SB1 Key concepts in biology

Personal learning checklist | 1 of 3

GCSE Edexcel Separate Sciences | Biology Papers 1 and 2

Name _____ Class _____ Date _____

Tick one box for each statement. Red: need help. Amber: partly confident.
Green: can do independently.

I can	Red	Amber	Green
Cells and specialisation			
Identify animal and plant cell structures and explain their functions.	☐	☐	☐
Compare bacterial cells with animal and plant cells, including their DNA.	☐	☐	☐
Link sperm and egg cell adaptations, including haploid nuclei, to their functions.	☐	☐	☐
Explain how ciliated cells move substances and microvilli aid absorption.	☐	☐	☐
Relate bacterial structures, including plasmids and flagella, to their functions.	☐	☐	☐
Microscopy and scale			
Distinguish magnification from resolution and compare light and electron microscopes.	☐	☐	☐
Calculate magnification, image size and actual size using matching units.	☐	☐	☐
Use milli, micro, nano and pico units and sensible size estimates; use standard form for Higher.	☐	☐	☐
Prepare a microscope slide and focus safely, starting on low power.	☐	☐	☐
Produce clear, labelled biological drawings with a scale or magnification.	☐	☐	☐
Enzymes			
Explain enzyme action using catalysts, substrates, active sites and specificity.	☐	☐	☐
Explain denaturation and the effects of temperature and pH on activity.	☐	☐	☐
Explain why increasing substrate concentration eventually stops increasing reaction rate.	☐	☐	☐
Describe enzyme roles in synthesis and breakdown of carbohydrates, proteins and lipids.	☐	☐	☐

My next revision priority _____



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Personal learning checklist | 2 of 3

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Name _____ Class _____ Date _____

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I can	Red	Amber	Green
Enzyme investigation and rates			
Plan a fair investigation of pH using amylase, starch, buffers and iodine.	☐	☐	☐
Identify the starch-test endpoint and explain controls, repeats and safe working.	☐	☐	☐
Calculate reaction rates, including relative rate from a fixed endpoint time.	☐	☐	☐
Interpret enzyme graphs and use results to explain changes in activity.	☐	☐	☐
Transport across membranes			
Explain net diffusion down a concentration gradient and movement at equilibrium.	☐	☐	☐
Explain how temperature, gradient, surface area and distance affect diffusion rate.	☐	☐	☐
Explain osmosis using water concentration and a partially permeable membrane.	☐	☐	☐
Predict water movement and its effects on animal and plant cells.	☐	☐	☐
Compare diffusion, osmosis and active transport, including energy use and root mineral uptake.	☐	☐	☐

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Personal learning checklist | 3 of 3

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I can	Red	Amber	Green
Osmosis investigation and calculations			
Plan an osmosis investigation using potato cylinders and different sucrose concentrations.	☐	☐	☐
Explain fair-test controls, blotting, repeats and safe use of cutting equipment.	☐	☐	☐
Calculate percentage mass gain or loss using initial and final masses.	☐	☐	☐
Explain positive and negative mass changes in terms of water movement.	☐	☐	☐
Plot mean percentage mass change and estimate the concentration giving no net osmosis.	☐	☐	☐
Food tests			
Describe and interpret iodine and Benedict's food tests, including heating.	☐	☐	☐
Describe and interpret Biuret and ethanol emulsion tests, including safe handling.	☐	☐	☐
Explain food-test controls, separate samples and consistent conditions.	☐	☐	☐
Food calorimetry			
Plan a fair food calorimetry comparison and calculate the mass burned and temperature rise.	☐	☐	☐
Calculate energy transferred to water and energy per gram of food.	☐	☐	☐
Explain calorimetry losses and evaluate improvements and repeated measurements.	☐	☐	☐

My next revision priority _____