

Carbohydrates



Macromolecules

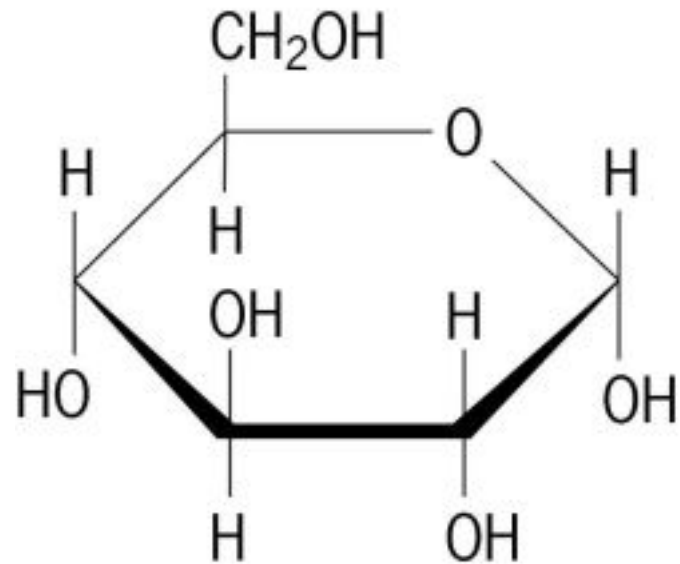
Large molecules (aka biomolecules)

4 major macromolecules found in the body

- Lipids
- Carbohydrates
- Nucleic Acids
- Amino Acids

Macromolecules

Made mostly of carbon (also oxygen, hydrogen)



What are carbohydrates?

AKA sugars

Examples

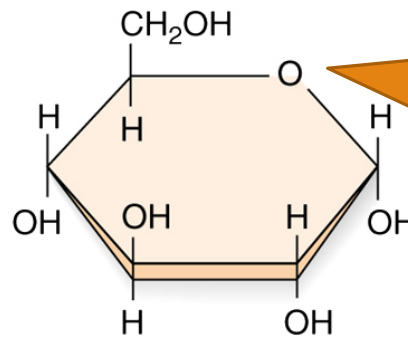


Monosaccharide

Simplest form of carbohydrate

- Mono- = one
- -sacchar = sugar

Example: glucose



-ose
signifies a
sugar
molecule

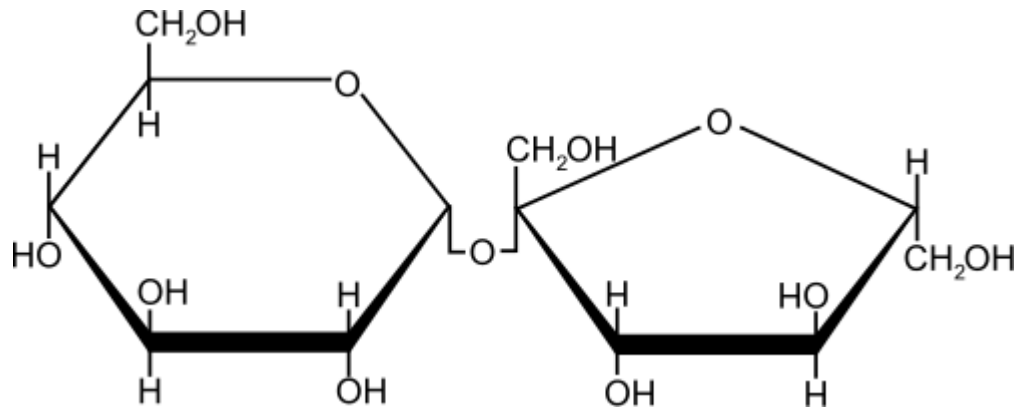
Disaccharide

Link two monosaccharides together

- Di- = two

Example: sucrose (white sugar)

