

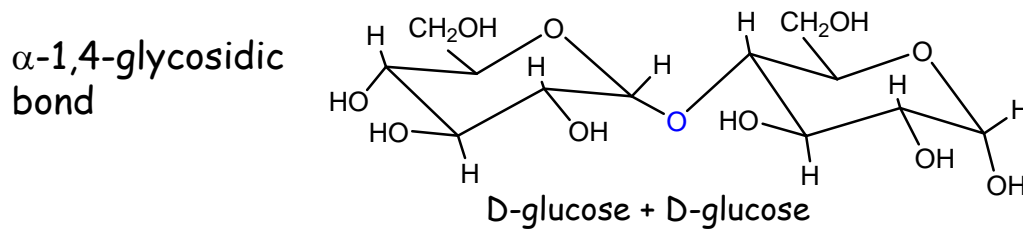
Disaccharides- two monosaccharides joined together with a bond between the anomeric carbon of one unit to the OH group of another unit.

Glycosidic link- The bond between sugar units.

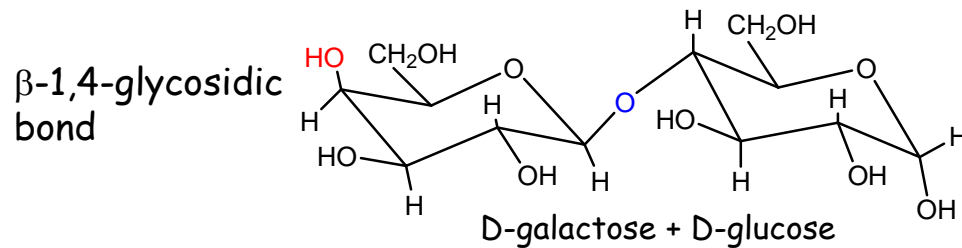
The most common Glycosidic linkage is the **1,4' link**.

(1 = anomeric oxygen and 4' = C4 oxygen)

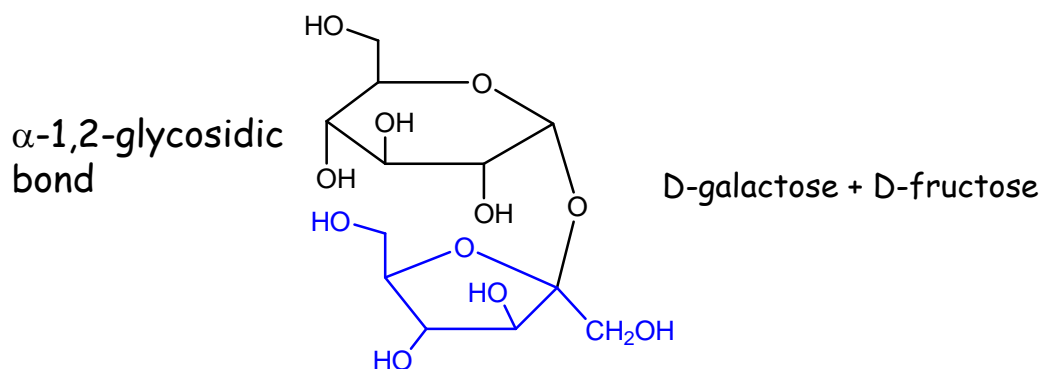
Maltose α -D-glucopyranose linked to C-4 hydroxy of 2nd D-glucopyranose



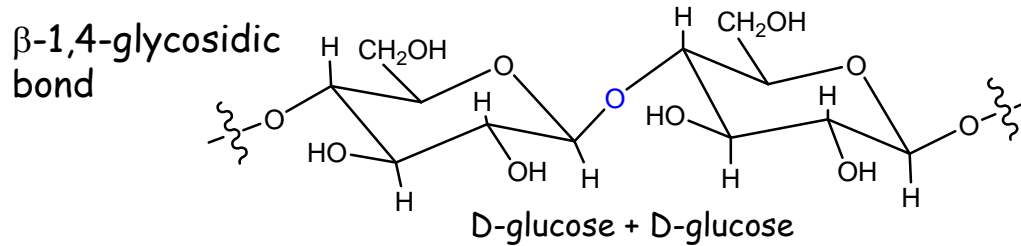
Lactose β -D-galactopyranose linked to C-4 hydroxy of D-glucopyranose



Sucrose α -D-glucopyranose linked to C-2 hydroxy of D-fructofuranose
In sucrose, the glycosidic link is between the anomeric oxygen atoms



Cellulose- polymer of glucose units with β -1,4' glycosidic linkage
 Cellobiose is the disaccharide of cellulose (the partial hydrolysis product)



In that respect, cellobiose and maltose are nearly the same except mammals lack the enzyme necessary for hydrolysis of the β -linkage; thus, humans cannot digest cellulose. Ruminants (cows) and termites have certain bacteria in their stomachs which have the necessary enzyme.

Starch: amylose amylopectin and glycogen

Amylose is like a polymer of maltose: α -1,4 links between glucose units.
The helical structure of amylose increases hydrogen bonding and makes it water soluble whereas, the β -linkage of cellulose is stiffer and does not have the same degree of hydrogen bonding and is not water soluble.

Amylopectin is similar to amylose except for branching every 20 units.

Glycogen is similar to amylopectin but with more branching which makes it easier to hydrolyze for a readily available energy source.

