

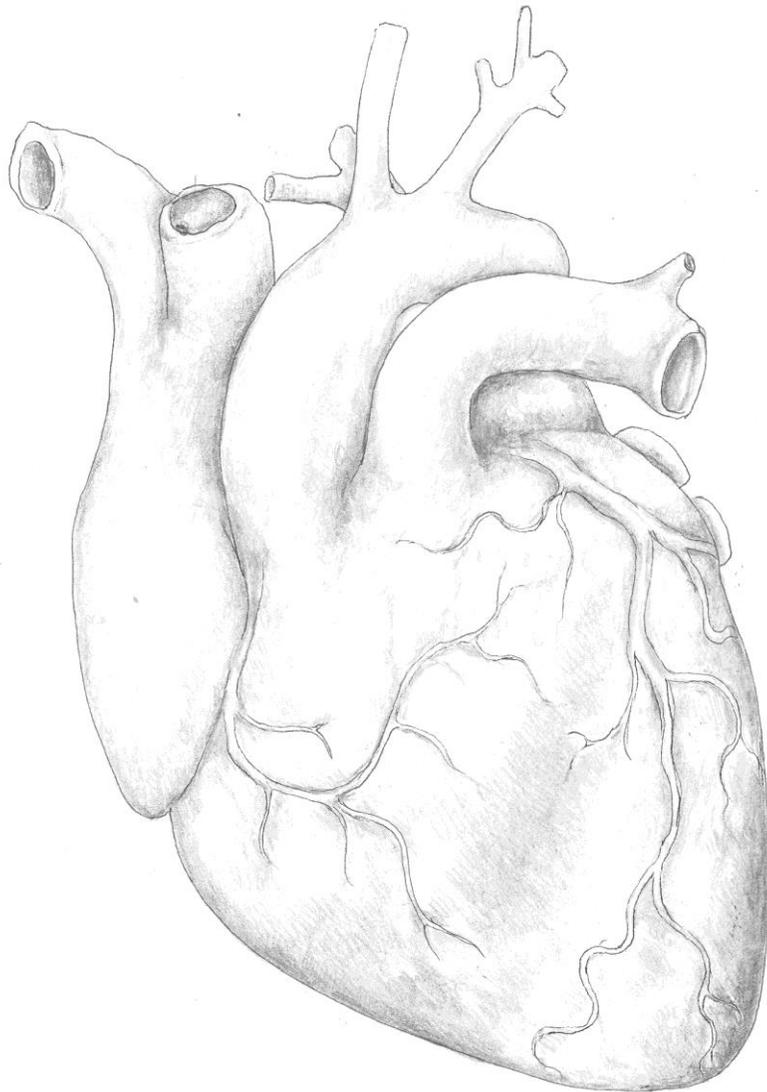
Heart: inside

Your heart is astonishing. This muscular organ pumps blood constantly around your body through blood vessels. Blood is vital for life as it carries oxygen from your lungs and nutrients from your gut. It also carries waste products including carbon dioxide which is exhaled from your lungs. Your heart is made of four chambers with valves to ensure blood flows in one direction. The beating of your heart is controlled by a group of pace-making cells (the sinoatrial node) generating an electric current to cause your muscle cells to contract. Around four to eight litres of blood is pumped around the body each minute to keep you alive and well. This drawing is roughly life-size. Your heart weighs around a quarter of a kilogram.

Pathologists are doctors and scientists who study and help diagnose disease and suggest the best treatment when an organ, such as the heart, becomes diseased. Children born with a 'hole in the heart' have a hole in the middle septum between the two halves of the heart. This weakens the strong pumping action and allows oxygenated and deoxygenated blood to mix. This can be treated through surgery. There is more information about this on the [NHS website](#). Other changes with disease come from heart attacks where the side of the muscular wall of the heart will also weaken the heart's strength. What can you do to keep your heart strong and healthy? Surround this heart with a healthy lifestyle using words or pictures, and look at our time-lapse video to show the direction of blood flow. As blood picks up oxygen it turns a red/orange colour, while blood low in oxygen is red/crimson. Can you colour and show the direction of blood? Can you cut out this life-sized heart showing inside and outside?

Read more about pathology: www.rcpath.org/discover-pathology

Drawings and writing: science-based artist ©Dr Lizzie Burns 2020 in collaboration with pathologist Dr Esther Youd.



Heart: outside

Your heart pumps blood around your body to keep you alive and well. This remarkable part of your body is made of muscle cells that beat. A continuous flow of blood is needed to keep your body working.

This drawing shows the outside of the heart, where the coronary arteries are seen over the surface. They bring blood to the heart muscles which are constantly active. An unhealthy lifestyle can encourage cholesterol to build up within the coronary arteries as 'plaques'. Under pressure, cholesterol plaques can burst causing a blood clot to form. This prevents blood circulating and so heart tissue can die in a heart attack or the heart can even stop. Treatments can be used to help but prevention is best to keep your heart strong and healthy. What can you do to keep your heart strong and healthy? What is an unhealthy lifestyle? Surround this heart with words or pictures representing a healthy life-style. Look at our time-lapse video to find out more as to what happens with a heart attack. Can you cut out this life-sized heart showing inside and outside?

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