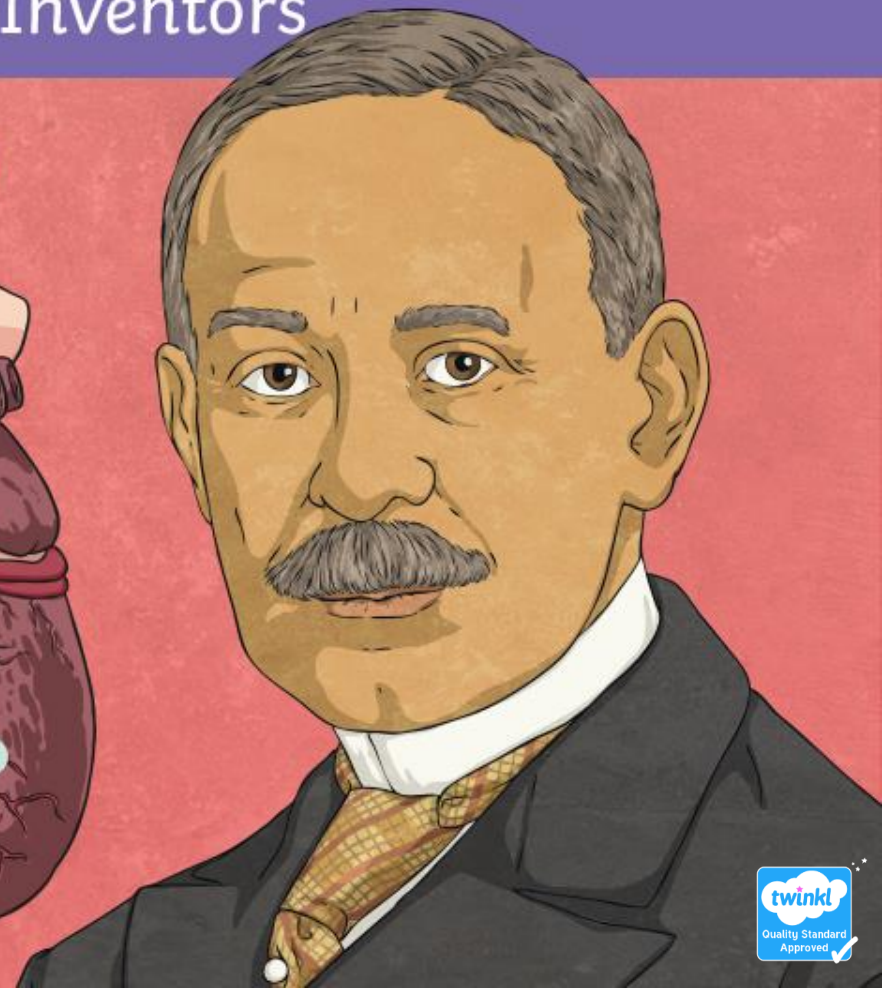
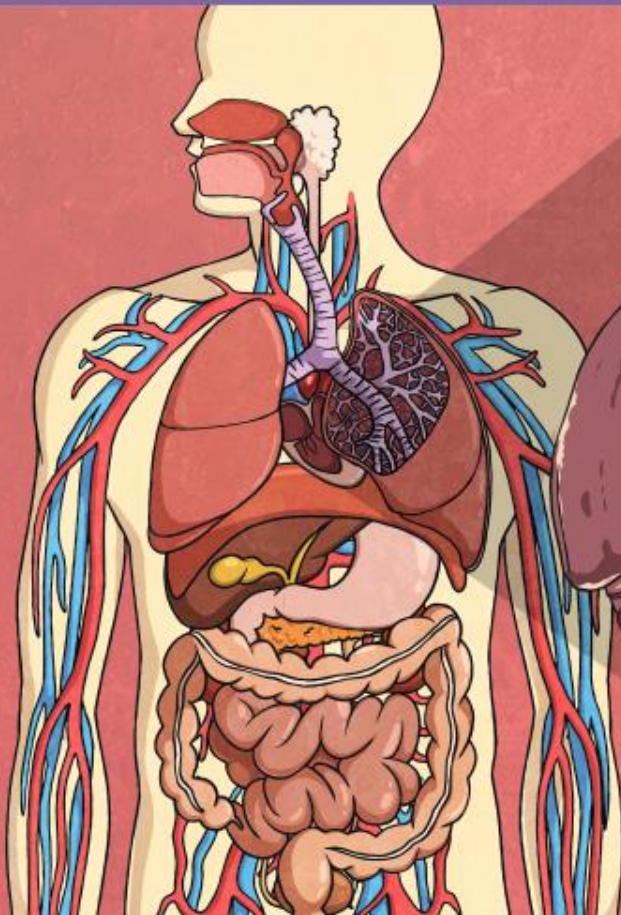


# Daniel Hale Williams

Scientists and Inventors



# Aim

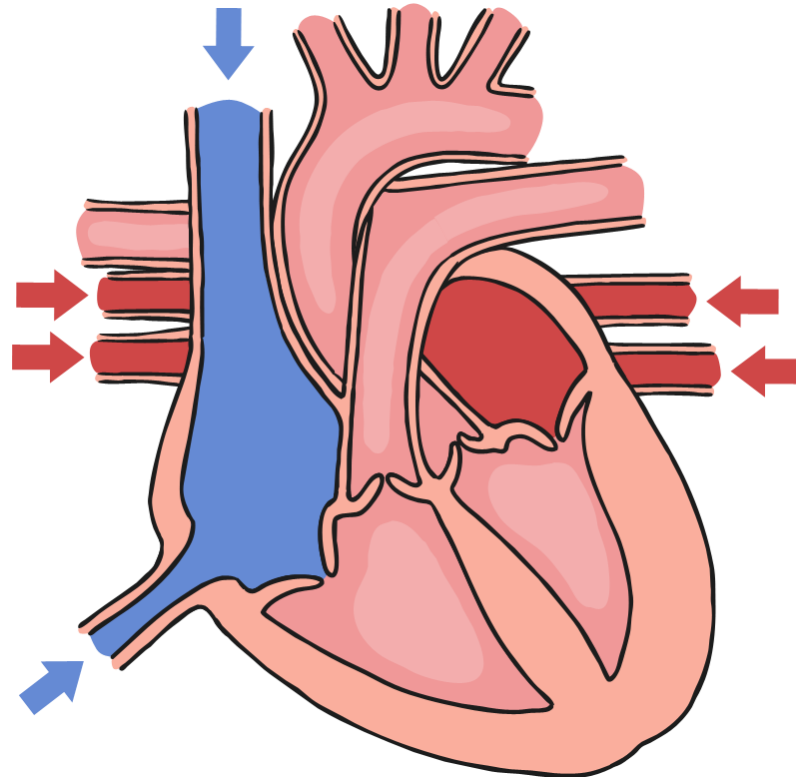
- To label the parts and functions of the circulatory system.
- To understand Dr Daniel Hale Williams' accomplishments.

# Success Criteria

- I can label the main parts of the heart.
- I can explain the basic function of the heart.
- I can discuss how the attitudes of people at different times may have presented obstacles to scientists and inventors.

