

Yesterday we learned about monosaccharides (single sugars)...

Today, we'll learn about...

- I. **DISACCHARIDES** = double sugar molecule that is a carbohydrate and usually occurs as two rings bonded together

- A. How is a disaccharide made?

- B. To make a new bond, you have to break old bonds.

- For example, take 2 glucose monosaccharides and break certain old bonds:

PROCESS:

RESULT:

- C. Let's review that process above used to combine 2 glucose molecules:

- We took 1 H off of one glucose molecule
 - We took 1 H and 1 O off of the other glucose molecule
 - What do these removed atoms make?

D. So when water is removed, think: condensation (just like the water droplets on a cold glass on a hot day – water is key to the above reaction)

Condensation reaction = a reaction that produces water when 2 molecules combine chemically (also called a “dehydration synthesis” reaction)

E. Condensation reactions produce important natural sugars:

<i>monosaccharides</i>		<i>disaccharides</i>	<i>importance:</i>
glucose + glucose	=		
glucose + galactose	=		
glucose + fructose	=		

II. Could we break a disaccharide back into 2 monosaccharides?

Essentially we are asking: Can the opposite of a condensation reaction happen?

Instead of taking water out, we can put water back **in** by breaking the joining bond between the sugar rings:

PROCESS:

The above process is called:

Hydrolysis = a reaction that breaks down complex molecules. It is the reverse of a condensation reaction.

III. POLYSACCHARIDES = the largest carbohydrates that consist of many monosaccharides bonded together.

Importance?