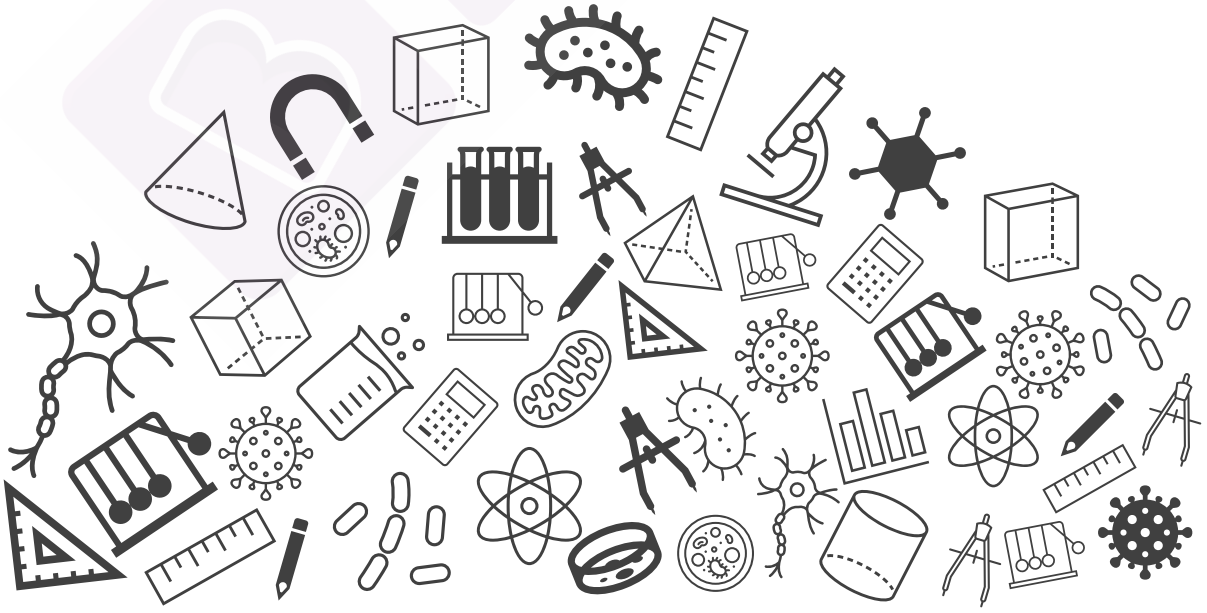
Grade 07
Chapter Notes



BYJU'S Classes

Class Notes

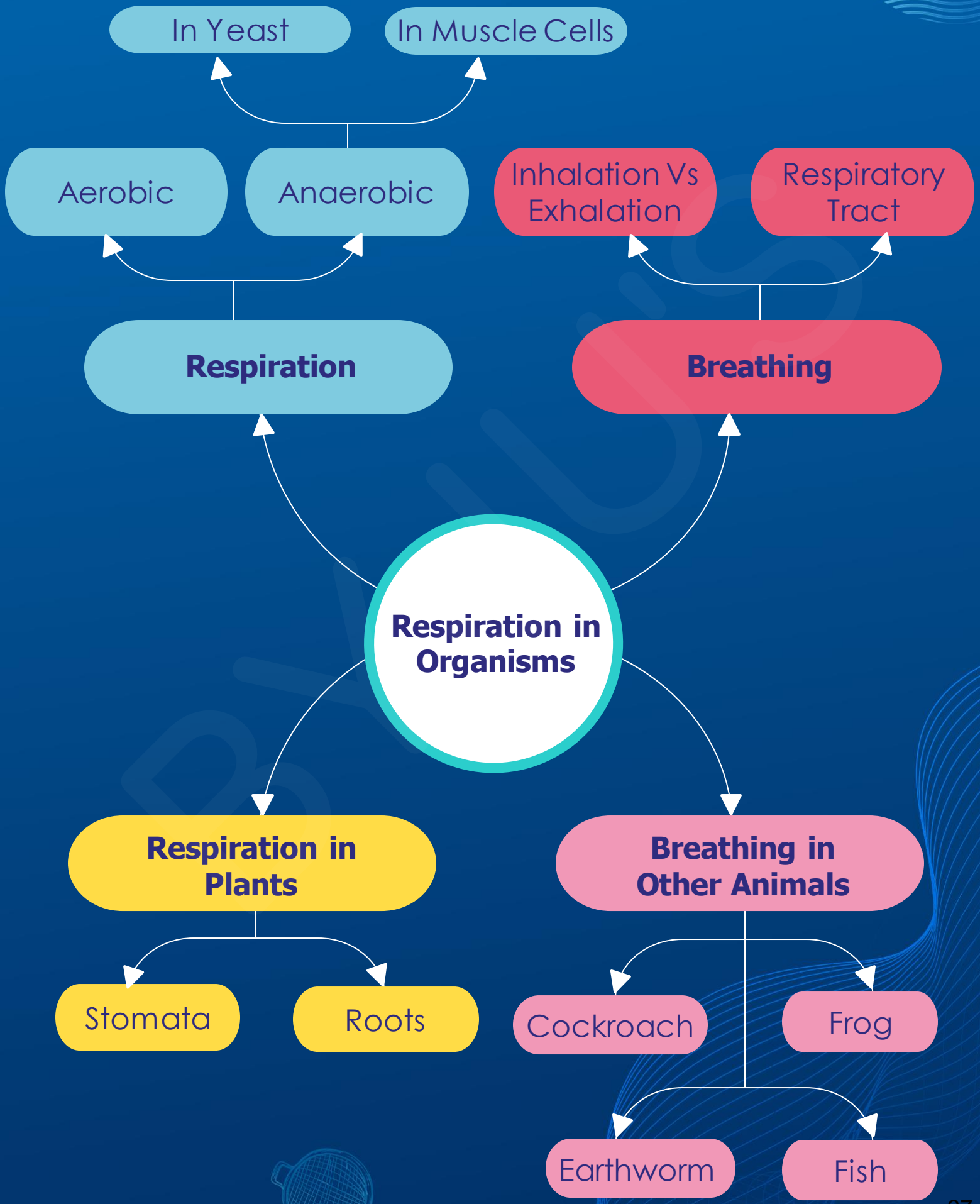
Respiration in Organisms

Grade 7

Topics to be Covered

1. **Respiration**
   - 1.1 Aerobic Respiration
   - 1.2 Anaerobic Respiration
2. **Breathing**
   - 2.2 Respiratory Tract
   - 2.3 Inhalation vs Exhalation
3. **Breathing in Other Animals**
   - 3.1 Cockroach
   - 3.2 Earthworm
   - 3.3 Fish
   - 3.4 Frog
4. **Respiration in Plants**

