

Carbohydrates

Quick energy!!

What elements are carbs composed of?

1. Carbon (C)
2. Hydrogen (H)
3. Oxygen (O)

In a ratio of – $C : H : O$
 $1 : 2 : 1$

For every 1
Carbon (C) You
will have
2 Hydrogens (H)

Example: Glucose $\frac{C_6H_{12}O_6}{6}$
 $1 : 2 : 1$

Function in living organisms

1. Energy Storage in plants and animals
 - Starch in plants
 - Glycogen in animals
2. Structural support in plants
 - Cell Walls



STRUCTURE!!

Carbohydrate Monomers

(Building Blocks)

Mono=one

Saccharide=sugar

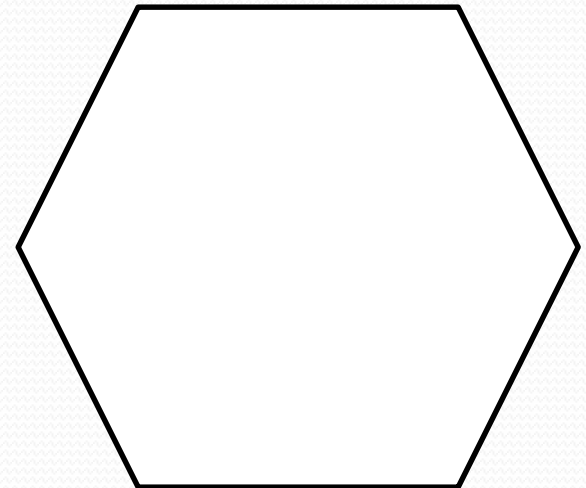
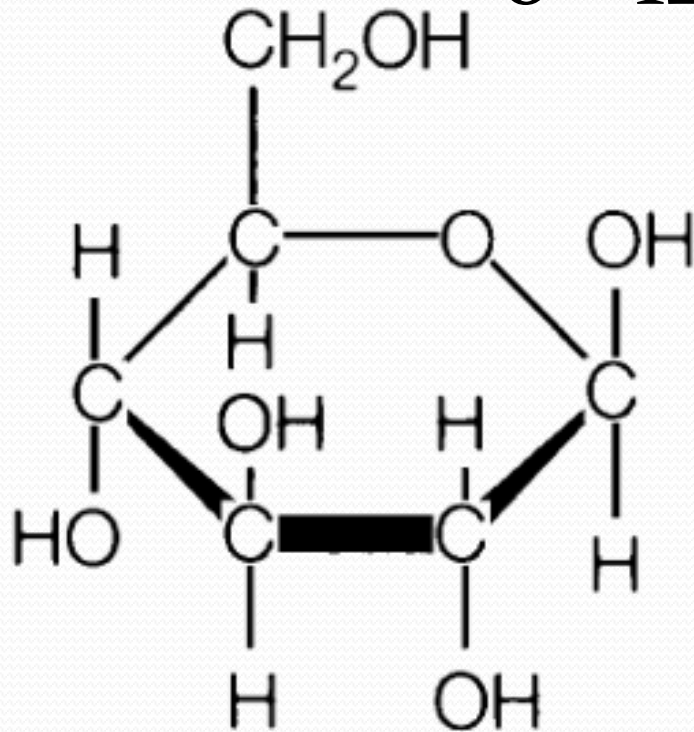
Monosaccharides:

are simple sugars commonly found
in rings.

Carbohydrate Monomers

(Building Blocks)

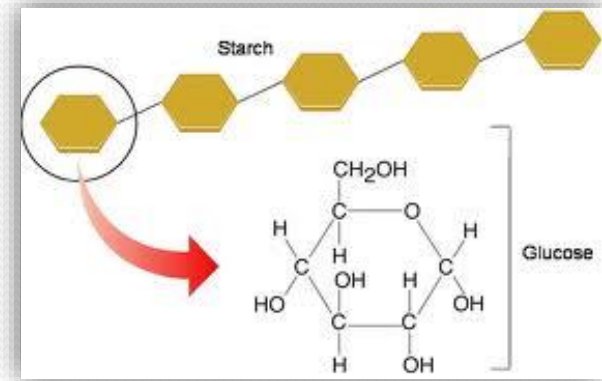
- Glucose = $C_6H_{12}O_6$



Carbohydrate Polymers

Polysaccharides:

Poly=Many, Saccharide=sugar



- Polysaccharides (carbs) are made by linking monosaccharides (simple sugars) together.
 - They can be very large and complex, or they can be small and made up of only two monomers linked together.
 - These are called Disaccharides

Carbohydrate Polymers

Disaccharides:

Di=Two, Saccharide=sugar

Disaccharides contain 2 monosaccharides joined by dehydration synthesis.



Complex Carbs

Very Large Carbohydrates (Polysaccharides)

Exit Ticket

1. List the three elements which compose a carbohydrate.
2. One function of a carbohydrate is _____.
3. Glycogen, a polysaccharide, in your liver may be broken down to glucose by the process of _____.
4. Draw the basic shape that represents glucose.

