

KEY POINTS

- For effective diffusion the respiratory surface must be permeable, thin, possess a large surface area with good blood supply and good ventilation mechanism to maintain a steep diffusion gradient across the respiratory surface.
- Respiratory system consists of nose and nasal cavities, pharynx, larynx, trachea, bronchi, bronchioles, and alveoli in the lungs.
- Lung volumes and lung capacities refer to the volume of air associated with different phases of the respiratory cycle.
- Normally breathing is an involuntary process and is not controlled consciously. However, some voluntary control is also possible. During voluntary control impulses originate from the cerebral hemispheres and pass to the breathing centre.
- Breathing consists of two phases namely breathing in or inspiration and breathing out or expiration.
- The blood transports oxygen from the lungs to different tissues and carbon dioxides from tissues to the lungs. Approximately 97% of oxygen is carried by the red blood cells as oxyhaemoglobin, while 3% is transported as dissolved oxygen in the plasma.
- Carbon dioxide is transported in the blood in three main ways i.e. in the form of bicarbonate ions, in the form of carboxyhaemoglobin and dissolved in plasma.
- Approximately 70% of carbon dioxide is carried in the blood as bicarbonate ions.
- About 23% of carbon dioxide is carried as carboxyhaemoglobin
- Only 7% of carbon dioxide by the plasma.
- In humans, haemoglobin that increases the oxygen-carrying capacity of the blood and myoglobin that stores oxygen in muscles are referred as respiratory pigments.
- Sinusitis is an inflammation of the nasal sinuses and it is usually caused by infection (bacterial or viral), but can also be caused by allergic reactions dust, pollen etc..
- Otitis media is an inflammation of the middle ear.
- Pneumonia is a serious disorder of lower respiratory tract which is characterized by inflammation of alveolar wall and the presence of fluid and pus in alveolar sacs of one or both lungs.
- Tuberculosis beings when the mycobacteria reach the alveoli, where they invade and replicate within the phagosomes of alveolar macrophages, but they are unable to digest the bacterium.
- Emphysema is a lung disease in which the alveoli are damaged. It is generally caused by cigarette smoking or long-term exposure to certain industrial pollutatns or dust.
- Lung cancer grows and spreads in different ways and its treatment depends on the stage, or how advanced it is. Treatment may include chemotherapy, radiation and

