NAME	LAB TIME/DATE

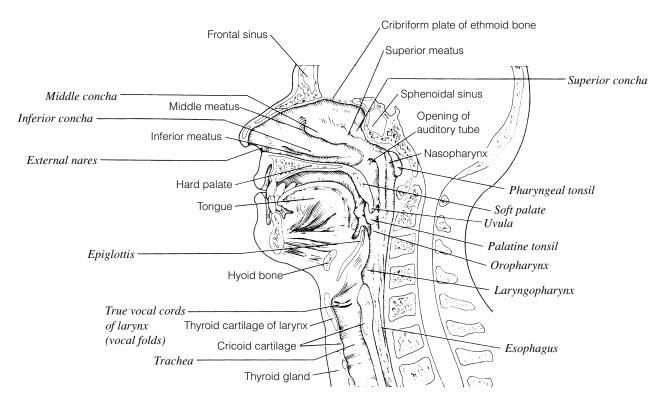
# Anatomy of the Respiratory System

e x e r c i s e

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#### **Upper and Lower Respiratory System Structures**

1. Complete the labeling of the diagram of the upper respiratory structures (sagittal section).



2. Two pairs of vocal folds are found in the larynx. Which pair are the true vocal cords (superior or inferior)?

Inferior

3. Name the specific cartilages in the larynx that correspond to the following descriptions:

forms the Adam's apple: <u>thyroid</u>

shaped like a signet ring: <u>cricoid</u>

a "lid" for the larynx: *epiglottis* 

vocal cord attachment: arytenoid

**4.** What is the significance of the fact that the human trachea is reinforced with cartilage rings?

Prevents its collapse during pressure changes occurring during breathing.

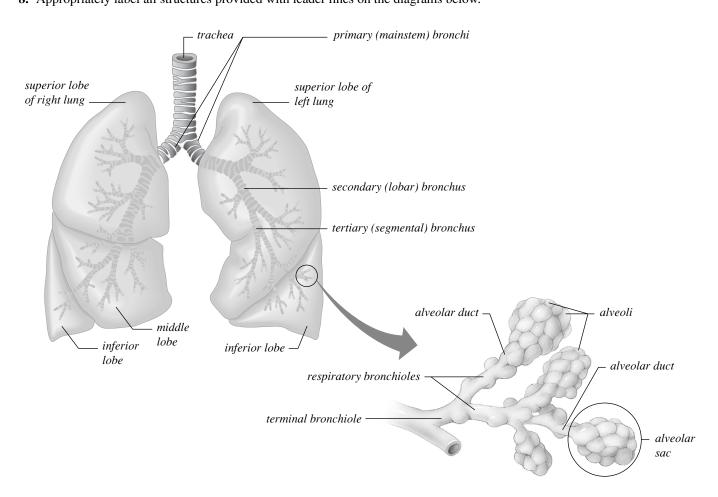
Of the fact that the rings are incomplete posteriorly? Allows a food bolus traveling down the posterior esophagus to bulge anteri-

orly.

5.	What is the function of the pleural membranes?	Produce a serous fluid that reduces fric	tion during breathing movements and help			
	to hold the lungs tightly to the thorax wall.					
			g air.			
6.	Name two functions of the nasal cavity mucosa:	Warms and moistens incoming air.				
7. The following questions refer to the primary bronchi.						
	Which is longer? <u>Left</u> Large	er in diameter? Right	More horizontal? <u>Left</u>			

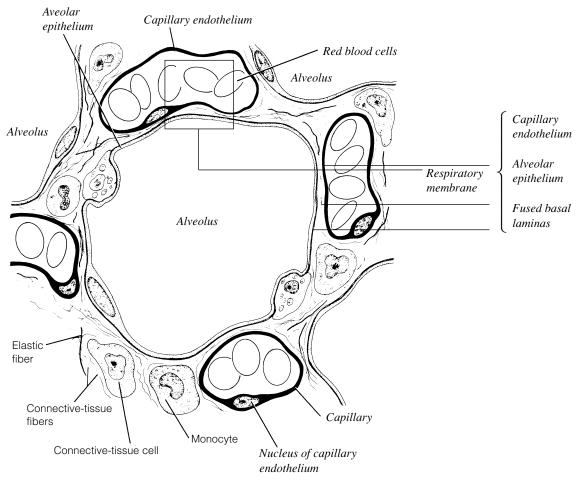
The more common site for lodging of a foreign object that has entered the respiratory passageways? <u>Right</u>