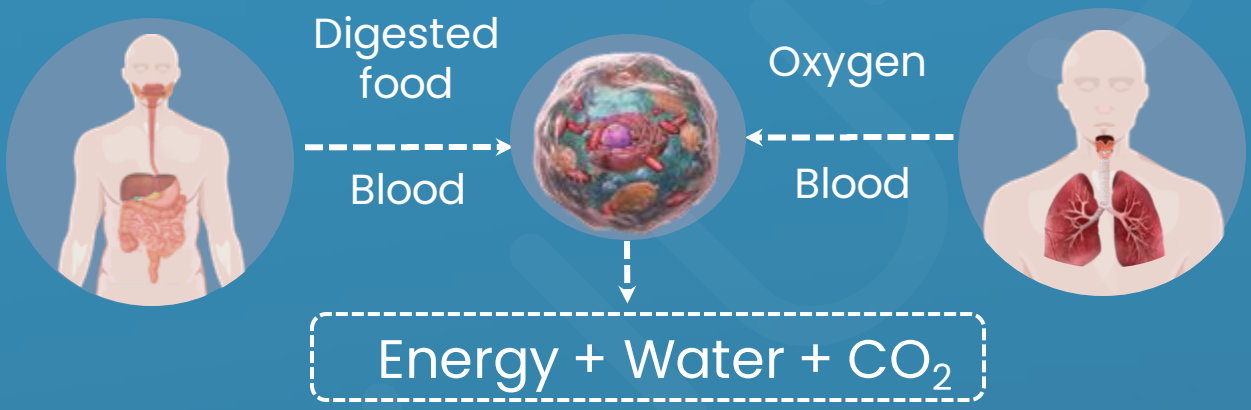
Mind Map


In Yeast
In Muscle Cells
Aerobic
Anaerobic
Inhalation Vs Exhalation
Respiratory Tract
Respiration
Breathing
Respiration in Organisms
Respiration in Plants
Breathing in Other Animals
Stomata
Roots
Cockroach
Frog
Earthworm
Fish

1. Respiration

- The cells require energy to perform various functions, and it is provided by the process known as respiration.
- The food we consume has stored energy, which is released during respiration.
- This process of breakdown of food in the cell with the release of energy is known as cellular respiration.

Cellular Respiration



1.1 Aerobic Respiration

In aerobic respiration, food is broken down in the presence of oxygen.

Glucose + O_2 → Energy + H_2O + CO_2

1.2 Anaerobic Respiration

Anaerobic respiration occurs in the absence of oxygen.

a) In anaerobes like Yeast, food is broken down into alcohol and carbon dioxide.

Glucose → Energy + Alcohol + CO_2

b) In our muscle cells, during heavy exercise, anaerobic respiration yields Lactic acid and energy.

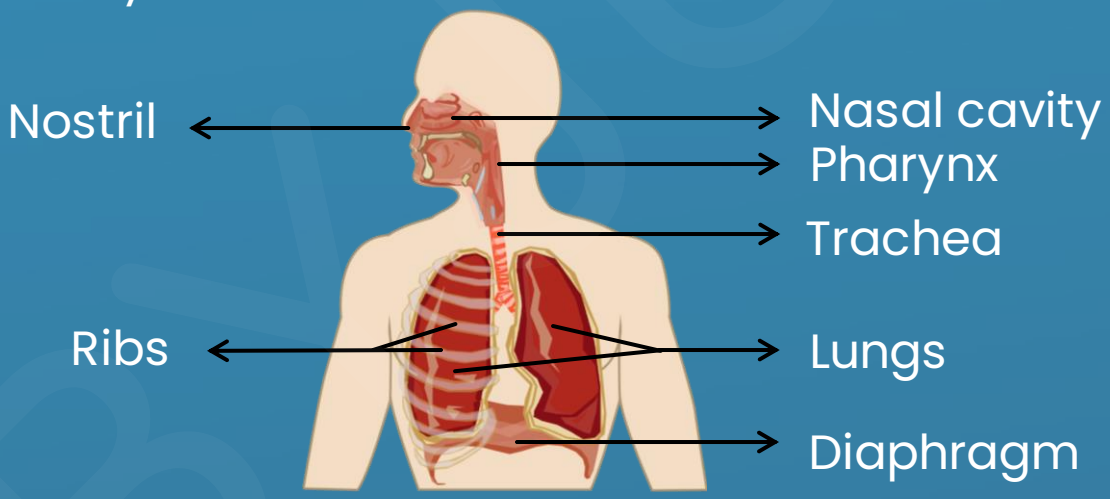
Glucose → Energy + Lactic Acid

2. Breathing

Breathing involves taking in oxygen-rich air (inhalation) and giving out carbon dioxide-rich air (exhalation) with the help of respiratory organs.

2.1 Respiratory Tract

- Path taken by air in the respiratory tract:
  Nostrils → Nasal Cavity → Pharynx → Trachea → Lungs
- Lungs are present in the chest cavity, which is surrounded by ribs. The diaphragm forms the floor of the cavity.

