

5

Respiratory System

Objectives

After completing Chapter 5, you should be able to do the following:

1. identify word roots pertaining to the nose;
2. identify word roots pertaining to the throat and the larynx;
3. identify word roots pertaining to the trachea and the bronchial passages;
4. understand the difference between a bronchus and a bronchiole;
5. identify the word root for the pleural sac;
6. understand several word roots that identify the lungs and chest cavity;
7. name and identify the parts of the upper respiratory tract;
8. name and identify the parts of the lower respiratory tract; and
9. identify several types of drugs associated with respiratory conditions and treatments.

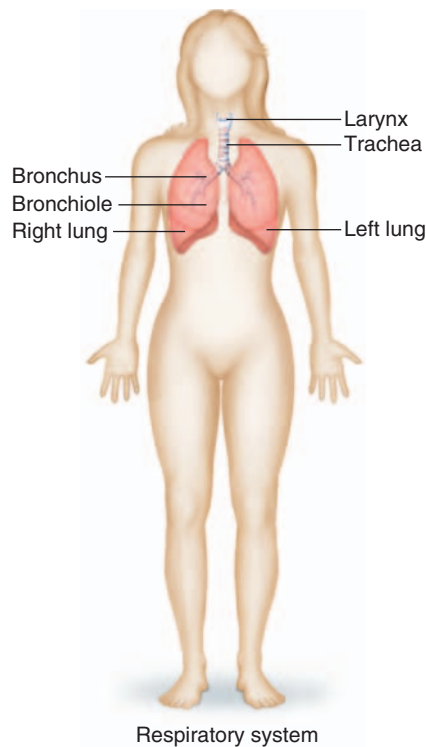


Orientation to the Respiratory System

The respiratory system is a continuous open passage from the mouth (the oral cavity) and nose through the head, neck, and chest to the lungs. Breathing in and out (inhalation and exhalation) allows oxygen (O_2) to enter and carbon dioxide (CO_2) to exit the body. The two main parts of the respiratory system are the upper respiratory tract (nose, mouth, pharynx, and larynx) and the lower respiratory tract (trachea, bronchi, bronchioles, pleura, lungs, and alveoli).

Air enters the nose through the nostrils (openings in the nose). The mucous membranes and numerous hairs in the nostrils filter dust and dirt from the air. The air then passes to the nasal cavities, which are separated from the mouth by the palate (roof of the mouth). The air then passes into the pharynx (throat) and into the larynx. Air travels from the larynx to the lungs via the trachea, which divides (bifurcates) into two branches called bronchi. After the bronchi enter the lungs, they branch into increasingly smaller tubes called bronchioles that extend deep into the lungs.

The lungs are membranous sacs on either side of the chest (thorax). Inside the lungs, at the tips of the bronchioles, are thin-walled alveolar sacs (alveoli) that are in close contact with blood capillaries. Gas exchange takes place at this level, as the red blood cells pick up inhaled oxygen to be distributed throughout the body. The surfaces of both lungs are lined with a membrane called the pleura.



Nose

As you listen to the CD, read the words and notice the pronunciations given.



Look at Figures 5-1 and 5-2

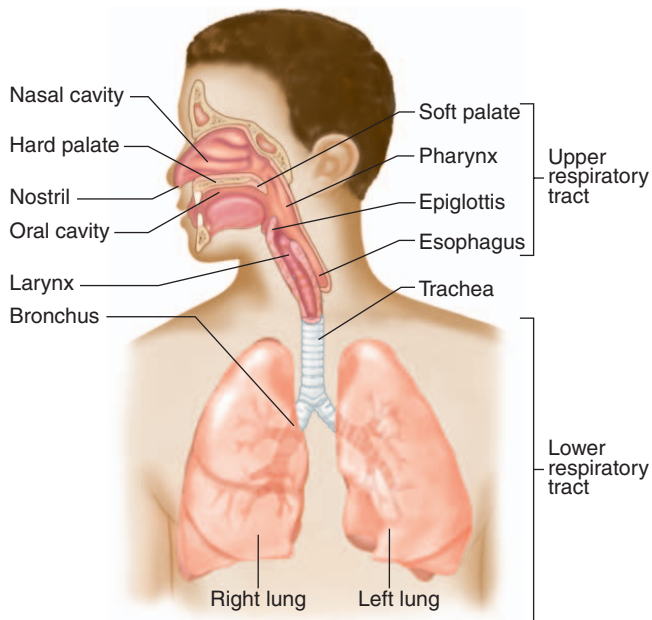


Figure 5-1 The upper and lower tracts of the respiratory system.

