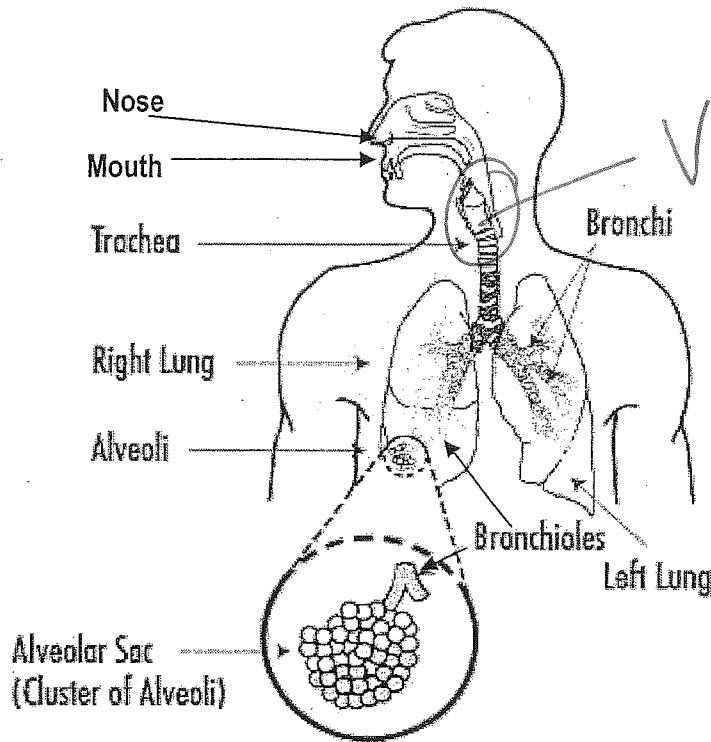


The path that air follows when we breathe is called the respiratory tract. It is shown in the figure below. Look at the diagram and answer the following questions.



voice box / larynx

- The respiratory tract starts with the mouth and the nose.
- The respiratory tract ends with millions of tiny alveoli.
- How many lungs does a person usually have? 2
- The parts of the respiratory tract are listed below, but are not in order. Write them in order in which air goes through the body.

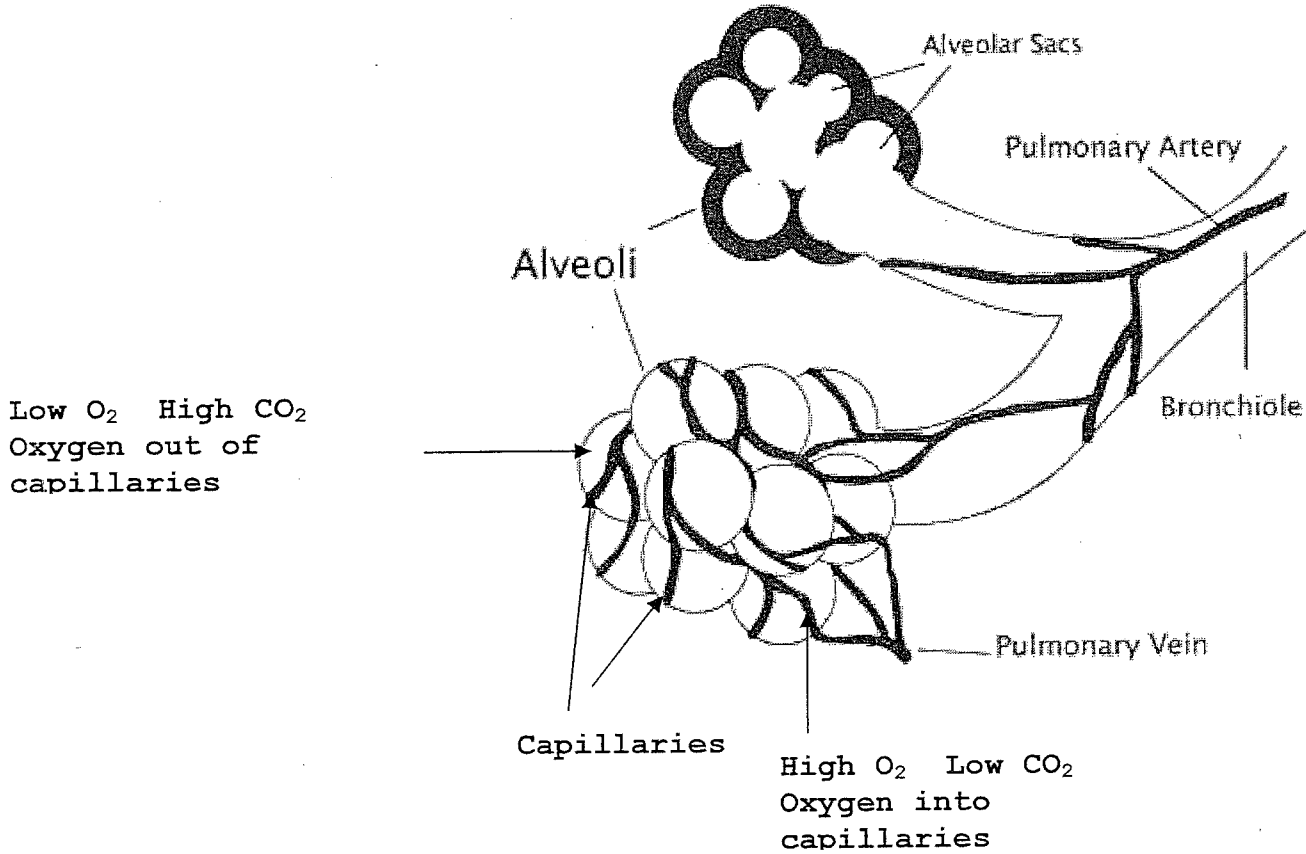
Bronchi mouth & nose alveoli trachea bronchioles ~~trachea~~

