



Together, we flourish.

“Above all else, guard your heart, for everything you do flows from it.” Proverbs 4:23

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 a diagram.

from body to body
to lungs from lungs

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 carry **oxygenated blood** away from the **heart**.

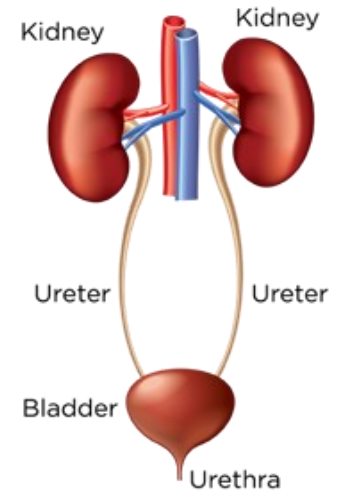
Veins carry **deoxygenated blood** toward the **heart**.

arteries capillaries veins

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.

It can even help to stop us from getting ill.



Kidneys filter liquid waste from the blood and get rid of it in the form of urine.

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

Platelets help you stop bleeding when you get hurt.

Red blood cells carry oxygen through your body.

White blood cells fight infection when you're sick.

Blood transports:

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

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

Key Vocabulary

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

Drugs, alcohol and smoking have negative effects on the body.

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