

# Science Knowledge Organiser - Year 6

## Unit: How are substances transported around the body?

### Key Vocabulary:

<b>alcohol</b>	<i>Alcohol</i> is a drug produced by grains, fruits or vegetables when they are put through a process
<b>blood vessels</b>	The tube-like structures that carry blood through the tissues and organs are called <b>blood vessels</b> .
<b>circulatory system</b>	The <b>circulatory system</b> includes the heart, veins, arteries and blood transporting substances around the body.
<b>deoxygenated blood</b>	<b>Deoxygenated blood</b> is blood where most of the oxygen has already been transferred to the rest of
<b>drug</b>	A <b>drug</b> is a substance (containing natural or man-made chemicals) that has an effect on your body when it enters your system.
<b>heart</b>	The <b>heart</b> is an organ which constantly pumps blood around the circulatory system.
<b>nutrients</b>	<b>Nutrients</b> are substances that animals need to stay alive and healthy.
<b>oxygenated blood</b>	<b>Oxygenated blood</b> has more oxygen. It is pumped from the heart to the rest of the body.

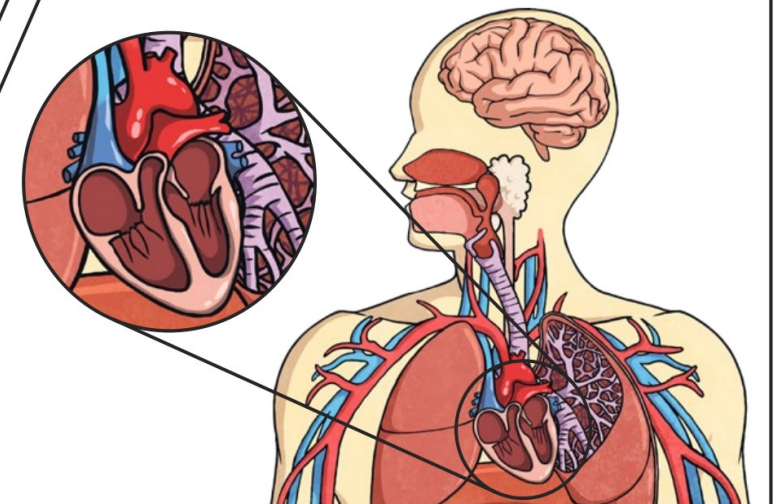
### Science Skills:

- Identify and name the main parts of the human circulatory system.
- Describe the functions of the heart, blood vessels and blood.
- Describe the ways in which nutrients and water are transported within animals, including humans.
- Recognise the impact of diet and exercise on the way bodies function.
- Recognise the impact of drugs on the way bodies function.
- Plan different types of scientific enquiries to answer questions, including recognizing and controlling variables where necessary taking measurements with increasing accuracy and precision, taking repeat readings when appropriate.
- Record data and results of increasing complexity using classification keys, tables, scatter graphs, bar and line graphs.
- Report findings from enquiries, including conclusions and degree of trust in results, in written form.
- Identify scientific evidence that has been used to support or refute ideas or arguments.

### Key Facts:

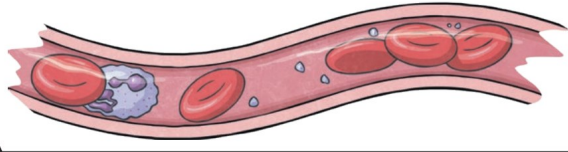
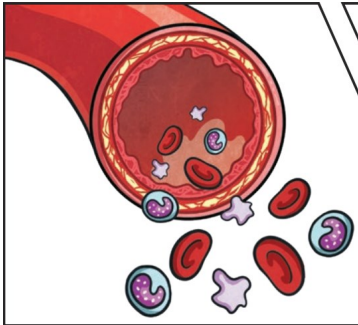
- Veins, arteries and capillaries are the three types of **blood vessels**.
- If you linked up all of the body's **blood vessels**, including arteries, capillaries, and veins, they would measure over 60,000 miles!
- Regular exercise:
  - strengthens muscles including the **heart** muscle;
  - improves **circulation**;
  - increases the amount of oxygen around the body;
  - releases brain chemicals which help you feel calm and relaxed;
  - helps you sleep more easily;
  - strengthens bones.

**Deoxygenated blood** is pumped (by the **heart**) to the lungs where it collects oxygen that has been inhaled. The now **oxygenated blood** then revisits the **heart** for it to pump this blood to the rest of the body, distributing the oxygen to cells where it is needed for metabolism. When it returns to the **heart**, the blood then begins the cycle all over again.



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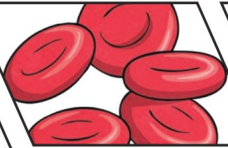


Blood transports:

- gases (mostly oxygen and carbon dioxide);
- nutrients** (including water);
- waste products.

The liquid part of the blood contains water and protein. This is called plasma.

Plasma is liquid. The other parts of your blood are solid.



Red blood cells carry oxygen through your body.

Platelets help you stop bleeding when you get hurt.



White blood cells fight infection when you're sick.

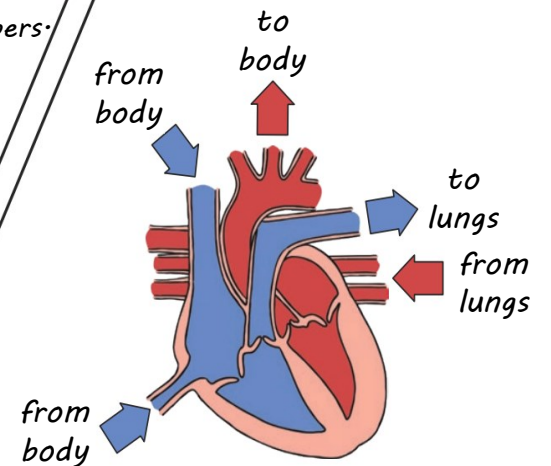
**Drugs, alcohol** and smoking have negative effects on the body, including diseases, mental health problems and some cancers.

A healthy diet involves eating the right types of **nutrients** in the right amounts.



Mammals have **hearts** with four chambers.

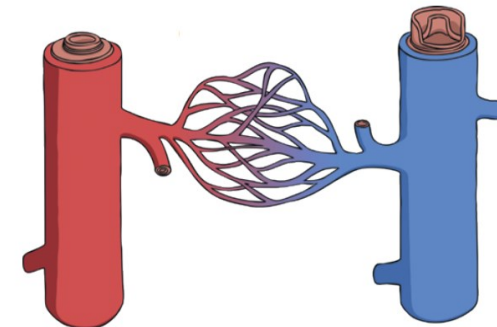
Notice how the blood that has come from the body is **deoxygenated**, and the blood that has come from the lungs is **oxygenated** again. The blood isn't actually red and blue: we just show it like that on diagrams.



**deoxygenated blood** → ← **oxygenated blood**

Capillaries are the smallest **blood vessels** in the body and it is here that the exchange of water, **nutrients**, oxygen and carbon dioxide takes place.

Arteries (red) carry **oxygenated blood** away from the **heart** to your body's tissues.



Veins (blue) are a type of **blood vessel** that return **deoxygenated blood** to the **heart**.