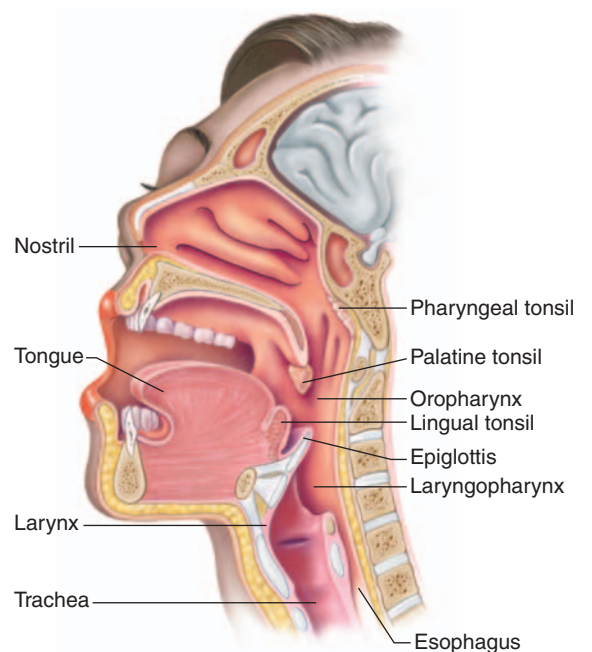


Figure 5-2 The parts of the upper respiratory system.

rhin(o) a combining form denoting the nose

Word	Word Part	Definition	Answer
1. rhinodynia (ri'no -din'e-ah)	-dynia	pain	1. _____
2. rhinesthesia (ri'nes-the'ze-ah)	-esthesia	perception, sense	2. _____
3. rhinolith (ri'no-lith)	-lith(o)	stone	3. _____
4. rhinorrhagia (ri'no-ra'je-ah)	-rrhagia	excessive flow, bleeding	4. _____
5. rhinocheiloplasty (ri-no-ki'lo-plas'te)	cheil(o) -plasty	lip plastic surgery	5. _____
6. rhinitis (ri-ni'tis)	-itis	inflammation	6. _____
7. rhinomycosis (ri'no-mi-ko'sis)	myc(o) -osis	fungus abnormal condition	7. _____

nas(o) a combining form denoting relationship to the nose

Word	Word Part	Definition	Answer
8. nasal (na'zal)	-al	pertaining to	8. _____
9. nasopharynx (na'zo-far'inks)	pharynx	throat	9. _____
10. nasopharyngeal (na'zo-fah-rin'je-al)	pharyng(o) -eal	pharynx pertaining to	10. _____
11. nasoseptal (na'zo-sep'tal)	sept(a) -al	septum pertaining to	11. _____
12. nasoscope (na'zo-skop)	-scope	instrument for viewing	12. _____
13. nasogastric (na'zo-gas'trik)	gastr(o) -ic	stomach pertaining to	13. _____

 **Pause CD**

After practicing each word several times, use a sheet of paper to cover all columns except the Answer column. As each word is pronounced again on the CD, write it in the space provided.

 **Start CD**

Check the words you have written against the words in the left-hand column. If you have misspelled any words, practice writing them correctly.

Practice

LESSON
5-1

Terminology Application

Without looking at your previous work, write the word that matches each definition.

Definition	Term
1. a plastic surgery on the lip and nose	_____
2. nosebleed (also known as epistaxis)	_____
3. pertaining to the nose	_____
4. a stone or concretion of the nose	_____
5. part of the pharynx above the level of the soft palate	_____
6. pertaining to the sense of smell	_____
7. inflammation of the mucous membrane of the nose	_____
8. pertaining to the nasal septum	_____
9. fungus infection of the nose	_____
10. pertaining to the nasopharynx	_____
11. pertaining to the nose and stomach	_____
12. pain in the nose or nasal area	_____
13. lighted instrument used for examination of the nasal cavity	_____

Check your answers against the information given in this lesson's terminology presentation. If you have any errors, count them and write the number in the blank at the top of the page. Sign your work and give it to your instructor.

Throat and Larynx

As you listen to the CD, read the words and notice the pronunciations given.



