# Concept 5.2
# Carbohydrates provide fuel and building material.

## Sugars:

**Carbohydrate** - an organic compound made up of sugar molecules.

Sugars contain the elements carbon, hydrogen, and oxygen in the ratio of 1C : 2H : 1O. The basic molecular formula CH O .

**Monosaccharides** - simple sugars that contain just one sugar unit.
( ie. Glucose, fructose and galactose.)

**Disaccharides** - Using the dehydration reaction, two monosaccharides are formed into **sucrose** the most common disaccharide.

**Polysaccharides:** Long polymer chains made up of simple sugar monomers.
(ie. **starch** - consists entirely of glucose monomers.)

- Starch chains serve as sugar stockpiles. Plant cells need sugar for energy and as a raw material for building other molecules.

- Animal cells do not contain starch. Instead sugar is stored as **glycogen**, it is more branched than a starch molecule. Glycogen is stored as granules in liver and muscle cells. When energy is needed glycogen is broken down into glucose.

**Cellulose** - is a structural polysaccharide in plants that protect cells and stiffen plants. It is also made of glucose monomers. Most animals cannot digest cellulose because they lack the molecule necessary to break the bonds between the glucose monomers in cellulose.

Almost all carbohydrates are hydrophilic. This is due to the hydroxyl groups in their sugar units.