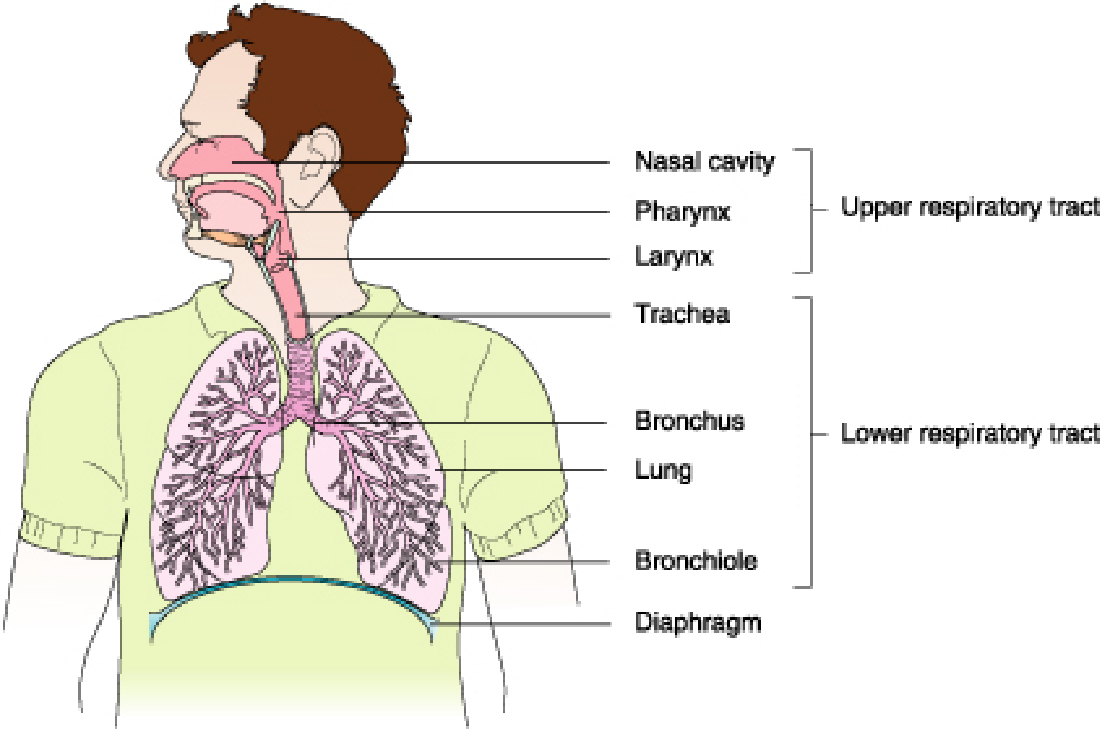
# Answers to Questions in the Workbook, Chapter 31, The Respiratory System

**Activity A LABEL THE FIGURE**



* 1. Nasal cavity---the inside of the nose
  2. Lungs---the main organs of respiration
  3. Bronchus---connects each lung to the trachea
  4. Diaphragm---strong muscle that separates the chest cavity from the abdominal cavity and assists in ventilation
  5. Bronchiole---tiniest branches of the bronchi
  6. Larynx---responsible for speech (also called the “voice box”)
  7. Trachea---passage that carries air from the pharynx down into the chest toward the lungs (also called the “windpipe”)
  8. Pharynx---the throat region

**Activity B MULTIPLE CHOICE**

1. c. The trachea, bronchi, bronchioles, and lungs

2. a. The blood vessels transfer body heat to the air, warming it up to a comfortable temperature.

3. b. It allows us to breathe through the mouth, as well as through the nose.

