Active Transport:

Moves molecules against their concentration gradient with the use of ATP.

Stopped by cyanide as it inhibits respiration which produces ATP.

Biological molecules:

Carbohydrates:

Contain carbon, hydrogen and oxygen. Ratio of H to O is always 2:1.

Glucose molecule:

Disaccharides:

Made by condensation reactions - glucose joining to another monosaccharide.

Maltose = glucose + glucose

Sucrose = glucose + fructose

Lactose = glucose + galactose

Polysaccharides:

Polymer – many monomers joined together.

Monomer – a molecule that can be bonded to other identical molecules to form a polymer.

Starch – formed by many alpha glucose molecules joined together by glycosidic bonds. Starch is made of amylose and amylopectin. It is insoluble so does not affect the water potential of cells. A lot of glucose can be stored in a cell as it is compact.

Glycogen – formed by many alpha glucose molecules joined together by glycosidic bonds. It is branched and insoluble. It makes energy easily and quickly and a lot of glucose can be stored in a cell.

Cellulose – made by many beta glucose molecules joined together by glycosidic bonds. It has straight chained linkages by H bonds. It keeps plant cells rigid.

Proteins:

Contain the elements carbon, hydrogen and nitrogen.

They are polymers of amino acids.

A chain of amino acids is a polypeptide. They are joined by peptide bonds.

Proteins are made from one or more polypeptides.

Amino acid:

Condensation reactions link amino acids together.

Primary structure – sequence of amino acids.

Secondary structure – Hydrogen bonds form between the amino acids in the chain. This makes in coil into an alpha helix or fold into a beta pleated sheet.

Tertiary structure – Coiled or folded chain coils or folds further. More bonds form at different parts of the chain. For proteins with one polypeptide this is the final 3D shape.

Quaternary structure – The way several polypeptide chains are assembled together. This is their final 3D shape.

Lipids:

Triglycerides – store energy

Phospholipids – make membranes

Made from one molecule of glycerol and three fatty acids.

Glycerol molecule: