Carbohydrates

📖 Often you hear about athletes practicing "**carbohydrate loading**".

Eating large quantities of pasta or bread the day before the game or sporting event.

🗣 Carbohydrates…

are known for **immediate** (quickest) source of energy.

- 🗣 **Cellular Respiration**…

  is the **break down** of carbohydrates (**glucose**) in order to make **energy** (**ATP**).

📖 What **elements** make up carbohydrates?

A carbohydrates is a **biomolecule** composed up of **carbon**, **hydrogen**, and **oxygen**.

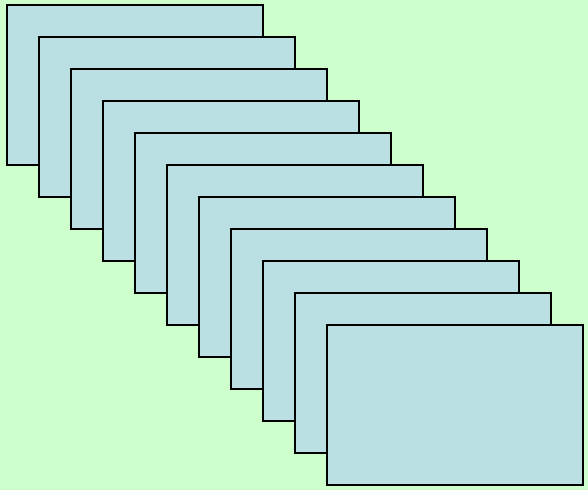
📖 What is the **ratio** of these elements found in a carbohydrate molecule?

C H O

1:2:1

📖 Define ***polymer***

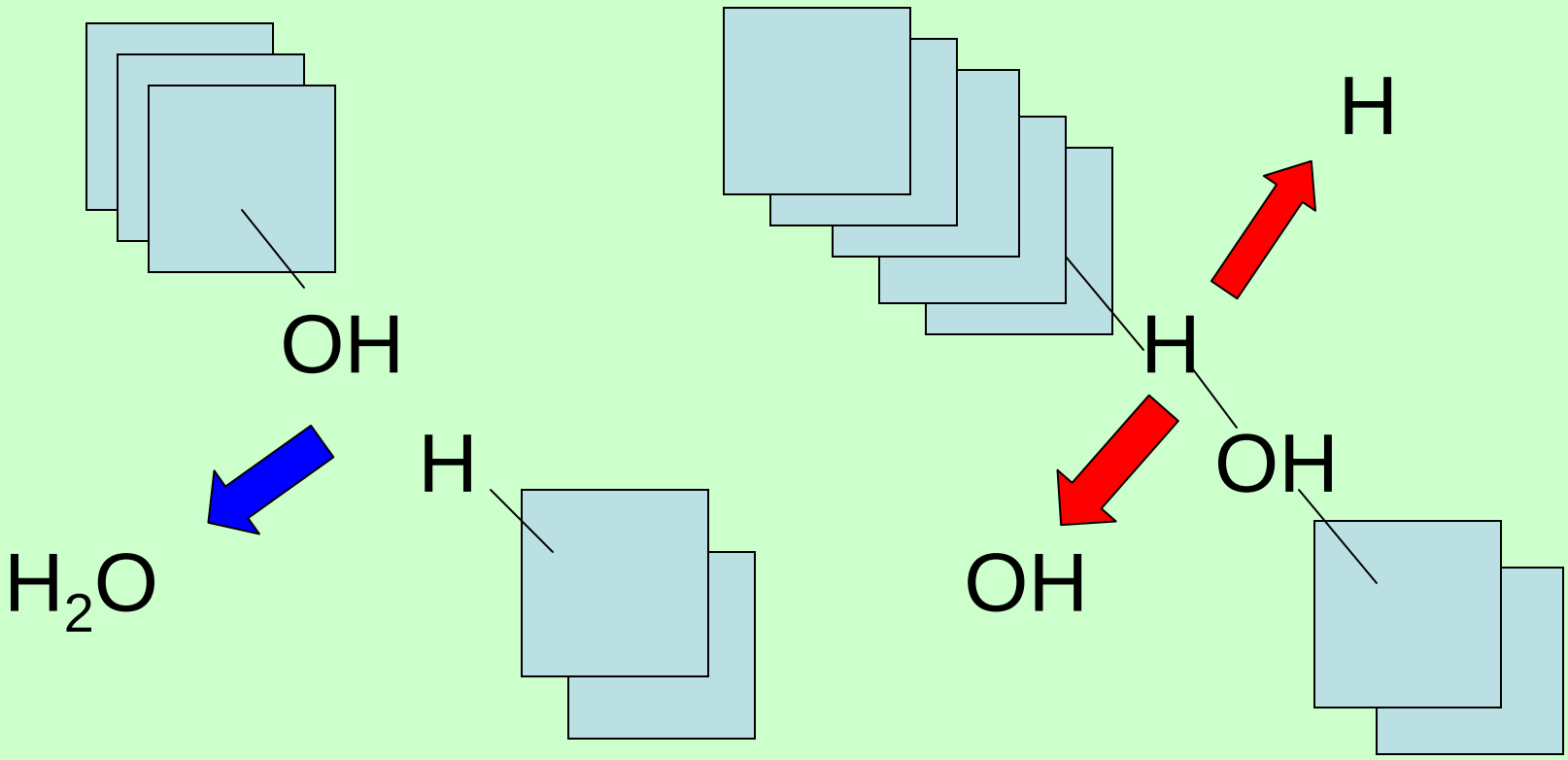
- A **polymer** is a **large** molecule formed from **smaller subunits** bonded together.



