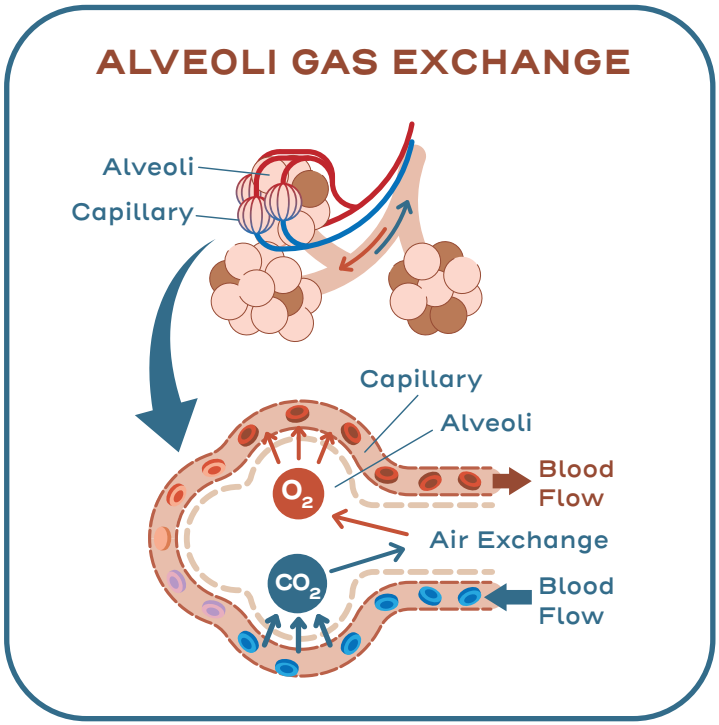
The Respiratory System

Keep going! Read the text below. Then, answer the questions that follow.

Air then travels through your **nasal cavity**, **pharynx** (or *throat*), **larynx** (or *voice box*), and **trachea** (or *windpipe*) before it enters your **lungs**. Inside your lungs, the air continues to travel through branch-like structures called **bronchi** before it reaches the **alveoli**. Alveoli look like small sacs, and they are covered in small blood vessels called **capillaries**. Gas exchange takes place at the alveoli. Carbon dioxide moves from the blood to the alveoli, while oxygen from the air moves from the alveoli to the blood. When you exhale, your diaphragm and external intercostals relax, and the carbon dioxide is pushed out of your lungs and into the atmosphere through your nose.

The respiratory system works together with other organ systems in your body to keep you alive. For example, once oxygen passes from the alveoli into the capillaries, it is the job of the **cardiovascular system** to circulate the oxygenated blood throughout your body and to deliver carbon dioxide waste to the lungs for disposal.



Additionally, the respiratory system works together with the **nervous system** to achieve quiet breathing. The brain triggers the muscles involved in breathing to relax and contract without conscious thought. In other words, you don't have to think about breathing—your body makes it happen automatically!

Show what you know! Use the reading to answer the questions below.

1. Write these terms in order from smallest to largest: **organ system**, **cell**, **organ**, and **tissue**.

   cell, tissue, organ, organ system

2. Why is the diaphragm considered an **organ**, instead of a cell, tissue, or organ system?

   (Sample answer) Organs contain two or more tissue types that work together to perform complex functions. The diaphragm is made of muscle and connective tissue. The muscle tissue is made of muscular cells that work together to allow the diaphragm to move, while the connective tissue is made of tendon cells that function to hold the diaphragm together.

The Respiratory System

Keep going! Answer the questions below.

3. How does the diaphragm help the alveoli do their job during respiration?

(Sample answer) When the diaphragm contracts, it makes more space in the chest cavity. This causes air to flow in through your nose and travel to the alveoli, where oxygen and carbon dioxide are exchanged. When the diaphragm relaxes, it expels air so the process can repeat.

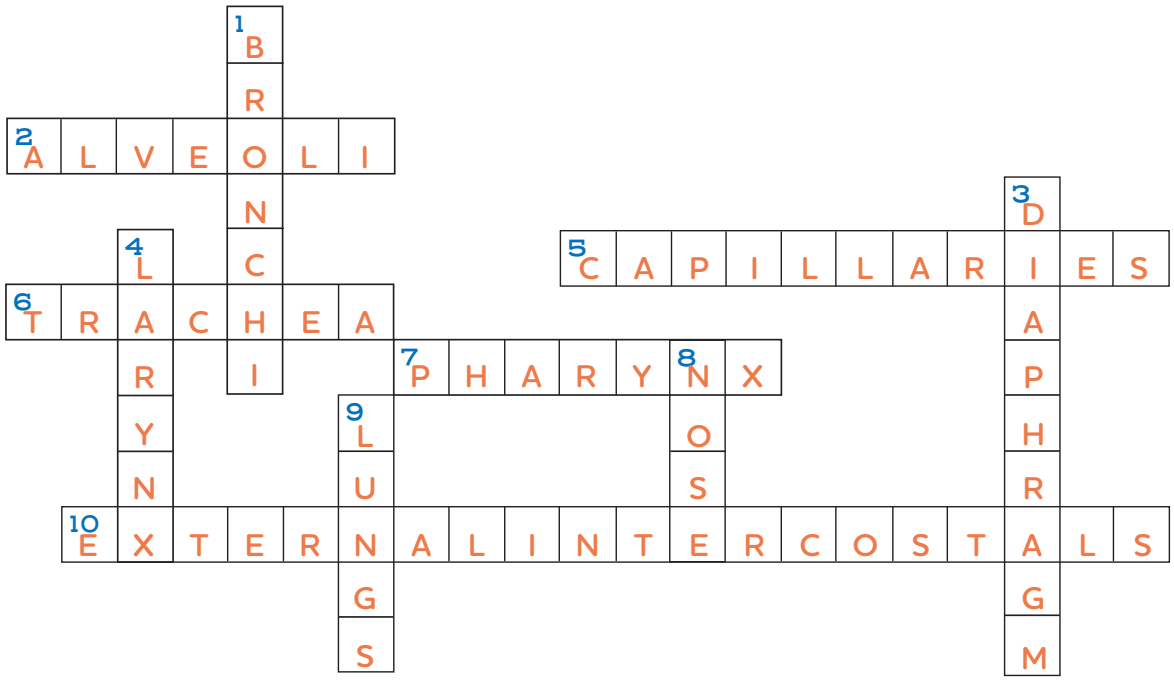
4. Describe one way the respiratory and cardiovascular systems work together.

(Sample answer) The respiratory system delivers oxygen to and removes carbon dioxide from the blood. The cardiovascular system delivers oxygen throughout the body and sends carbon dioxide to the lungs, where it can be disposed of.

5. Describe one way the respiratory and nervous systems work together.

(Sample answer) The nervous system sends signals from the brain to the skeletal muscles involved in breathing, telling them to relax and contract.

6. Use the vocabulary terms from the passage to complete the crossword puzzle.



Across

2. small sacs; site of gas exchange
5. small blood vessels
6. windpipe
7. throat
10. muscles around the rib cage

Down

1. branch-like structures in the lungs
3. dome-shaped organ under the rib cage
4. voice box
8. where air enters the body
9. pair of organs inside the rib cage