

Proteins

The 4 macromolecules

- CARBOHYDRATES
- LIPIDS
- NUCLEIC ACIDS
- PROTEINS

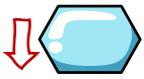
EXAMPLES OF PROTEINS

1 HAEMOGLOBIN



Oxygen carrying protein found in red blood cells.

2 INSULIN



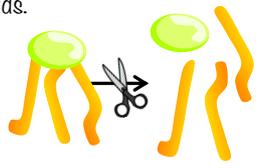
A hormone produced by the body (pancreas) to lower your blood glucose level.

3 KERATIN



Component of hair, nails, claws and hooves.

4 LIPASE (ENZYME)



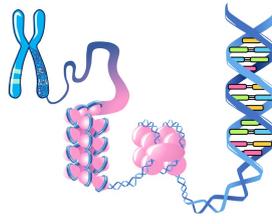
A digestive enzyme that helps hydrolyse (break down) ingested lipids.

5 COLLAGEN

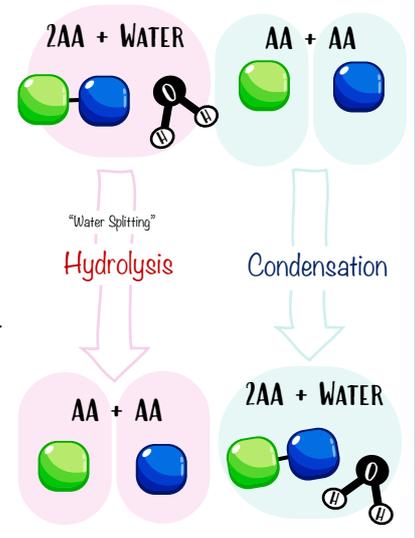


A structural protein found in muscle, tendons, ligaments, and the skin of vertebrate.

6 HISTONES



Found in the nucleus and help with supercoiling DNA into chromosomes.

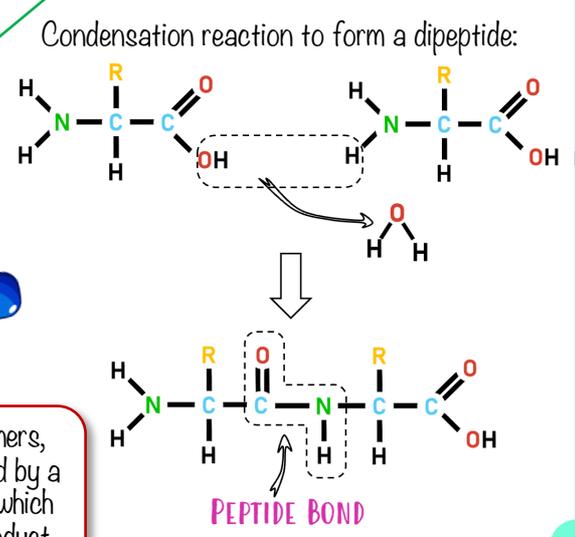
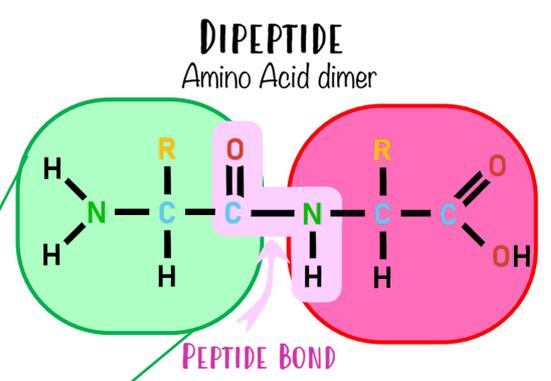
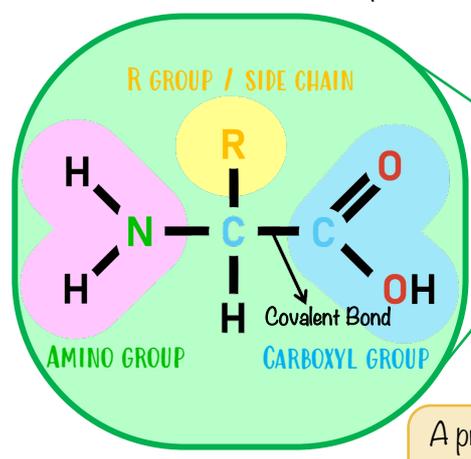