# The Heart

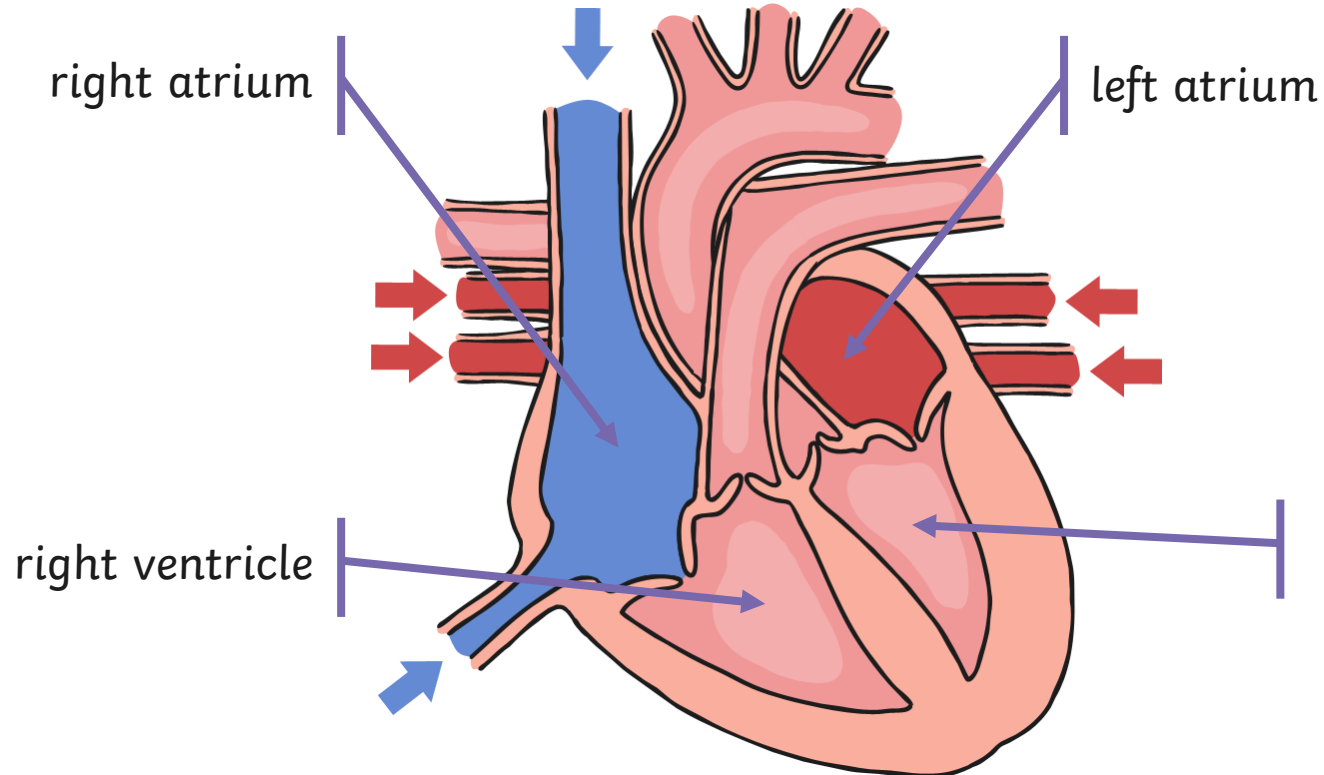
◆ We know that the heart pumps blood around the body.





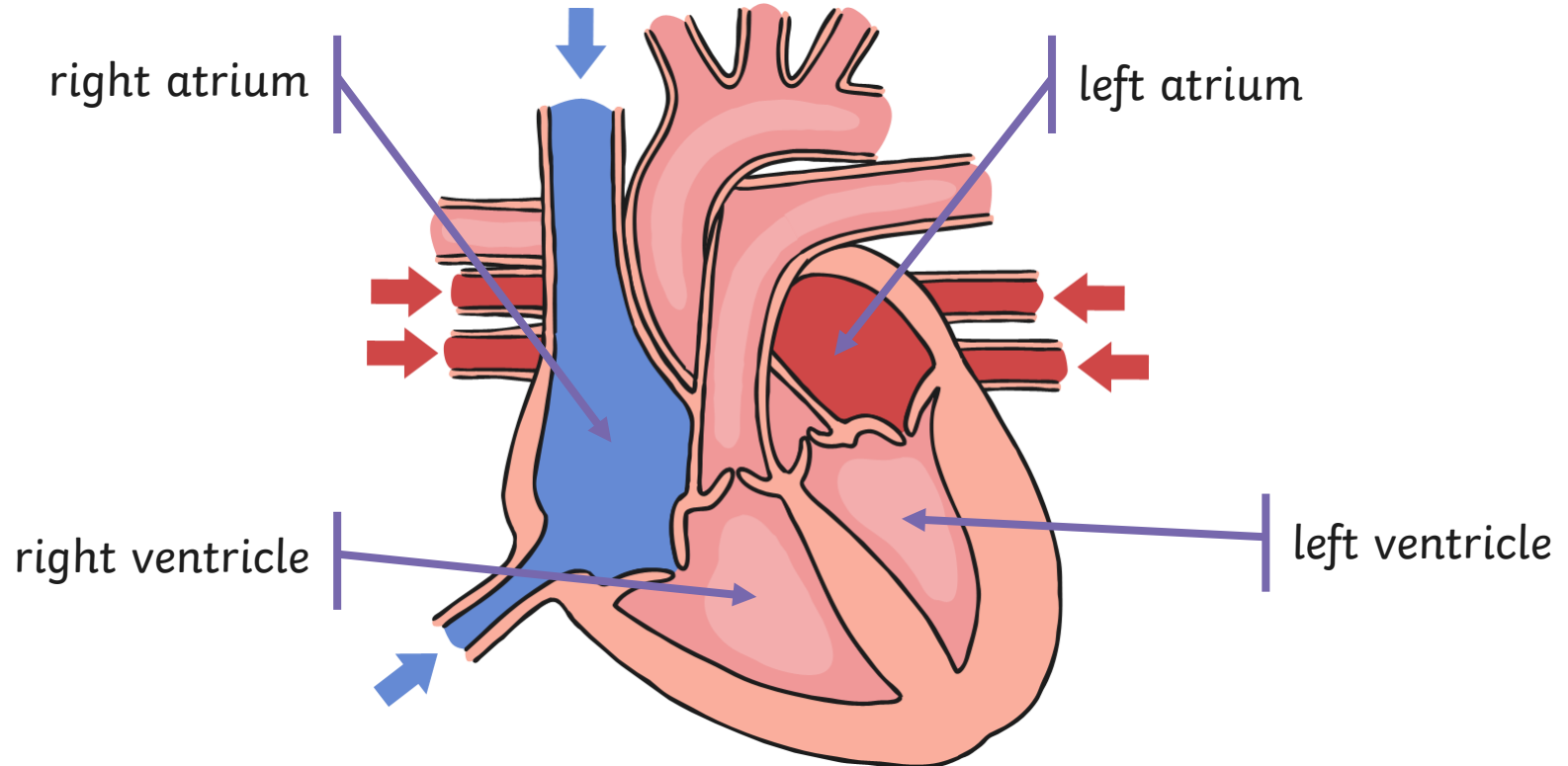
# The Heart

The heart is made of four chambers: two on the left and two on the right. The upper chambers are called the left and right atrium and the bottom chambers are the left and right ventricles.