(3) (1) (5) (2) (4)

- The voice box is on the top of the trachea. Can you find it? Label the voice box on the diagram.

What Happens in the Lungs?

The lungs have millions of air sacs. They are very tiny. You need a microscope to see them.



1. Air that enters the alveoli is rich in Oxygen.
2. Air that leaves the alveoli is rich in CO₂.
3. Alveoli are surrounded by capillaries.
4. The capillaries around the alveoli take in Oxygen and give off CO₂.
5. List three waste materials the lungs excrete. water, CO₂, O₂

Matching

Match the two lists. Write the correct letter on the line next to each number.

- | | |
|-------------------------|------------------------------|
| 1. <u>E</u> Exhaling | a) Where gases are exchanged |
| 2. <u>C</u> Inhaling | b) Windpipe |
| 3. <u>A</u> Alveoli | c) Breathing in |
| 4. <u>B</u> Trachea | d) Surrounding the alveoli |
| 5. <u>D</u> Capillaries | e) Breathing out |

Completing Sentences

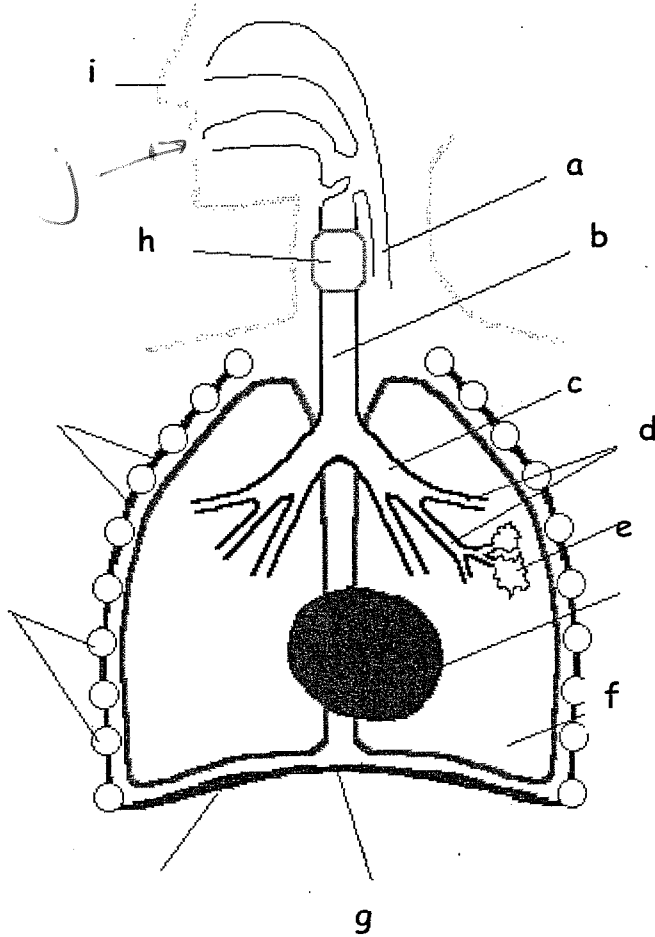
Complete the sentences with the choices below. One of these may be used twice.

