

GCSE Biology (Separate AND Trilogy)



Success criteria: Respiration

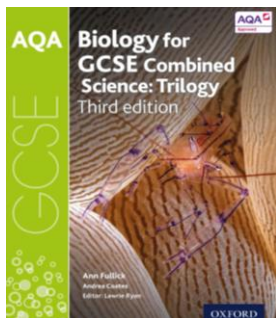
<i>I can...</i>	
Describe respiration as a chemical reaction that occurs inside ALL living cells that releases energy from food (glucose)	
Explain that enzymes control ALL chemical reactions that take place inside cells.	
Describe METABOLISM as the sum of all the chemical reactions occurring in a cell/in our body. Respiration is one of many metabolic process.	
Identify ATP as a small molecule that is used by ALL cells as energy currency. (Respiration produces ATP)	
State processes that require ATP/energy in cells (eg. muscle contraction for movement, chemical reactions to build up large molecules eg. protein synthesis, keeping warm eg. mammals/ birds)	
Describe respiration as an exothermic reaction (releases heat energy)	
Name the two types of respiration (aerobic and anaerobic)	
Describe aerobic respiration as a reaction that takes place when oxygen is plentiful	
State that aerobic respiration takes place in the mitochondria of eukaryotic cells and produces lots of ATP	
Recall the summary word equation for aerobic respiration	
Write a balanced symbol equation for aerobic respiration	
Describe anaerobic respiration as a reaction that takes place in the absence of oxygen	
State that anaerobic respiration occurs in the cytoplasm and produces less ATP (36 molecules less) than aerobic respiration.	
Recall the summary word equation for anaerobic respiration in animals (lactic acid).	
Describe the effect of high lactic acid levels on muscle tissue (fatigue/ cramp)	
Explain the term 'oxygen debt' (extra oxygen required by the liver to deal with the accumulated lactic acid)	
Link the effects of exercise (including increased heart, ventilation rates and muscle fatigue) to respiration.	
Recall the summary word equation for anaerobic respiration in plant and fungi cells (eg. yeast)= FERMENTATION (ethanol and CO ₂).	
Recognise the economic importance of fermentation in yeast cells in the manufacture of bread and alcohol.	

AQA exam specification:

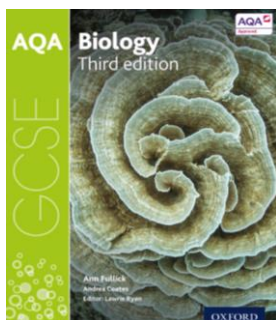
- 4.4.2.1 Aerobic and anaerobic respiration
- 4.4.2.2 Response to exercise
- 4.4.2.3 Metabolism

Additional support:

Access the appropriate textbook on kerboodle.com, create your own revision notes of the key points of the topic and attempt the summary questions.

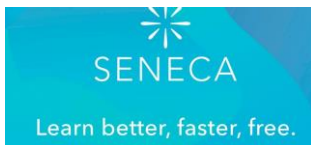


Combined science GCSE textbook
Pages 122-131



Separate Biology GCSE textbook
Pages 134-143

Utilise online revision resources to support your class notes, such as...



Attempt past paper questions using www.physicsandmathstutor.com and self-mark your answers using the official exam mark schemes.



Extension work/extra challenge:

Ask your teacher for extension tasks...

Pack 1 Topic 19 – Lactic Acid – The Enemy of Athletes? (4.4.2)