



SB9 Ecosystems and material cycles

Personal learning checklist | 1 of 3

GCSE Edexcel Separate Sciences | Biology Paper 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
Communities and relationships			
Distinguish organisms, populations, communities and ecosystems and explain interdependence.	☐	☐	☐
Explain how abiotic factors, competition and predation affect abundance and distribution.	☐	☐	☐
Interpret food chains and webs to predict direct and indirect population changes.	☐	☐	☐
Compare parasitism and mutualism using examples and benefits or harm to each partner.	☐	☐	☐
Fieldwork methods			
Plan representative random quadrat sampling with consistent counting rules and sufficient repeats.	☐	☐	☐
Calculate sampled area, density and estimated populations from quadrat data.	☐	☐	☐
Compare random quadrats with continuous and interrupted belt transects along environmental gradients.	☐	☐	☐
Calculate species frequency and interpret abundance, percentage cover and environmental correlations.	☐	☐	☐
Biodiversity and human impacts			
Explain biodiversity's value and evaluate conservation, reforestation and captive breeding.	☐	☐	☐
Evaluate fish farming and non-indigenous species using ecological benefits, risks and management.	☐	☐	☐
Explain eutrophication from nutrient input through algal growth, decomposition and oxygen depletion.	☐	☐	☐

My next revision priority _____



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Personal learning checklist | 2 of 3

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I can	Red	Amber	Green
Carbon and water cycles			
Distinguish material recycling from energy flow and describe carbon transfer by photosynthesis, feeding and respiration.	☐	☐	☐
Explain decomposers, combustion and long-term carbon stores within the carbon cycle.	☐	☐	☐
Describe evaporation, transpiration, condensation, precipitation, infiltration and runoff in the water cycle.	☐	☐	☐
Nitrogen and farming			
Explain why organisms need nitrogen and how plants and animals obtain nitrogen compounds.	☐	☐	☐
Distinguish nitrogen fixation, decomposition, nitrification and denitrification in the nitrogen cycle.	☐	☐	☐
Evaluate fertilisers and legume crop rotation using nutrient availability, yield and environmental impacts.	☐	☐	☐

My next revision priority _____



SB9 Ecosystems and material cycles

Personal learning checklist | 3 of 3

GCSE Edexcel Separate Sciences | Biology Paper 2

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I can	Red	Amber	Green
Safe water supplies			
Distinguish potable from pure water and explain filtration and disinfection.	☐	☐	☐
Compare distillation and reverse osmosis desalination using energy costs and brine impacts.	☐	☐	☐
Energy transfer and food security			
Explain trophic energy losses, food-chain length and pyramids of biomass.	☐	☐	☐
Calculate energy and biomass transfer efficiencies between trophic levels.	☐	☐	☐
Evaluate biological pressures on food security and sustainable responses.	☐	☐	☐
Pollution indicators and decomposition			
Evaluate water and air indicator species alongside supporting environmental evidence (Higher).	☐	☐	☐
Explain how temperature, moisture and oxygen affect food preservation and composting.	☐	☐	☐
Calculate decomposition rates and percentage changes and evaluate apparent mass loss.	☐	☐	☐

My next revision priority _____