The Breathing System

- Involves the heart and the lungs.
- Body needs constant supply of oxygen for cellular respiration.
- Breathing brings oxygen into your body and removes the waste CO_2 produced
- Lungs found in thorax - protected by ribcage.
- Lungs separated from the abdomen by your diaphragm.
- Trachea - windpipe
- Trachea has rings of cartilage to prevent collapsing → two bronchi → bronchioles.

Alveoli in the Lungs

- Bronchioles → alveoli
- Alveoli are very close to the blood capillaries - makes them efficient at exchanging oxygen and carbon dioxide: large, moist surface area.
  - excellent blood supply.

Carbon Dioxide diffuses from your blood into your alveoli.
Oxygen diffuses from your alveoli into your blood.
Your blood swaps carbon dioxide for oxygen to become oxygenated.

Leaves adaptations

- many air spaces in leaf allow CO_2 to come into contact with cells
- broad, thin, flat, lots of internal air spaces - large surface area for efficient photosynthesis.
- thin leaves - short distance for CO_2 to diffuse.

STOMATA - let CO_2 in
- let oxygen out by diffusion. (exchange of substances reversed during respiration)

Photosynthesis leads to loss of water vapour in a process called transpiration.
Transpiration is quicker in hot, dry, windy conditions.

- water vapour from internal leaf cells evaporates through the stomata.
- size of stomata controlled by guard cells.
- upper epidermis contains no chloroplasts and are transparent to allow light to penetrate into the leaf.

If plants lose water faster than it's taken up by the root hair cells, the stomata close to prevent wilting and dehydration

A potometer can be used to show how the uptake of water by the plant changes with different conditions