4. d. The epiglottis

5. a. “C”-shaped rings of cartilage

6. a. Grape-like clusters of tiny air sacs where gas exchange occurs

**Activity C TRUE OR FALSE**

1. F. The airway consists of a series of passages that DECREASE in diameter as they approach the lungs.

2. T

3. T

4. F. Each alveolus is surrounded by a network of tiny blood vessels where gas exchange occurs.

5. F. The lungs are divided into sections called lobes.

**Activity D FILL IN THE BLANKS**

1. Ventilation has two phases: inhalation and exhalation.

2. The diaphragm is a strong, dome-shaped muscle that separates the chest cavity from the abdominal cavity.

3. The intercostal muscles, which are located between the ribs, help with the respiratory effort.

4. The rate and depth of breathing is controlled mainly by the central nervous system, in the part of the brain called the medulla.

5. Special cells, called chemoreceptors, located in the medulla and in some of the major arteries, monitor the amount of carbon dioxide and oxygen in the blood.

6. Carbon dioxide moves from the blood into the alveolus, and is removed from the body when we exhale.

**Activity E SHORT ANSWER**

1. Toxins such as tobacco smoke and pollutants damage the delicate membranes inside the lungs, and the airways become inflamed and stay that way. The chronic inflammation leads to scarring and may even cause changes that lead to cancer. In addition, chemicals in tobacco smoke paralyze the tiny cilia that line the trachea and bronchi, making it harder to keep the airway free of mucus. Regular physical exercise and avoidance of tobacco smoke and other pollutants help to keep the respiratory system functioning properly well into old age.

2. Three factors that put older people at greater risk for respiratory infection than younger people are immobility, decreased cough reflex, and a less efficient immune system.

**Activity F MULTIPLE CHOICE**

1. d. To collect a sputum specimen for analysis

2. c. Pneumonia

3. a. Because influenza and COVID-19 can cause serious complications in older people

4. b. Sore throat, dry cough, stuffy nose, headache, body aches, weakness, and fever

5. a. Bacterial bronchitis

6. d. All of the above

7. c. Emphysema and chronic bronchitis

**Activity G FILL IN THE BLANKS**

1. Cyanosis refers to the bluish skin resulting because of decreased oxygen levels in the blood.

2. Sputum consists of mucus and other respiratory secretions that are coughed up from the lungs, bronchi, and trachea.

3. The pleura is the membrane that lines the chest cavity and covers the lungs.

4. Bronchitis may cause a dry, nonproductive cough that sounds like a “bark.”

5. Bronchodilators are used to treat asthma. They stop the muscle spasms responsible for the narrowing of the airways during an asthma attack.

6. Barrel chest, often seen in people with emphysema, is caused by years of having extra air trapped in the lung tissue, which causes the chest cavity to enlarge over time.

7. Hemoptysis refers to sputum that contains blood.

**Activity H TRUE OR FALSE**

1. T

2. T

3. F. Pleurisy often accompanies lower respiratory tract infections such as pneumonia.

4. T

5. F. THE Common cold is caused by various types of viruses, and usually only affects the upper respiratory tract.

6. F. Older adults and very young children who get the flu are at HIGHER risk for developing serious complications, such as an extremely severe form of pneumonia.

7. F. An acute asthma attack CAN be treated with inhaled drugs.

8. F. The leading cause of chronic obstructive pulmonary disease (COPD) is smoking.

**Activity I FILL IN THE BLANKS**

|  | Emphysema | Chronic Bronchitis |
| --- | --- | --- |
| Leading cause | Inhaling tobacco smoke | Inhaling tobacco smoke |
| How the condition causes problems | When a toxin is inhaled, it damages the thin walls of the alveoli, causing them to break. Because the lung tissue is damaged, it is no longer “springy,” and air gets trapped in the large, damaged alveoli. The trapped air cannot be exhaled and exchanged for new oxygen-rich air. In addition, excess fluid can collect in the damaged alveoli, creating an excellent place for infection-causing microbes to collect and multiply. | Long-term irritation of the bronchi and bronchioles leads to the production of thick mucus, which blocks the airways. Air cannot pass freely through the airways. In addition, infection-causing microbes can collect in the mucus and multiply, leading to infection. |
| Signs and symptoms | Problems getting a proper breath.  Shallow and rapid breathing.  Must stop to catch a breath when talking or engaging in physical activity. | Nagging, productive cough.  Tightness in the chest.  Frequent respiratory tract infections. |
| Supportive therapy | Supplemental oxygen | Supplemental oxygen |

**Activity J CHOOSE THE RIGHT ANSWER**

1. X

2.

