Introduction to biological molecules

What do you remember from GCSE?

1. Name the seven components of a balanced diet:

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...................................... ........................................ ......................................

1. Name the process in which molecules such as carbohydrates are used by the body as fuels:

..............................................................................

1. Draw a diagram to show how a polymer is made up of many monomers
2. Proteins are polymers. They are made from monomers called .........................................
3. Complete the following table:

|  |  |
| --- | --- |
| Biological molecule | Elements from which it is made |
| Carbohydrates |  |
| Lipids |  |
| Proteins |  |

Biological molecules – see powerpoint

1. ................................................................................................................
2. ................................................................................................................
3. ................................................................................................................
4. ................................................................................................................
5. ................................................................................................................
6. ................................................................................................................

Types of bonds

1. .................................................
2. .................................................
3. ..................................................

Monomers and Polymers

Carbohydrates, proteins and lipids all contain carbon. They are **organic** molecules. Carbon atoms can form four chemical bonds, with other carbon atoms and with other elements. They can form long, straight chains or branched chains. Many of the organic molecules in living things are very large in size and are known as **macromolecules.**

Macromolecules are built up from much smaller molecules, these building blocks are called **monomers.**

Monomers join together to form **polymers.**

Monomers join by a chemical reaction called **condensation** in which a molecule of water is formed. When polymers are broken down, water molecules are added and the reaction is called a **hydrolysis** reaction.

Diagram of condensation / hydrolysis reaction:

|  |  |  |  |
| --- | --- | --- | --- |
| Group name | Elements | Monomers | Polymers |
| Carbohydrates |  |  |  |
| Lipids |  |  |  |
| Proteins |  |  |  |
| Nucleic acids |  |  |  |

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| Further reading and questions:  See chapter 1.1 of your textbook. |