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| **What will we be learning?**  **Year 12 Proteins and Enzymes** | **Why this? Why now?**  Previous Learning  Future Learning  Enquiry Processes  Analyse Patterns, Draw conclusions, Present data, Justify opinions, Collect data, Present data, Plan variables | **Key Words:**  **Activation energy**  **Active site**  **Allosteric site**  **Amino acid**  **Biuret test**  **Competitive inhibitor**  **Denaturation**  **Disulphide bridge**  **Enzyme**  **Enzyme-substrate complex**  **Fibrous protein**  **Globular**  **Hydrophilic**  **Hydrophobic**  **Induced fit hypothesis**  **Kinetic energy**  **Lock and key hypothesis**  **Non-competitive inhibitor**  **Peptide bond**  **Polypeptide**  **Primary structure**  **Product**  **Protein**  **Quaternary structure**  **R group**  **Secondary structure**  **Substrate**.  **Successful collision**  **Tertiary structure** |
| **What will we learn?**   * The general structure of an amino acid * The synthesis and breakdown of dipeptides and polypeptides, by the formation and breakage of peptide bonds * The levels of protein structure * The structure and function of globular proteins including a conjugated protein * The properties and functions of fibrous proteins * The principles and uses of paper and thin layer chromatography to separate biological molecules / compounds * The role of enzymes in catalysing reactions that affect metabolism at a cellular and whole organism level * The role of enzymes in catalysing both intracellular and extracellular reactions * The mechanism of enzyme action * The effects of pH, temperature, enzyme concentration and substrate concentration on enzyme activity * Practical investigations into the effects of pH, temperature, enzyme concentration and substrate concentration on enzyme activity * The need for coenzymes, cofactors and prosthetic groups in some enzyme-controlled reactions * The effects of inhibitors on the rate of enzyme controlled reactions   **Misconceptions in this topic** | |
| **What opportunities are there for wider study?**  Careers  Brewing Dietetics Forensics Biochemistry Sports Science Nursing Medicine Food Science Laboratory Work Teaching Dentistry Pharmacology Biotechnology Veterinary Work Paramedical Science  STE(A)M  https://highcliffe.sharepoint.com/sites/LearnSTEM | |
| **How will I be assessed?**  End of topic assessment | |