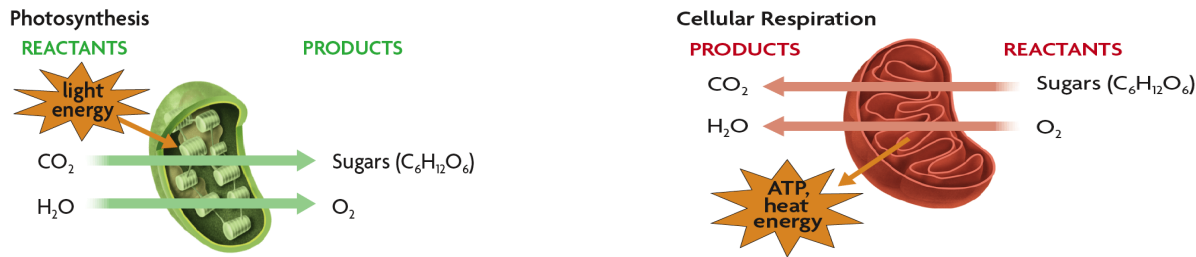
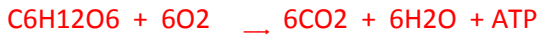


Cellular Respiration Guided Notes Standard 3.2

*The over all process of cellular respiration **breaks** sugar into **pyruvate** using **ATP**.

Chemical energy in **nutrients** (food) is converted to ATP, so ATP can **release** energy for processes like: **active transport**; **protein synthesis**; and muscle contraction.

The equation for respiration is:



Organic molecules such as, **carbohydrates**, lipids/fats and **proteins** are considered nutrients that are broken down as a source of energy for **ATP molecules**.

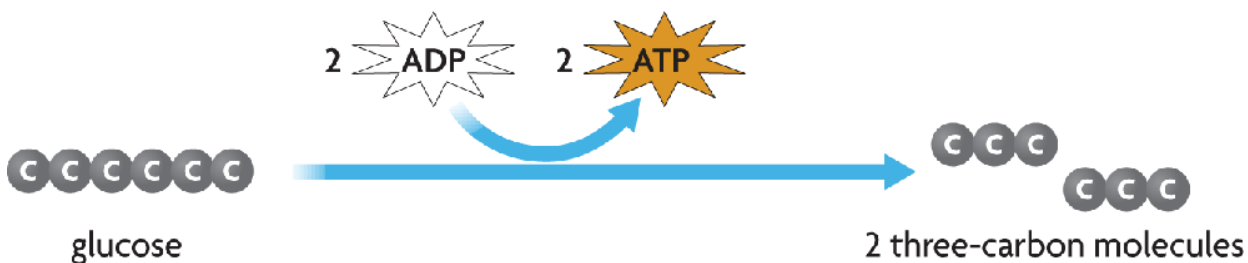


Cellular Respiration **creates** ATP by breaking down **sugars (glucose)**. The glucose has to be broken down **slowly** and in stages.

Glycolysis is the breaking down of glucose.

Glycolysis takes place in the **cytoplasm** of the cell using **oxygen**.

The enzymes **split/break** glucose into 2- 3 carbon molecules called **PYRUVIC ACID** or PYRUVATE. This produces **ONLY 2** ATP molecules. **MOST OF THE ENERGY IS IN THE PYRUVATE.**



If OXYGEN is present, it is called **AEROBIC** respiration.

If NO OXYGEN is present, it is called **ANAEROBIC** respiration.

AEROBIC RESPIRATION

AEROBIC RESPIRATION = **OXYGEN** present

Also called The **KREBS CYCLE** cycle

The KREBS cycle occurs in the **MITOCHONDRIA** of the cell. The KREBS cycle breaks down PYRUVIC ACID made from **glycolysis** making 2 ATP. THE KREBS CYCLE = **PYRUVIC ACID → CO₂ + H₂O + ATP**

Releases: **2 ATP**

Transfers energy carrying **molecules** to **electron transport chain (ETC)**. ETC or **electron transport chain** produces a **large amount** of ATP. This takes place in the inner membrane of the **mitochondria**. **Oxygen** ENTERS the process (hence aerobic respiration). Up to **36** ATP are made!!!! **Water** is a waste product.

The reactants are **glucose** and **oxygen** USED at **different** stages.

The products are **carbon dioxide** and **water** PRODUCED at **different** stages.

34 to 36 ATP are made for every **glucose** molecule.