- 2 different monosaccharides linked together

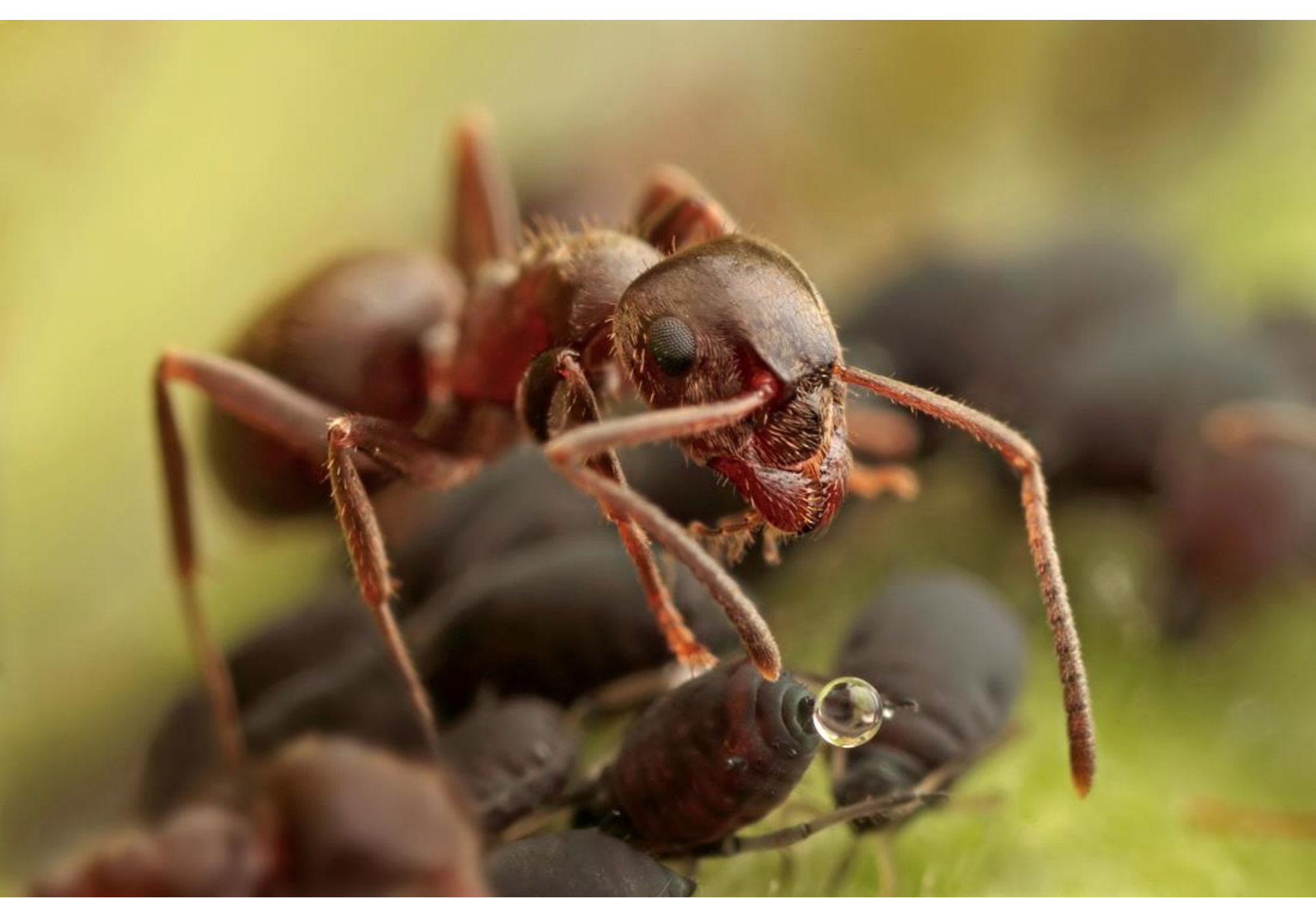


What do they do?

Simple sugars provide quick sources of energy for living things.

