

Circulation

- Circulation is the process of transporting gases, nutrients and wastes around the body.
- There are **three** organs in the circulatory system:
 - **Heart** – a double system pump made of cardiac muscle.
 - **Blood vessels** – are tubes which allow the movement of blood throughout the body.
 - **Blood** – a liquid organ, that carries oxygen, nutrients, water **to** cells and removes carbon dioxide and waste **from** cells.

CFU 1

What is circulation?

CFU 2

Which characteristics does it allow the body to perform?

CFU 3

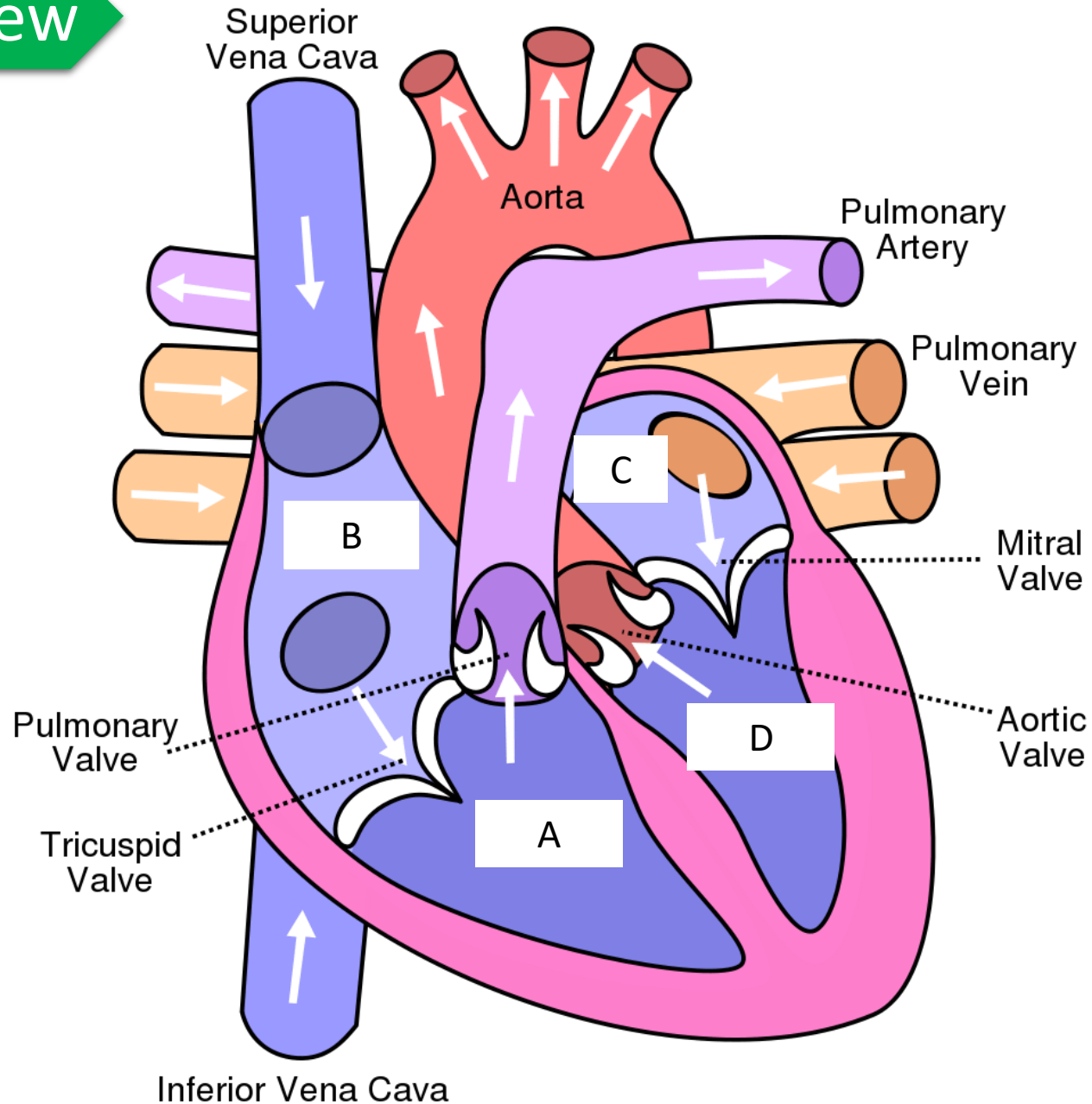
What are the three organs of the circulatory system?

