Each lung is surrounded by two layers of ___________ membrane known as the ___________.

The relationship between the PLEURAE and the ___________ can be demonstrated by pushing a fist into a water-filled balloon. The ___________ represents the pleurae, and the ___________ represents the lung.

The inner part of the balloon which wraps around the fist represents the ___________. The outer part of the balloon represents the ___________ which lines the mediastinum, the diaphragm, and the thoracic wall.

Notice that the visceral and parietal pleurae are actually a continuation of the same membrane. The ___________ space between the visceral and parietal pleurae, separating them by a thin layer of pleural fluid. The pleural fluid ____________________

<table>
<thead>
<tr>
<th>Anatomy</th>
<th>Physiology</th>
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<tbody>
<tr>
<td>Nose</td>
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<tr>
<td>Pharynx</td>
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<tr>
<td>Larynx</td>
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<td>Trachea</td>
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<td>bronchus</td>
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</table>
The lungs contain many branching airways which collectively are known as the _______________ _______________.

Air enters the lungs through the ________________, which branch into ________________, which in turn branch into ________________.

The trachea and all the bronchi have supporting cartilage which keeps the airways open.

Air flows deeper into the lungs as the tertiary bronchi branch repeatedly into smaller ________________ → ________________ → ________________ → ________________ → ________________.

The airways from the nasal cavity through the terminal bronchioles are called the _______________ ZONE. The air is ________________, ________________, and ________________ as it flows through these passageways.
• Beyond the terminal bronchioles, the air enters the ________________ ______________, the region of the lung where ________________ ______________ occurs.

1. The pulmonary arteries carry ________________ blood from ________________
2. These vessels form a dense network of capillaries that completely surround each __________.
3. This blood supply allows for efficient _______ and ____________ between the air in the alveol and the blood in the ________________ ______________
4. Blood leaves the capillaries via the ________________ ________________, which transports the ________________ blood out of the ________________ back to the ________________

Structure of an Alveolus

a. Alveolar macrophage: __________ and ________________

b. Simple epithelium
c. Surfactant-secreting cells: lowers the surface tension of fluid to prevents alveolar to collapse. Without it, a lot of energy would be needed to reinflate alveoli between breaths
d. capillary

* Gases: ________________ and ________________ diffuse between the alveoli and pulmonary capillaries across ________________
The wall of an ______________ and the wall of a ______________ form the respiratory membrane, where ______________ occurs.

- It is made up of two layers of _______________ and their basement membranes. This membrane is extremely __________, averaging 0.5 micrometers in width.
- Notice also that in many regions of the membrane there is no ______________. This is because pulmonary blood pressure is so low that little fluid filters out of the capillaries into the interstitial space. Oxygen and carbon dioxide can diffuse easily across this thin respiratory membrane.