Glencoe Science

Biology

Interactive Classroom

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Mc Graw Hill Glencoe

Chapter 34 Circulatory, Respiratory, and Excretory Systems

EXIT

Click on a lesson name to select.

34.3 Excretory System

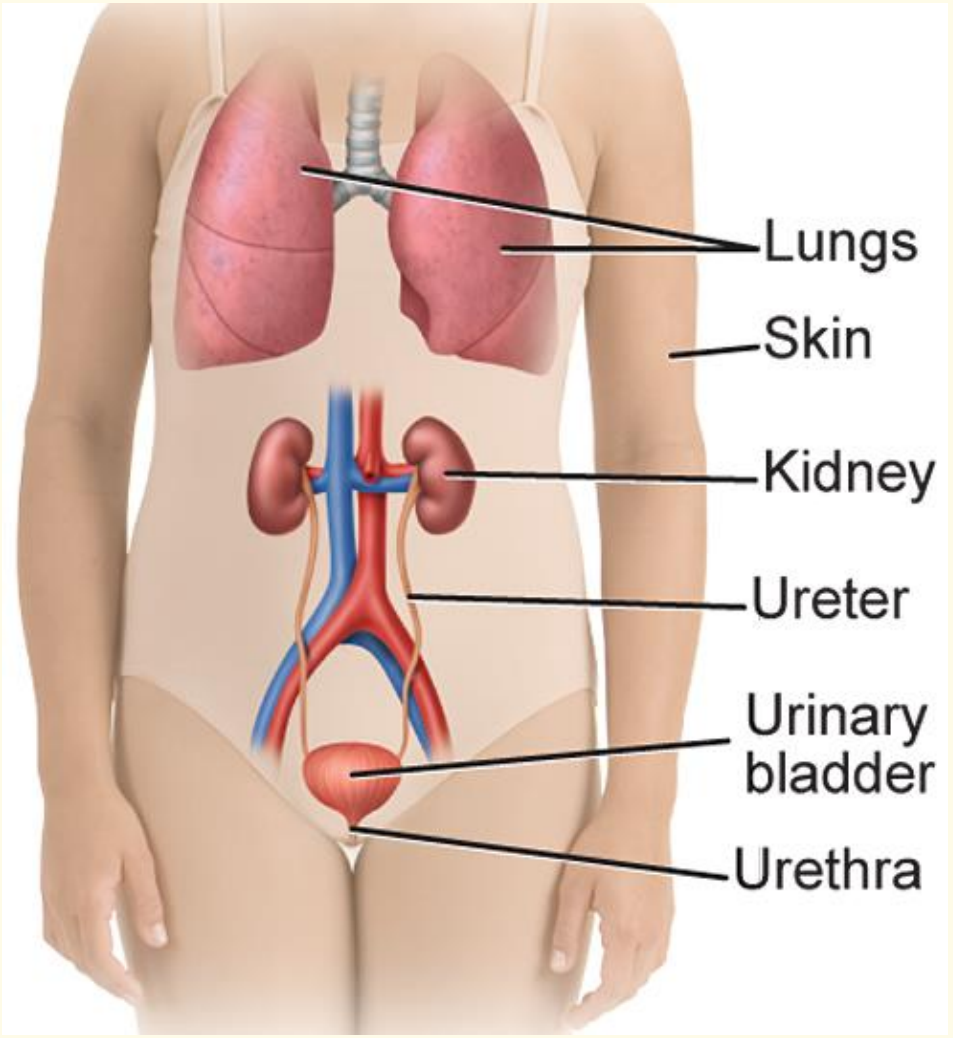
Functions of the Excretory System

- The excretory system removes toxins and wastes from the body.
- Regulates the amount of fluid and salts in the body
- Maintains the pH of the blood