7 Characteristics of living things

Move
Respond
Grow
Reproduce
Excrete waste
Exchange gases
Nutrition

Daily Review

Heart



CFU 1

In this diagram, which letter represents the left atrium?

CFU 2

In this diagram, which letter represents the right ventricle?

CFU 3

Oxygenated blood comes from lungs and enters the left atrium. How is it pumped to the rest of the body?

Circulatory System – Blood Vessels

Learning Objectives

1. Identify types of blood vessels in the circulatory system
2. Describe the function of each type of blood vessel in the circulatory system

Activate Prior Knowledge

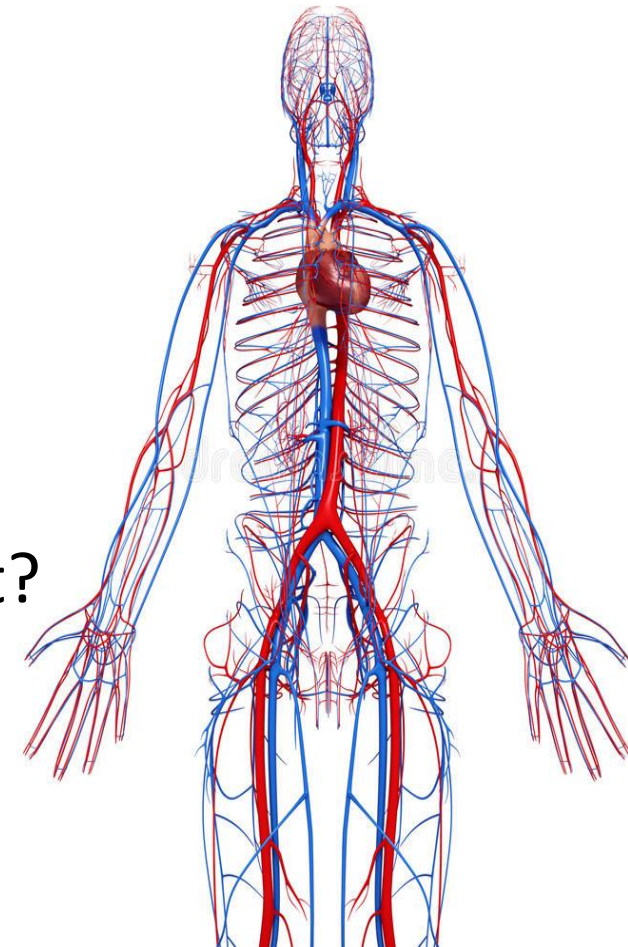
There are many systems of organs in the human body.

Think, Pair, Share: In the circulatory system, what is the function of the heart?

Think, Pair, Share: What are the four chambers of the heart?

CFU

What are we going to learn?



Concept Development

The Circulatory System – Blood Vessels

- Blood vessels are made of three types of tubes:
 - Arteries – have thick walls and carry blood away from the heart
 - Veins – have thinner walls and carry blood back to the heart
 - Capillaries – are only one cell thick and pass oxygen, nutrients and wastes from blood to the cells.

CFU 1

How many types of tubes are there in blood vessels?

CFU 2

Which way does the blood flow in the arteries?

CFU 3

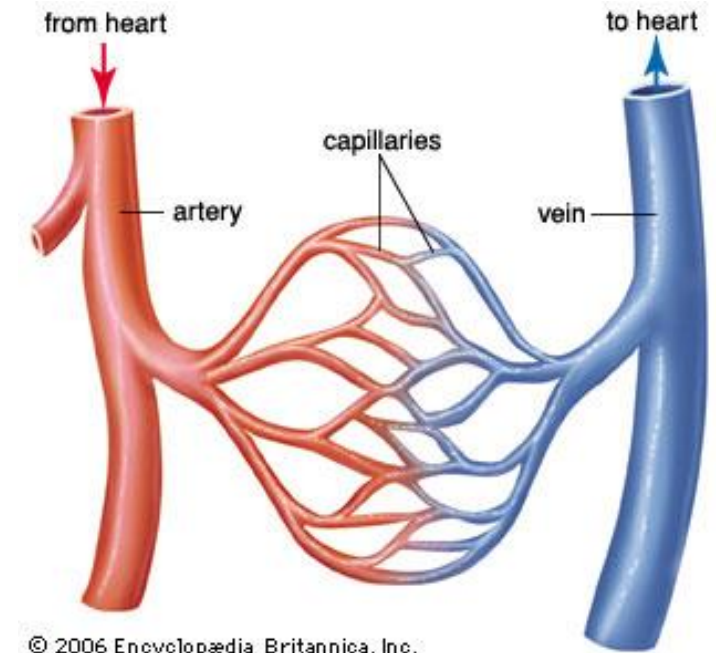
Which way does the blood flow in the veins?