Look at Figures 5-1 and 5-2 on pages 109

<i>pharyng(o)</i> a combining form denoting relationship to the throat			
Word	Word Part	Definition	Answer
1. pharynx (far'inks)	pharynx	throat	1. _____
2. pharyngoplegia (far'ing-go-ple'je-ah)	-plegia	condition of paralysis	2. _____
3. pharyngomycosis (fah-ring'go-mi-ko'sis)	myc(o) -osis	fungus abnormal condition	3. _____
4. pharyngitis (far'in-ji'tis)	-itis	inflammation	4. _____
5. pharyngeal (fah-rin'je-al)	-eal	pertaining to	5. _____
6. pharyngectomy (far'in-jek'to-me)	-ectomy	excision, removal	6. _____
7. oropharynx (o'ro-far'inks)	or(o)	mouth	7. _____

<i>laryng(o)</i> a combining form denoting the larynx (voice box)			
Word	Word Part	Definition	Answer
8. laryngitis (lar'in-ji'tis)	-itis	inflammation	8. _____
9. laryngeal (lah-rin'je-al)	-eal	of, pertaining to	9. _____
10. laryngoplegia (la-ring'go-ple'je-ah)	-plegia	paralysis	10. _____
11. laryngostenosis (lah-ring'go-ste-no'sis)	-stenosis	narrowing	11. _____

continued

LESSON
5-2

Terminology Application

Without looking at your previous work, write the word that matches each definition.

Definition	Term
1. paralysis of the larynx	_____
2. part of the pharynx above the level of the soft palate	_____
3. surgical puncture of the larynx	_____
4. paralysis of the muscles of the throat	_____
5. any fungal infection of the throat	_____
6. inflammation of the larynx	_____
7. inflammation of the throat	_____
8. spasmodic closure of the larynx	_____
9. musculo-membranous passage between the mouth and posterior nasal passage and the larynx and esophagus	_____
10. pertaining to the pharynx	_____
11. excision of the pharynx	_____
12. of or pertaining to the larynx	_____
13. division of pharynx below the upper edge of the epiglottis and opens into the larynx and esophagus	_____
14. narrowing of the larynx	_____
15. excision of the larynx	_____
16. instrument used to examine the larynx	_____

Check your answers against the information given in this lesson's terminology presentation. If you have any errors, count them and write the number in the blank at the top of the page. Sign your work and give it to your instructor.

Trachea and Bronchi

As you listen to the CD, read the words and notice the pronunciations given.



Look at Figures 5-1 and 5-2 on page 109

<i>trache(o)</i> a combining form denoting the trachea or windpipe			
Word	Word Part	Definition	Answer
1. tracheostomy (tra'ke-os'to-me)	-stomy	connection, opening	1. _____
2. tracheotomy (tra'ke-ot'o-me)	-tomy	incision, cutting into	2. _____
3. tracheoplasty (tra'ke-o-plas'te)	-plasty	plastic surgery	3. _____
4. tracheostenosis (tra'ke-o-ste-no'sis)	-stenosis	narrowing	4. _____
5. tracheopathy (tra'ke-op'ah-the)	-pathy	disease	5. _____
6. tracheorrhaphy (tra'ke-or'ah-fe)	-rrhaphy	suture, surgical repair	6. _____
7. tracheitis (tra'ke-i'tis)	-itis	inflammation	7. _____

<i>bronch(i)</i> a combining form denoting the bronchi (plural) or bronchus (singular), the air passages within the lungs			
Word	Word Part	Definition	Answer
8. bronchorrhea (brong-ko-re'ah)	-rrhea	flow	8. _____
9. bronchiectasis (brong'ke-ek'tah-sis)	-ectasis	dilatation, expansion	9. _____
10. bronchitis (brong-ki'tis)	-itis	inflammation	10. _____
11. bronchoedema (brong'ko-e-de'mah)	-edema	swelling	11. _____

continued

Look at Figure 5-3

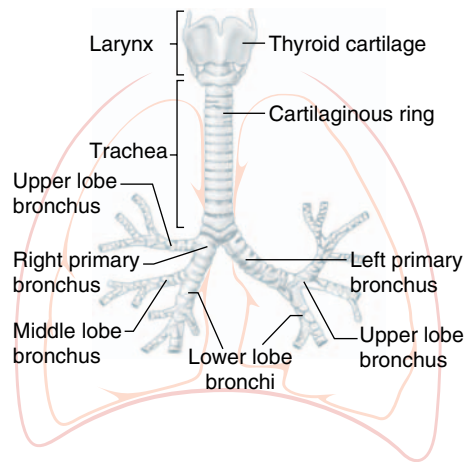


Figure 5-3 The larynx, trachea, and bronchi.