34.3 Excretory System

Parts of the Excretory System

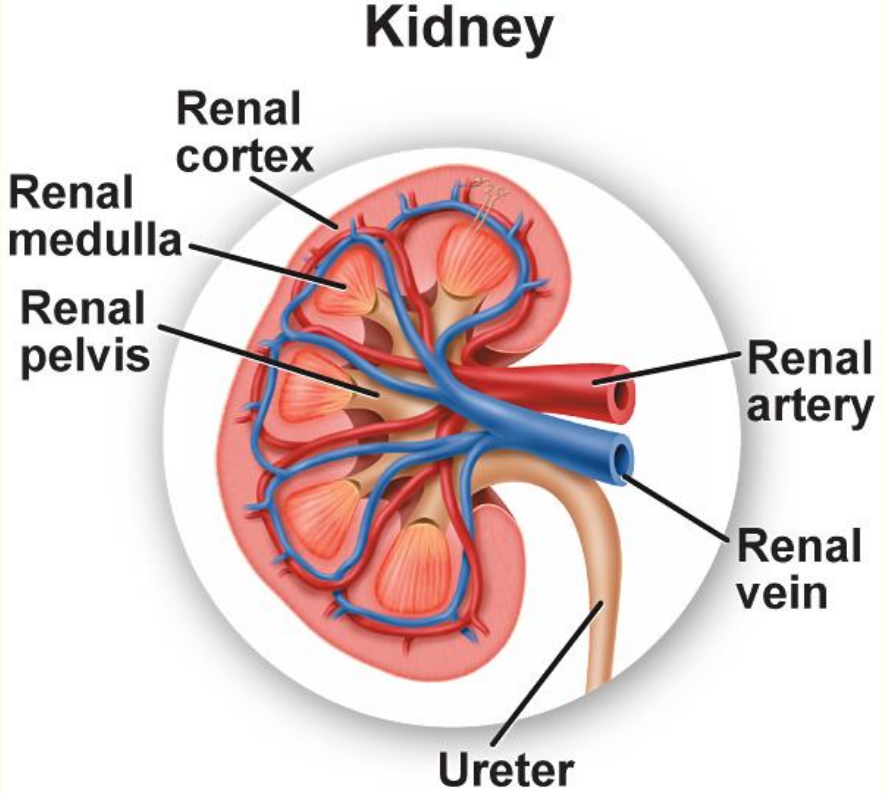
- The components that make up the excretory system include the lungs, skin, and kidneys.



34.3 Excretory System

The Kidneys

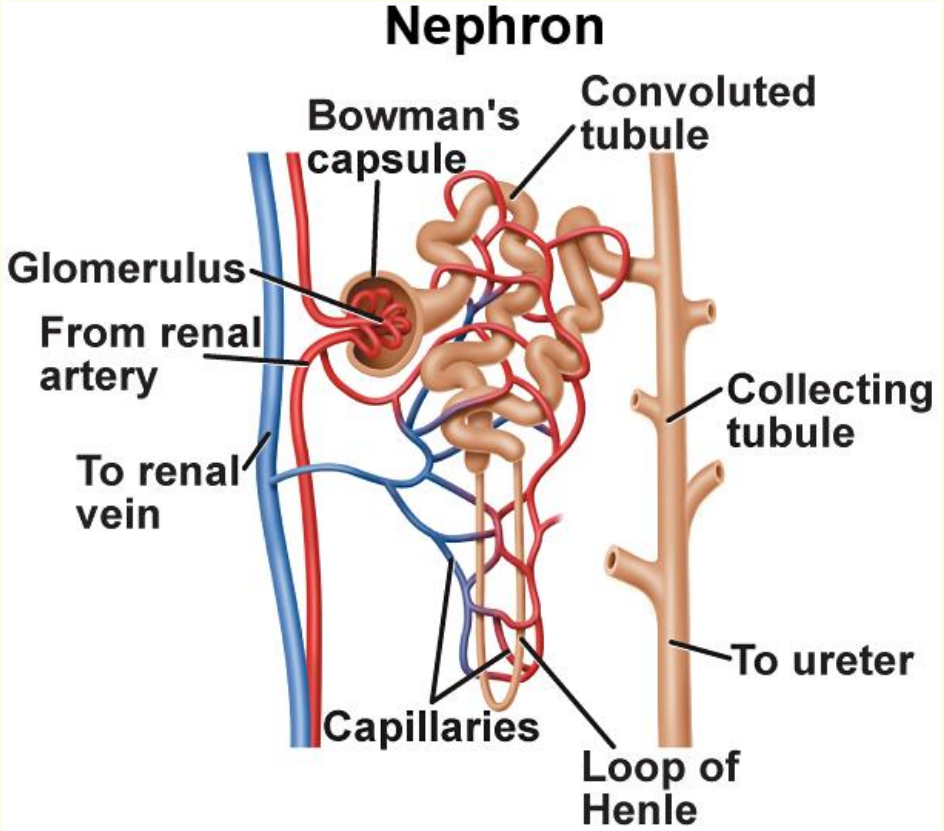
- Bean shaped organs that filter out wastes, water, and salts from the blood
- Renal cortex
- Renal medulla
- Renal pelvis