3. X

4. X

5. X

6. X

7.

8. X

**Activity K IDENTIFY THE STATEMENTS**

1. P

2. H

3. P

4. H

**Activity L IDENTIFY THE STATEMENTS**

1. NA

2. RT/N

3. NA

4. RT/N

5. RT/N

6. NA

**Activity M MULTIPLE CHOICE**

1. d. The moisture makes the oxygen less drying to the person’s nose and mouth.

2. c. Because moving the tank could result in injury if the tank is accidentally knocked over and the valve at the top breaks

3. c. Oxygen concentrator

4. a. A tube inserted through the nose or mouth and extending to the trachea, where a balloon cuff on the end holds it in place and prevents secretions that drain from the mouth from entering the respiratory tract

5. a. Check on the person frequently to help them feel more secure

6. c. Mr. Robeson, who has quadriplegia and is unable to breathe without the aid of a mechanical ventilator

7. b. Hypoxia

**Activity N TRUE OR FALSE**

1. T

2. T

3. F. ROOM AIR is about 20% oxygen and the rest is nitrogen and very small amounts of other gases.

4. T

5. F. Receiving too much oxygen is just as dangerous as receiving too little oxygen.

6. F. If a nursing assistant notices that the setting on a resident’s flow meter does not match the amount of oxygen that has been ordered, they should notify the nurse immediately.

**Activity O MATCHING**

1. c

2. f

3. g

4. e

5. a

6. h

7. b

8. i

9. d

**Activity P SHORT ANSWER**

When caring for a person who is receiving oxygen therapy, the nursing assistant is responsible for knowing what flow rate was ordered and checking the flow meter frequently to make sure that the flow rate is set properly. The nursing assistant also checks the water level in the humidity bottle frequently, and checks to make sure that there are bubbles. Finally, the nursing assistant is responsible for checking the pulse oximeter to make sure that the reading is within the normal range.

**Activity Q SHORT ANSWER**

Nasal cannula

Advantages:

* + - A nasal cannula is easy to apply.
    - It is less likely to create a feeling of suffocation.
    - It does not interfere with eating or talking.

Disadvantages:

* The nasal cannula can dry out the mucous membranes in the nasal cavity if the oxygen is delivered at a high flow rate.
* The tubing can irritate the skin around the nostrils and cheeks and behind the ears.
* A nasal cannula may not be suitable for use in a critically ill patient, or in a person who breathes through their mouth, because the concentration of oxygen delivered may not be high enough.

Facemask

Advantages:

* A facemask can deliver oxygen at a higher concentration than a nasal cannula can.
* A facemask is useful for a person who breathes through their mouth, instead of the nose.

Disadvantages:

* The facemask can interfere with the person’s ability to eat, drink, and speak clearly.
* The facemask can make a person feel like they are suffocating.

**Activity R SHORT ANSWER**

Situations where a person might require mechanical ventilation include (1) serious head injury; (2) paralysis that affects the muscles used for breathing; (3) stroke; (4) drug overdose; (5) acute respiratory infection; (6) heart attack; (7) surgery.

**Activity S CHOOSE THE RIGHT ANSWER**

1. X

2.

3. X

4.

5. X

**Activity T CHOOSE THE RIGHT ANSWER**

1. X

2. X

3. X

4.

5.

6. X

7.

**Activity U SHORT ANSWER**

Asthma can make a person feel as if each breath might be his last. Mr. Ruiz is probably using the call light control frequently because he wants reassurance that someone will actually come quickly when he calls. A nursing assistant could help to reassure Mr. Ruiz by answering the call light promptly and getting in the habit of stopping by to check on him, even when he has not called. These actions help to satisfy Mr. Ruiz’s need for safety and security and might lead to a decrease in his use of the call light control.

**Activity V FIND THE WORDS IN THE GRID**