Word	Word Part	Definition	Answer
12. bronchoscopy (brong-kos'ko-pe)	-scopy	examine	12. _____
13. bronchoplegia (brong'ko-ple'je-ah)	-plegia	paralysis	13. _____
14. bronchopneumonitis (brong'ko-nu'mo-ni'tis)	pneum(o) -itis	lungs inflammation	14. _____
15. bronchiole (brong'ke-ol)	-ole	diminutive spelling; refers to reduction in size	15. _____



Pause CD

After practicing each word several times, use a sheet of paper to cover all columns except the Answer column. As each word is pronounced again on the CD, write it in the space provided.



Start CD

Check the words you have written against the words in the left-hand column. If you have misspelled any words, practice writing them correctly.

Practice

LESSON
5-3

Terminology Application

Without looking at your previous work, write the word that matches each definition.

Definition	Term
1. excessive secretion of mucus from the bronchial mucous membrane	_____
2. surgical repair of the trachea	_____
3. dilatation (dilation) of the bronchi	_____
4. narrowing of the trachea	_____
5. plastic surgery of the trachea	_____
6. inspection or examination of the bronchi	_____
7. paralysis of the bronchi	_____
8. surgical creation of an opening into the trachea	_____
9. any disease of the trachea	_____
10. inflammation of the bronchi	_____
11. swelling of the mucosa of the bronchi	_____
12. incision into the trachea	_____
13. an inflammation of the lungs that originates at the bronchi	_____
14. inflammation of the trachea	_____
15. finer subdivisions of the bronchi	_____

Check your answers against the information given in this lesson's terminology presentation. If you have any errors, count them and write the number in the blank at the top of the page. Sign your work and give it to your instructor.

Lungs, Chest, and Breathing

As you listen to the CD, read the words and notice the pronunciations given.



pleura, pleur (o) a term denoting the serous membrane surrounding the lungs and lining the chest cavity

Word	Word Part	Definition	Answer
1. pleural (ploor'al)	-al	pertaining to	1. _____
2. pleurae (ploor'e)	-ae	more than one; plural ending	2. _____
3. pleuritis (ploo-ri'tis) (pleurisy) (ploor'i-se)	-itis	inflammation	3. _____
4. pleurectomy (ploor-ek'to-me)	-ectomy	excision, removal	4. _____
5. pleuralgia (ploor-al'je-ah)	-algia	pain	5. _____
6. pleurotomy (ploor-ot'o-me)	-tomy	incision, cutting	6. _____
7. pleurocentesis (ploor'o-sen-te'sis)	-centesis	surgical puncture	7. _____
8. pleurocele (ploor'o-sel)	-cele	tumor, swelling, hernia	8. _____

pneumon(o), pneum(o), pneumat(o), pneum(a) combining forms denoting the lungs, respiration, air, or gas

Word	Word Part	Definition	Answer
9. pneumonitis (nu'mo-ni'tis)	-itis	inflammation	9. _____
10. pneumonography (nu'mo-nog'rah-fe)	-graphy	recording	10. _____