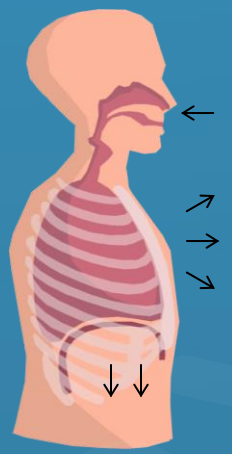


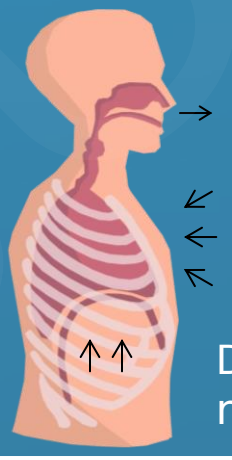
Fun Fact

- **The number of times a person breathes in a minute is termed as breathing rate.**
- **It is normally 15-18 times a minute and increases to 25 times during heavy exercise.**

2.2 Inhalation vs Exhalation

Inhalation	Exhalation
The ribs move up and outwards	The ribs move down and inwards
Diaphragm moves down	Diaphragm moves up
Space in the chest cavity increases and air rushes into the lungs.	Space in the chest cavity decreases and air is pushed out of the lungs.





Lime water experiment

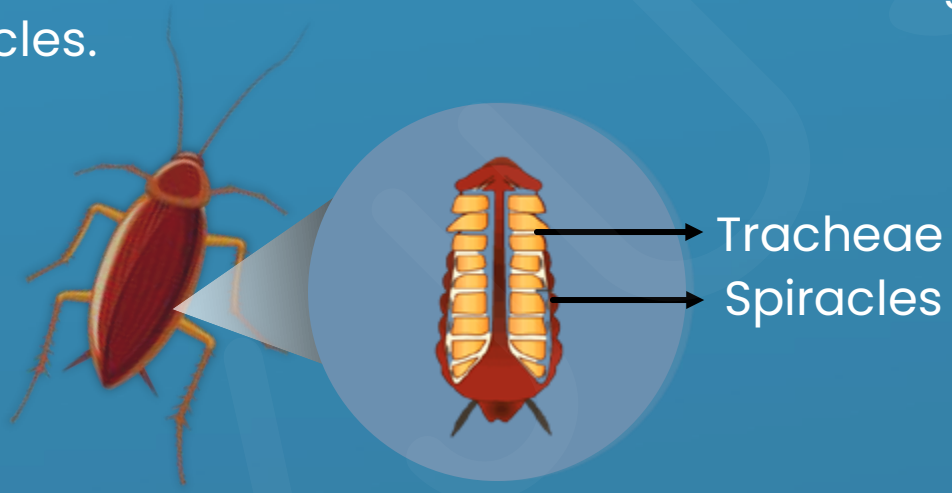
Activity

- **When a person breathes through a straw placed in a container with freshly prepared lime water, the lime water turns milky.**
- **The cause of this is the CO_2 present in the exhaled air.**

3. Breathing in Other Animals

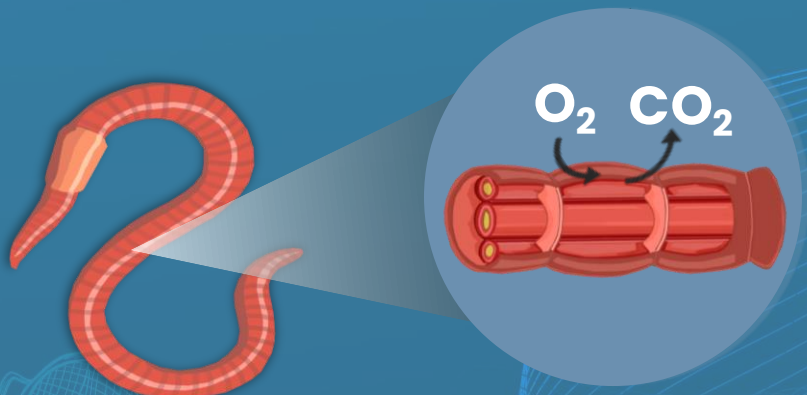
3.1 Cockroach

- Cockroaches have small openings on the sides of their bodies called spiracles. They also possess a network of tubes called the trachea.
- Oxygen enters through the spiracles into the tracheal tubes and diffuses into the body tissues. Similarly, carbon dioxide from the cells move out through the spiracles.