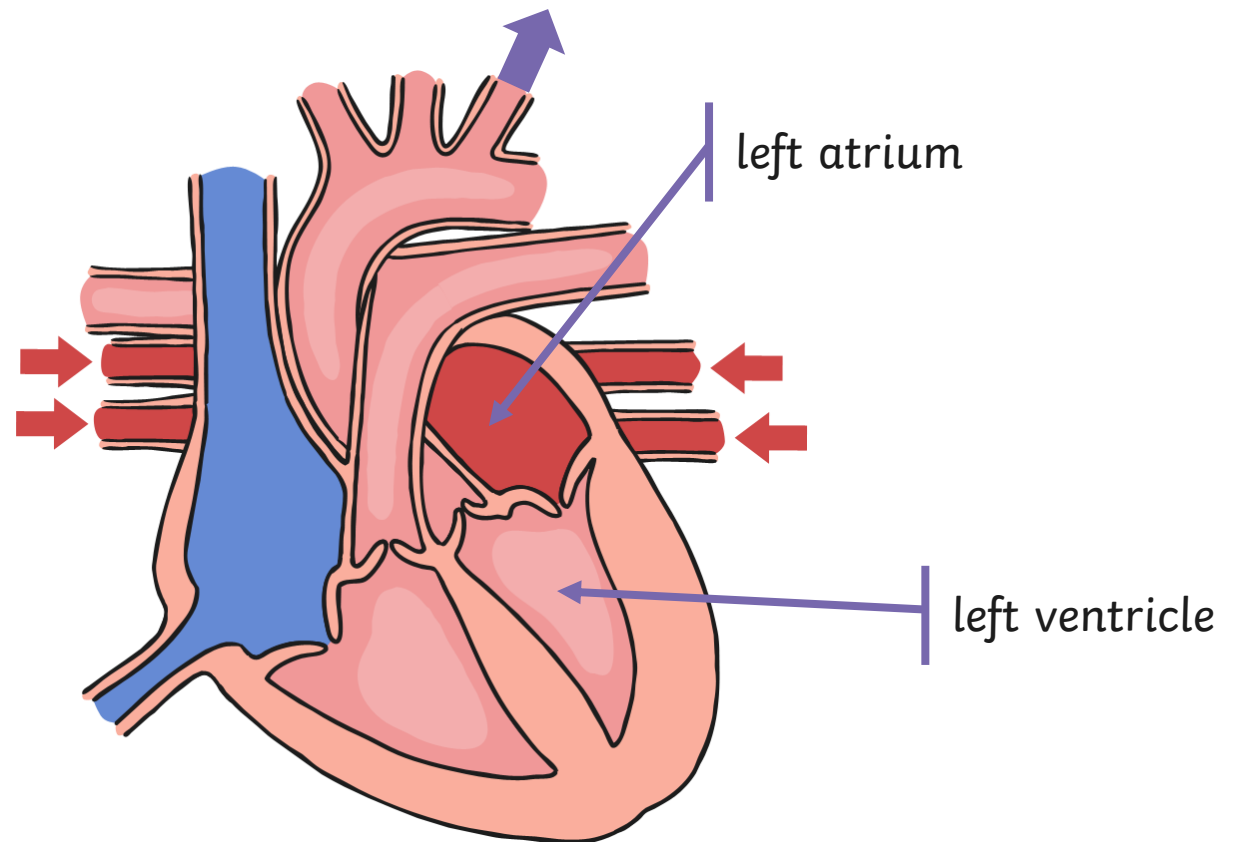
# The Heart

Diagrams are drawn as if you were looking at the heart of a person opposite you, so the right-hand chambers are drawn on the left-hand side of the diagram and vice versa.



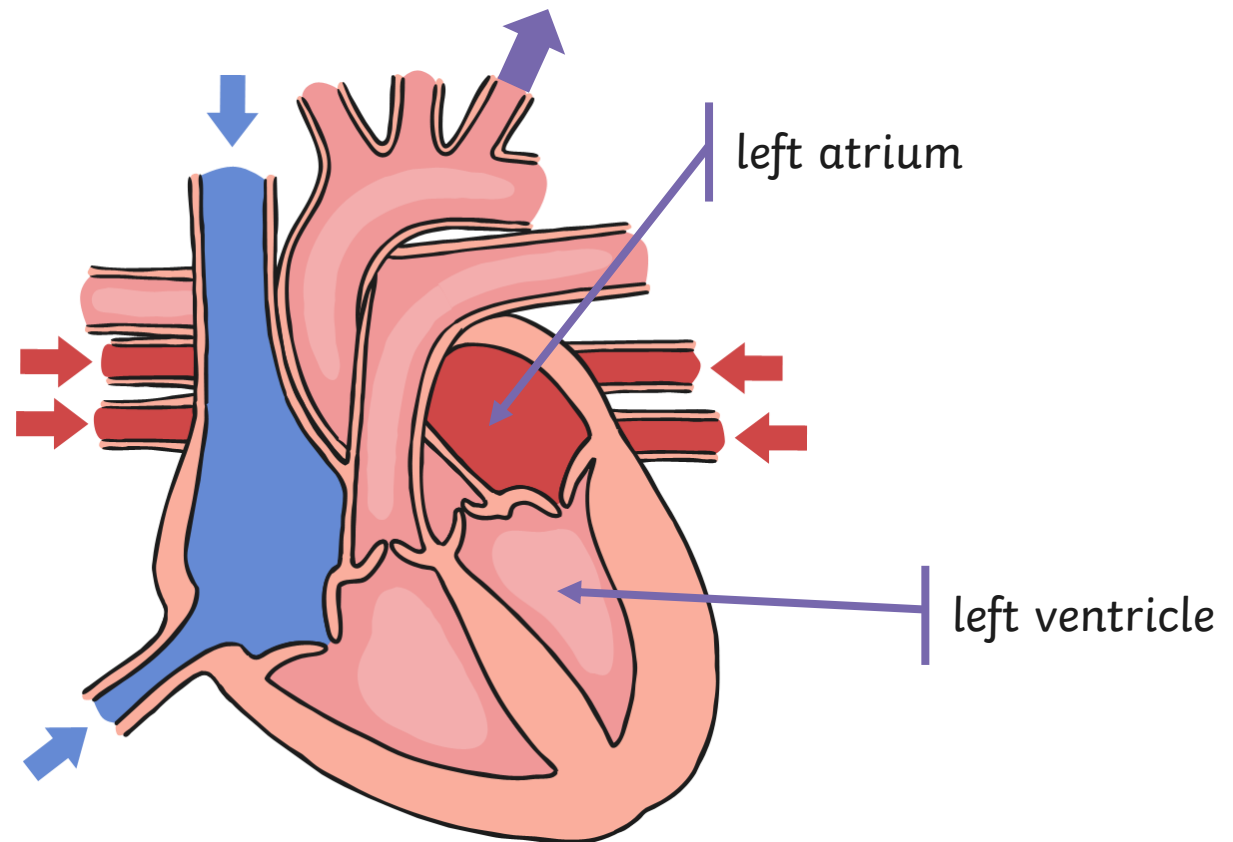
# The Heart

◇ Oxygenated blood comes from the lungs into the left atrium...



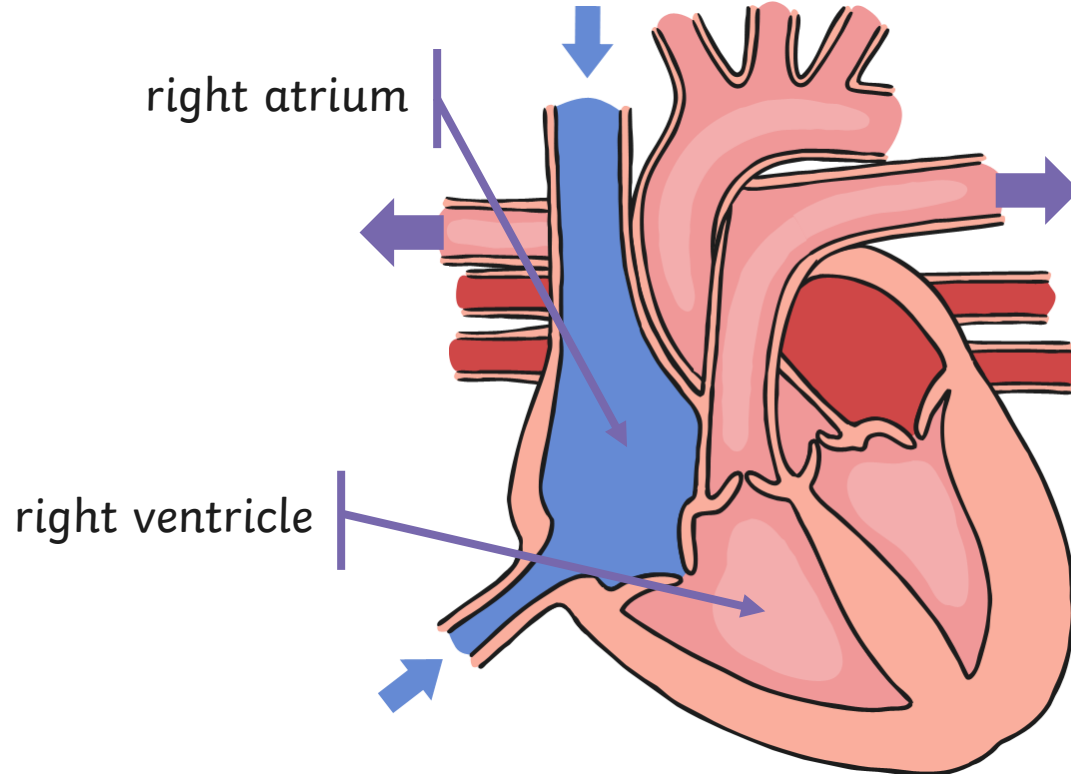
# The Heart

and exits the heart via the left ventricle to carry oxygen to the body.



# The Heart

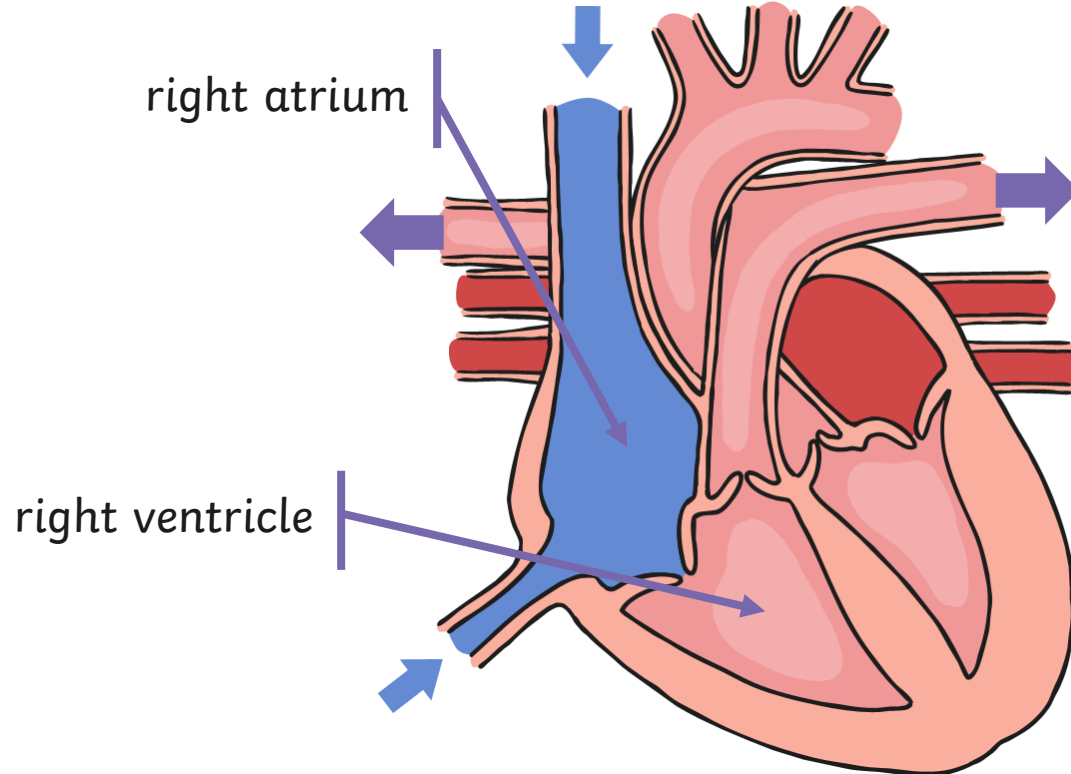
De-oxygenated blood (that has 'dropped off' its oxygen supply around the body and is now carrying carbon dioxide) enters the heart through the right atrium...





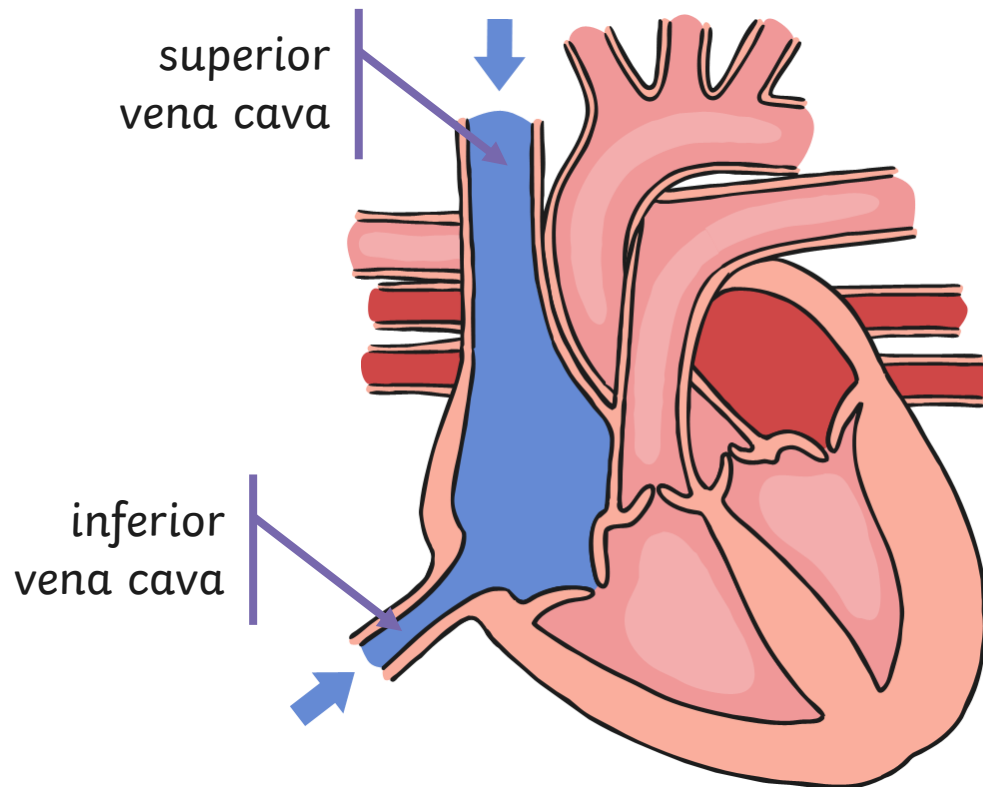
# The Heart

and exits the heart via the right ventricle and straight into the lungs to be oxygenated again.