continued

Look at Figure 5-1, on page 109, and Figure 5-4 here

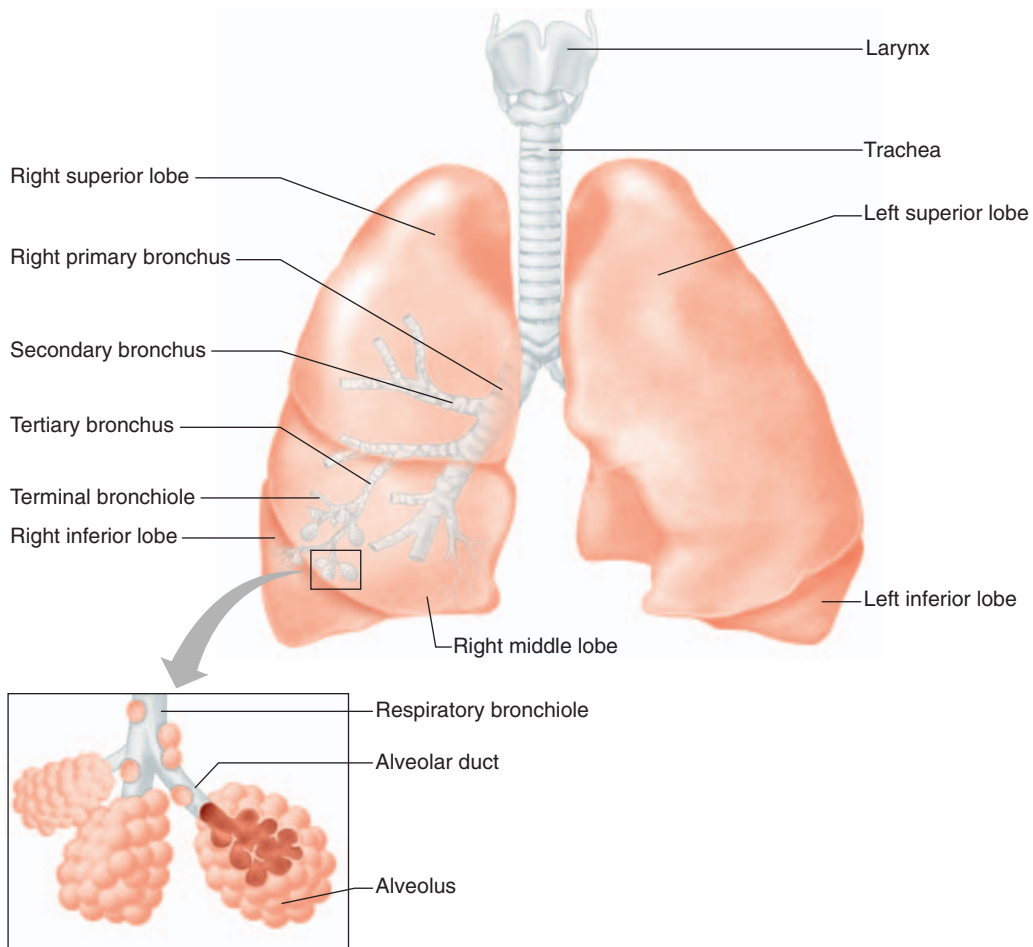


Figure 5-4 The lobes of the lungs, the bronchi, the bronchioles, and the alveoli.

Word	Word Part	Definition	Answer
11. pneumomelanos (nu'mo-mel'ah-no'sis)	melan(o) -osis	black abnormal condition	11. _____
12. pneumodynamics (nu'mo-di-nam'iks)	-dynamics	force	12. _____
13. pneumoencephalography (nu'mo-en-sef'ah-log'rah-fe)	encephal(o) -graphy	brain process of recording	13. _____
14. pneumoconiosis (nu'mo-ko'ne-o'sis)	coni(o) -osis	dust abnormal condition	14. _____
15. pneumothorax (nu'mo-tho'raks)	thorax	chest	15. _____
16. pneumocentesis (nu'mo-sen-te'sis)	-centesis	surgical puncture	16. _____

pulmon(o) a combining form denoting relationship to the lungs

Word	Word Part	Definition	Answer
17. pneumectomy (pul'mo-nek'to-me)	-ectomy	excision, removal	17. _____
18. pneumonia (pul'mo-ni'tis)	-itis	inflammation	18. _____
19. pulmonologist (pul'mo-nol'o-jist)	(o) -logist	specialist	19. _____
20. pulmonary (pul-mon'ic)	-ic	pertaining to	20. _____

thorac(o) a combining form denoting relationship to the thorax (chest)

Word	Word Part	Definition	Answer
21. thoracic (tho-ras'ik)	-ic	pertaining to	21. _____
22. thoracotomy (tho'rah-kot'o-me)	-tomy	incision	22. _____
23. thoracocentesis (tho'rah-ko-sen-te'sis) and thoracentesis (tho'rah-sen-te'sis)	-centesis -centesis	surgical puncture surgical puncture	23. _____

-pnea a suffix denoting breathing or air or gas

Word	Word Part	Definition	Answer
24. eupnea (up-ne'ah)	eu-	well, normal	24. _____
25. apnea (ap-ne'ah)	a-	without, lack of	25. _____
26. dyspnea (disp'ne-ah)	dys-	abnormal, painful, difficult	26. _____
27. orthopnea (or'thop-ne'ah)	orth(o)	straight, normal	27. _____
28. tachypnea (tak'ip-ne'ah)	tachy-	fast	28. _____

continued

LESSON
5-4

Terminology Application

Without looking at your previous work, write the word that matches each definition.