NOTE!
Make sure you know **HOW** to draw the structure of an amino acid and the condensation reaction to form a dipeptide

FACT!
There are **20** different types of amino acids

AMINO ACID STRUCTURE

The basic unit (monomer) of a protein

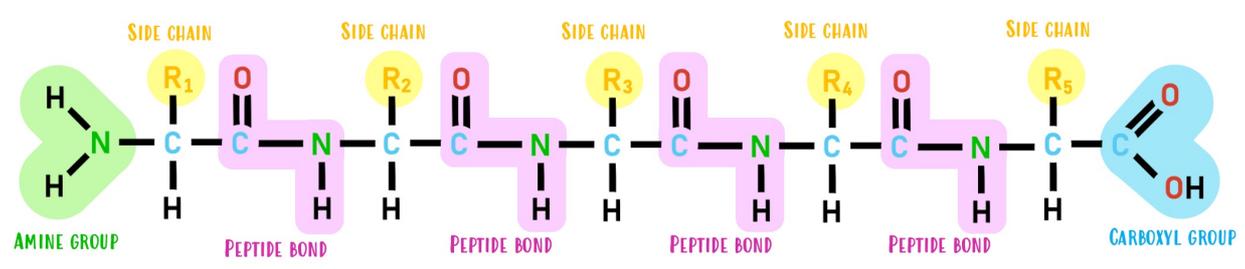


POLYPEPTIDE (POLYMER)

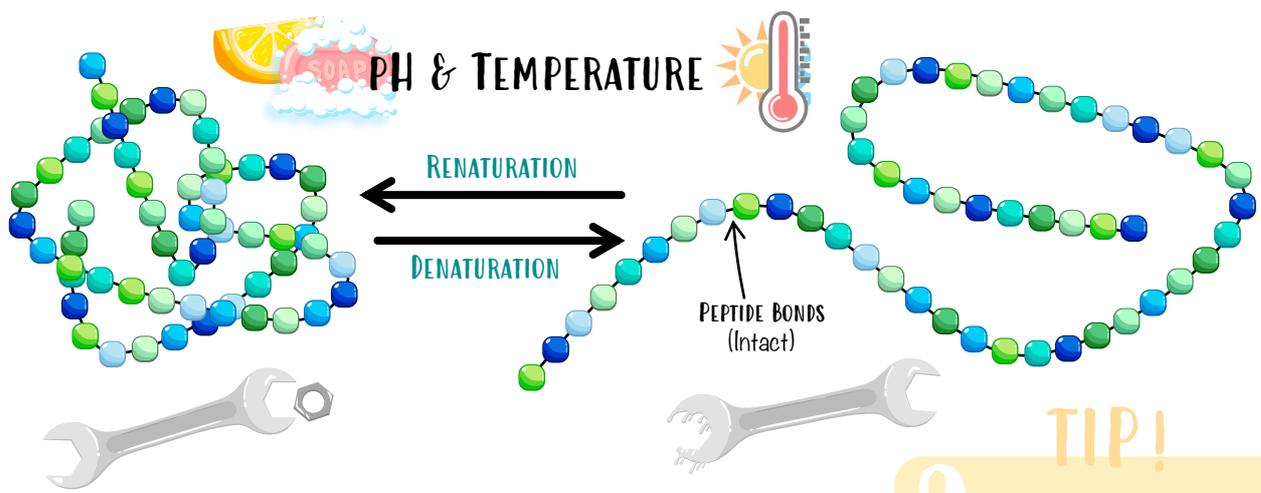
many amino acids linked with peptide bonds

A protein is a sequence of amino acids

To form dimers or polymers, each amino acid is added by a **CONDENSATION** reaction, which creates **WATER** as a biproduct



Proteins



A **DENATURED** protein temporarily loses its function because its tertiary (3D) structure has been altered by unsuitable temperature or pH

TIP!
 You can think of a tool losing its shape, therefore unable to perform its function.

ESSENTIAL AA VS. NON-ESSENTIAL AA

Amino acids that can only be obtained from specific foods. Essential in our diet.

What's the **PURPOSE** of eating protein?