34.3 Excretory System

Nephron Filtration

- Each kidney contains approximately one million filtering units called nephrons.
- The renal artery transports nutrients and wastes to the kidney.



Concepts In Motion

Kidney Filtration

34.3 Excretory System

Reabsorption and the Formation of Urine

- The filtrate flows through the loop of Henle and the collecting tubule.
- Glucose and minerals are reabsorbed back into the capillaries surrounding the renal tubule.
- Urine, which is excess fluids and wastes, leaves the kidneys through ducts called the ureters.
- Urine is stored in the urinary bladder and exits the body through the urethra.

34.3 Excretory System

Kidney Disorders

Common Excretory Disorders

Excretory Disorder	Brief Description
Nephritis	Inflammation of the glomeruli can lead to inflammation of the entire kidneys. This disorder can lead to kidney failure if left untreated.
Kidney stones	Hard deposits form in the kidney that might pass out of the body in urine. Larger kidney stones can block urine flow or irritate the lining of the urinary tract, leading to possible infection.
Urinary tract blockage	Malformations present at birth can lead to blockage of the normal flow of urine. If untreated, this blockage can lead to permanent damage of the kidneys.
Polycystic (pah lee SIHS tihk) kidney disease	This is a genetic disorder distinguished by the growth of many fluid-filled cysts in the kidneys. This disorder can reduce kidney function and lead to kidney failure.
Kidney cancer	Uncontrolled cell growth often begins in the cells that line the tubules within the kidneys. This can lead to blood in the urine, a mass in the kidneys, or affect other organs due to the cancer spreading, which can lead to death.

Concepts In Motion

Table 34.3 Common Excretory Disorders

Excretory Disorder		Brief Description
Kidney Cancer	A	Inflammation of the glomeruli can lead to inflammation of the entire kidneys. This disorder can lead to kidney failure if left untreated.
Kidney stones	B	Hard deposits form in the kidney that might pass out of the body in urine. Larger kidney stones can block urine flow or irritate the lining of the urinary tract, leading to possible infection.
Polycystic (pah lee SIHS tihk) kidney disease	C	Malformations present at birth can lead to blockage of the normal flow of urine. If untreated, this blockage can lead to permanent damage of the kidneys.
Urinary tract blockage	D	This is a genetic disorder distinguished by the growth of many fluid-filled cysts in the kidneys. This disorder can reduce kidney function and lead to kidney failure.
Nephritis	E	Uncontrolled cell growth often begins in the cells that line the tubules within the kidneys. This can lead to blood in the urine, a mass in the kidneys, or affect other organs due to the cancer spreading, which can lead to death.

Drag each Excretory Disorder label to its corresponding description.

Reset Submit Show me

Chapter Resource Menu

Click on a hyperlink to view the corresponding lesson.

Chapter Diagnostic Questions

CheckPoint

Identify the structures that carry blood away from the heart.

A. valves

B. veins

C. arteries

D. capillaries

Chapter Diagnostic Questions

CheckPoint

True or False

Only veins have valves to prevent backward flow of blood.

Chapter Diagnostic Questions

CheckPoint

Name the blood component that is helpful in clotting.