Definition	Term
1. pain in the pleura	_____
2. more than one pleura	_____
3. inflammation of the pleura	_____
4. pertaining to the chest	_____
5. X-ray of the lung	_____
6. incision into the chest	_____
7. herniation of the pleura	_____
8. photoelectric device used for determining the oxygen saturation in the blood	_____
9. inflammation of the lung	_____
10. difficult breathing	_____
11. the dynamics of the respiratory system	_____
12. easy, normal breathing	_____
13. pertaining to the lungs	_____
14. surgical puncture of the chest to aspirate fluid	_____
15. the blackening of the lungs as from coal dust	_____
16. abnormally fast rate of breathing	_____
17. pertaining to the pleura	_____
18. a lung specialist	_____
19. temporary absence of breathing	_____
20. inflammation of the lung	_____
21. inability to breathe unless in an upright position	_____

continued

Name _____ Date _____ Errors _____

- 22. a disease caused by dust or other particulates in the lungs _____
- 23. radiographic films of the brain, created by utilizing injections of air or gas _____
- 24. surgical puncture or tap of the pleura _____
- 25. incision into the pleura _____
- 26. excision of all or part of a lung _____
- 27. accumulation of air in the chest cavity _____
- 28. surgical puncture for aspiration of the lung _____
- 29. excision of the pleura _____
- 30. deficient oxygenation of the blood _____

Check your answers against the information given in this lesson's terminology presentation. If you have any errors, count them and write the number in the blank at the top of the page. Sign your work and give it to your instructor.

Drug Terminology Presentation

As you listen to the CD, read the words and notice the pronunciations given.



Word	Definition	Example: Generic Name	Example: Brand/ Trade Name	Answer
antihistamines	agents that counter the effects of histamines; used to treat allergies	fexofenadine loratadine cetirizine promethazine diphenhydramine	Allegra Claritin Zyrtec Phenergan Benadryl	1. _____
antitussives	agents that relieve or prevent coughs	guaifenesin benzonatate promethazine hydrochloride	Robitussin Tessalon Perles Phenergan + codeine	2. _____
bronchodilators	agents that expand the air passages in the lungs	albuterol ipratropium salmeterol flunisolide (a corticosteroid) epinephrine triamcinolone (a corticosteroid) fluticason (a corticosteroid)	Proventil Atrovent Serevent Aerobid (various) Azmacort (various)	3. _____
decongestants	agents that reduce congestion and bronchial swelling	loratadine	Claritin	4. _____
expectorants	agents that promote the ejection of mucus or other fluids from the lower respiratory tract	guaifenesin benzonatate hydrocodone ammonium chloride codeine	Robitussin Tessalon Perles Hycodan (various) (various)	5. _____
mucoytics	agents that destroy or dissolve mucus	guaifenesin acetylcystein	Robitussin Mucomyst, Mucosil	6. _____

LESSON
5-5

Drug Terminology Application

Without looking at your previous work, write the word that matches each definition.

Definition	Term
1. agents that promote the ejection of mucus or other fluids from the lower respiratory tract	_____
2. agents that destroy or dissolve mucus	_____
3. agents that counter the effects of histamines	_____
4. agents that expand the air passages in the lungs	_____
5. agents that reduce congestion and bronchial swelling	_____
6. agents that relieve or prevent coughs	_____

Check your answers against the information given in this lesson's terminology presentation. If you have any errors, count them and write the number in the blank at the top of the page. Sign your work and give it to your instructor.

CHAPTER
5

Terminology Review

This is a review of the word parts and words you have learned in the preceding lessons. Some of the medical terms listed below may be new, but they are composed of the word parts and word roots that you have already learned. Read the words below as they are pronounced on the CD.



