

The lungs are the primary organs of the respiratory system. They consist of cells of air (alveoli), and a system of tubes (bronchi, bronchioles, and alveolar ducts; see page 132) that brings air to the alveoli during inspiration and draws air out from the alveoli during expiration. Being largely air, the lungs are light and spongy. The lungs occupy the lateral two-thirds of the thoracic cavity; the median third is taken up by the mediastinum (page 103). The root of each lung, the *hilum*, is where the bronchi exit the lung, the pulmonary arteries enter the lung, and the pulmonary veins leave. The lowest surface of each lung is adjacent to the thoracic diaphragm, the principal muscle of respiration (page 48). The posterior, lateral, and anterior surface of each lung is bordered by the vertebral column (page 25), the ribs (page 28), and the intercostal muscles (page 48). The right lung is arranged into three **lobes** separated by the horizontal fissure above and the oblique fissure below; the two lobes of the left lung are divided by an oblique fissure.

Each lung is completely separated from the other by the mediastinum. Each lung is enveloped in **visceral pleura**, a thin serous layer of mesothelium (simple squamous epithelium) with a dash of light fibrous tissue. The visceral pleura turns away from each lung at its roots (reflects) to become the **parietal pleura** lining the interior surface of the chest wall, the lateral mediastinum, and much of the diaphragm. The layers of parietal pleura are identified by the organs or structures adjacent to them (i.e., mediastinal, costal, diaphragmatic, and cervical). The parietal pleura rises through the superior thoracic aperture and caps off the lung in what is known as the *pleural dome*.

Where they are in contact, a thin layer of fluid (watery, glycoprotein) intervenes. This pleural cavity is a potential cavity only; with certain diseases, when extracellular fluid seeps in between the two pleurae, the space can expand, at the expense of the lung, to accommodate increasing amounts of fluid (*pleural effusion*), resulting in a reduction of total lung capacity. The normally thin layer of serous fluid between adjacent layers of pleura maintains a degree of surface tension between them, resisting separation of visceral and parietal layers.

It is important that the parietal pleura remains intact. The interpleural environment is subatmospheric, and a disruption of the parietal pleura would permit the elastic lung to collapse against its root (*pneumothorax*).

During quiet expiration, the inferior and anterior margins of the visceral pleura-lined lungs do not reach the parietal pleura, leaving a narrow space or recess between the two. This is the *costomediastinal recess* between the rib cage and the mediastinum (not shown), and the *costodiaphragmatic recess* between the rib cage and **diaphragm** (see coronal section, left side).