CFU 4

Which blood vessel are the smallest?

CFU 5

What is the difference between arteries, veins and capillaries?



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Concept Development

CFU 1

Why does an artery have a thicker wall?

CFU 2

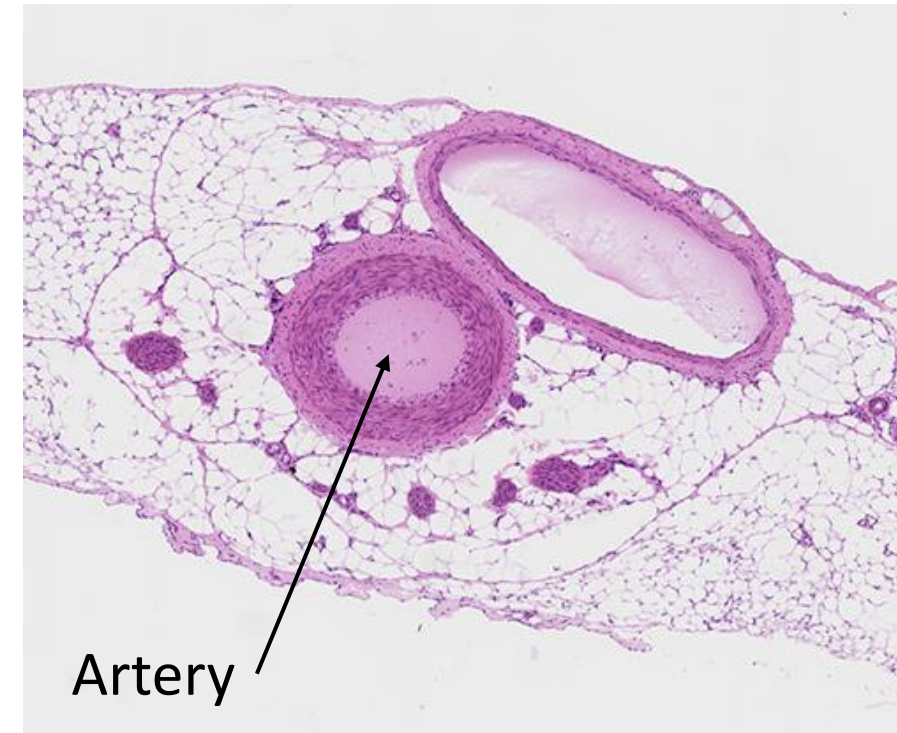
Why are the arteries elastic?

Arteries

- Transports blood **away** from heart.
- They have **thick, muscular** walls to provide **strength** for high pressure pumping of blood.
- They are **elastic** to maintain blood pressure even when the heart relaxes.
- The arteries dilate and constrict, which creates a pulse.

CFU 3

How does the artery create a pulse?



