

# Cellular Respiration

How do organisms get energy from food?

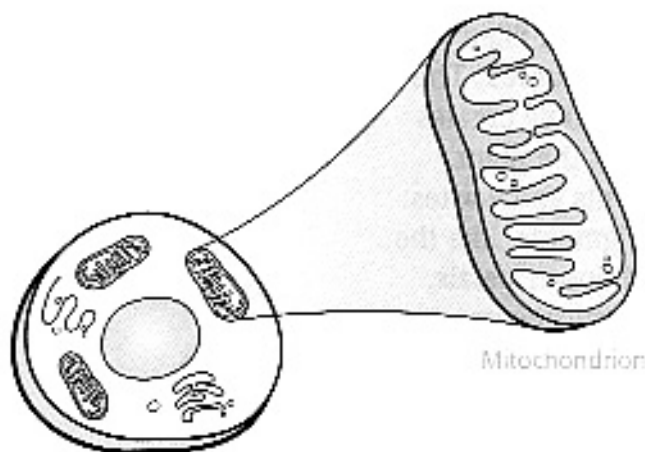
Organisms need energy from food to carry out life activities. But first, the energy must be changed into a usable form.

**Cellular respiration** changes food energy into energy that cells can use. Cellular respiration takes place in the mitochondria that are located in the cell's cytoplasm.

During cellular respiration, sugar is broken down into carbon dioxide and water, and energy is released. This energy is in the form of **ATP** and heat. Cells use ATP to

carry out activities like making proteins, growing, and reproducing. Heat helps to maintain the body's internal temperature.

Cellular respiration requires oxygen. The oxygen you breathe in is the same oxygen your cells use during cellular respiration. The carbon dioxide you breathe out is the same carbon dioxide your cells give off as a waste product during cellular respiration. Water, in the form of water vapor, is also removed from the body as you breathe out.



Sugar + Oxygen  $\longrightarrow$  Carbon dioxide + Water + Energy (ATP, Heat)

Cellular respiration takes place in the mitochondria of both plant and animal cells.

## Show What You Know

Identify two waste products of cellular respiration and explain how they are removed from the body.

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