CB1 Key Concepts in Biology

CB1a Microscopes

Step	Learning outcome	Had a look	Nearly there	Nailed it!
5th	Recall what an electron microscope is.	☐	☐	☐
5th	Recall what is meant by an instrument's resolution.	☐	☐	☐
5th	Explain why some cell structures can be seen with an electron microscope but not with a light microscope.	☐	☐	☐
7th	Calculate total magnification using an equation.	☐	☐	☐
7th	Calculate sizes using magnifications.	☐	☐	☐
5th	Interpret the SI prefixes milli-, micro-, nano- and pico-.	☐	☐	☐

CB1b Plant and animal cells

Step	Learning outcome	Had a look	Nearly there	Nailed it!
5th	Identify the parts of plant and animal cells.	☐	☐	☐
5th	Recall the parts of plant and animal cells.	☐	☐	☐
5th	Make drawings of plant and animal cells using a light microscope and identify their parts.	☐	☐	☐
6th	Describe the functions of the sub-cellular structures commonly found in eukaryotic cells (nucleus, cell membrane, cell wall, chloroplasts, mitochondria and ribosomes).	☐	☐	☐
6th	Estimate sizes using microscope fields of view.	☐	☐	☐
6th	Estimate sizes using scale bars.	☐	☐	☐

CB1c Specialised cells

Step	Learning outcome	Had a look	Nearly there	Nailed it!
	Describe how sperm cells are adapted to their function.	☐	☐	☐
	Describe how egg cells are adapted to their function.	☐	☐	☐
	Describe how ciliated epithelial cells are adapted to their function.	☐	☐	☐
	Draw conclusions about a cell's function from its adaptations.	☐	☐	☐

CB1d Inside bacteria

Step	Learning outcome	Had a look	Nearly there	Nailed it!
	Identify the common parts of bacteria.	☐	☐	☐
	Describe the functions of common parts of bacteria.	☐	☐	☐
	Describe why bacteria are classified as being prokaryotic.	☐	☐	☐
	Change numbers to and from standard form.	☐	☐	☐
	Compare eukaryotic and prokaryotic cells.	☐	☐	☐

CB1e Enzymes and nutrition

Step	Learning outcome	Had a look	Nearly there	Nailed it!
	State that enzymes are proteins.	☐	☐	☐
	Give examples of enzymes and where they are found in the human body and in other species.	☐	☐	☐
	Recall the subunits from which carbohydrates, proteins and lipids are formed (sugars, amino acids, fatty acids and glycerol).	☐	☐	☐
	Describe what enzymes do (catalyse the synthesis and breakdown of substances, such as carbohydrates, proteins and lipids, by speeding up the rate of reaction).	☐	☐	☐
	Define an enzyme as a biological catalyst.	☐	☐	☐
	Explain why catalysis by enzymes is important for life processes (because reactions happen much faster).	☐	☐	☐

CB1f Enzyme action

Step	Learning outcome	Had a look	Nearly there	Nailed it!
7th	State what enzyme specificity means.	☐	☐	☐
7th	State that an enzyme's action is due to its active site.	☐	☐	☐
7th	Describe the role of the active site in enzyme function (including specificity).	☐	☐	☐
9th	Use the lock-and-key model to develop explanations for enzyme activity.	☐	☐	☐
8th	Explain why enzymes have a particular shape, as a result of the sequence of amino acids in the chain.	☐	☐	☐
9th	Explain how enzymes become denatured.	☐	☐	☐

CB1g Enzyme activity

Step	Learning outcome	Had a look	Nearly there	Nailed it!
8th	Describe the effect of temperature on enzyme activity.	☐	☐	☐
8th	Describe the effect of substrate concentration on enzyme activity.	☐	☐	☐
8th	Describe the effect of pH on enzyme activity.	☐	☐	☐
8th	Explain what is meant by the optimum pH/temperature of an enzyme.	☐	☐	☐
9th	Calculate the rate of enzyme activity from experimental data.	☐	☐	☐
9th	Explain why temperature, substrate concentration and pH affect enzyme activity.	☐	☐	☐

CB1h Transporting substances

Step	Learning outcome	Had a look	Nearly there	Nailed it!
7th	State that substances are transported by diffusion, osmosis and active transport.	☐	☐	☐
7th	Describe how substances are transported by active transport (including the need for energy).	☐	☐	☐
6th	Explain how substances are transported by diffusion.	☐	☐	☐
9th	Explain how substances are transported by osmosis.	☐	☐	☐
9th	Explain the effects of osmosis on cells and tissues.	☐	☐	☐
8th	Investigate osmosis in potatoes.	☐	☐	☐
9th	Calculate percentage gain and loss of mass in osmosis.	☐	☐	☐