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| **What will we be learning?****Year 12 Proteins and Enzymes** | **Why this? Why now?**Previous Learning Future Learning Enquiry ProcessesAnalyse 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?**CareersBrewing Dietetics Forensics Biochemistry Sports Science Nursing Medicine Food Science Laboratory Work Teaching Dentistry Pharmacology Biotechnology Veterinary Work Paramedical ScienceSTE(A)M https://highcliffe.sharepoint.com/sites/LearnSTEM |
| **How will I be assessed?**End of topic assessment  |