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| **What will we be learning?**  **Year 13 Respiration** | **Why this? Why now?**  Previous Learning  Yr 10 Bioenergetics  Yr12 Cell membranes  Yr 12 Enzymes  Future Learning  Yr 13 Animal responses  Enquiry Processes  Analyse 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 | |
| **What opportunities are there for wider study?**  Careers  Biochemistry 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 | |