Lesson 23.2: True or False

Name ___________________ Class ___________________ Date ____________

Write true if the statement is true or false if the statement is false.

____ 1. The exchange of gases between the body and the outside air is called breathing.
____ 2. Respiration begins with gas exchange.
____ 3. Respiration and cellular respiration are different.
____ 4. Pulmonary gas exchange occurs in the alveoli of the lungs.
____ 5. Asthma is a disease in which the air passages of the lungs periodically become too large.
____ 6. Oxygenated blood is transported by the respiratory system from lungs to tissues throughout the body.
____ 7. The mouth is an organ of the respiratory system.
____ 8. Ventilation is the process of moving air into and out of the lungs.
____ 9. Pulmonary gas exchange is the exchange of gases between inhaled air and the blood.
____ 10. The heart pumps the oxygen-rich blood into your veins, which carry it throughout the body.
____ 11. Body cells have a much higher concentration of oxygen than blood in the peripheral capillaries.
____ 12. The regular, rhythmic contractions of the diaphragm are controlled by the brain stem.
____ 13. Carbon dioxide from body cells travels in the blood back to the heart, then to the lungs where it is inhaled again.
____ 14. Emphysema is a lung disease usually caused by smoking and is irreversible.
____ 15. Gas exchange is extremely important in maintaining homeostasis.

Lesson 23.2: Critical Reading

Name ___________________ Class ___________________ Date ____________

Read these passages from the text and answer the questions that follow.

Journey of a Breath of Air

Take in a big breath of air through your nose. As you inhale, you may feel the air pass down your throat and notice your chest expand. Now exhale and observe the opposite events occurring. Inhaling and exhaling may seem like simple actions, but they are just part of the complex process of respiration, which includes these four steps:

a. Ventilation.
b. Pulmonary gas exchange.
c. Gas transport.
d. Peripheral gas exchange.

**Ventilation**

Respiration begins with **ventilation**. This is the process of moving air in and out of the lungs. The **lungs** are the organs in which gas exchange takes place between blood and air.

- Air enters the respiratory system through the nose. As the air passes through the nasal cavity, mucus and hairs trap any particles in the air. The air is also warmed and moistened so it won’t harm delicate tissues of the lungs.
- Next, the air passes through the **pharynx**, a long tube that is shared with the digestive system. A flap of connective tissue called the epiglottis closes when food is swallowed to prevent choking.
- From the pharynx, air next passes through the **larynx**, or voice box. The larynx contains vocal cords, which allow us to produce vocal sounds.
- After the larynx, air moves into the **trachea**, or wind pipe. This is a long tube that leads down to the chest.
- In the chest, the trachea divides as it enters the lungs to form the right and left bronchi. The bronchi contain cartilage, which prevents them from collapsing. Mucus in the bronchi traps any remaining particles in air. Tiny hairs called cilia line the bronchi and sweep the particles and mucus toward the throat so they can be expelled from the body.
- Finally, air passes from the bronchi into smaller passages called bronchioles. The bronchioles end in tiny air sacs called alveoli.

**Questions**

1. Describe the journey of air during ventilation.

2. What happens to air in the nasal cavity?

3. What is the role of the larynx?
4. What happens in the bronchi?

5. Where are the alveoli located?

Lesson 23.2: Multiple Choice

Circle the letter of the correct choice.

a. The functions of the respiratory system include which of the following? (1) bringing air containing oxygen into the body, (2) releasing carbon dioxide into the atmosphere, (3) exchanging oxygen with carbon dioxide in blood cells, (4) transporting oxygen to cells throughout the body.
   a. 1 only
   b. 1 and 2
   c. 1, 2, and 3
   d. 1, 2, 3, and 4

b. The four steps of respiration are
   a. ventilation, central gas exchange, gas transport, peripheral gas exchange.
   b. ventilation, pulmonary gas transport, gas exchange, peripheral gas transport.
Lesson 23.2: Vocabulary I

Name_________________ Class_________________ Date_______

Match the vocabulary word with the proper definition.

