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STUDY MATERIAL SCIENCE
CLASS-VII

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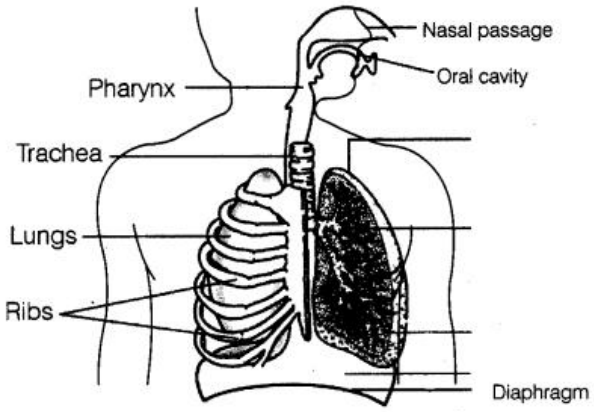
Respiration in organisms

Mechanism of Breathing

The mechanism of breathing can be understood by the following points:

- Normally, we take in air through our nostrils. When we inhale air, it passes through our nostrils into the nasal cavity.
- From the nasal cavity, the air reaches our lungs through the windpipe.
- Lungs are present in the chest cavity. This cavity is surrounded by ribs on the sides.
- A large, muscular sheet called diaphragm forms the floor of the chest cavity.

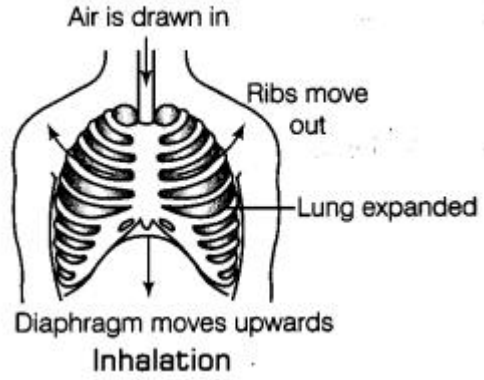


Human respiratory system

The mechanism of breathing involves the movement of the diaphragm and ribcage. The complete process of breathing can be discussed as follows:

Breathing In or Inhalation

When we breath air in (or inhale) two processes occur together, i.e. the muscles between the ribs contract causing the ribcage to move upward and outward, while the diaphragm contracts and moves downwards. This upward and downward movement of ribcage and diaphragm respectively increases the space in the chest cavity and makes it larger. As the chest cavity becomes larger, it sucks air from outside the lungs and lungs get filled up with air and expand.



Breathing Out or Exhalation

When we breath air out or exhale the reverse process takes place, i.e. the muscles of the ribs release causing the ribcage to move downward and inward, while diaphragm releases and moves upward. This downward movement of the rib cage and upward movement of diaphragm decreases the space in our chest cavity and makes it smaller. When the chest cavity becomes smaller, the air is pushed out of the lungs.