Word Element Review

Word	Word Part	Meaning of Word Part
1. nasopharynx nasopharynx (na'zo-far'inks)	nas(o) pharynx Meaning of word	_____ _____ _____
2. laryngoscope laryngoscope (lah-ring'go-skop)	laryng(o) -scope Meaning of word	_____ _____ _____
3. rhinomycosis rhinomycosis rhinomycosis (ri'no-mi-ko'sis)	rhin(o) myc(o) -osis Meaning of word	_____ _____ _____ _____
4. bronchitis bronchitis (brong-ki'tis)	bronch(o) -itis Meaning of word	_____ _____ _____
5. oropharynx oropharynx (o'ro-far'inks)	or(o) pharynx Meaning of word	_____ _____ _____
6. tracheorrhaphy tracheorrhaphy (tra'ke-or'ah-fe)	trache(o) -rrhaphy Meaning of word	_____ _____ _____
7. pleurotomy pleurotomy (ploor-ot'o-me)	pleur(o) -tomy Meaning of word	_____ _____ _____

continued

Word	Word Part	Meaning of Word Part
8. pneumocentesis pneumocentesis (nu'mo-sen-te'sis)	pneum(o) -centesis Meaning of word	_____ _____ _____
9. thoracotomy thoracotomy (tho'rah-kot'o-me)	thorac(o) -tomy Meaning of word	_____ _____ _____
10. pulmonitis pulmonitis (pul'mo-ni'tis)	pulmon(o) -itis Meaning of word	_____ _____ _____
11. nasogastric nasogastric nasogastric (na'zo-gas'trik)	nas(o) gastr(o) -ic Meaning of word	_____ _____ _____ _____
12. bronchiole bronchiole (brong'ke-ol)	bronch(i) -ole Meaning of word	_____ _____ _____
13. pneumectomy pneumectomy (pul'mo-nek'to-me)	pulmon(o) -ectomy Meaning of word	_____ _____ _____
14. nasopharyngeal nasopharyngeal nasopharyngeal (na'zo-fah-rin'je-al)	nas(o) pharyng(o) -eal Meaning of word	_____ _____ _____ _____
15. thoracic thoracic (tho-ras'ik)	thorac(o) -ic Meaning of word	_____ _____ _____

 **Stop CD**

On the lines provided, write in the meanings of as many suffixes, prefixes, roots, and words as you can from memory. Check your definitions in the glossary or a medical dictionary, and make any needed corrections.

CHAPTER
5

Terminology Review

Complete this review, and turn it in to your instructor when you are finished.

Definition

Each phrase below defines one of the words you have just studied. Without looking at your previous work, write in the word that matches each definition.

Definition	Term
1. temporary absence of breathing	_____
2. pertaining to the chest	_____
3. excision of the larynx	_____
4. dilatation of the bronchi	_____
5. herniation of the pleura	_____
6. surgical puncture of the larynx	_____
7. pertaining to the nasal septum	_____
8. plastic surgery on the lip and nose	_____
9. the blackening of a lung, as from coal dust	_____
10. paralysis of a bronchus	_____
11. inability to breathe unless in an upright position	_____
12. radiographic films of the brain, created using injections of air or gas	_____
13. pain in the nose	_____
14. an inflammation of the lungs that originates at the bronchi	_____
15. nosebleed	_____
16. incision into the trachea	_____
17. lighted instrument used for examination of the nasal cavity	_____

continued

Name _____ Date _____ Errors _____

- 18. difficult breathing _____
- 19. incision into the pleura _____
- 20. inflammation of the pleura _____

Matching

Match the following definitions with the terms given. Write the letter of the correct definition to the left of the term.

Term	Definition
_____ 21. laryngostenosis	a. difficult breathing
_____ 22. tracheotomy	b. surgical repair or suture of the trachea
_____ 23. thoracodynia	c. inflammation of the bronchi
_____ 24. dyspnea	d. narrowing of the larynx
_____ 25. rhinomycosis	e. fungus infection of the nose
_____ 26. bronchoplegia	f. surgical procedure for aspiration of the lung
_____ 27. thoracomyodynia	g. pain in the muscles of the chest
_____ 28. tracheorrhaphy	h. incision into the trachea
_____ 29. pneumocentesis	i. paralysis of the bronchi
_____ 30. bronchitis	j. pain in the chest region

CHAPTER

5

Terminology Review

Case Studies

Read the following brief case studies. In each case study, some terms are followed by a superscript letter. Write a brief definition for each of those terms on the corresponding lines below.

1. J. is a former steelworker who has asthma and a variety of pulmonary^a problems. Last year, he went to his pulmonologist^b several times to be treated for pneumoconiosis^c that resulted from his years working in a steel foundry. He usually has bronchitis^d at least once a year, and he uses bronchodilators^e on a regular basis.