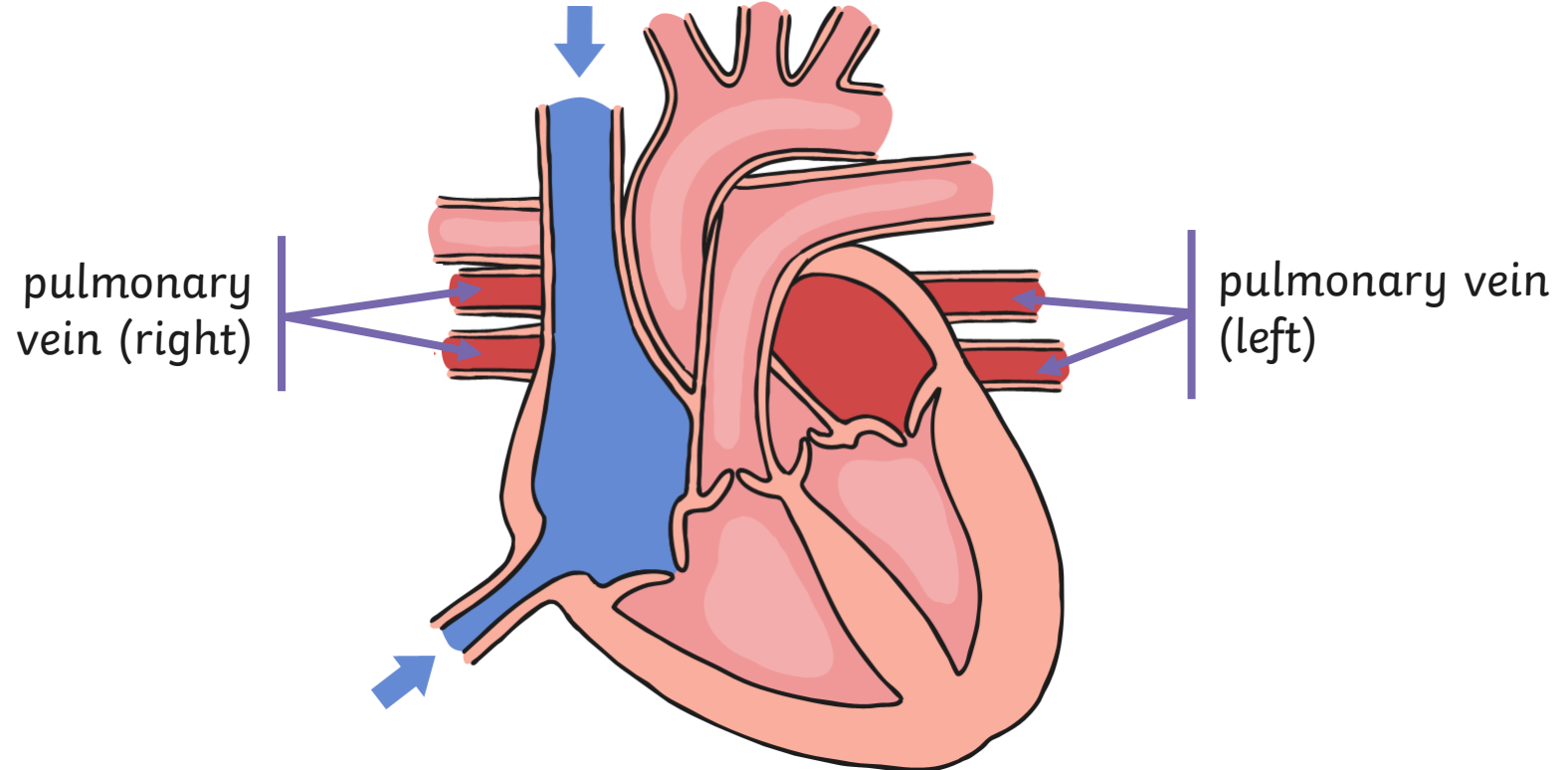
# The Heart

De-oxygenated blood coming from the body enters the heart from the **superior** and **inferior vena cava**.



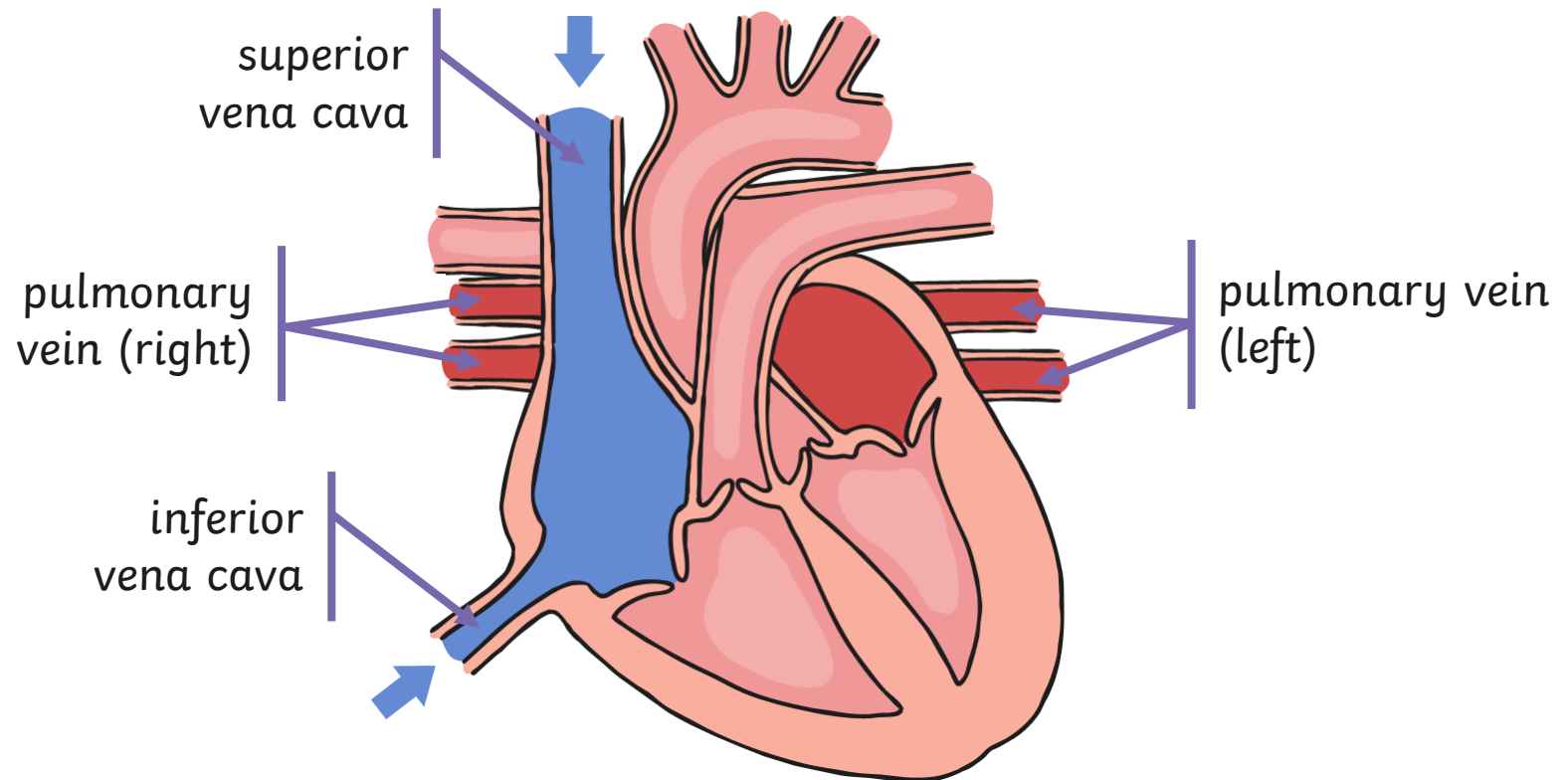
# The Heart

◆ Blood enters from the lungs from the left and right **pulmonary veins**.



