

Amylose – consists of long unbranched chains of alpha glucose subunits. The subunits are joined by 1,4 glycosidic bonds. Amylose is used for the storage of glucose subunits and energy in plant cells. The molecule is compact. It is insoluble, which means the molecules do not affect the water potential of cells

Amylopectin and Glycogen – are similar to amylose in that they are long chains of alpha glucose subunits bonded by 1,4 glycosidic bonds. Some of the glucose subunits also have 1,6 glycosidic bonds. This means the molecule is branched. Amylopectin occurs in plants and has very few branches. The 1,6 glycosidic bonds make it more branched so it has many ends that glucose can be released quickly from.

Lipids

Lipids are a large group of compounds that include triglycerides, phospholipids and steroids. Lipids are insoluble.

Triglyceride

A **triglyceride** is a **macromolecule** containing one glycerol molecule and three fatty acid chains. The fatty acid chains are joined to the glycerol by a condensation reaction. The bonds are called **ester bonds** and they can be broken by hydrolysis.

Triglyceride molecules are rich in energy and are used to store excess energy. The molecules can be broken down in aerobic respiration to release the energy. Water is also released.

Triglycerides are good insulators and also provide buoyancy.

Fatty acids

These are long chains of carbon atoms with hydrogen atoms bonded to them. If each carbon has two hydrogen atoms attached, there are no double or triple bonds. This is called a saturated fatty acid. If there are fewer hydrogen atoms, there will be double or even triple bonds between carbon atoms. This is known as an unsaturated fatty acid. These are found in plants and oils

Phospholipids

These are similar to triglycerides, but one of the fatty acid chains has been replaced by a phosphate group. The two remaining tails are insoluble in water and are **hydrophobic**. The head of the phospholipid is hydrophilic and tail is hydrophobic.