Respiratory system

System in air-breathing animals concerned with gas exchange. The respiratory tract begins with the nose and mouth, through which air enters the body. Air then passes through the larynx and into the trachea. At its lower end, the trachea branches into two bronchi, each bronchus leads to a lung. The bronchi divide into many bronchioles, which lead in turn to bunches of tiny air sacs (alveoli), where the exchange of gases between air and blood takes place. Exhaled air leaves along the same pathway.

The respiratory system is composed of the following:

- The lungs
- Upper respiratory vessels that allow entry of atmospheric air into the respiratory system – nose (and mouth), larynx (and pharynx) and trachea (the windpipe)
- Lower respiratory airways that allow passage of atmospheric air into the lungs themselves – main bronchi and bronchioles (as conducting airways)
- Final respiratory airways that allow gaseous exchange to occur – respiratory bronchioles, alveolar sacs and alveoli

Unlike the cardiovascular system, which is sealed and enclosed, the respiratory system is open to the atmosphere to allow the intake of air during breathing.

During inspiration (breathing in), atmospheric air containing about 21% oxygen is drawn into and through the system via the nose or mouth, and down into the microscopic structure of the lungs to the alveoli.

It is here that some of the oxygen is exchanged with an accumulation of carbon dioxide gas, the waste product of the body cells’ metabolic activities. The exchanged oxygen is taken away from the lungs in the circulatory system, to be used by the body during cellular activity, while the carbon dioxide is removed from the body during expiration (breathing out).

This gaseous exchange mechanism is the main function of the respiratory system.