A. platelets

B. plasma

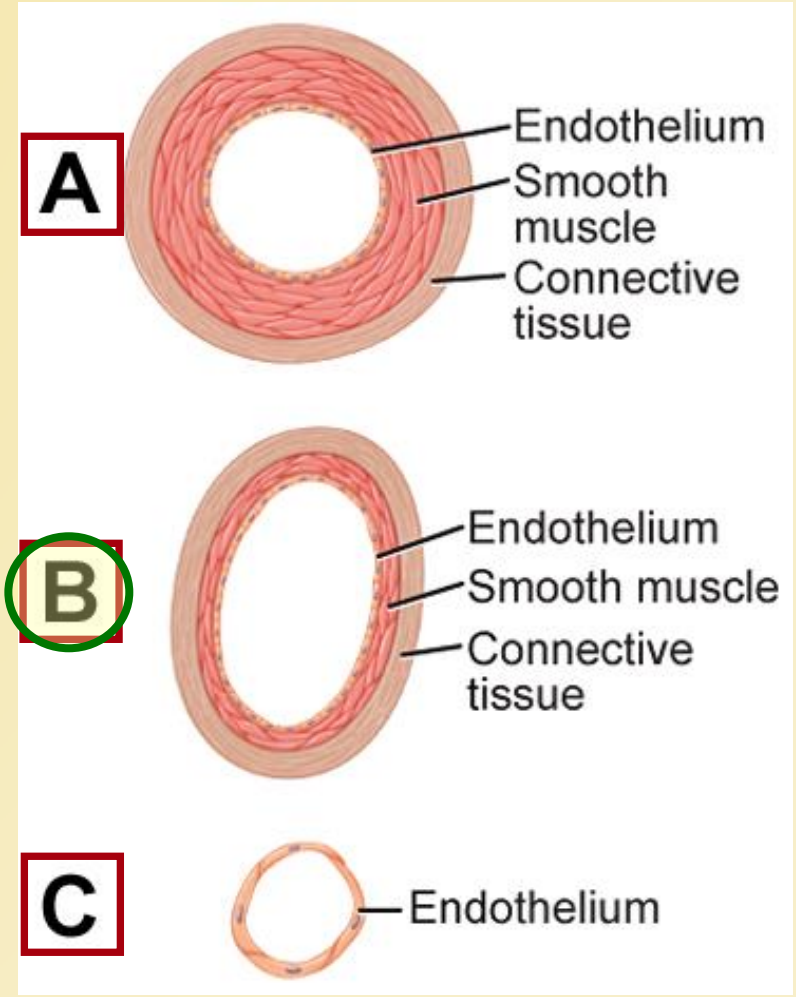
C. red blood cells

D. white blood cells

34.1 Formative Questions

CheckPoint

Which is a vein?



