**Biology Revision: Digestion**

Mastery Matrix Points

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| Describe what the digestive system is |
| Explain the role of enzymes in the digestive system making reference to ‘lock and key’ |
| Explain how carbohydrates, proteins and lipids are synthesised, broken down and used, making reference to sugars, amino acids, fatty acids and glycerol |
| Link carbohydrase (amylase), protease, lipase & bile to the breakdown of particular food groups, identifying where they are produced |
| **Required practical: Use qualitative reagents to test for a range of carbohydrates, proteins and lipids** |
| Describe the effects of temperature and pH on the rate of enzyme reactions and investigate the effect of pH on the rate of reaction of amylase |
| **Required practical: Investigate the effect of pH on the rate of reaction of amylase enzyme** |
| Define ‘metabolism’ |
| Calculate the rate of given chemical reactions |
| Explain the 5 processes that contribute to our metabolism (starch formation, lipid formation, protein synthesis, respiration and protein breakdown) |

Key Knowledge

Metabolism -

Digestion –

Enzymes –

Lock and key model (include a diagram) –

|  |  |  |
| --- | --- | --- |
| *Enzyme* | *Breaks down…* | *To produce…* |
|  |  |  |
|  |  |  |
|  |  |  |

|  |  |  |
| --- | --- | --- |
| *Enzyme* | *Produced in* | *Works in* |
|  |  |  |
|  |  |  |
|  |  |  |

Food Tests:

|  |  |  |
| --- | --- | --- |
| *Chemical* | *Used to test for:* | *Positive result is:* |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

Rate of reaction =

Five processes that contribute to our metabolism

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Understanding and Explaining

1. Explain how carbohydrates are broken down in the body.
2. Explain how proteins are broken down in the body.
3. Explain how lipids are broken down in the body.
4. Describe the role of bile in the body. Include where it is produced, stored and where it works.
5. Sketch a graph to show how enzyme activity changes with pH. Label the optimum pH on your graph. Sketch another to show how enzyme activity changes with temperature. Label the optimum temperature on your graph.
6. Describe how to prepare foods for the food tests.
7. Which of the food test needs to be heated to work?
8. Describe a method for investigating the effect of pH on an enzyme such as amylase.