

# Your amazing heart

Calling all young scientists! Join us on a brilliant blood-pumping investigation around the human body...



Did you know that you have a muscle in your body that has the power to lift a car, the strength to pump 7,500 litres of blood twice around the world in a single day, and the stamina to never take a break?! It's your heart, an incredible, fist-sized muscle in the centre of your chest.

Your heart's job is to push blood around your body, and it can keep pumping every second

of every day for your entire lifetime. Good thing, too, as your life depends on this pump to never take a rest, even when you're asleep! Take two fingers and push gently into your neck on either side of your windpipe. If your fingers are positioned correctly, you'll feel a tiny pulse pushing against your fingers each time your heart contracts – keeping you alive. But just how does this powerhouse work...?

HEART-PUMPING FACT

1

**A heartbeat is so powerful that it could shoot WATER TWO metres into the air**



Your heart fills with blood and then squeezes it out. Each contraction is a single beat, and your heart beats over 100,000 times a day – or over two billion times in your life!

Every one of the trillions of cells in your body needs oxygen to turn food into energy, and

your heart delivers it. The right side of your heart sends blood to your lungs, where it picks up oxygen. The blood then returns to the left side of your heart. From there, your heart pumps blood to every cell, delivering oxygen and removing carbon dioxide waste. Clever!

HEART-PUMPING FACT

2

**Blood travels 95,000km through your BODY EVERY DAY**



When the blood's delivery to the cells is done, it returns to the right side of your heart. Your heart then pumps blood from there to your lungs for an oxygen refill, and then the journey begins all over again.

Your blood is a super-efficient recycler! Each day, it makes over 1,000 round-trips through your body, while your heart pumps more than 7,500 litres of blood through the blood vessels – a distance greater than two trips around the world!

HEART-PUMPING FACT

3

**You have AT LEAST 4 LITRES OF BLOOD in your body**

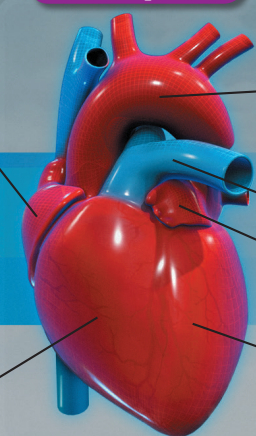


During its endless journeys to and from your heart, the four to five litres of blood in your body travels through three types of vessels – arteries, veins and capillaries.

Arteries can be as thick as your thumb, and most carry oxygen-rich blood away from your heart. Veins carry oxygen-depleted blood back toward your heart. And tiny capillaries connect arteries and veins, forming a huge network, so they can reach every cell in your body. These fragile vessels are far narrower than a single strand of hair, so blood cells have to pass through them single file!

## Heart parts

Blood that has circulated through the body arrives into the right atrium.



The aorta leads oxygen-rich blood away from the heart to the rest of the body.

The pulmonary artery leads oxygen-depleted blood to the lungs.

Oxygen-rich blood from the lungs flows into the left atrium.

The left ventricle pumps blood filled with oxygen through the aorta into the body.

The right ventricle pumps blood through an artery to the lungs to pick up oxygen.

## A HEART-TO-HEART about your heart

Like any other muscle in your body, the more you use it, the stronger it gets. Running, jumping, swimming – anything that gets your heart to beat faster than normal and has you breathing hard is good exercise.

Your heart not only gets stronger with exercise, but it can also grow in size, which makes its pumping power even greater. World-famous cyclist, Lance Armstrong's, heart is so powerful that it beats more slowly when he's walking than most people's hearts do when they're sound asleep! What can your heart do?

