

# RESPIRATORY SYSTEM

1. The entire process of gas exchange between the atmosphere and body cells is called \_\_\_\_\_.
2. The epiglottis lies at the top of the \_\_\_\_\_ and prevents food from entering the respiratory passages during swallowing. Air moves from the larynx into the \_\_\_\_\_, which is reinforced or stiffened by rings of cartilage. The trachea divides into 2 main \_\_\_\_\_ that enter the lungs.
3. Respiratory bronchioles divide into alveolar \_\_\_\_\_ which end in tiny air sacs called \_\_\_\_\_.
4. Alveoli are surrounded by \_\_\_\_\_ and are the sites of \_\_\_\_\_.
5. The air passageways are lined with \_\_\_\_\_ to sweep foreign particles up and away from the lungs.

## Topic: Respiratory Organs

6. The alveolar epithelium consists primarily of \_\_\_\_\_.
7. Type I squamous alveolar cells allow for rapid \_\_\_\_\_. Type II alveolar cells secrete \_\_\_\_\_, a chemical that reduces surface tension.

## Topic: Mechanics of Ventilation

8. The mechanics of breathing involve changing the volume and \_\_\_\_\_ of the thoracic cavity.
9. The intercostal muscles contract and elevate the \_\_\_\_\_. The diaphragm contracts (and drops downward), which expands the thoracic cavity. These events \_\_\_\_\_ its internal pressure.
10. Boyle's Law says that when the volume of a space expands (gets larger) the pressure \_\_\_\_\_.
11. During inspiration:
  - Rib cage moves \_\_\_\_\_ and \_\_\_\_\_
  - Diaphragm contracts and moves \_\_\_\_\_
  - Pressure in the lungs \_\_\_\_\_
  - Air comes rushing \_\_\_\_\_
12. During expiration:
  - Ribs and diaphragm \_\_\_\_\_
  - Which \_\_\_\_\_ the volume of the chest cavity
  - This \_\_\_\_\_ the pressure inside the lungs
  - And forces the air \_\_\_\_\_

## Topic: Gas Exchange

13. During gas exchange in the lungs, \_\_\_\_\_ diffuses from the alveoli to the capillaries, while \_\_\_\_\_ moves in the opposite direction.

**Topic: Gas Transport**

14. Each hemoglobin molecule contains \_\_\_\_\_ iron-containing heme groups. Each heme unit binds to \_\_\_\_\_ oxygen molecule.
15. Oxygen is carried in the blood bound to \_\_\_\_\_ in the red blood cells. Carbon dioxide dissolves in the \_\_\_\_\_, where most of it forms \_\_\_\_\_ (H<sub>2</sub>CO<sub>3</sub>), which dissociates to form \_\_\_\_\_ (HCO<sub>3</sub><sup>-</sup>) and hydrogen ions (H<sup>+</sup>).