34.1 Formative Questions

CheckPoint

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

A. arteries

B. arterioles

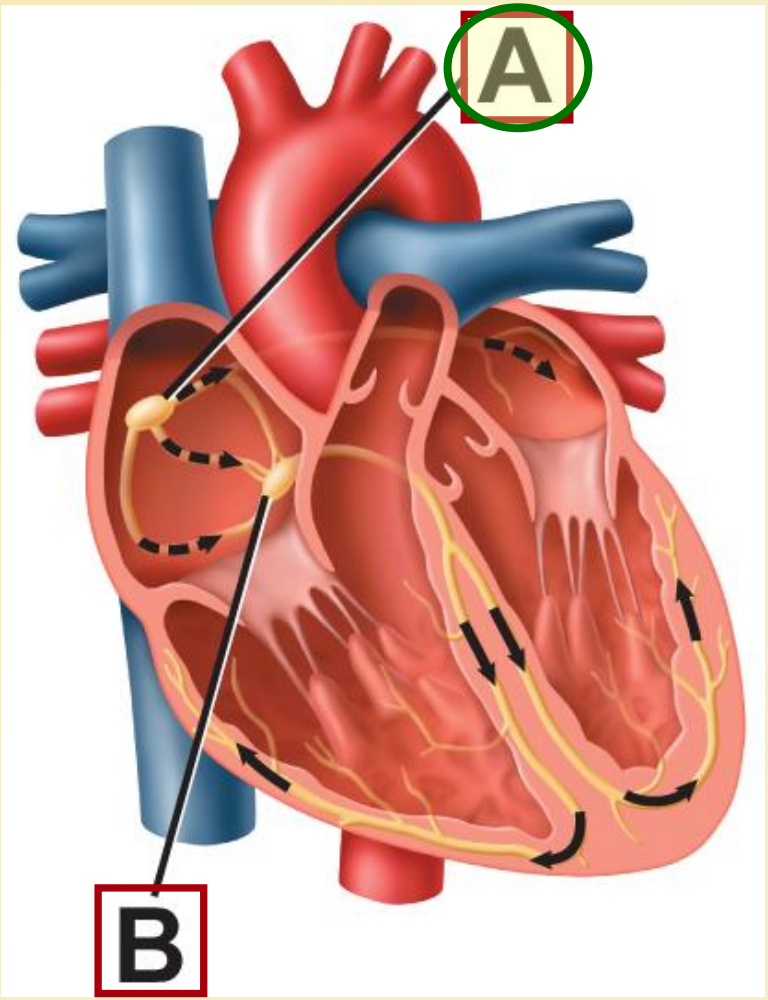
C. veins

D. venules

34.1 Formative Questions

CheckPoint

Which node is the pacemaker for the heart?



34.1 Formative Questions

CheckPoint

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

CheckPoint

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

CheckPoint

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

A. by diffusion

B. by osmosis

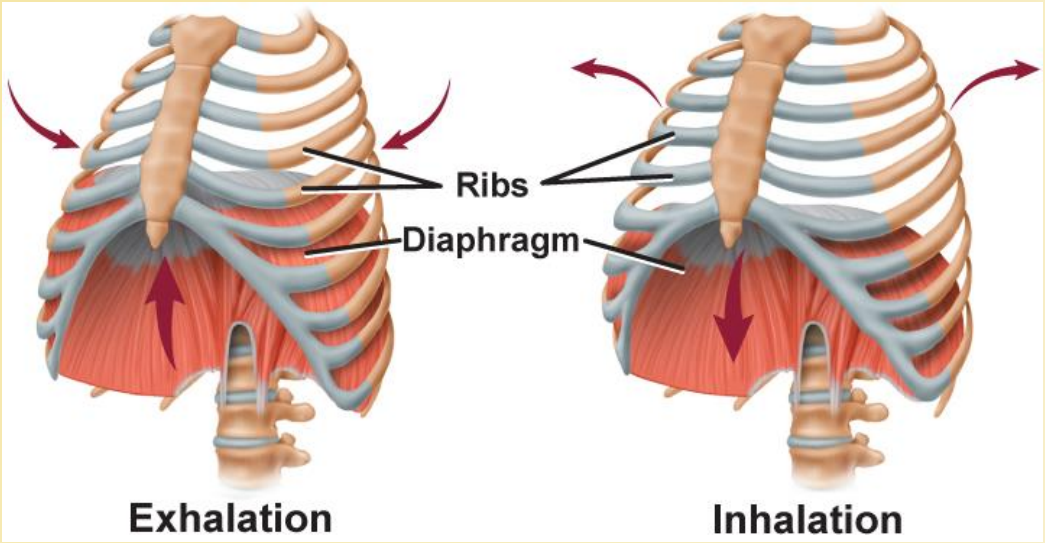
C. by active transport

D. by membrane pumps

34.2 Formative Questions

CheckPoint

What causes inhalation of air to the lungs?



A. Rib and diaphragm muscles contract.

B. Rib and diaphragm muscles relax.

34.2 Formative Questions

CheckPoint

What internal stimulus causes breathing rate to increase?

A. a high concentration of O_2 in the blood

B. a high concentration of CO_2 in the blood

C. a low concentration of O_2 in the blood

D. a low concentration of CO_2 in the blood

34.2 Formative Questions

CheckPoint

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

CheckPoint

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

A. It controls levels of CO_2 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

CheckPoint

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

CheckPoint

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

CheckPoint

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

CheckPoint

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

CheckPoint

Which is *not* true of red blood cells?

