

CARBOHYDRATES

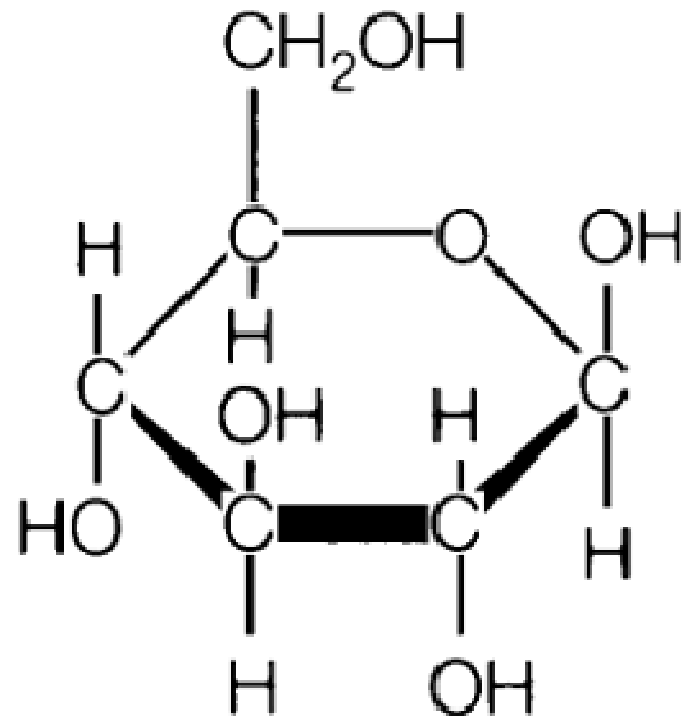
CHEMICAL COMPOSITION

- The empirical formula of a carbohydrate is



- Carbohydrates always contain C, H, O in a 1:2:1 ratio

- Example: glucose



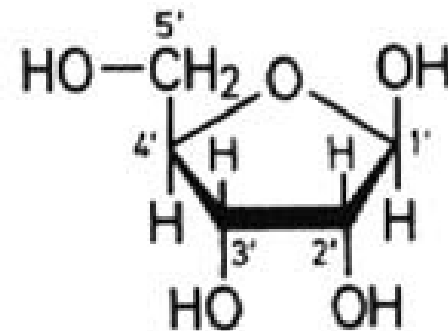
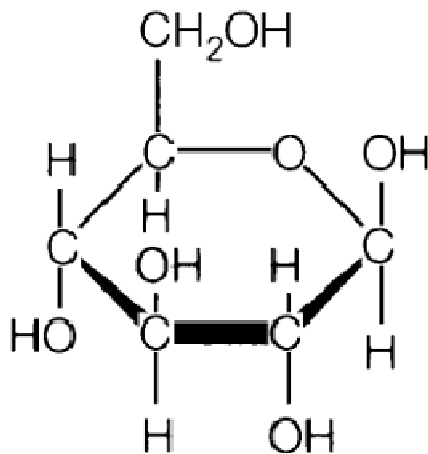


FUNCTIONS

- Source of energy (eg. Glucose)
- Storage of energy (eg. Glycogen)
- Structural component found in plants (cellulose)
- Structural component in DNA and RNA (deoxyribose and ribose)

MONOMERS

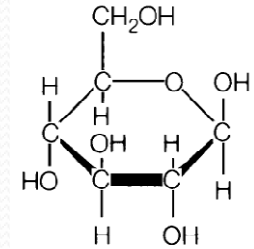
- Monosaccharides
- Examples: glucose, fructose, ribose
- Carbohydrate monomers are usually in ring form
- Glucose is a 'hexose' sugar because it has 6 carbons
- Ribose is a 'pentose' sugar because it has 5 carbons



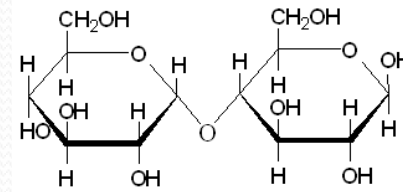
NAMING CARBOHYDRATES

- Carbohydrates containing 1 monomer are called monosaccharides
- Carbohydrates containing 2 monomers are called disaccharides (eg maltose)
- Carbohydrates containing 3 or more monomers are called polysaccharides (eg cellulose, starch, glycogen)

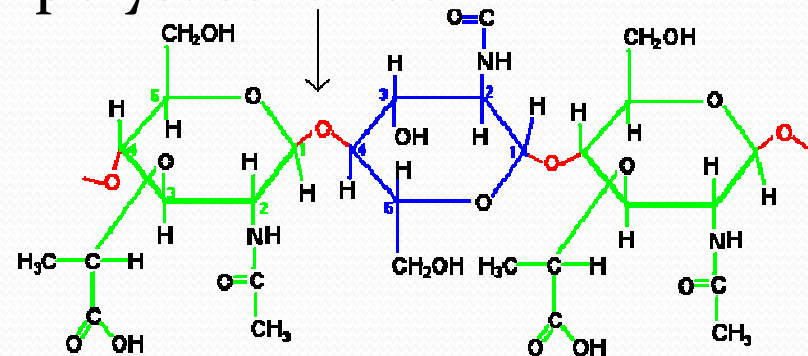
- Glucose (monosaccharide)