- a. _____
- b. _____
- c. _____
- d. _____
- e. _____

2. P.N. works for a pediatrician and is familiar with the various types of children's respiratory^a ailments and some of the common treatments. For example, one child recently diagnosed with allergies was treated with antihistamines^b. Another child had considerable thoracic^c congestion with a nagging cough; this child was treated with an antitussive^d, a decongestant^e, and a mucolytic^f.

- a. _____
- b. _____
- c. _____
- d. _____
- e. _____
- f. _____

3. A local hospital ER treated several elderly patients who had breathing difficulties. One patient had sleep apnea^a, another had tracheostenosis^b, and another had bronchopneumonitis^c. All patients were admitted for 24-hour observation and were put on a regimen of appropriate medications and breathing treatments.

a. _____

b. _____

c. _____

4. T.Y. has been hospitalized for a stroke and suffers from laryngoplegia^a. The patient in the adjoining hospital room has had surgery and currently has a temporary tracheostomy^b. This second patient had been injured in a car accident and had to undergo thoracoplasty^c to repair damage that he sustained.

a. _____

b. _____

c. _____

5. R.B. has a history of dyspnea^a resulting from a nasoseptal^b problem. She has had recurring nasal^c and pharyngeal^d infections caused by bacterial growth in her nasal cavities

a. _____

b. _____

c. _____

d. _____

Labeling

Fill in the blanks with the correct terminology.

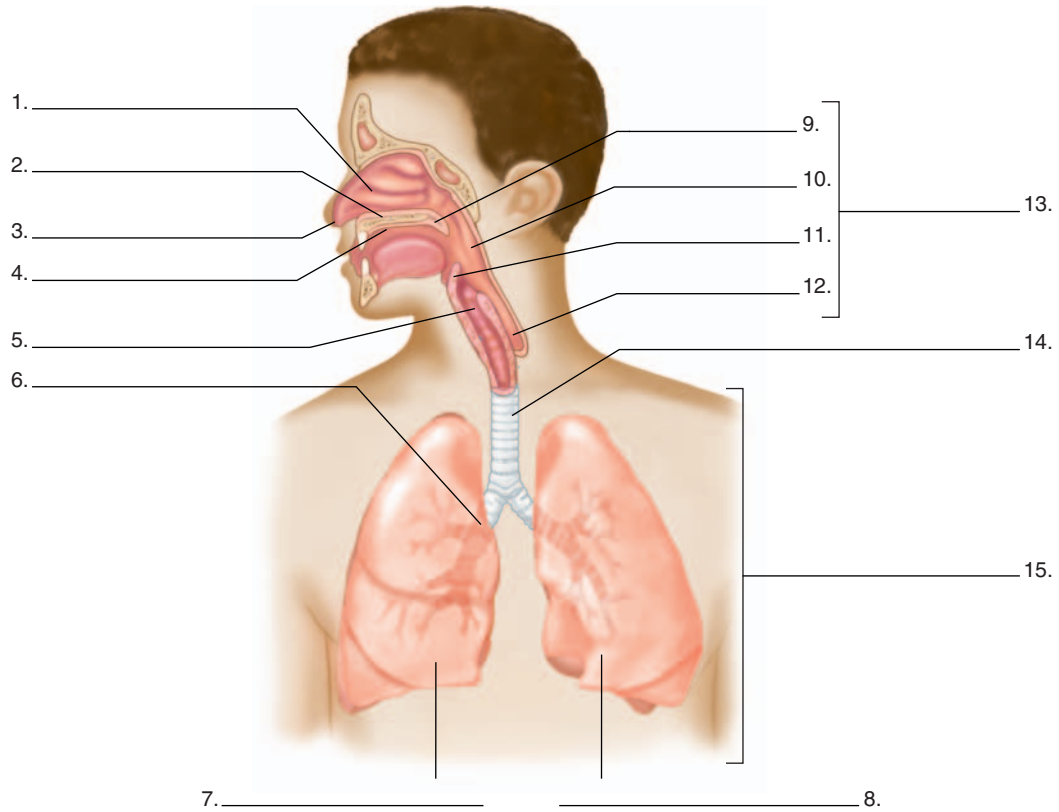


Figure 5-5 The upper and lower tracts of the respiratory system.

You may now go on to Chapter Test 5.