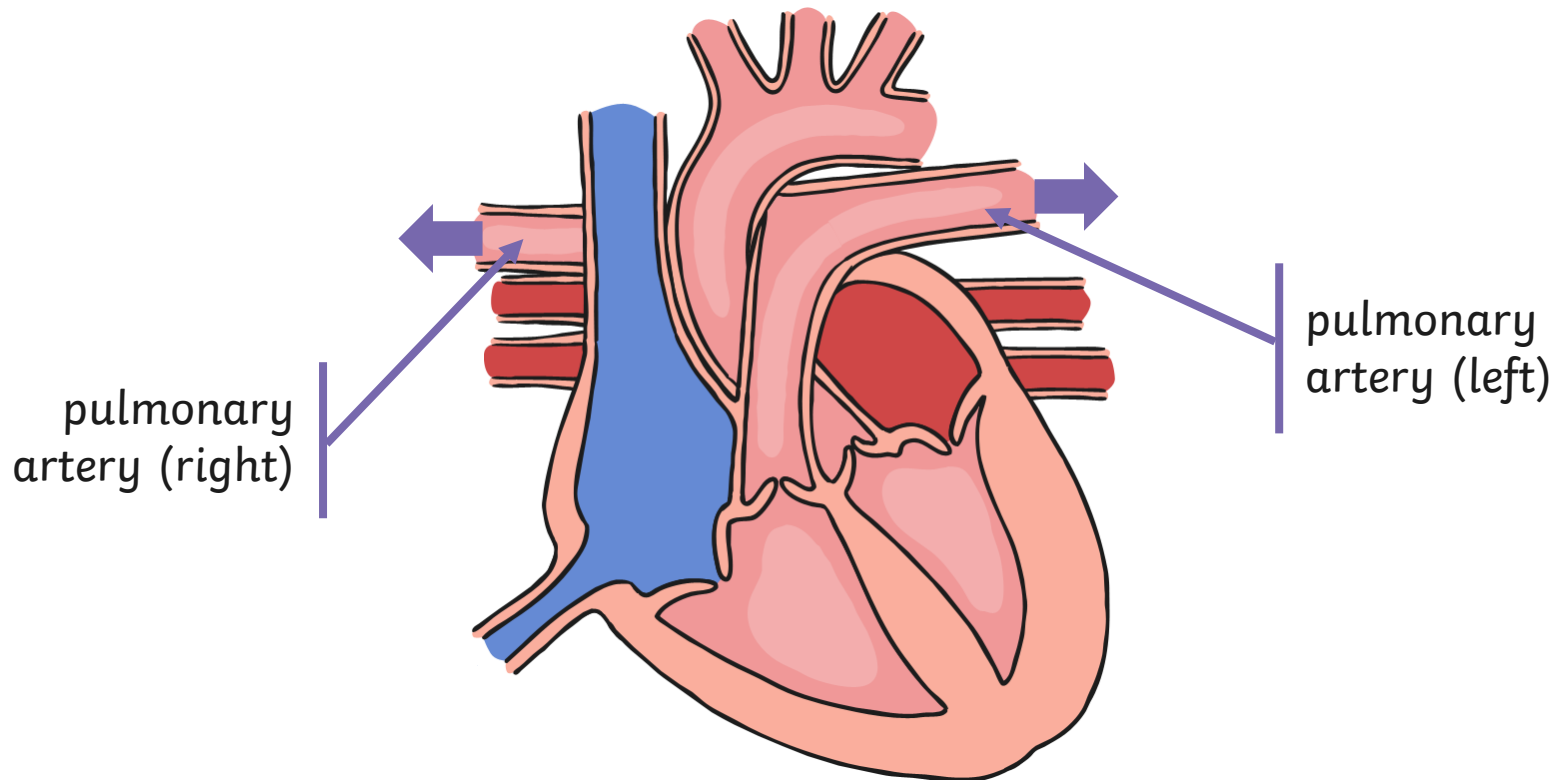
# The Heart

◆ These vessels are all large **veins**.



# The Heart

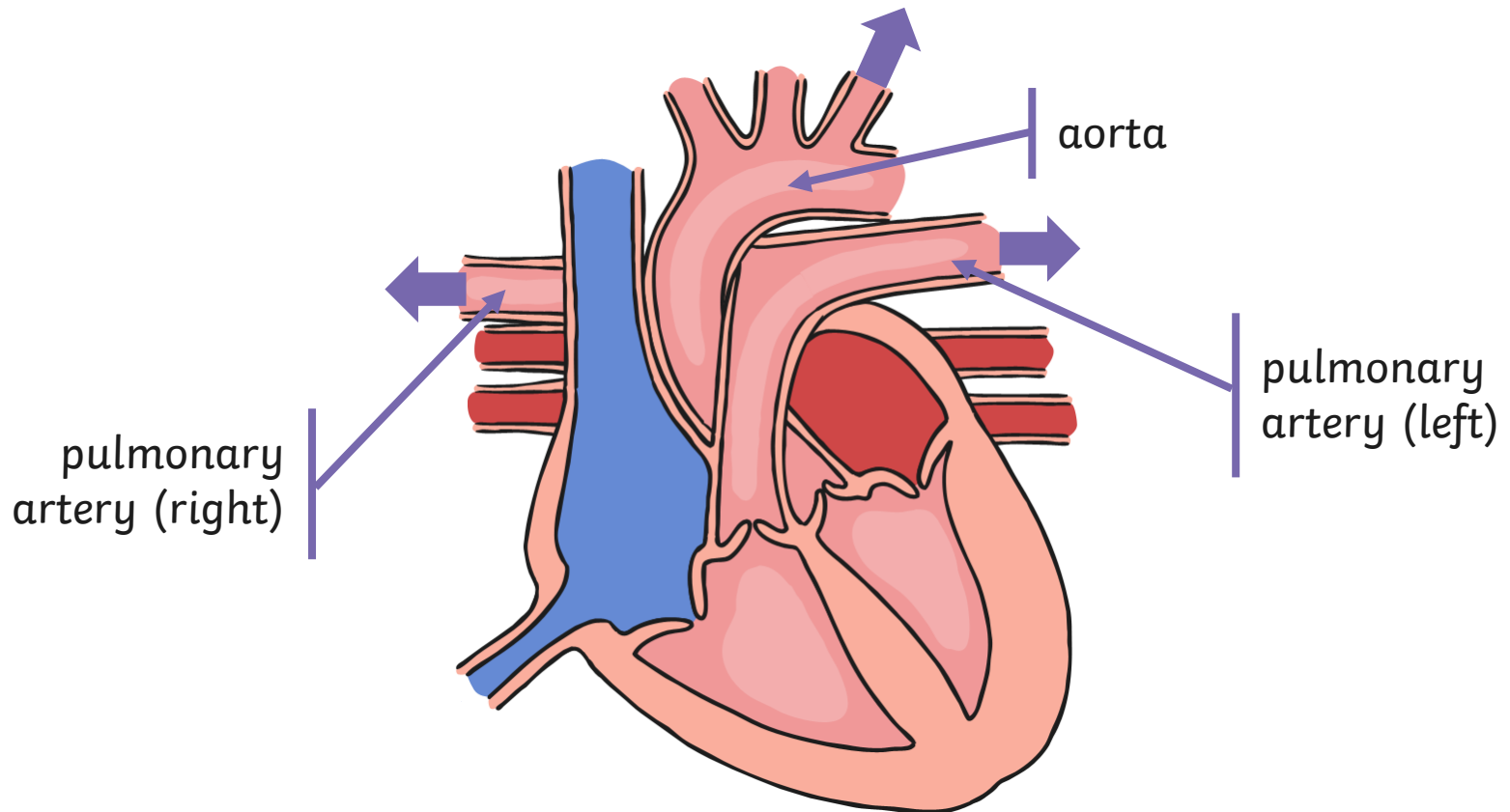
De-oxygenated blood being pumped to the lungs exits via the left and right **pulmonary arteries**.





