

Biological catalysts, food tests and energy in food

Revision notes • Why enzymes are important for building up and breaking down carbohydrates, proteins and lipids in the body.

For Edexcel GCSE Combined Science 1SC0. **Higher tier** is only on the Higher paper.

Biological catalysts, food tests and energy in food Spec 1.12-1.14B

The importance of enzymes Spec 1.12

Chemical reactions in living things would be far too slow to keep us alive without enzymes. Enzymes are **biological catalysts** that speed up reactions in cells. They are needed both to build large molecules and to break them down.

Enzymes in synthesis and breakdown		
Large molecule	Made (synthesised) from	Broken down into
Carbohydrates	Sugars	Sugars
Proteins	Amino acids	Amino acids
Lipids	Fatty acids and glycerol	Fatty acids and glycerol

Different enzymes catalyse each of these reactions, because enzymes are specific. Breaking down large molecules into small ones is a vital job, and so is building the carbohydrates, proteins and lipids the body needs.

*Exam tip: If asked what a catalyst does, say it **speeds up a reaction** and is **not used up**.*

Quick check

1. What are proteins broken down into?
2. What does a catalyst do?
3. Which reagent turns purple when protein is present?
4. How can the energy in food be measured?

Quick check answers

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1. Amino acids.
2. It speeds up a reaction and is not used up.
3. Biuret reagent (Triple only).
4. By burning it to heat water and using the temperature change (calorimetry) (Triple only).