

B2 Topic 2 Revision tracker

BIOLOGY

Learning objectives I can:	I can do this very well	I can do this quite well	I need to do more work on this
2.1 Recall that respiration is a process used by all living organisms that release the energy in organic molecules			
2.2 Explain how the human circulatory system facilitates respiration including: a glucose and oxygen diffuses from capillaries into respiring cells			
b carbon dioxide diffuses from respiring cells into capillaries			
2.3 Define diffusion as the movement of particles from an area of high concentration to an area of lower concentration			
2.4 Demonstrate an understanding of how aerobic respiration uses oxygen to release energy from glucose and how this process can be modelled using the word equation for aerobic respiration			
HSW 3 Describe how phenomena are explained using scientific models			
2.5 Investigate the effect of exercise on breathing rate and heart rate			
2.6 Explain why heart rate and breathing rate increase with exercise			
2.7 Calculate heart rate, stroke volume and cardiac output, using the equation $\text{cardiac output} = \text{stroke volume} \times \text{heart rate}$			
2.8 Demonstrate an understanding of why, during vigorous exercise, muscle cells may not receive sufficient oxygen for their energy requirements and so start to respire anaerobically			
2.9 Demonstrate an understanding of how anaerobic respiration releases energy from glucose and how this process can be modelled using the word equation for anaerobic respiration			
2.10 Recall that the process of anaerobic respiration releases less energy than aerobic respiration			
2.11 Describe how a build-up of lactic acid requires extra oxygen to break it down. This is called excess post-exercise oxygen consumption or EPOC (formerly known as oxygen debt)			
2.12 Explain why heart rate and breathing rate remain high after exercise			
HSW 11 Present information, develop an argument and draw a conclusion, using scientific, technical and mathematical language			
2.13 Describe how the structure of the leaf is adapted for photosynthesis, including: a large surface area			
b contains chlorophyll in chloroplasts to absorb light			
c stomata for gas exchange (carbon dioxide, oxygen and water vapour)			
2.14 Demonstrate an understanding of how photosynthesis uses light energy to produce glucose and how this process can be modelled using the word equation for photosynthesis			
HSW 3 Describe how phenomena are explained using scientific theories and ideas			
2.16 Investigate how factors, including the effect of light intensity, CO ₂ concentration or temperature, affect the rate of photosynthesis			
2.15 Demonstrate an understanding of how limiting factors affect the rate of photosynthesis, including: a light intensity			
b CO ₂ concentration			
c temperature			
HSW 11 Present information using scientific conventions and			

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symbols			
2.17 Explain how the loss of water vapour from leaves drives transpiration			
2.18 Explain how water, glucose and mineral salts are transported through a plant, including: a mineral uptake in roots by active transport b the role of xylem and vessels			
2.19 Describe how root hair cells are adapted to take up water by osmosis			
2.20 Define osmosis as the movement of water molecules from an area of higher concentration of water to an area of lower concentration of water through a partially permeable membrane			
HSW 2 Describe how data is used by scientists to provide evidence that increases our scientific understanding			
2.21 Investigate osmosis			
2.22 Investigate the relationship between organisms and their environment using fieldwork techniques			
2.23 Investigate the distribution of organisms in an ecosystem, using sampling techniques, including: a pooters b sweep nets/pond nets c pitfall traps d quadrats and measure environmental factors, including: e temperature f light intensity g pH			
HSW 5 Plan to test a scientific idea, answer a scientific question, or solve a scientific problem by controlling relevant variables			