1. All of these foods contain starch.

Starch is a polymer.

Below is the molecular structure of a molecule that can make starch.



Molecule 1

Source: Envato Elements

1. What is a polymer?

Answer: A very long chain molecule made of many smaller molecules (monomers) chemically bonded.

1. Name molecule 1 above.

Answer: Glucose.

1. What is the molecular formula of molecule 1?

Answer: C6H12O6

Molecule 1 reacts with many other identical molecules to make starch.

Water is also formed in the process.

1. What is the name given to molecules like molecule 1 that chemically bond together to form a polymer?

Answer: Monomers.

1. In the equation below, n is a whole number.

Complete the equation:

Answer: nC6H12O6 🡪 (C6H10O5)n + nH2O

Starch

1. What type of polymerisation in taking place when starch is formed?

Give a reason for this name.

Answer: Condensation polymerisation, as a small molecule like water is formed.

The diagram below shows how three molecule 1s react together:



1. Explain what the rings show in the diagram.

Answer: The OH group from one glucose molecule combines with the H group from another, to form water.

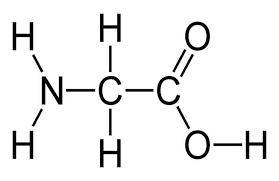
1. Draw a chemical bond between the three molecules to show how they chemically bond, after water has been removed.



1. This question is about amino acids forming a polymer.
2. What class of polymer is formed from amino acids?

Answer: Proteins.

The molecular structures of two different amino acids are shown below.



Glycine Alanine

1. Name the functional groups present in each amino acid.

Answer: Amine group and carboxylic acid.

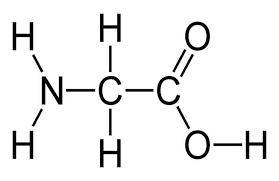
1. Explain why these molecules are placed in the same homologous series.

Answer: They have the same functional groups, and differ by a CH2 unit.

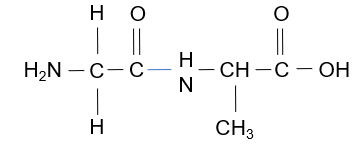
One functional group is acidic and the other is basic.

They react together to form water.

The diagram shows this taking place.



1. Draw the structure of the molecule formed when glycine and alanine react according to the diagram.



1. What is the name of the link that bonds together amino acids in this way?

Answer: A peptide link.