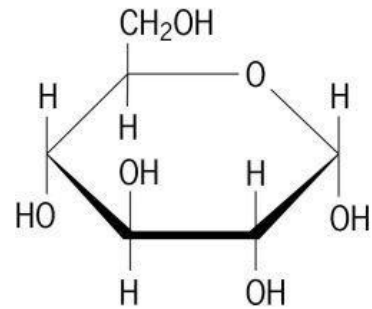


Carbohydrates

Carbohydrates are made of carbon, hydrogen and oxygen. Foods high in carbohydrates include sugars and starches. The carbohydrate glucose is made by plants during photosynthesis. The carbohydrate **monomers** are **monosaccharides** like **glucose, fructose and galactose**.



When two monosaccharides are joined by dehydration synthesis this forms a disaccharide and water.

Common disaccharides:

Glucose + glucose $\rightarrow$ maltose (malt sugar for brewing beer) + H_2O

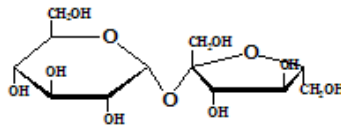
Glucose + fructose $\rightarrow$ sucrose (table sugar) + H_2O

Glucose + galactose $\rightarrow$ lactose (milk sugar) + H_2O

Digestible Disaccharides in Food

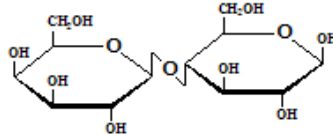
Sucrose

(Glucose-fructose)



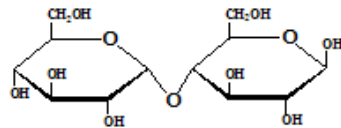
Lactose

(Galactose-glucose)



Maltose

(Glucose-glucose)



Joining many monosaccharides forms a polysaccharide.

The two main polysaccharides are starches and glycogen.

Starch is made in plant cells to store extra glucose from photosynthesis. In animal cells glycogen is stored in muscle and liver cells.

The main function of all polysaccharides is to provide quick energy to cells for cellular respiration. Cellular respiration occurs in the mitochondria when glucose is broken down into ATP energy molecules.

Carbohydrates

Carbohydrates are made _____ and _____.

Foods high in carbohydrates include _____ and _____. The

carbohydrate _____ during

photosynthesis. The carbohydrate _____ are

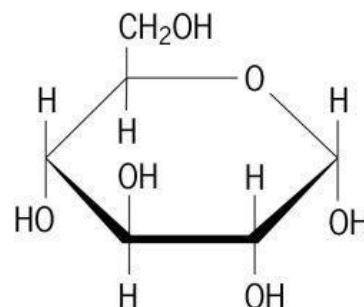
monosaccharides like _____

_____.

When two monosaccharides are joined _____

_____ this forms a _____ and

_____. Common disaccharides:



Glucose + glucose $\rightarrow$ _____ (malt sugar for brewing beer) + H_2O

Glucose + fructose $\rightarrow$ _____ (table sugar) + H_2O

Glucose + galactose $\rightarrow$ _____ (milk sugar) + H_2O

Joining _____

forms a _____. The

two main polysaccharides are

_____ and

_____. Starch is made

in _____ to store

extra glucose from photosynthesis. In

_____ cells glycogen is

stored in _____ cells.

The main function of all polysaccharides is to

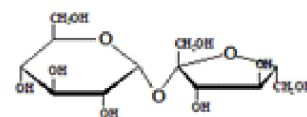
provide _____ to cells

_____. Cellular respiration occurs in the

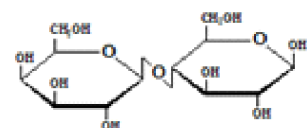
mitochondria when glucose $\rightarrow$ ATP energy molecules.

Digestible Disaccharides in Food

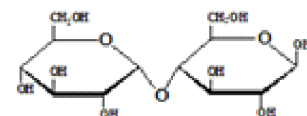
Sucrose
(Glucose-fructose)



Lactose
(Galactose-glucose)



Maltose
(Glucose-glucose)



Carbohydrates

READ PAGES 25-30 AND 34 TO ANSWER THE FOLLOWING QUESTIONS.

Name: _____

1. Name the four main types of biological macromolecules.
2. What is a carbohydrate?
3. What is the subunit that carbohydrates are made of?
4. State the 3 main types of carbohydrates.
5. Explain the difference between monosaccharides, disaccharides, and polysaccharides. Provide examples of each.
6. State 3 functions of carbohydrates and provide an example with each function.
7. What is a lipid?
8. List the 3 main types of lipids.
9. Explain the difference between a saturated and unsaturated fat. Provide examples for each.
10. State 3 functions of lipids and provide an example with each function.