Vocabulary

Dilate: become wider

Constrict: become narrow

Concept Development

CFU 1

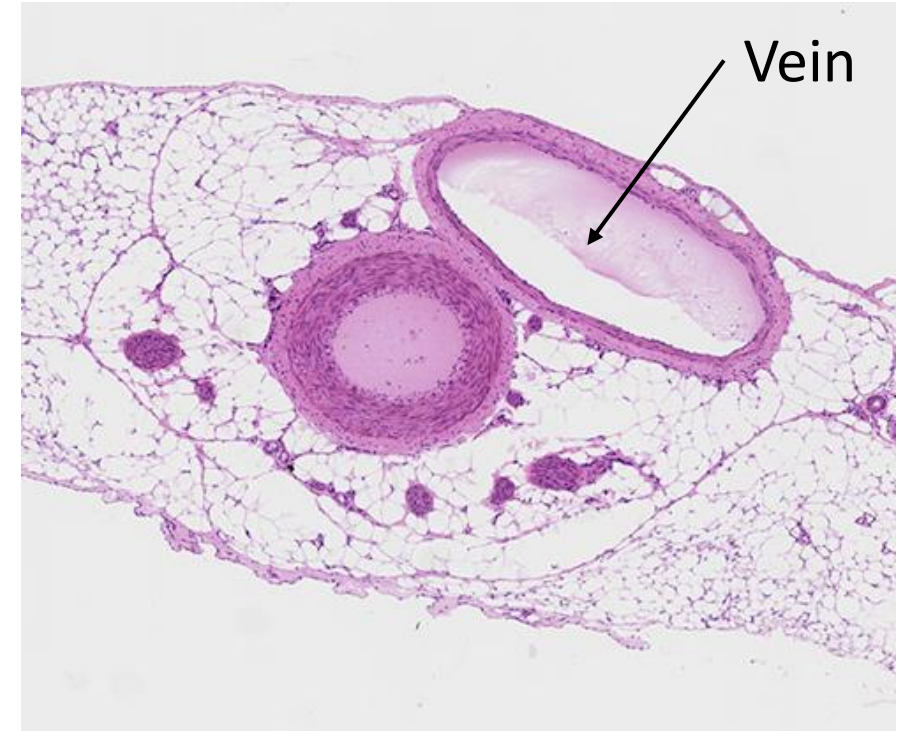
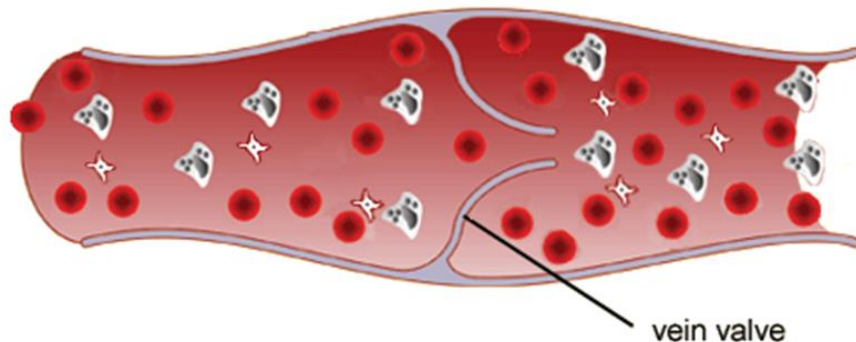
What is being carried by the veins?

CFU 2

Why do veins have thinner tubes than arteries?

Veins

- Return blood **back** to heart
- They have **thinner**, more **flexible** walls
- The blood travels at **low speed** and **pressure**, due to the distance from the heart.
- Veins have **one-way valves** which allow blood to flow only toward heart.
- Movement of your muscles squeeze the veins, putting enough pressure to move blood along.



CFU 3

What is the purpose of the valves?

CFU 4

How does blood move through veins?

Concept Development

CFU 1

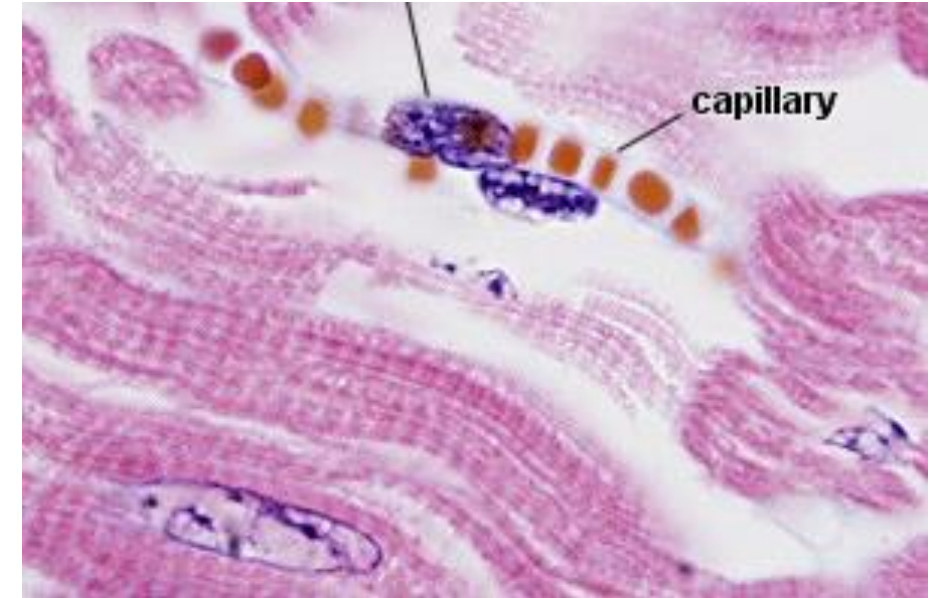
What is being carried by the veins?