A. live for about 120 days

B. fight disease

C. develop in the marrow

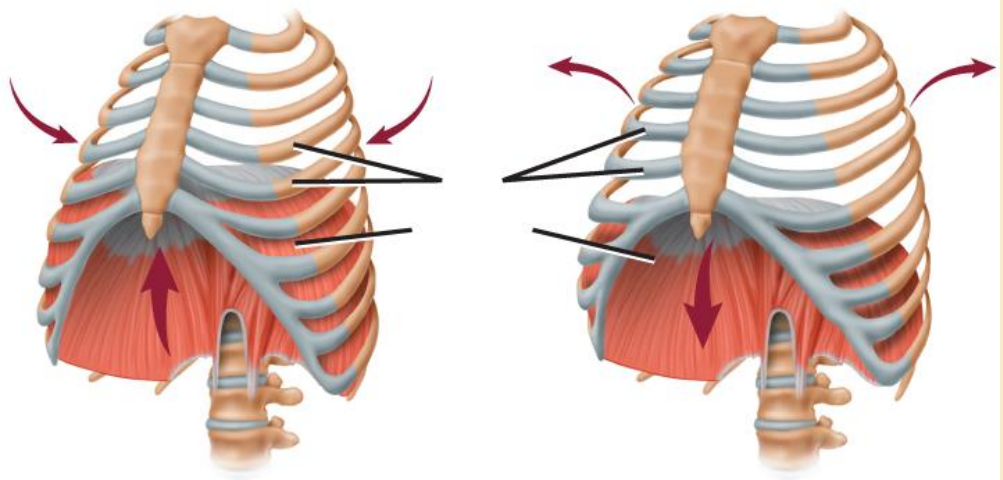
D. have no nuclei

Chapter Assessment Questions

CheckPoint

What structure contracts during inhalation?