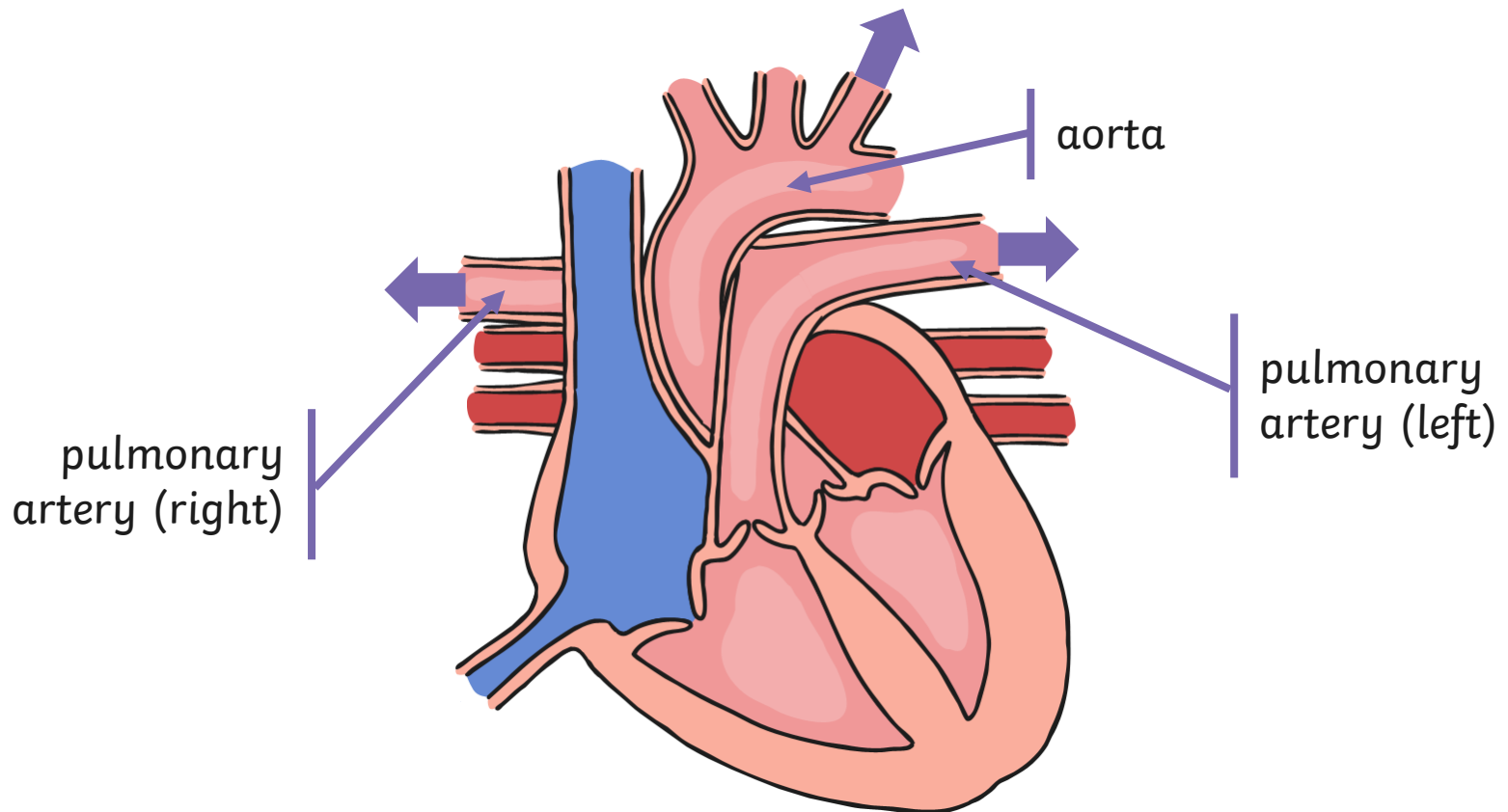
# The Heart

Oxygenated blood headed for the rest of the body exits through the **aorta**.

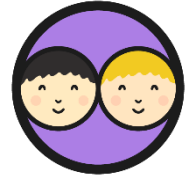


# The Heart

◆ These vessels are all large **arteries**.



# Label the Heart



See if you can label the four chambers of the heart and the main blood vessels bringing blood into and out of the heart.

Extra challenge – Can you explain the direction of blood flow? Or where each vessel leads to or from?

**Label the Heart**

inferior vena cava	left atrium	left pulmonary veins
superior vena cava	right atrium	pulmonary artery (left)
left ventricle	aorta	pulmonary artery (right)
right ventricle	right pulmonary veins	

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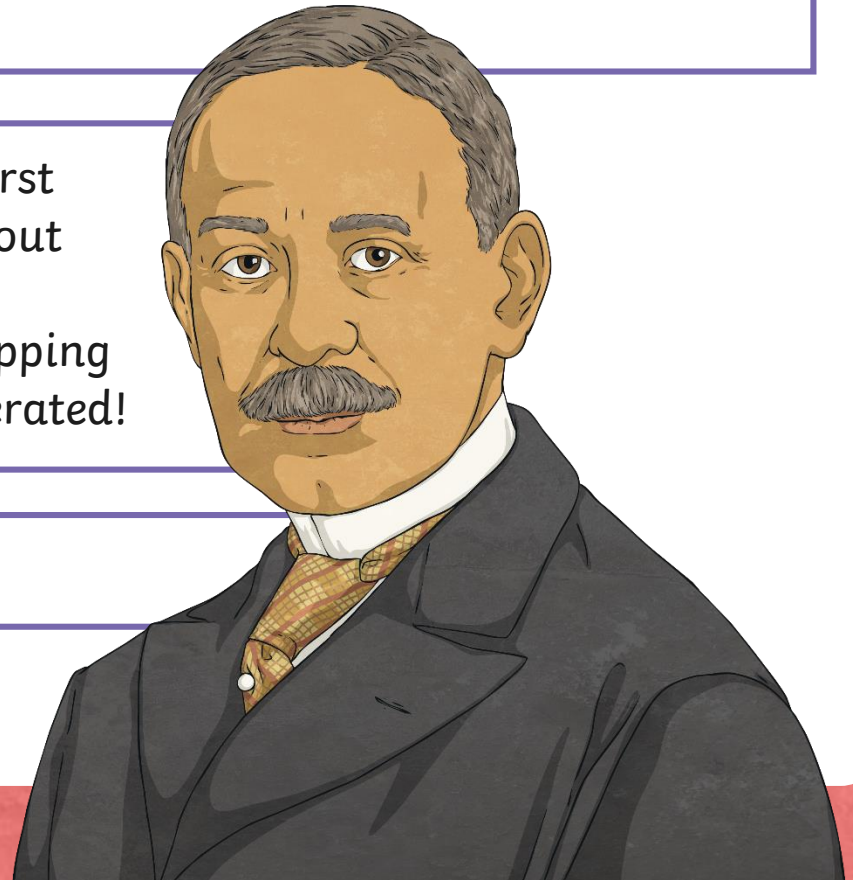
Science | Year 6 | Scientists and Inventors | Daniel Hale Williams | Lesson 6

