













SB1 Key Concepts in Biology





SB1a Microscopes

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






SB1b Plant and animal cells

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







SB1c Specialised cells

Step	Learning outcome	Had a look	Nearly there	Nailed it!
 6 th	Describe how sperm cells are adapted to their function.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 6 th	Describe how egg cells are adapted to their function.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 6 th	Describe how ciliated epithelial cells are adapted to their function.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 7 th	Draw conclusions about a cell's function from its adaptations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>







SB1d Inside bacteria

Step	Learning outcome	Had a look	Nearly there	Nailed it!
 5 th	Identify the common parts of bacteria.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 5 th	Describe the functions of common parts of bacteria.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 6 th	Describe why bacteria are classified as being prokaryotic.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 6 th	Change numbers to and from standard form.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 8 th	Compare eukaryotic and prokaryotic cells.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>







SB1e Enzymes and nutrition

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







SB1f Testing foods

Step	Learning outcome	Had a look	Nearly there	Nailed it!
 5 th	Describe how to test for starch in food.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 5 th	Describe how to test for reducing sugars in food.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 5 th	Describe how to test for proteins in food.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 5 th	Describe how to test for lipids in food.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 7 th	Explain how calorimetry can be used to measure the energy in food.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 8 th	Evaluate calorimetry tests for accuracy.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>








SB1g Enzyme action

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

SB1h Enzyme activity

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

SB1i Transporting substances

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