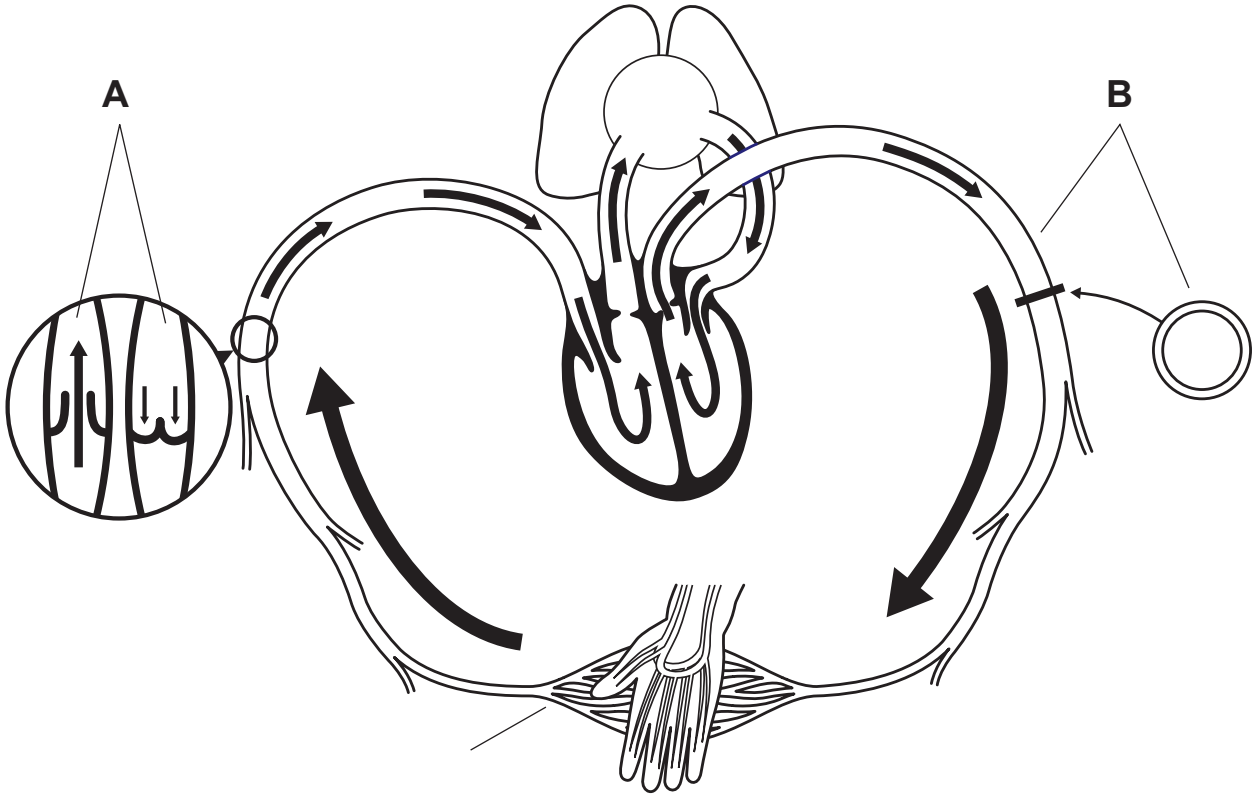
Name: ..... Form: .....

See **pages 22 and 23** of *The Body Book*

How blood circulates

Blood circulates around the body through arteries and veins.



Q1. Name the parts labelled A, B and C on the diagram.

A ✎ ..... B ✎ ..... C ✎ .....

Q2. On the diagram, put an X where the blood picks up oxygen and put a Y where the blood loses oxygen.

Q3. On the diagram, colour in red the part of the circulation system which carries blood rich in oxygen.

Q4. The heart has valves, but some tubes that carry blood have valves, too. What are these tubes called?

✎ .....

Q5. What do the valves do?

✎ .....

10 Teacher's sheet: Comprehension

See **pages 22 and 23** of *The Body Book*

ANSWERS

Introduction

Remind the students of their work on the pulse. Let them look at their wrists and find blood vessels near the skin that they did not use when taking the pulse. Tell the students that these are veins, and the pulse can only be felt in blood vessels called arteries that are deeper in the flesh. The pulse can be felt in arteries because they carry blood that has just left the heart. The veins take the blood towards the heart after it has flowed though tiny blood vessels in the flesh called capillaries. The force of the blood is weakened as it passes through the capillaries so it is not strong enough to create a pulse when it reaches the veins.

Supplementary practical work

If the thumb is pressed across the veins in the wrist for a few moments they will be seen to swell up a little, thus showing that blood only flows one way through them. If it flowed both ways the veins would not swell up

Extension worksheet

Pages 109 and 119.

Links

The heart, pages 20–21; **Keeping fit**, pages 42–43.

Background

It has been estimated that there are 100,000 kilometres of blood vessels in the body. Most are so tiny they are microscopic. They branch out and connect up again as they go between the cells. There are so many because all the cells have to be close to them so that substances can diffuse between the cells and the blood quickly enough to keep the cells alive.

The class needs to have secure knowledge of how the left and right sides of the heart are represented in books – ie the left side of the heart is on the reader's right. They also need to be sure that arteries always take blood away from the heart and veins always take blood towards it. They need to be aware that all arteries except the pulmonary artery (the one taking the blood from the heart to the lungs) carry blood rich in oxygen (oxygenated blood) and all veins except the pulmonary vein (the vein bringing blood from the lungs to the heart) carry blood low in oxygen (deoxygenated blood).

The heart is a double pump and the circulation is a double circulation. One circuit takes the blood from the heart to the lungs and back again. The other takes the blood from the heart to the body and back again. The main artery taking blood from the heart to the body is called the aorta. It splits up into other arteries such as the carotid arteries which take blood to the brain, the hepatic artery which takes blood to the liver and the renal artery which takes blood to the kidneys.

The vena cava is the vein which channels the blood from the body back into the heart. Other veins, such as the jugular veins in the neck, are connected to it. There is one vein which is not connected to the heart. It is called the hepatic portal vein and takes digested food from the small intestine directly to the liver. The liver performs many tasks in keeping the body alive, up to 500 chemical reactions take place there, so early deliveries of food from the small intestine are vital.

The arteries are buried deep in the flesh but the veins are nearer the skin surface. Small veins can be seen near the wrist. If the underside of the lower right arm is squeezed, about 6cm below the right wrist with the left hand, for a few moments, the veins can be seen to swell up a little as the one way flow of blood is halted. The grip must be released after a few seconds.

Answers

Q1. A Vein, B Artery, C Capillary.

Q2. X goes on lungs, Y goes on hand.

Q3. The right hand side is coloured red (the vein from the lung to the heart and the artery from the heart to the hand).

Q4. Veins.

Q5. Stop used blood returning to the capillaries.