- Digested quickly



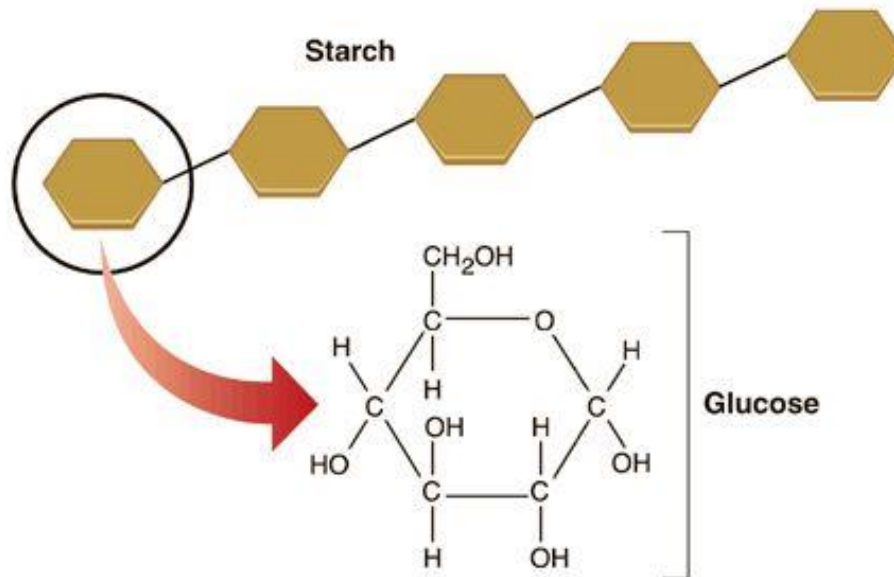


Molecule terms

A single building block is a **monomer**.

- -mer = unit

Multiple monomers together is a **polymer**.



Polysaccharide

Lots of monosaccharides linked together

- Poly- = many



Example: starch

- Many glucose molecules linked together



Types of starch

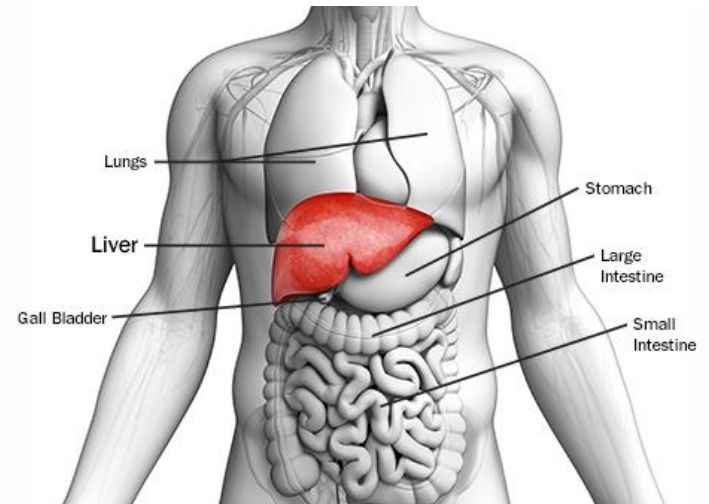
Plant starch = **starch**

- Plentiful in corn, potatoes, beans



Animal starch = **glycogen**

- Kept in your liver



What do they do?

Complex carbohydrates provide a way to store simple sugars for when you need them.

- Waste not!



Chemical energy

Carbohydrates have lots of stored energy.

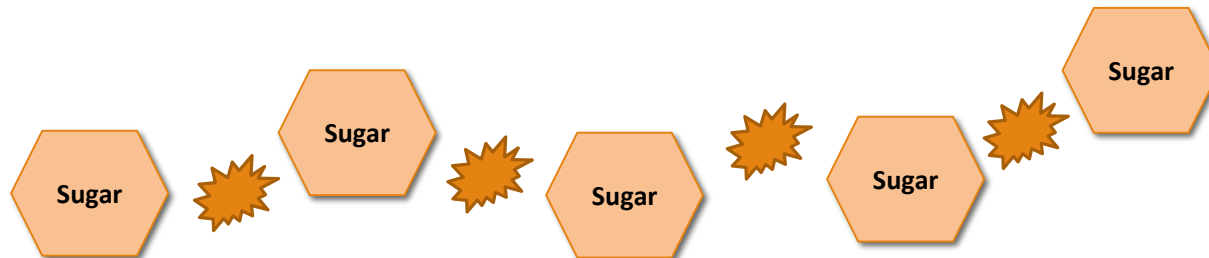
Breaking bonds within macromolecules releases energy.

