CONCEPT: CARBOHYDRATES

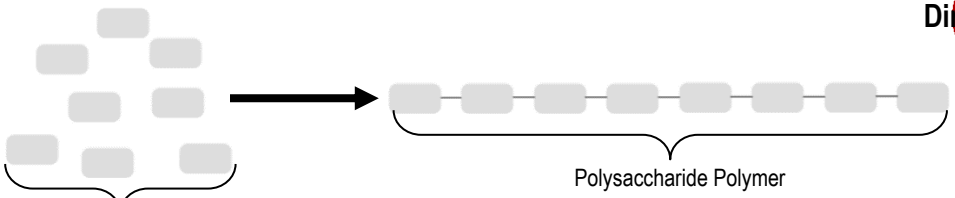
●*Carbohydrates* (or_____): sugars composed mainly of carbon, hydrogen & oxygen with a formula of $C_n(H_2O)_n$.

●_____ are carbohydrate monomers & are water-soluble, white, crystalline solids with a sweet taste.

●Carbohydrates function as primary short-term _____ sources for most organisms.

□ *Monosaccharides* can repetitively link to form _____ polymers.

EXAMPLE:



"-ose" = sugar (ex. Glucose, fructose, sucrose, lactose, hexose, pentose, etc.)

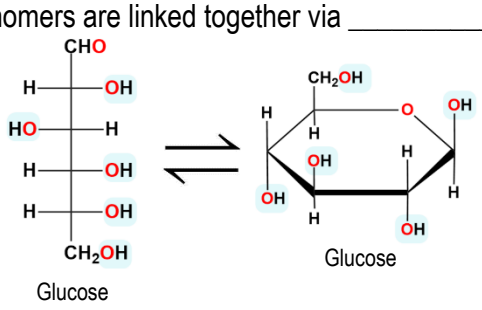
Monosaccharides

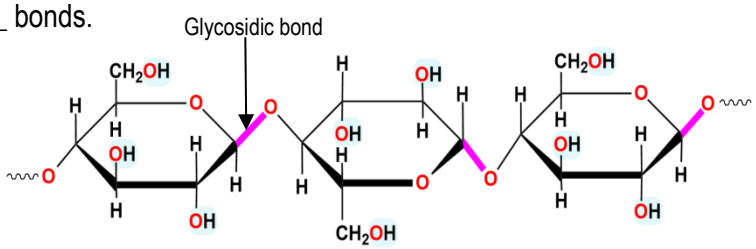
●Most monosaccharides have several _____ _____ (-OH groups) & are therefore *polyalcohols*.

●_____ ($C_6H_{12}O_6$), the most abundant *hexose*, can be used by most organisms as *fuel* or to *build structures*.

●Glucose monomers are linked together via _____ bonds.

EXAMPLE:





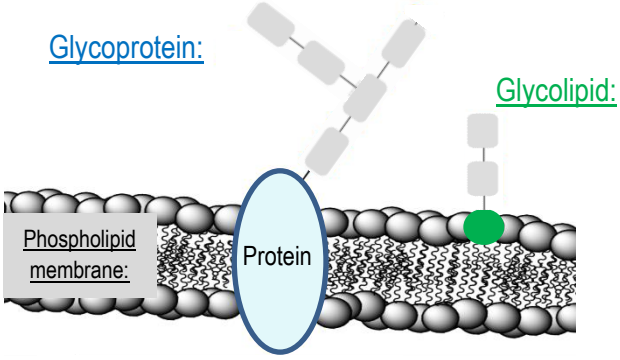
Polysaccharides

●*Starch*, *glycogen*, *cellulose*, *peptidoglycan* & *chitin* are all examples of *polysaccharides* with varying functions.

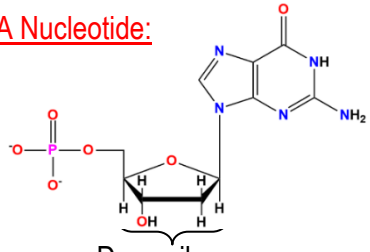
●Carbohydrates can be covalently *linked* to proteins (*glycoproteins*), lipids (*glycolipids*), & nucleic acids (*nucleotides*).

EXAMPLE: Fill-in the chart with the function of each polysaccharide.

Polysaccharides	Function
Starch	Energy Storage in _____
Glycogen	Energy Storage in _____
Cellulose	_____ Cell Walls
Peptidoglycan	_____ Cell Walls
Chitin	_____ _____ (insects, crabs, fungi cell wall, etc.)



DNA Nucleotide:



Pentose sugar: Deoxyribose

CONCEPT: CARBOHYDRATES

PRACTICE: Which of the following expresses the correct chemical formula of a carbohydrate?

a) $C_6H_{14}O_5$

b) $C_5H_{10}O_5$

c) $C_4H_{10}O_6$

d) $C_6H_{12}O_5$

PRACTICE: Which of the following matches the function of the polysaccharide glycogen?

a) Major component of plant cell walls

b) Major component of bacterial cell walls

c) Energy storage in plants

d) Energy storage in animals