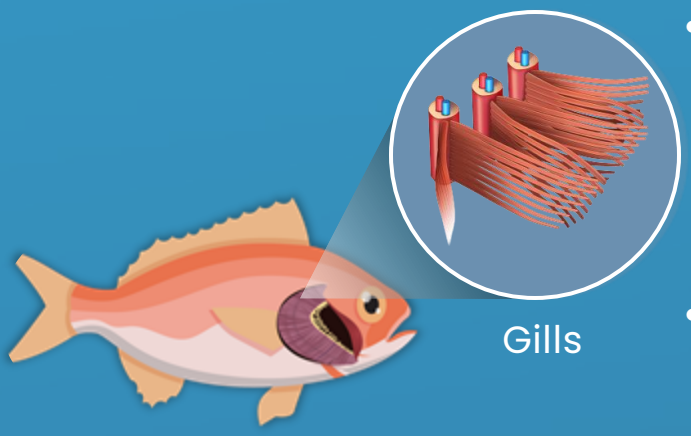


3.2 Earthworm

- Earthworms breathe through their moist skin.
- The moist skin of earthworms helps the gases easily pass through them.

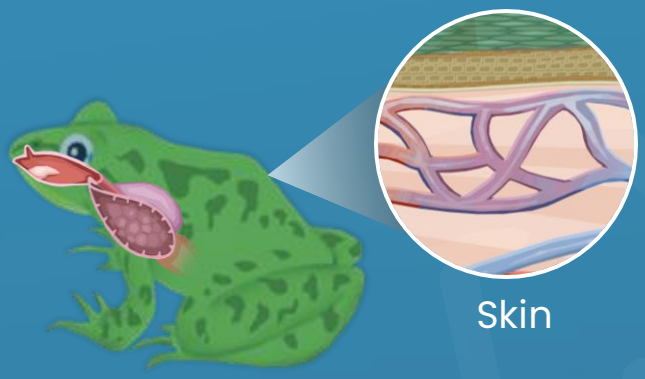


3.3 Fish



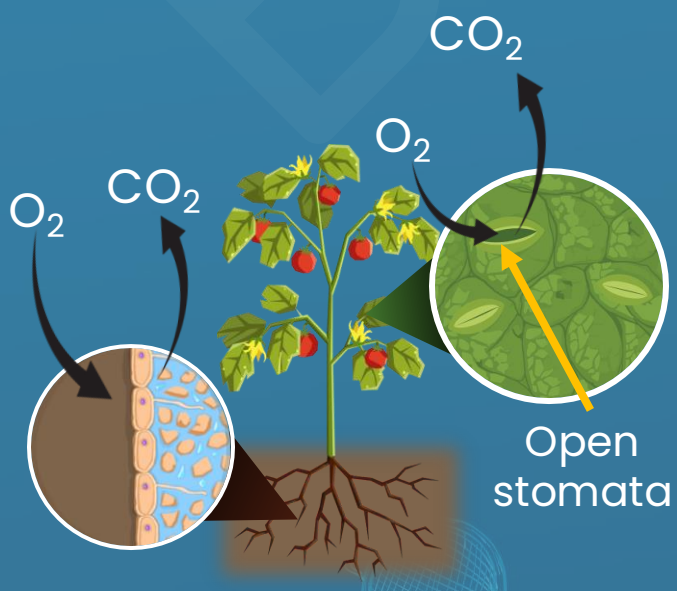
- Gills in fish help them to use oxygen dissolved in the water. Gills are projections of the skin.
- They are supplied with blood vessels for exchange of gases.

3.4 Frog



- Frogs have a pair of lungs like human beings.
- They can also breathe through their moist skin underwater.

4. Respiration in Plants



- Plants also take in oxygen from the air to break down glucose to CO_2 and H_2O.
- In leaves, tiny pores called stomata allow this exchange of gases.
- In roots, the air is taken up from air spaces present between the soil particles.