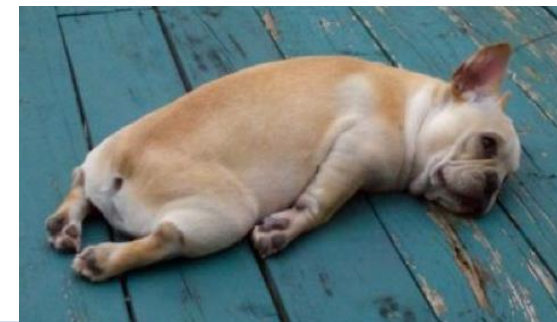
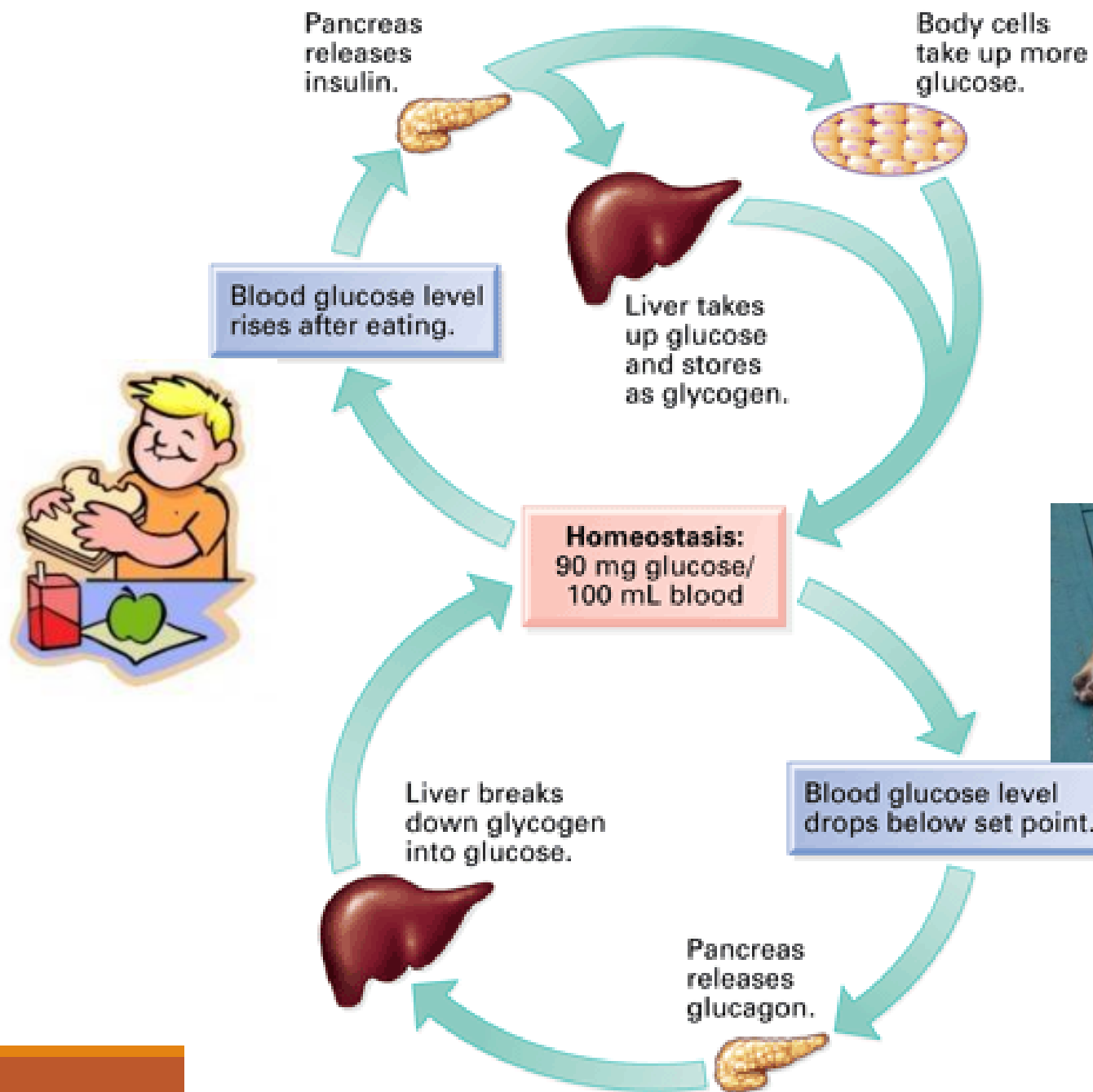


Chemical energy

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Cellulose

Special plant-only carbohydrate that provides structure

- Plants have no bones!