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



Standardized Test Practice

CheckPoint

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

A. left atrium

B. left ventricle

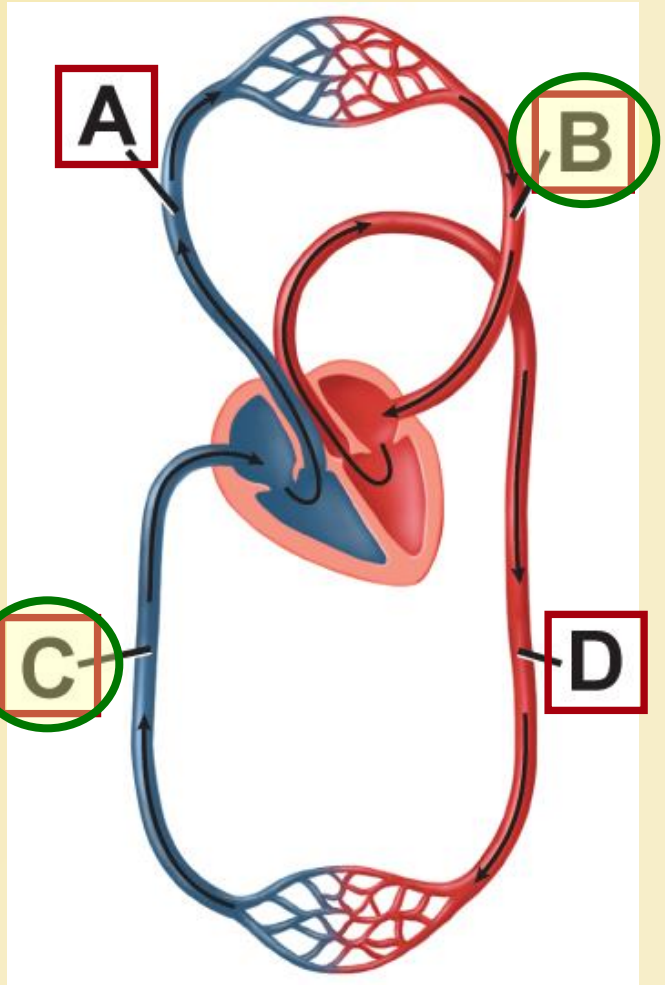
C. right atrium

D. right ventricle

Standardized Test Practice

CheckPoint

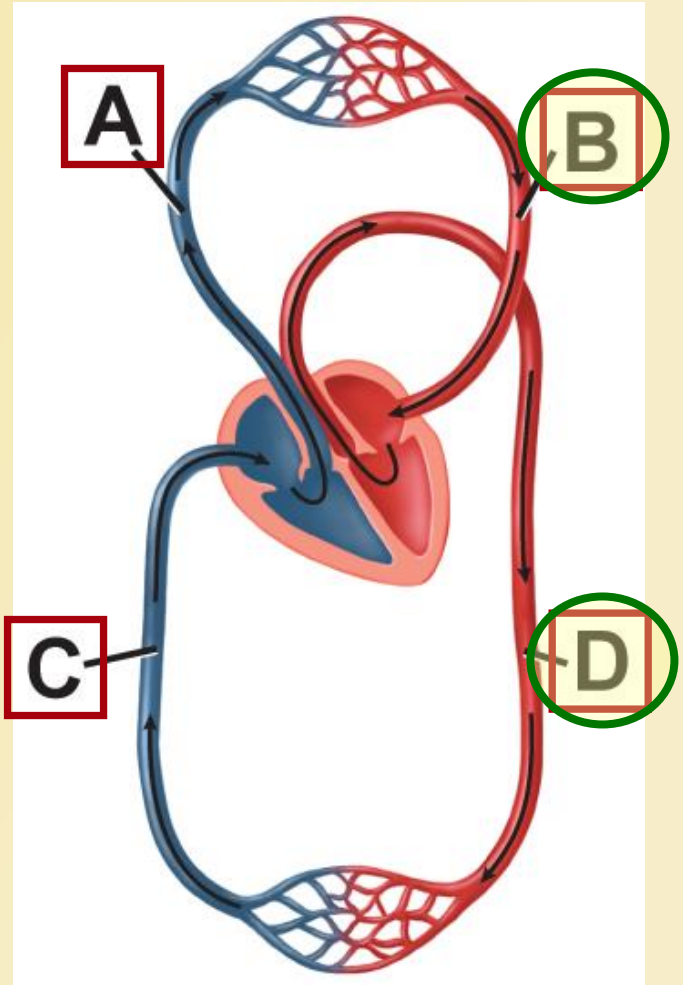
Which two blood vessels are veins? (Two answers)



Standardized Test Practice

CheckPoint

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



Standardized Test Practice

CheckPoint

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.

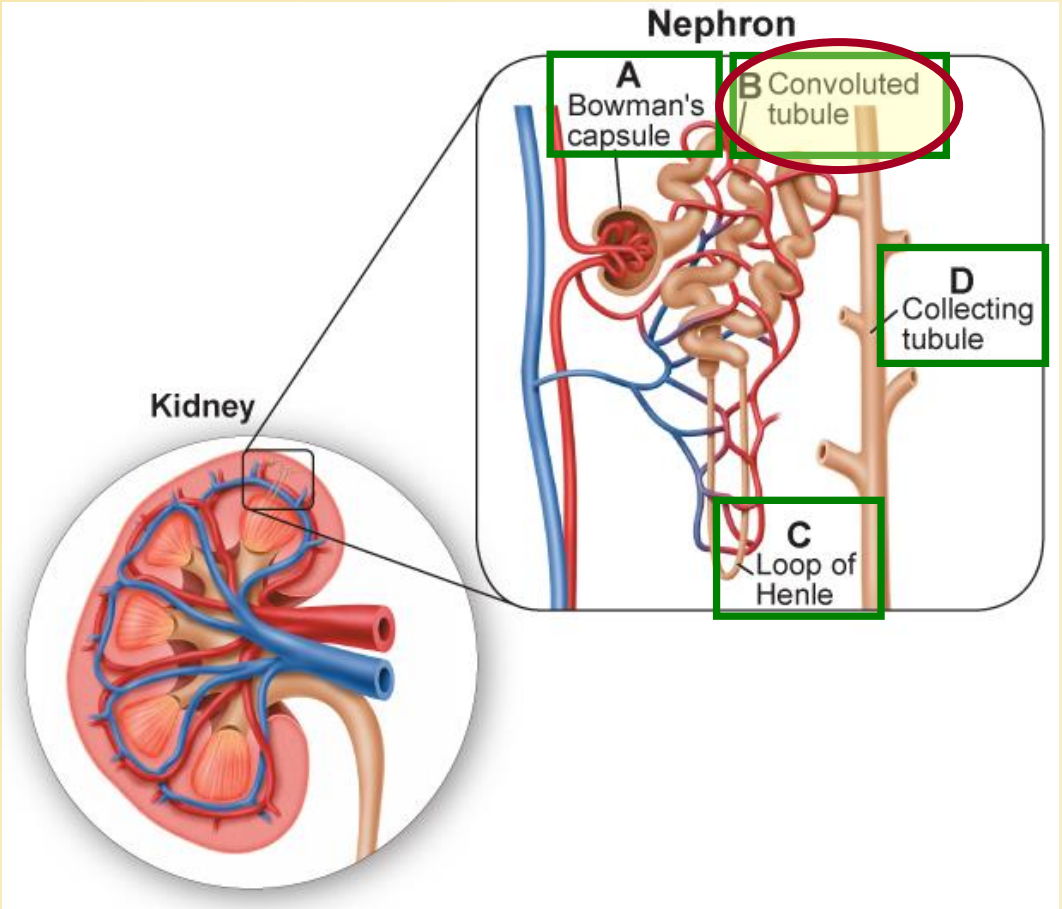
C. She has Anti-A antibodies in her blood plasma.

