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| **What will we be learning?****Year 13 Respiration**  | **Why this? Why now?**Previous Learning Yr 10 BioenergeticsYr12 Cell membranesYr 12 EnzymesFuture LearningYr 13 Animal responsesEnquiry ProcessesAnalyse Patterns, Draw conclusions, Present data, Justify opinions, Collect data, Present data, Plan variables | **Key Words:****Acetyl coA****Adenosine triphosphate (ATP)****Aerobic****Anaerobic****ATP synthase****Citrate****Cristae****Electron transport chain****Ethanol****Glycolysis****Krebs cycle****Lactate****Link reaction****Matrix****Mitochondria****NAD****Oxaloacetate****Oxidative phosphorylation****Pyruvate****Reduced NAD****Triose phosphate** |
| **What will we learn?*** The structure of the mitochondrion
* The process and site of glycolysis
* The link reaction and its site in the cell
* The process and site of the Krebs cycle including the formation of citrate from acetate
* The importance of coenzymes in cellular respiration
* The process and site of oxidative phosphorylation
* The chemiosmotic theory
* The process of anaerobic respiration in eukaryotes
* Practical investigations into respiration rates in yeast, under aerobic and anaerobic Conditions
* The difference in relative energy values of carbohydrates, lipids and proteins as respiratory substrates
* The use and interpretation of the respiratory quotient (RQ)

**Misconceptions in this topic*** As always, respiration is not breathing!
* First stage of respiration is shared by both aerobic and anaerobic pathways! Aerobic respiration pathway is NOT entirely located in mitochondria
* Be wary of ‘learning’ diagrams for oxidative transport chain – this can be represented in different ways and a range of sources should be used during revision
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| **What opportunities are there for wider study?**CareersBiochemistry Biotechnology Brewing Laboratory Work Medicine Occupational Therapy Paramedical Science Pharmacology Sports Science Teaching Veterinary Work STE(A)M https://highcliffe.sharepoint.com/sites/LearnSTEM |
| **How will I be assessed?**End of topic assessment  |