Interactive Classroom

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Glencoe Science

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Section 1: Circulatory System

Section 2: <u>Respiratory System</u>

Section 3: Excretory System

EXIT

Breathing and Respiration

- The respiratory system sustains cellular respiration by supplying oxygen to body cells and removing carbon dioxide waste from cells.
- Breathing is the mechanical movement of air into and out of your lungs.
- External respiration is the exchange of gases between the atmosphere and the blood.
- Internal respiration is the exchange of gases between the blood and the body's cells.

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34.2 Respiratory System



The Path of Air

 The respiratory system is made up of the nasal passages, pharynx, larynx, epiglottis, trachea, lungs, bronchi, bronchioles, alveoli (al VEE uh li), and the diaphragm.



- Air enters your mouth or nose.
- Hairlike structures called cilia trap foreign particles from the air and sweep them toward the throat.
- Filtered air then passes through the upper throat called the pharynx.



- The epiglottis allows air to pass from the larynx to a long tube in the chest cavity called the trachea.
- The trachea branches into two large tubes, called bronchi, which lead to the lungs.



- Each bronchus branches into smaller tubes called bronchioles.
- Each of these small tubes continues to branch into even smaller passageways, which end in individual air sacs called alveoli.



Home Resources 🗲 🔶

34.2 Respiratory System

Breathing

- Inhalation is the act of taking air into the lungs.
- The diaphragm contracts, causing the chest cavity to expand as the diaphragm moves down.



34.2 Respiratory System

- During exhalation, the diaphragm relaxes and returns to its normal resting position.
- This reduces the size of the chest cavity as the diaphragm moves up.





Common Respiratory Disorders	
Lung Disorder	Brief Description
Asthma	Respiratory pathways become irritated and bronchioles constrict.
Bronchitis	Respiratory pathways become infected, resulting in coughing and production of mucus.
Emphysema	Alveoli break down, resulting in reduced surface area needed for gas exchange with alveoli's blood capillaries.
Pneumonia	Infection of the lungs that causes alveoli to collect mucus material
Pulmonary tuberculosis	A specific bacterium infects the lungs, resulting in less elasticity of the blood capillaries surrounding alveoli, thus decreasing effective gas exchange between the air and blood.
Lung cancer	Uncontrolled cell growth in lung tissue can lead to a persistent cough, shortness of breath, bronchitis, or pneumonia, and can lead to death.



COncepts In MOtion

Table 34.2	Common Respiratory Disorders
Lung Disorder	Brief Description
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	Respiratory pathways become infected, resulting in coughing and production of mucus.
	Alveoli break down, resulting in reduced surface area needed for gas exchange with alveoli's blood capillaries.
	Infection of the lungs that causes alveoli to collect mucus material
	A specific bacterium infects the lungs, resulting in less elasticity of the blood capillaries surrounding alveoli, thus decreasing effective gas exchange between the air and blood.
	Uncontrolled cell growth in lung tissue can lead to a persistent cough, shortness of breath, bronchitis, or pneumonia, and can lead to death.
Lung cancer	Bronchitis
Pneumonia	Pulmonary tuberculosis
Emphysema	Asthma
Drag each option to its corresponding	description 🥏 Reset Submit Show me
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Chapter Resource Menu



Chapter Diagnostic Questions



Formative Test Questions

CheckPoint

Chapter Assessment Questions

CheckPoint

Biology nline bio

Standardized Test Practice

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Glencoe Biology Transparencies





Vocabulary

Image Bank



Animation

Click on a hyperlink to view the corresponding lesson.



Chapter Diagnostic Questions



Identify the structures that carry blood away from the heart.

A. valves
B. veins
C. arteries
D. capillaries



Chapter Diagnostic Questions





Only veins have valves to prevent backward flow of blood.



Chapter Diagnostic Questions



Name the blood component that is helpful in clotting.

A. platelets
 B. plasma
 C. red blood cells

D. white blood cells





34.1 Formative Questions



Which blood vessels have valves that prevent blood from flowing backward?

A. arteries
B. arterioles
C. veins
D. venules



34.1 Formative **Questions**



Which node is the pacemaker for the heart?





34.1 Formative Questions



Which blood component carries most of the carbon dioxide produced in the body's cells?