D. She has Anti-B antibodies in her blood plasma.

Standardized Test Practice

CheckPoint

Where is urea filtered out of the blood?



Standardized Test Practice

CheckPoint

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

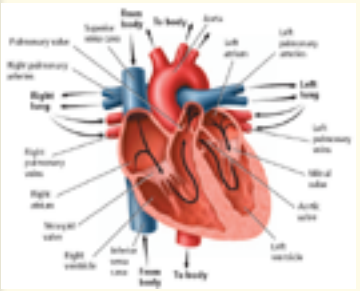
A. accumulate urea and toxins

B. filter out sugars and proteins

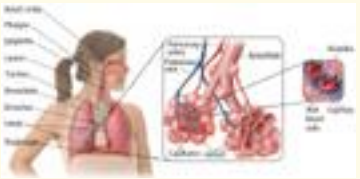
C. reabsorb water and glucoset

D. store salts and minerals

Glencoe Biology Transparencies



Blood type	A	B	AB	O
Marker molecule and antibody	Marker molecule: A Antibody: anti-B	Marker molecule: B Antibody: anti-A	Marker molecules: AB Antibody: none	Marker molecules: none Antibodies: anti-A, anti-B
Example				
Can donate blood to:	A or AB	B or AB	AB	A, B, AB, or O
Can receive blood from:	A or O	B or O	A, B, AB, or O	O



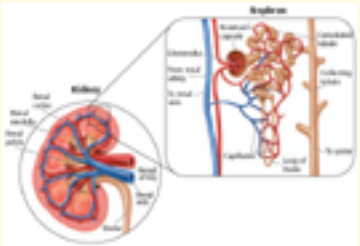
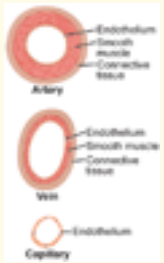
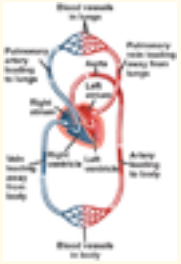
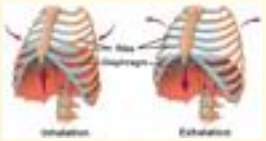


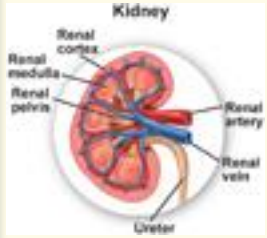
Image Bank

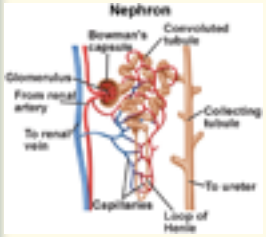

Endothelium
Smooth muscle
Connective tissue
Artery
Endothelium
Smooth muscle
Connective tissue
Vein
Endothelium
Capillary






Lungs
Skin
Kidney
Ureter
Urinary bladder
Urethra


Kidney
Renal cortex
Renal medulla
Renal pelvis
Renal artery
Renal vein
Ureter


Nephron
Bowman's capsule
Convoluted tubule
Glomerulus
From renal artery
To renal vein
Collecting tubule
To ureter
Capillaries
Loop of Henle

Vocabulary

Section 1

- artery
- capillary
- vein
- valve
- heart
- pacemaker
- plasma
- red blood cell
- platelet
- white blood cell
- atherosclerosis

Vocabulary

Section 2

- breathing
- external respiration
- internal respiration
- trachea
- bronchus
- lung
- alveolus

Vocabulary

Section 3

- kidney
- urea

Animation

Concepts In Motion

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