



Biological Processes



Digestion of Nutrients

Proteins, carbohydrates and fats need to be broken down and digested so the nutrients can be absorbed into the blood stream.

Your pancreas releases digestive juices containing **enzymes**.

Enzymes help speed up the digestion of your food in your digestive system.

They are biological catalysts.



Respiration

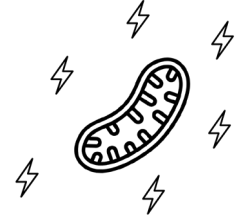
All living things need to do a reaction called respiration in their cells. This releases energy so that the organism can:

- Growth or repair cells
- Move
- Keep warm

Respiration takes place in the mitochondria of cells.

There are two types of respiration:

- Aerobic respiration
- Anaerobic respiration



Aerobic Respiration

This is respiration that requires oxygen. You respire to release energy.



You breathe this in.

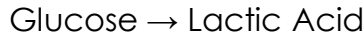
You get from digesting food

You breathe this out

Anaerobic Respiration

This is respiration that does not require oxygen. It is used for a quick burst of energy.

This comes from the glucose stored in your muscles

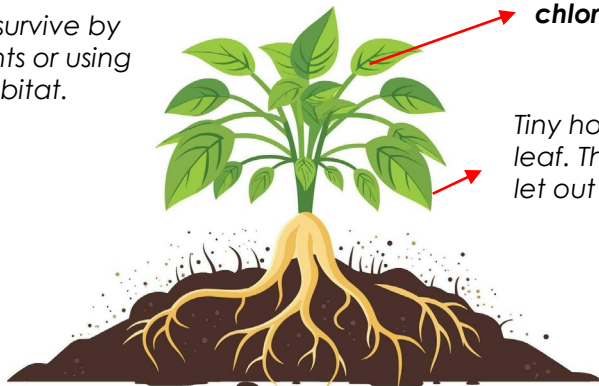
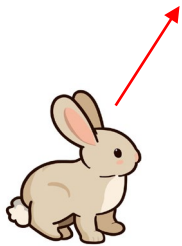


A large build up of this causes muscle cramp, so anaerobic respiration can only be temporary

The Importance of Plants

Without plants there would be no animal life! Plants are known as producers, they produce glucose using sunlight in a reaction called photosynthesis. Photosynthesis takes in CO₂ from the atmosphere and releases O₂.

Lots of animals survive by feeding on plants or using them in their habitat.



Leaves have a pigment called **chlorophyll** which traps sunlight

Tiny holes called **stomata** cover each leaf. This allows them to let in CO₂ and let out O₂.

O₂ is needed for all living things to do respiration

Photosynthesis

This reaction is done in the leaves of plants. There must be light for it to happen.



Absorbed from the atmosphere

Absorbed by the roots from soil

Released to the atmosphere

Used for growth of the plant and respiration



CORE Questions



The following are core questions for this topic. Cover the answer section with a sheet of paper and try and quiz yourself. Only try learning 5 at a time, once you know them move on.

1	Why do food molecules like protein, carbohydrates need to be broken down?	So they can be absorbed into the blood.
2	What is the function of a digestive enzyme?	To help break down large food molecules into smaller molecules
3	What do organisms use the energy for produced in respiration?	Any from: growth, move, or keep warm
4	State the word equation for aerobic respiration.	Glucose + Oxygen -> Carbon Dioxide + Water
5	State the reactants for aerobic respiration.	Glucose + Oxygen
6	State the products for aerobic respiration.	Carbon Dioxide + Water
7	Why does your breathing rate increase when you do more exercise?	To increase the amount of oxygen for aerobic respiration.
8	What is the difference aerobic respiration and anaerobic respiration?	Anaerobic does not require oxygen and produces lactic acid
9	Why is the build up of lactic acid a problem?	It creates muscle cramps
10	Why is anaerobic respiration in yeast used in the manufacture of alcohol?	It produces ethanol
11	State the word equation for photosynthesis	Carbon Dioxide + Water -> Oxygen + Glucose
12	What energy is required for photosynthesis to occur?	Light
13	State the reactants for photosynthesis reaction	Carbon Dioxide + Water
14	State the products for photosynthesis reaction	Oxygen + Glucose
15	Name the green pigment in leaves that traps sunlight	Chlorophyll
16	Why are leaves covered in tiny holes called stomata?	To allow CO ₂ to diffuse in and O ₂ to diffuse out
17	Why are plants important for our atmosphere?	They take in CO ₂ and give out O ₂ . CO ₂ is a greenhouse gas.
18	Why are plants known as producers?	They produce their own food by photosynthesis
19	Why are plants important to ecosystems?	Organisms feed off plants
20	What sugar do plants produce by photosynthesis?	Glucose