**8.** Appropriately label all structures provided with leader lines on the diagrams below.



	$tory\ bronchiole  o alveolar\ duct  o alveolar\ sac  o across\ alveolar/capillary\ walls  o pulmonary\ blood$				
10.	Match the terms in column B to the descriptions in column A.				
	Column A	Co	lumn B		
	_n 1. connects the larynx to the primary bronchi	a.	alveolus		
	$\underline{k}$ 2. site of tonsils	b.	bronchiole		
		c.	concha		
	<u>e</u> 3. food passageway posterior to the trachea	d.	epiglottis		
	<u>d</u> 4. covers the glottis during swallowing of food	e.	esophagus		
	g 5. contains the vocal cords	f.	glottis		
	5. Contains the vocal cords	g.	larynx		
	6. nerve that activates the diaphragm during inspiration	h.	opening of auditory tub		
	$\underline{j}$ 7. pleural layer lining the walls of the thorax	i.	palate		
	a 9 gits from which average enters the nulmonous blood	j.	parietal pleura		
	<u>a</u> 8. site from which oxygen enters the pulmonary blood	k.	pharynx		
	<u>h</u> 9. connects the middle ear to the nasopharynx	1.	phrenic nerve		
	$\underline{f}$ 10. opening between the vocal folds	m.	primary bronchi		
	C 11 in an area of the bound in the parel are it.	n.	trachea		
	_c11. increases air turbulence in the nasal cavity	0.	vagus nerve		
	<u>i</u> 12. separates the oral cavity from the nasal cavity	p.	visceral pleura		
11.	What portions of the respiratory system are referred to as anatomical dead space? <u>Ala</u>	but the respi	ratory zone structures (resp		
	ratory bronchioles, alveolar ducts and sacs, and alveoli).				
	Taiot y bronemotes, arrestar duets and sues, and arrestly.				
	Why? Because no gas exchange occurs except in the respiratory zone, particularly in the an	lveoli.			
10					
12.	Define the following terms.				
	external respiration: Exchange of gases across the respiratory membrane in the lungs.				
	internal respiration: Exchange of respiratory gases between the blood of the systemic cap	illaries and th	e tissue cells of the body.		

13. On the diagram below identify alveolar epithelium, capillary endothelium, alveoli, and red blood cells. Bracket the respiratory membrane.



### **Demonstrating Lung Inflation in a Sheep Pluck**

- **14.** Does the lung inflate part by part or as a whole, like a balloon? <u>Part by part.</u>
- **15.** What happened when the pressure was released? *The lung deflated*.
- **16.** What type of tissue ensures this phenomenon? *Elastic connective tissue*.

### **Examining Prepared Slides of Lung and Tracheal Tissue**

17. The tracheal epithelium is ciliated and has goblet cells. What is the function of each of these modifications?

Cilia? Sweep (debris-laden) mucus superiorly away from lungs.

Goblet cells? Produce mucus.

**18.** The tracheal epithelium is said to be pseudostratified. Why? <u>It looks stratified because the cells extend different distances from</u> the basement membrane; however, it is a simple columnar epithelium.

19.	What structural	characteristics o	of the alveoli mal	ce them an ideal	site for the	diffusion of gases?

Thin walls, extremely large surface area.

Why does oxygen move from the alveoli into the pulmonary capillary blood? <u>Because the partial pressure of oxygen is greater</u> in the alveoli; therefore, it moves according to the laws of diffusion into the pulmonary blood.

## **20.** If you observed pathological lung sections, what were the responsible conditions and how did the tissue differ from normal lung tissue?

Slide type		Observations				
Student data.	Student data.					