

# How Blood Works

Blood is needed to keep us alive and we cannot live without it.

## What is blood and what does it do?

Blood carries oxygen around the body, it also carries nutrients. Blood cells only live for about 120 days and are replaced by more blood cells from bone marrow.

More than half of blood is liquid plasma which is mostly water. Plasma also contains nutrients, glucose, hormones and 100s of other substances. The red and white blood cells move about in liquid plasma.

Blood is made up of 55% plasma, 4% white blood cells and platelets and red blood cells are 41%

## What blood is made up of?

Blood is made up of red blood cells, white blood cells and is carried around the body in plasma. Blood is made up of sugar, water, oxygen and has membranes in it.

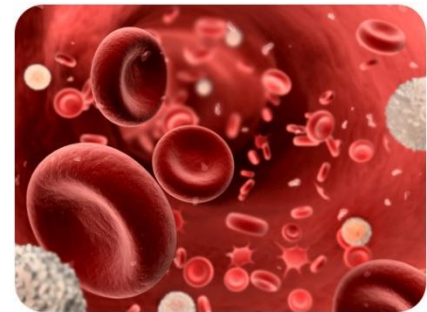
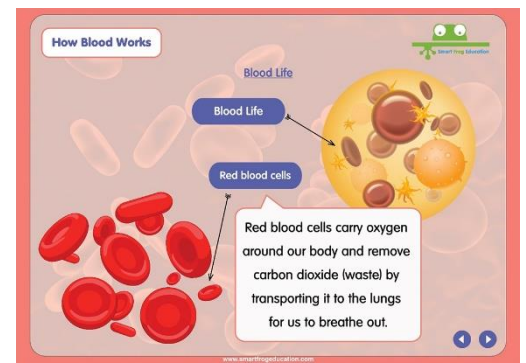
**Red blood cells** have membranes and carry round oxygen and nutrients around the body.

**White blood cells** protect your body and are also known as Warrior blood cells. Your body can sense if you have bits of bacteria or a virus on the outskirts of your body and if you get cut anywhere on your body and if the bacteria or virus come close to it, the white cells will be stationed at the cut to protect it.

**Plasma** in the body is a liquid and gets rid of waste which leaves in your poop. Plasma makes sure your blood is flowing the right way.

**Platelets** are like the builder cells of your body, if you get cut, they will flood to the site of the cut and build a barrier to stop the blood coming out and will then begin to rebuild the cut and regrow the skin.

**Bone marrow** is where new red blood cells are made before being released into the bloodstream. Young people have red bone marrow but as you get older, it starts turning yellow. It normally takes around 15 days to create a fully grown red blood cell and around 2-3 million new blood cells are created EVERY second. The old blood cells get trapped and are eaten by white blood cells which some call the Red Blood Cell Graveyard.



## Different blood groups

There are eight main blood types and everyone has one of these but some are rarer than others. The list below shows the percentage of donors with each blood type:

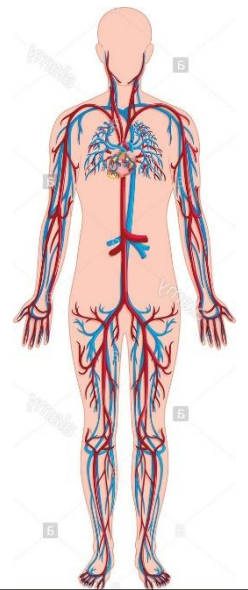
- O + 35%
- O - 13% - also known as 'Universal Donor'
- A + 30%
- A - 8%
- B + 8%
- B - 2%
- AB + 2%
- AB - 1%

## How the blood travels around the body

The blood travels around the body through veins and is pushed around by the heart. Plasma also drags it along.

## Giving blood

If you are sick and need blood, there's only one way to get hold of blood and that is to take it from someone else, this is called 'giving blood'. Many people donate or give blood. The body makes up the lost blood in a few days. You have to be 17 to give blood and it saves millions of lives every year. It only takes around 10 minutes for them to take the blood which is then taken to be tested in a lab and split into components.



## Did you know?

- When you give blood, they take about a pint from your body.
- When taken to the lab, blood is spun in a special machine and separates the blood (still in the same test tube into, red blood cells at the bottom, white blood cells / warrior cells are in the middle and the Plasma at the top
- My mum's blood group is O- and is rare as only 13% of people have this blood type and is used for when people need blood transfusions
- A tiny drop of blood the size of a pinhead contains approximately 5 million red cells, 10,000 white blood cell and 300,000 platelets
- It takes a drop of blood one minute to travel around the entire systemic circulation

## Sad but true

My mum used to give blood every 16 weeks and had VERY special blood. She is not only O- but her blood lacked Cytomegalovirus which meant her special blood went straight to help new born babies. New born babies can only be transfused with blood that lacks the Cytomegalovirus, this blood is labelled CMV-negative.

Unfortunately, because my mum has now had cancer, she is no longer able to give blood ever again – this is very sad for both of us.