Oxygen windpipe nose inhaling alveoli bronchi capillaries
mouth carbon dioxide exhale smaller and smaller

- All living things need the gas oxygen.
- Breathing in is called inhaling.
- We inhale through the mouth or nose.
- The trachea is the scientific name for the windpipe.
- The trachea divides into two tubes called bronchi.
- In the lungs, the tubes branch into smaller and smaller bronchioles.
- The lungs have millions of tiny spaces called alveoli.
- Alveoli have many capillaries.
- Alveoli give oxygen to the blood. The blood gives CO₂ to the alveoli.
- We get rid of carbon dioxide waste when we exhale.

Label the Diagram

Identify the parts of the respiratory tract.



- | | |
|----------------|------------|
| 1. Bronchi | <u>B C</u> |
| 2. Nose | <u>I</u> |
| 3. Bronchioles | <u>D</u> |
| 4. Voice box | <u>H</u> |
| 5. Mouth | <u>J</u> |
| 6. Alveoli | <u>E</u> |
| 7. Trachea | <u>B</u> |
| 8. Lung | <u>F</u> |
| 9. Diaphragm | <u>G</u> |

1. When you inhale
- The ribs move outward (inward/outward)
 - The diaphragm moves downward (upward/downward)
 - There is now more (more/less) space in the chest area
 - Air rushes in (in/out) to fill this space.

2. When you exhale
- The ribs move inward (inward/outward)
 - The diaphragm moves upward (upward/downward)
 - There is now less (more/less) space in the chest area
 - Because of this pressure, air moves out (in/out) of the lungs.

Why do you breathe?

Breathing is automatic. When the level of CO₂ in your blood increases, a message goes to your brain. Then, your brain sends a message to your diaphragm and rib muscles to move. You have then taken a breath without thinking!

CHAPTER 2 Chapter 2 Quiz

BLM 1-42

Goal • Check your understanding of Chapter 2.

What to Do

Circle the letter of the best answer.

- Which tissue is responsible for transferring signals in the body?
 - nerve tissue
 - muscle tissue
 - connective tissue
 - epithelial tissue
- What nutrient is considered the body's quickest source of energy?
 - vitamins
 - proteins
 - fats
 - carbohydrates
- Which mineral is important for the formation of red blood cell parts?
 - calcium
 - sulfur
 - iron
 - magnesium
- What stage of digestion represents chewing a piece of apple into smaller bits?
 - ingestion
 - mechanical digestion
 - chemical digestion
 - absorption
- Which of the following sets of terms describe eating disorders?
 - anorexia, excretion
 - bulimia, excretion
 - anorexia, bulimia
 - nervosa, bulimia
- Humans have the ability to effectively swallow upside down. What makes this possible?
 - peristalsis
 - epiglottis
 - bolus
 - chyme

Continued on next page

BLM 1-42

continued

7. What chambers pump blood out of the heart?

- ventricles
- atria
- aortas
- valves

8. The human heart makes a noticeable "lub dub" sound when beating. This sound is made by opening and closing of the

- atria
- ventricles
- aorta
- valves

9. About 55 percent of blood is composed of

- white blood cells
- platelets
- red blood cells
- plasma

10. Gas exchange in the human lungs takes place in the

- trachea
- bronchi
- bronchioles
- alveoli

Term	Descriptor
11. arteries	A. tiny hairs that filter air and push particles
12. veins	B. long airway passage between lungs and throat
13. capillaries	C. also known as the voice box
14. trachea	D. carry oxygenated blood away from heart
15. larynx	E. carry deoxygenated blood back to heart
16. cilia	F. oxygen, nutrients, and glucose diffuse through the walls of these
	G. valves in the heart

Match the Term on the left with the best Descriptor on the right.
Each Descriptor may be used only once.

Continued on next page

Short Answer Questions

17. How is a diet high in saturated fats related to the health of your circulatory system?

saturated fats build up in blood vessels, making it hard for blood to circulate around the body

18. Emphysema is a lung disease that can be caused by smoking. In emphysema, the alveoli in the lungs lose their elasticity. As a result, the alveoli are no longer effective at moving air in and out. In effect, "dead air" pockets form in the lungs where air does not move in or out.

(a) What effect do you think emphysema has on gas exchange?

less space available for gas exchange to take place

(b) What do you think the symptoms would be in someone who had a severe case of emphysema?

shortness of breath

(c) Considering that lung transplants are almost always unsuccessful, what might you suggest as a treatment for someone who is suffering from emphysema?

stop smoking

19. (a) Where is bile produced?

the liver

(b) What is its function?

helps break down fats