

5. EXCRETION

Excess proteins and amino acids are broken down in a chemical reaction to form **UREA**.

Urea is toxic and is removed from the body in urine.

4. RESPIRATION

(releasing energy)

This process uses glucose and oxygen. Glucose is oxidised to release energy.

The waste products are water and carbon dioxide.

1. BUILDING NEW CARBOHYDRATES

Glucose → Starch, glycogen and cellulose (plants)

Glucose molecules are joined together to form large carbohydrates that are needed around the body.

2. BUILDING NEW FATS

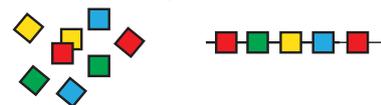
Fatty acids & glycerol → New fats

Fatty acids and glycerol are used to make new fats (lipids) needed around the body.

3. MAKING NEW PROTEINS

Amino acids can be made using nitrate ions and glucose **OR** obtained directly when we eat and digest proteins.

Amino acids → Protein (peptide)



Amino acids are joined to make new proteins.

All our chemical reactions combined
= **METABOLISM**

QUESTIONS

- Where do most chemical reactions take place in the body? (1 mark)
- What word is used to describe the total activity of the chemical reactions within the body? (1 mark).
- Look at the 5 examples given in the diagram above. Chose one that falls into the category of being :
 - Catabolic (explain your choice).
 - Anabolic (explain your choice). (4 marks)
- Describe the process of respiration – include the purpose of the process and the reactants and products of photosynthesis. (4 marks)
- Name 3 carbohydrates that are manufactured from **glucose**. Choose one and describe a use of this carbohydrate within the body of an animal or plant. (2 marks)
- Excess proteins need to be removed from the body as they have components which could be toxic. Describe how new proteins are manufactured in the body. You must describe how protein originally enters the body of an animal and is then processed to create new useful proteins. You will need to discuss metabolic reactions taking place in the digestive system and all around the body. (Extended Question 6 marks)