Definitions

_____ 1. the voice box
_____ 2. the exchange of gases between the body and the outside air
_____ 3. a long tube that is shared with the digestive system
_____ 4. a disease in which the air passages of the lungs periodically become too narrow
_____ 5. the wind pipe
6. tiny air sacs in the lungs
7. the organs in which gas exchange takes place between blood and air
8. the body system that brings air containing oxygen into the body and releases carbon dioxide into the atmosphere
9. a disease in which some of the alveoli of the lungs fill with fluid
10. the metabolic process by which cells obtain energy
11. the process of moving air in and out of the lungs
12. a lung disease in which walls of the alveoli break down

Terms
a. alveoli
b. asthma
c. cellular respiration
d. emphysema
e. larynx
f. lungs
g. pharynx
h. pneumonia
i. respiration
j. respiratory system
k. trachea
l. ventilation

Lesson 23.2: Vocabulary II

Name__________________ Class____________ Date_______

*Fill in the blank with the appropriate term.*

1. Respiration begins with ____________.

2. Gas exchange is needed to provide cells with the ____________ they need for cellular respiration.

3. Tiny air sacs in the lungs are known as ____________.

4. Inhaling is an active movement that results from the contraction of a muscle called the ____________.

5. Asthma is a disease in which the air passages of the ____________ become narrow, often with excessive mucus production.

6. The ____________ is also known as the wind pipe.

7. Emphysema is usually caused by ____________ and is irreversible.

8. The ____________ is also known as the voice box.

9. The ____________ pumps oxygen-rich blood into arteries.

10. ____________ gas exchange is the exchange of gases between inhaled air and the blood.
11. __________ is a disease in which some of the alveoli of the lungs fill with fluid so gas exchange cannot occur.
12. Oxygen __________ from the peripheral capillaries into body cells.

Lesson 23.2: Critical Writing

Name______________ Class______________ Date_________

Thoroughly answer the question below. Use appropriate academic vocabulary and clear and complete sentences.

Define respiration, and explain how it differs from cellular respiration.
The Respiratory System

The respiratory system brings oxygen into the body and removes carbon dioxide and other gases.

F. ________

B. ________

c. ________

E. ________

A. ________

G. ________

1. Study the diagram to correctly identify these parts of the respiratory system. Then use each answer to correctly label the diagram.

A. the tube that connects the throat and the bronchial tubes

B. the grape-like clusters of air sacs within the lungs

C. the large band of muscle that controls the size of the chest cavity

D. the two large lightweight respiratory organs of the body

E. the outer membrane which covers the lungs

F. the part of the respiratory system that helps us speak

G. the two branches of the windpipe
Part 1: Match the name of each organ with the letter that represents it on the diagram below.

1. Stomach
2. Gall bladder
3. Oral cavity (mouth)
4. Liver
5. Large intestine
6. Rectum
7. Salivary glands
8. Pancreas
9. Esophagus
10. Tongue
11. Small intestine
12. Pharynx
13. Anus
Part 2:

1. Nutrients are a source of _______ that your body uses for building tissues and ______ for cellular work.

2. Name the four stages of food processing and describe what happens in each stage.

   ________

   ________

   ________

   ________

3. Explain what peristalsis is.

4. List the organs that are part of the alimentary canal.

5. Name 4 organs that are accessory glands or organs in the digestive system.
Part 3: Using the key choices below, match the description given with the structure in the alimentary canal that it describes. Choices may be used more than once.

A. Anus  G. Microvilli  L. Salivary Glands
B. Appendix  H. Mouth (Oral cavity)  M. Small intestines
C. Esophagus  I. Pancreas  N. Stomach
D. Gallbladder  J. Pharynx  O. Tongue
E. Large Intestines (Colon)  K. Rectum  P. Villi
F. Liver

1. Stores bile until it is secreted.
2. Fingerlike extensions in the intestinal wall that increase surface area
3. Two anatomical regions where mechanical digestion occurs.
4. Organ that mixes food in the mouth.
5. Common passage for food and air.
6. Literally a food chute; it has no digestive or absorptive role.
7. Projections of the plasma membrane of a cell that increase the cell’s surface area.
8. Produces a juice that neutralizes stomach acid and contains digestive enzymes.
9. Organ responsible for absorption of most nutrients.
11. Blind sac hanging from the initial part of the colon.
12. Organ in which protein digestion begins.
13. Organ into which the stomach empties.
14. Organ that receives pancreatic juice and bile.
15. Opening through which feces are expelled from the body.
17. Produce enzymes that begin carbohydrate digestion.
18. Stores feces until they are excreted.