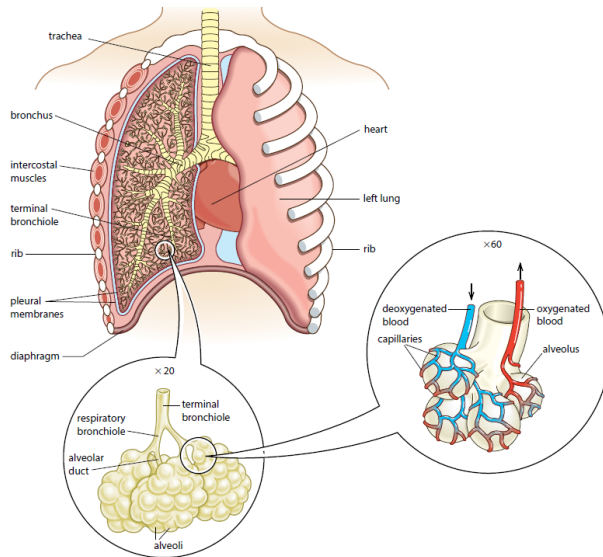


## UNIT 9 - GASEOUS EXCHANGE

Gas exchange surface - any part of an organism that allows the movement of gases between the surroundings and the body; gas exchange occurs across the body surface of some organisms that have a large surface area to volume ratio. Organisms with small ratios have specialized gas exchange surfaces e.g. lungs or gills.



- L The lungs are in the chest cavity and surrounded by a pleural membrane
- L The alveoli are small air sacs in the lungs that have walls made of only a single layer of squamous epithelial cells.

### Adaptations of the alveoli

- L They have a very large surface area to volume ratio because of their bunched-up arrangement
- L They have a good supply of blood which maintains a steep concentration gradient for gaseous exchange to occur via diffusion

### The Distribution of Cartilage

The trachea has regular C-shaped rings of cartilage supporting it  
 The bronchi have irregular blocks of cartilage to support them  
 The bronchioles have no cartilage

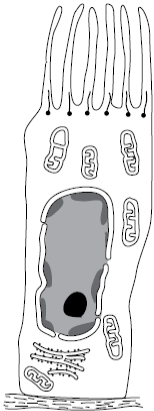
**Cartilage - skeletal tissue for support of the airways**

### The Distribution of Ciliated Epithelium and Goblet Cells

- L The trachea and bronchi both contain ciliated epithelium AND goblet cells
- L The bronchioles only contain cilia
- L The terminal bronchioles and alveoli contain neither ciliated epithelium nor goblet cells

### Ciliated Cell

- L Has cilia and many mitochondria to allow for locomotion
- L The cilia sweep mucus up the trachea and into the alimentary canal to prevent irritants and pathogens from entering the more fragile parts of the lungs
- L The mucus containing the pathogens is dissolved in the stomach acid



### Goblet Cell

- L The fluid contained in the goblet-shaped part of the cell is mucus
- L Goblet cells have lots of RER, SER, mitochondria, and ribosomes to manufacture and secrete mucus quickly (mucus is a glycoprotein which is why the SER and ribosomes are so important)