# Dr Daniel Hale Williams

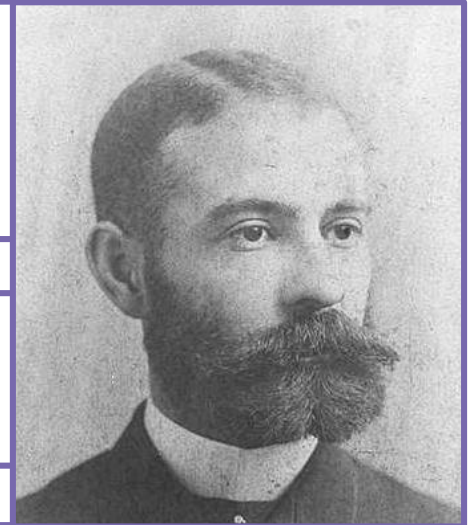
People have understood how the heart works for a long time, but due to a lack of anaesthetic, antiseptic and blood transfusions, most people couldn't expect to have their heart 'fixed' before the 1900s. That didn't stop Dr Daniel Hale Williams.

In 1893, he performed the world's first successful open-heart surgery, without blood transfusions, with unreliable anaesthetic and with no way of stopping the heart from beating while he operated!

But that's not all...



# Dr Daniel Hale Williams



◆ Dr Daniel Hale Williams is known for performing the world's first successful open-heart surgery. (It was successful because the patient survived for 20 years.)

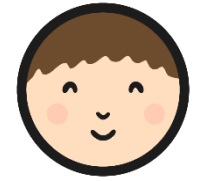
◆ Daniel Hale Williams was also the first black person admitted to the American College of Surgeons.

◆ He founded the first **multiracial** hospital and medical training schools for black nurses at a time when black people would have been refused medical treatment in many hospitals.

◆ What makes Dr Williams' achievements so impressive?



# Dr Daniel Hale Williams



Research the life and accomplishments of Dr Daniel Hale Williams to answer the questions on the **Dr Daniel Hale Williams Activity Sheet**.

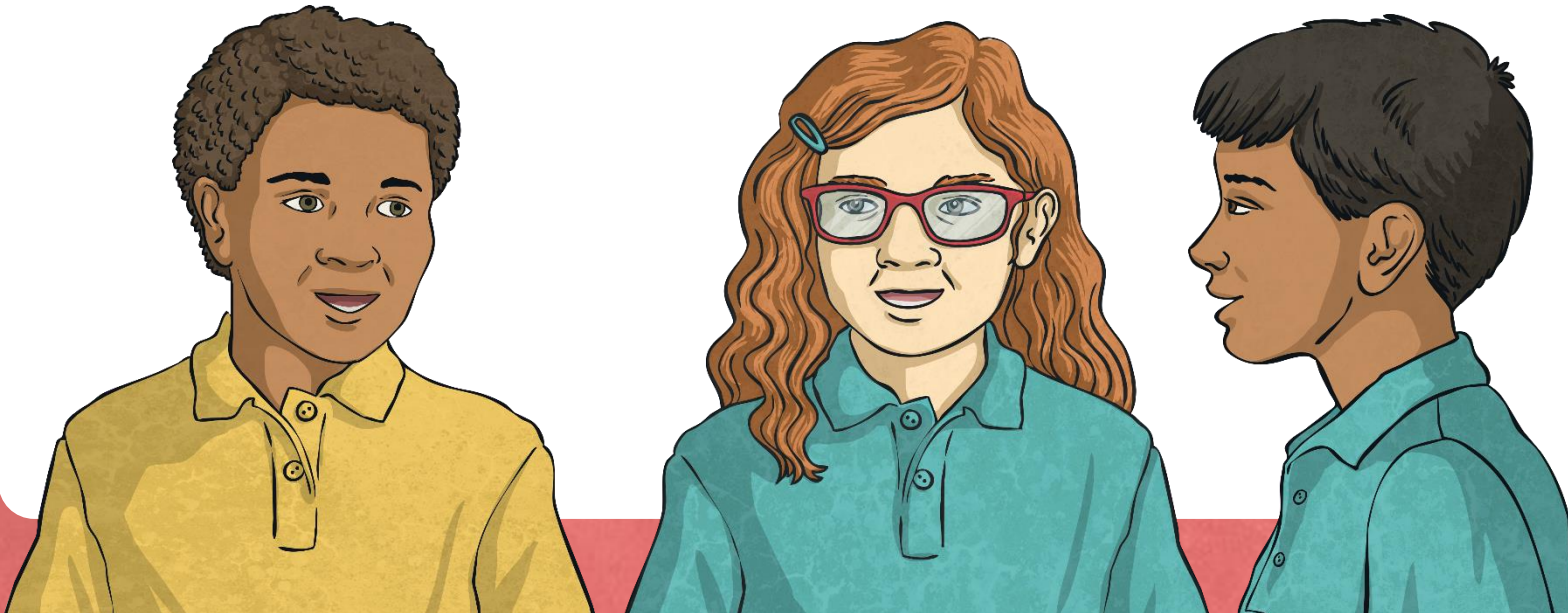
★ Dr Daniel Hale Williams	★★★ Dr Daniel Hale Williams
I can explain Dr Daniel Hale Williams' life and accomplishments.	I can explain Dr Daniel Hale Williams' accomplishments.
Research, and apply what you have found out already, to find out the answers to questions about the life and accomplishments of Daniel Hale Williams.	Research, and apply what you have found out already, to find out the answers to questions about the life and accomplishments of Daniel Hale Williams.
1. What two other occupations did Daniel Hale Williams have before he decided to study medicine? (He could have worked in...)	1. What were two other occupations considered by Daniel before he decided to study medicine?
_____	_____
2. Who is the doctor that Daniel Hale Williams became an apprentice for?	2. Who is the doctor he became an apprentice for?
_____	_____
3. Which American college did Daniel Hale Williams study at?	3. Which American college did he study at?
_____	_____
4. In what year did he perform the first open-heart surgery?	4. a) In what year did he perform the first open-heart surgery?
_____	_____
5. Which organisation did he co-found, which is still running today?	b) What modern medical resources did he have to operate without?
_____	_____
6. What is the name of the hospital he created as a training school for nurses and was the first hospital with both black and white staff in America?	5. a) Which organisation did he co-found, which is still running today?
_____	_____
7. Who was the patient he performed the first open-heart surgery on?	b) Why couldn't he join the existing medical organisation of the time?
_____	_____
8. Dr Williams often had to treat patients at home in his early years of being a doctor - why do you think this was?	6. What is the name of the hospital he created as a training school for nurses and was the first hospital with both black and white staff in America?
_____	_____
_____	7. Who was the patient he performed the first open-heart surgery on?
_____	_____
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# Dr Williams' Legacy



◆ In your group, decide three things that you think Dr Daniel Hale Williams should be remembered for.

◆ Do you think he should only be remembered for his achievements in medicine?



# Aim



- To label the parts and functions of the circulatory system.
- To understand Dr Daniel Hale Williams' accomplishments.

# Success Criteria

- I can label the main parts of the heart.
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