



| Scheme of Learning | Biological Reactions |
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| Learning Objectives | <p>Subject content:</p> <ul style="list-style-type: none"> • State what a plant needs for photosynthesis to occur • Describe how plants obtain the things they need for photosynthesis • Explain how plants gain biomass • Describe the word equation for photosynthesis • Describe the symbol equation for photosynthesis • Describe the factors that limit the rate of photosynthesis • Explain how photosynthesis and respiration maintain the balance of gases in the air • Describe how plants use the products of photosynthesis • State the word equation for respiration • State the symbol equation for respiration • Explain the role of respiration in living things • Explain what anaerobic respiration is • Describe how yeast respire. • Explain how enzymes act as catalysts • Explain why enzymes are specific to a particular substrate • Explain how the lock and key model works. • Explain why enzymes are needed in digestion. <p>Skills:</p> <ul style="list-style-type: none"> • Able to bring together several scientific concepts with a good standard of written communication. • Use models to demonstrate scientific concepts. |
| Key Question | What are the fundamental biological reactions in living organisms? |
| Knowledge | <ul style="list-style-type: none"> • Photosynthesis • Respiration • Anaerobic respiration in animals and yeast • enzymes |
| Ongoing Assessment | <ul style="list-style-type: none"> • Retrieval questions at the start of every lesson. • Worksheets for all be used for self and peer assessment. • Revision checklist at beginning of handout pack and retrieval questions at the end. |

NHSG Key Stage 3 Unit Y8 Biology: Biological Reactions



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| Key Assessment | <p>How is your summative assessment assessing the learning outlined in box 1?</p> <p>Assessment of graph skills</p> <p>End of topic test, 30 marks in 35 minutes. Including a mixture of MCQ, short answer and long answer questions. With mark schemes moderated by the team, with notes on standardised language.</p> |
| Clear sequencing of content | <p>The first Biology topic in Y8 biology building on content in cells and organisms</p> <p>Y7 topic with recall and knowledge of organelles and differences between plant and animal cells. Cross curriculum links with Y8 chemistry in recalling balanced symbol equations. These fundamental reactions are the basis of all life and these concepts are revisited and build upon at the beginning of Y9 in KS4.</p> <p>Students vocabulary is built from learning about plants producing sugars and “food” to understanding it is the chemical reaction of photosynthesis and production of glucose. Similarly, misconceptions of breathing and respiration are explicitly taught so correct vocabulary is used.</p> |
| Careers | <p>Fundamental understanding of how plants grow and animals survive for careers in horticultural and care of animals. Use of fermentation in the brewing and baking industries.</p> |
| Diversity and Inclusion | <p>Examples of fermentation from a wide variety of cultures.</p> |
| Support | <p>Handout packs including learning checklist provided for every student. Online textbook providing further application, challenge and quizzes.</p> |
| Challenge | <p>Stretch challenge question on end of topic test.</p> |