A. hemoglobin
B. plasma
C. platelets
D. red blood cells



34.2 Formative Questions



Which is *not* one of the defenses against foreign materials entering the lungs?

A. cilia B. mucous C. nose hairs D. trachea



34.2 Formative Questions



How is oxygen and carbon dioxide transported into and out of cells?

A. by diffusion
B. by osmosis
C. by active transport
D. by membrane pumps



34.2 Formative Questions



What causes inhalation of air to the lungs?



A. Rib and diaphragm muscles contract. B. Rib and diaphragm muscles relax.



34.2 Formative Questions



What internal stimulus causes breathing rate to increase?

A. a high concentration of O₂ in the blood
B. a high concentration of CO₂ in the blood
C. a low concentration of O₂ in the blood
D. a low concentration of CO₂ in the blood



34.2 Formative Questions



Which is an example of internal respiration?

- A. Air in the lung moves into and out of alveoli.
- B. Carbon dioxide is carried from body tissues to the lungs.

C. Oxygen in alveoli diffuses into red blood cells.
 D. Oxygen in red blood cells diffuses into tissue cells.



34.3 Formative Questions



What is the role of the skin in the excretory system?

A. It controls levels of CO₂ and other gases.
B. It excretes water and salts.
C. It regulates the pH of the blood.
D. It removes minerals and urea.



34.3 Formative Questions



How do the kidneys help maintain pH homeostasis in the body?

- A. by adjusting the balance of electrolytes in urine
- B. by excreting hydrogen ions and reabsorbing buffers
- C. by increasing or decreasing the reabsorption of water
- D. by regulating the level of carbon dioxide in the blood



34.3 Formative Questions



What condition results from crystallization of mineral compounds in the kidney?

A. Bowman's disorder
B. kidney stones
C. nephritis
D. polycystic disease



34.3 Formative Questions



What is the immediate result of kidney failure?

A. Fluid-filled cysts grow in the kidney.
B. The body rejects the kidney.
C. The urinary tract becomes blocked.
D. Waste products build up in the blood.



Chapter Assessment Questions



Sequence the flow of blood through the heart beginning with the right atrium.

Answer: Deoxygenated blood flows from the right atrium to the right ventricle, and then to the lungs and back to the left atrium and into the left ventricle which pumps oxygen-rich blood to the body and returns to the right atrium.



Chapter Assessment Questions



Which is not true of red blood cells?

A. live for about 120 days
B. fight disease
C. develop in the marrow
D. have no nuclei



Chapter Assessment Questions



What structure contracts during inhalation?

A. bronchi B. diaphragm C. ribs D. pharynx





Standardized Test Practice



Which heart chamber is responsible for the pulse you can feel in your wrist?

A. left atrium
B. left ventricle
C. right atrium
D. right ventricle





Standardized Test Practice

Which two blood vessels are veins? (Two answers)







Standardized Test Practice

Which two blood vessels carry oxygenated blood? (Two answers)





Standardized Test Practice



Why should a girl with type A blood *not* receive a transfusion of type AB blood?

A. She has A markers on her blood cells.

- B. She has A and B markers on her blood cells.
- C. She has Anti-A antibodies in her blood plasma.
- D. She has Anti-B antibodies in her blood plasma.



Circulatory, Respiratory, and Excretory Systems Chapter 34



Where is urea filtered out of the blood?

Practice



Standardized Test Practice



What is the function of the convoluted tubule and the Loop of Henle?

A. accumulate urea and toxins
B. filter out sugars and proteins
C. reabsorb water and glucoset
D. store salts and minerals



Glencoe Biology Transparencies







Vocabulary

Section 1

- artery
- capillary
- 🕑 vein
-) valve
-) heart
-) pacemaker
-) plasma

- red blood cell
- e) platelet
- white blood cell
- atherosclerosis

Home Resources

Vocabulary

Section 2

- Streathing
 - external respiration
 - internal respiration
- 🕑 trachea
- bronchus
- 🕒 lung
- - alveolus



Vocabulary

Section 3







Animation



- Arteries, Capillaries, and Veins
- Circulatory System
- Visualizing Gas Exchange
- Kidney Filtration