- Maltose (disaccharide)

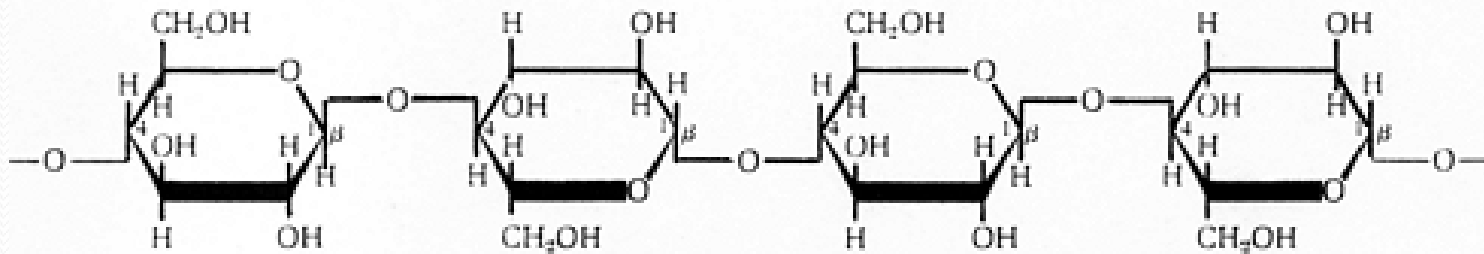


- polysaccharide



CELLULOSE

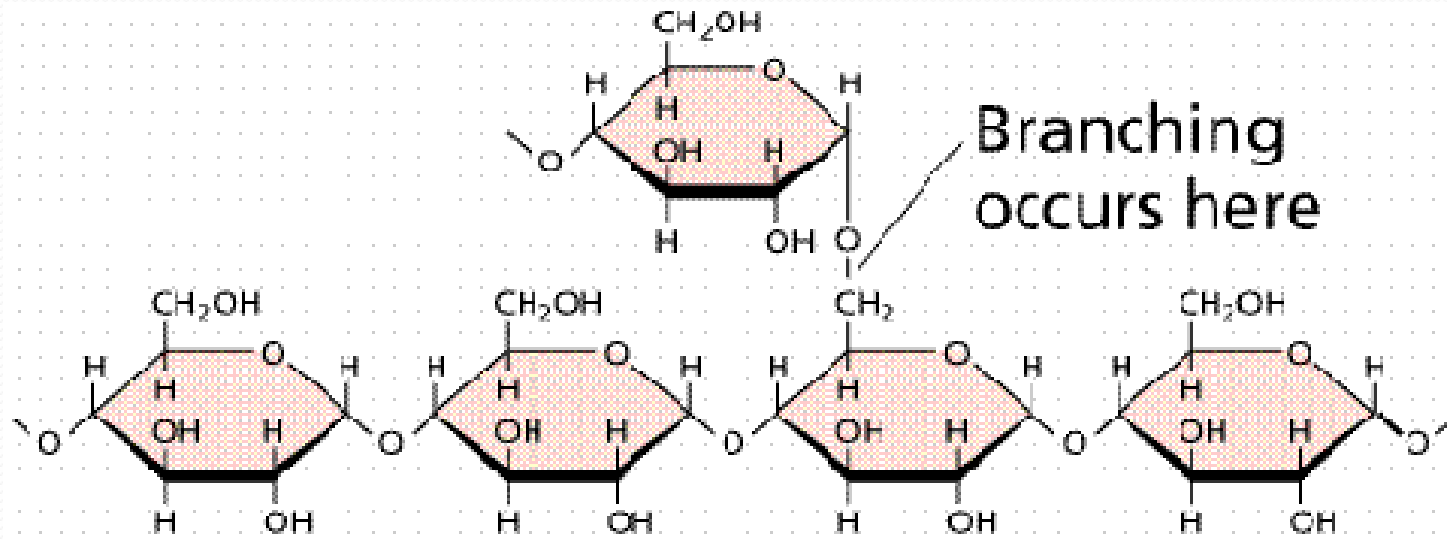
- Structural component in plant cell walls
- Linear sequence of glucose molecules with bonds alternating in direction
- No branching



Cellulose

STARCH

- A storage form of glucose found in plants
- Made up of chains of glucose with all bonds facing the same direction
- A few side branches



GLYCOGEN

- Storage form of glucose in animals
- Made and stored in liver
- Can be broken down (by hydrolysis) in the liver
- Made up of chains of glucose (bonds in same direction)
- Many side branches