CFU 2

Why do veins have thinner tubes than arteries?

Capillaries

- Are the **smallest** and most numerous of the blood vessels
- They are only **one cell thick** allowing exchange of nutrients and oxygen into body cells and transports wastes out of the cells.



CFU 3

What is the purpose of the valves?

Skill Development/Guided Practice

Describing blood vessels

1. If the blood vessel carries blood to individual cells = Capillary
2. Look at the walls of the blood vessel.
 - a) Thick walls = artery
 - b) Thin walls = vein
3. Describe the function of the blood vessel

Describe the blood vessel marked with the arrow.

The blood vessel is an artery that carries blood away from the heart because it has thick, muscular walls.

CFU 1

Does the blood vessel carry blood to individual cells?

CFU 2

Are the walls thick or thin?



Skill Development/Guided Practice

Describing blood vessels

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The blood vessel is a vein that carries blood towards the heart because it has thin, flexible walls.

CFU 1

Does the blood vessel carry blood to individual cells?

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Skill Development/Guided Practice

Describing blood vessels

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Describe the blood vessel marked with the arrow.

The blood vessel is a capillary that carries substances to and from cells because it is going to individual cells.

CFU 1

Does the blood vessel carry blood to individual cells?

CFU 2

Are the walls thick or thin?



Skill Development/Guided Practice

Describing blood vessels

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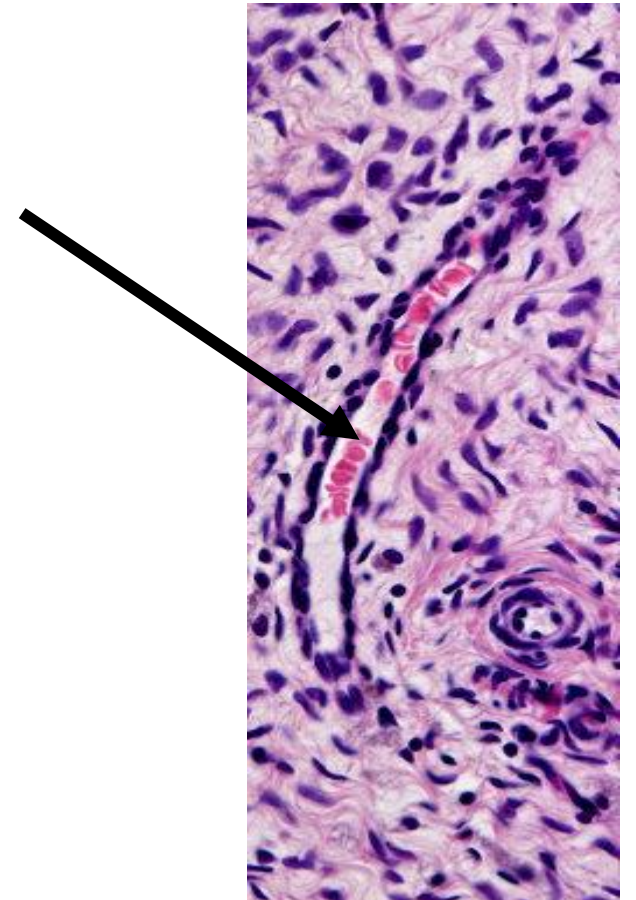
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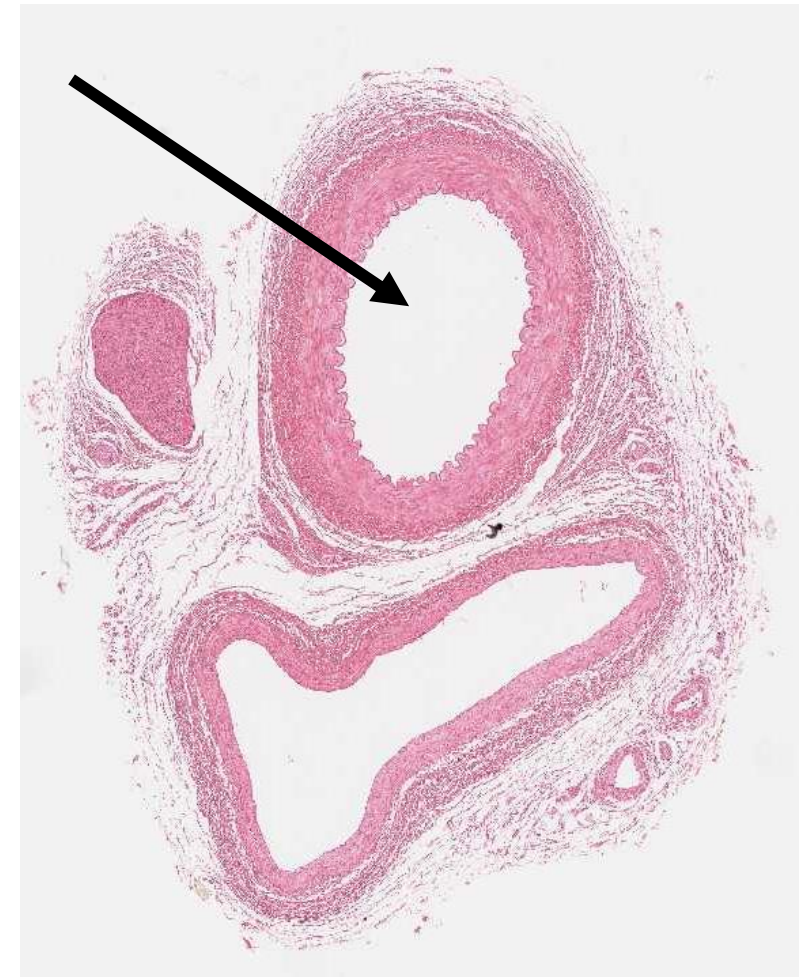
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CFU 1

