**α. AND β LINKS**
The hydroxyl group on the carbon that carries the aldehyde or ketone can rapidly change from one position to the other. These two positions are called α and β.

As soon as one sugar is linked to another, the α or β form is frozen.

**SUGAR DERIVATIVES**
The hydroxyl groups of a simple monosaccharide can be replaced by other groups. For example,

- **N-acetylg glucosamine**
- **Glucuronic acid**

**DISACCHARIDES**
The carbon that carries the aldehyde or the ketone can react with any hydroxyl group on a second sugar molecule to form a disaccharide. The linkage is called a glycosidic bond.

Three common disaccharides are:
- Maltose (glucose + glucose)
- Lactose (galactose + glucose)
- Sucrose (glucose + fructose)

The reaction forming sucrose is shown here.

**OLIGOSACCHARIDES AND POLYSACCHARIDES**
Large linear and branched molecules can be made from simple repeating sugar subunits. Short chains are called oligosaccharides, while long chains are called polysaccharides. Glycogen, for example, is a polysaccharide made entirely of glucose units joined together.

**COMPLEX OLIGOSACCHARIDES**
In many cases a sugar sequence is nonrepetitive. Many different molecules are possible. Such complex oligosaccharides are usually linked to proteins or to lipids, as is this oligosaccharide, which is part of a cell-surface molecule that defines a particular blood group.