📖 In **Figure 6.18** (pg 159), how are polymers **formed** and **broken** in a reaction?

Many polymers are formed by **condensation** and can be broken down by **hydrolysis**.

In other words the reaction that occur when **water** is **added** to or **removed** from a polymer.



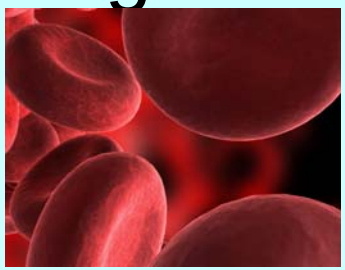
Condensation **Hydrolysis**

📖 Name the **simplest** type of carbohydrate.

- The simplest type of carbohydrate is a simple sugar called a **monosaccharide**.

📖 Name some **examples** of the **simplest** type of carbohydrate.

- Common examples are glucose (blood) and fructose (fruits)



📖 What **type** of carbohydrate is **sucrose**?

- ***Two*** **<u>mono</u>**saccharide molecules can combine to form a **disaccharide**…a two sugar carbohydrate.

📖 What **<u>2</u> monosaccharides** make up sucrose?

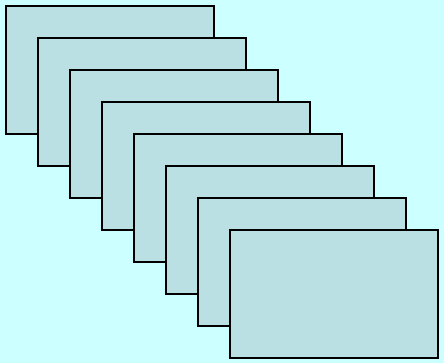
Glucose and Fructose

📖 What is the "**common name**" for sucrose?

Table Sugar

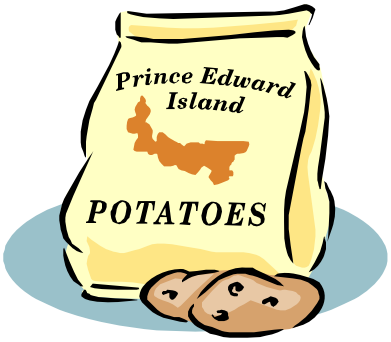
📖 Name the **largest** type of carbohydrates.

The **largest** carbohydrates molecules are **polysaccharides**…polymers composed of ***many*** **<u>mono</u>**saccharide subunits.



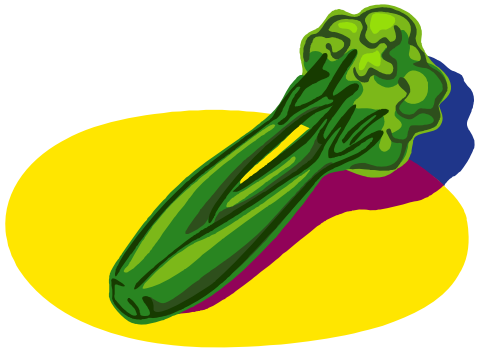
📖 Name some **examples** of the largest type of carbohydrates.

Starch



Glycogen

Cellulose



Polysaccharides	Function
Starch (only in plants)	Store energy for plants
Glycogen (only in animals) liver	Store energy for animals
Cellulose (***only* in plants**) **Cell Wall** Humans cannot digest	Structural Support

📖 What **primary disease(s)** can occur with having an **unbalanced** amount of carbohydrates?

Diabetes (abnormal sugar levels)

- ***Type #1***: (***child***) pancreas cannot produce enough insulin
- ***Type #2***: (***Adult***) Too much insulin

Cholesterol

- **HDL** (***High Density Lipids***) **<u>good</u>** cholesterol that carries fat away
- **LDL** (***Low Density Lipids***) **<u>bad</u>** cholesterol…adds fat deposits to arteries