Does the blood vessel carry blood to individual cells?

CFU 2

Are the walls thick or thin?



Relevance

Knowing how organs work together in a system and how the systems interact with each other will help you understand how the body works.

Understanding the structure and function of the circulatory system will help you understand how we get nutrients and oxygen to our cells.

Skill Closure

For each type of blood vessel below, match it to its function.

Blood Vessel

- 1 Arteries
- 2 Capillary
- 3 Veins

Function

- A Move blood back to heart
- B Move blood away from the heart
- C Are one cell wall thick

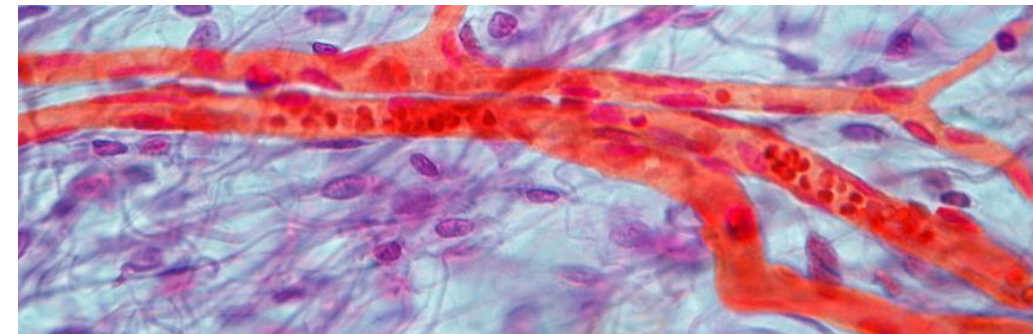


Skill Closure

Describe the difference between veins and arteries.

Skill Closure

Does the image show an artery, a vein or a capillary? Explain your choice.



Independent Practice

Work Bank

Towards
Away
Valves
Elastic
Backwards
Muscular
Thick
Organs
Thin
Oxygen
Wastes
Flexible
Nutrients

1. Copy and complete the sentences below using the word bank.

Arteries

- Transports blood _____ from the heart to _____.
- They have _____, _____ and _____ walls .

Veins

- Transports blood from body _____ the heart.
- Have _____, _____ walls.
- Have _____ to stop the blood flowing _____.

Capillaries

- Allow transport of _____ and _____ into body cells and transports _____ out of cells.

2. Complete the Blood vessels worksheet (Connect or hard copy).

- *Highlight key points in text and answer the questions*