Carbohydrate Examples

Monosaccharides

Monosaccharides (s)

SIMPLE SUGARS

1. Glucose: found in animal products
2. Galactose: sugar found in milk
3. Fructose: commonly found in fruit

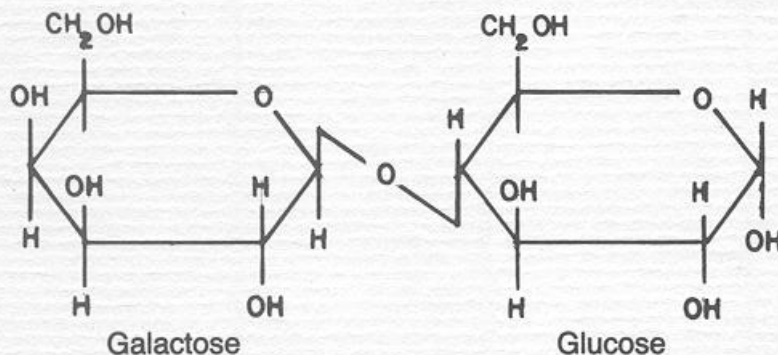


DISACCHARIDE EXAMPLES

Carbohydrate Polymers

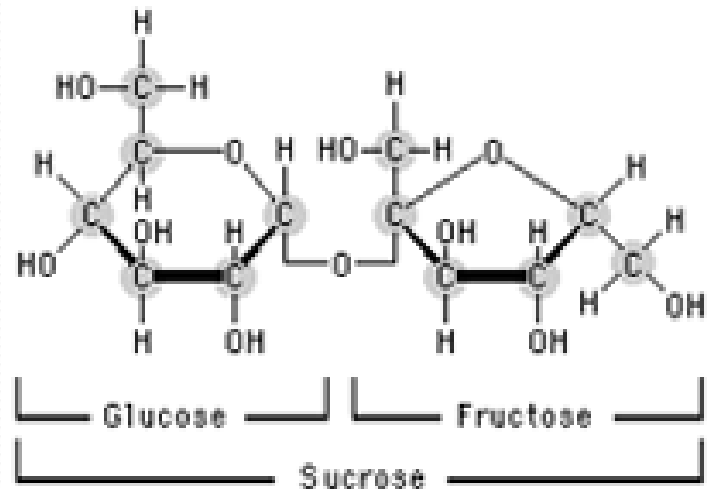
1. Lactose:

- Found in Milk
- Made up of Galactose + Glucose



2. Sucrose:

- “Table Sugar”
- Made up of Fructose + Glucose

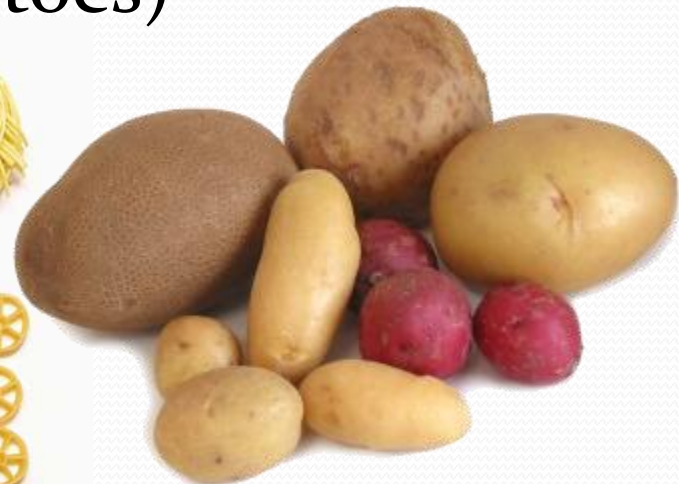


Polysaccharides

Complex Carb (Larger polysaccharide)
examples

1. **Starch**: Glucose (energy) stored in
plants

(breads, pasta, potatoes)



Polysaccharides

Complex Carb (Larger polysaccharide) examples

2. **Cellulose**: Forms plant cell walls providing strength and rigidity.

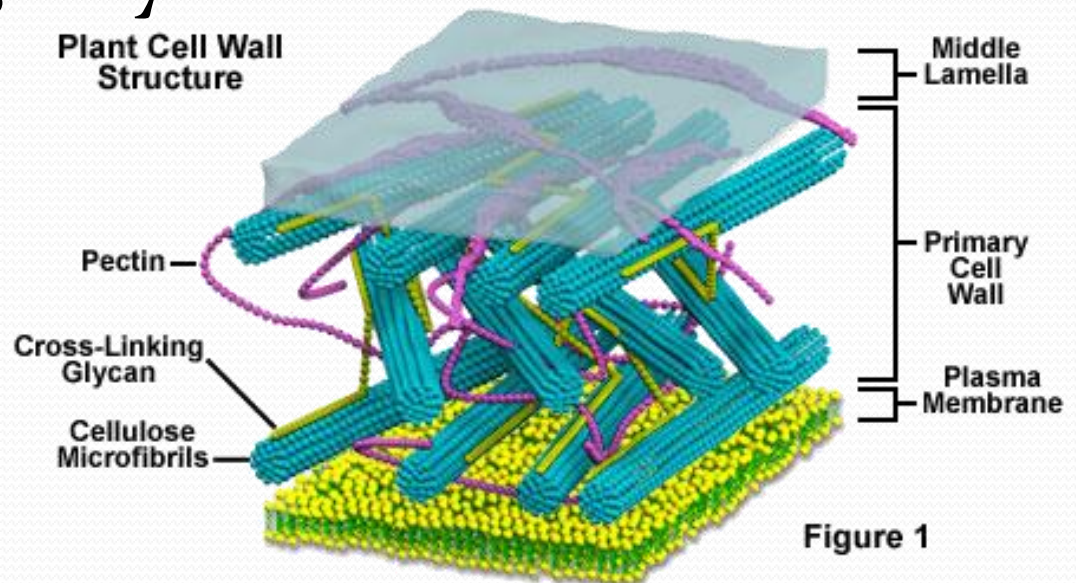


Figure 1

Polysaccharides

Complex Carb (Larger polysaccharide) examples

3. **Glycogen**: Glucose stored in the liver and muscle of animals.
Used for quick energy!!!

