Inorganic ions

Inorganic ions can also be called electrolytes or minerals. They come in two groups, Micronutrients (small amounts are needed) and macronutrients (needed in bigger but still small amounts).
Magnesium is an important part of chlorophyll and it essential for photosynthesis, without Mg plants leaves go yellow, this is called chlorosis. Mammals need magnesium in their bones.
Iron is part of haemoglobin, which transports oxygen in red blood cells.
Phosphate ions are used for making nucleotides and are the main part of phospholipids.
Calcium is an important structural component of bones and teeth in mammals.
ORGANIC = Molecules that have a high proportion of carbon atoms
INORGANIC = A molecule or ion that has no more than 1 carbon atom.

Water

Water (H_20) is a dipole. This means it has a positively charged end (hydrogen) and a negatively charged end (oxygen), but no overall charge. A molecule with separate charges is called a polar molecule. Hydrogen bonds can form between a positive hydrogen and a negative oxygen atom of another molecule. Hydrogen bonds are weak but it there are a lot of them they can be very strong.
Living organisms obtain most of the vital living elements from water as it is a solvent. Lots of chemical reactions also take place in water as it's a dipole so attracts a lot of elements into its clutches. This also means water acts as a transport medium and moves things around the organism.
Non polar molecules don't dissolve in water.
Water is used as a reactant in many chemical reactions, when it's used it's called hydrolysis.
Water has a high specific heat capacity. This means a lot of energy can be absorbed by a molecule before the bonds are broken. The hydrogen bonds restrict the particles movement so it doesn't increase its kinetic energy.
A lot of energy is also required to change water into a vapor, so it's very difficult to make water change state.
Cohesion is where all of the hydrogen bonds together in a body of water stick together in a lattice. This is helpful because then it's easier for plants to draw the water up xylem vessels.
Water has a high surface tension so pond skaters (and Jesus) can walk on it as it supports their weight.
Water is also denser than air, it provides support and buoyancy for water life. It's also transparent so aquatic plant life can photosynthesis effectively.

Carbohydrates

Carbohydrates contain only carbon, hydrogen and oxygen.

Monosaccharides

These are small organic molecules, and have the general formula $(CH_20)^n$.
A triose has 3 carbons, pentose has 5 carbons and a hexose has 6 carbons. Glucose is a hexose sugar.
All hexose sugars have the same formula but a different molecule structure.
Monosaccharides have several functions:
A source of energy in respiration
Building blocks for larger molecules
Intermediates for reactions
Constitutes of nucleotides.

Disaccharides

These are two monosaccharides bonded together with a glyosidic bond and the elimination of water.
Maltose = glucose + glucose = in germinating seeds
Sucrose = glucose + fructose = transport in phloem of flowering plants