







In this section, you will learn about...

- 1. The major systems and organs in the human body.
- 2. How our bodies change as we go through the stages of the human life cycle.

The body has many **organs** that do special jobs. Here are some of the most important ones.

Some parts of the body work together to form a system:

Circulatory System

This supplies essential

substances to (and

removes waste from)

the cells in the

body and helps it

to fight infection.

Skeletal System

The skeleton

protects the organs

and allows the

body to move.

Urinary System

Processes blood

and removes waste urine.

Nervous System The main control system of the body. **Respiratory System** The process of

breathing provides cells with oxygen and removes carbon dioxide from the body.

Digestive System Takes in and processes food.

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whole body) Lungs

(take in oxygen from the air and get rid of carbon dioxide)

Brain. (controls the

(protects the body from damage, infection and

drying out) Heart

Skin

(pumps blood around the body)

Stomach

(stores and digests food)

Liver (gets rid of toxins and controls blood sugar levels)

Large Intestine (changes food waste into poo)

> Bladder (stores urine)

Kidneys (make urine from

waste products and excess water)

Small Intestine

(digests food and absorbs nutrients into the blood)

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What are bones made from?

Bones are hard on the outside. The outer part of the bone is made from a **mineral** called **calcium** and a **fibre** called **collagen**. This makes it strong and flexible.

However, bones are not solid all the way through. **Blood vessels** and spongy bone can be found inside each bone. At the centre is a soft tissue called **bone marrow**. Bone marrow is extremely important because it stores **fat** and it also makes new **blood cells** to keep your body healthy.

Did you know?

Bones are as strong as steel and they are also six times lighter.



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Cross-section of a bone.

How does blood travel around the body?

Your blood is pumped around your <u>circulatory system</u> many times each day. The <u>heart</u> propels the blood through the network of <u>blood</u> <u>vessels</u> (<u>veins</u>, <u>arteries</u> and <u>capillaries</u>), so that it can carry <u>nutrients</u> and oxygen around the body and back again.

The heart is an extremely strong **muscle** that is constantly **contracting**. It has four different **chambers**. The two upper chambers squeeze blood into the two lower chambers, which then squeeze and push the blood out of the heart.

Blood vessels called <u>arteries</u> carry blood away from the heart to the cells around the body. <u>Veins</u> carry blood back to the heart. <u>Capillaries</u> allow food and gases to move in and out of the blood.

The circulatorv

system includes the

> heart and blood vessels

> > (veins.

arteries and

capillaries).

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The heart beats about 100,000 times each day!

How does skin sense touch and pain?

There are millions of different **sensors** under the skin. Some sense light touch, heavy pressure, pain or temperature. The sensitivity of an area of skin depends on the number and type of sensors under the skin's surface. Fingers, for example, are full of light touch sensors. There are fewer light touch sensors in the arms, legs and back. Skin also contains pain receptors which generate a nervous

impulse when we feel pain. These impulses are passed to the brain as well.



How does skin help to control the temperature of the body?

Skin also plays an important role in controlling the body's temperature. When it is cold, the **blood vessels** near the surface of the skin **constrict** (narrow). This slows down the amount of blood circulating near the skin's surface and reduces the amount of heat that the body loses. This also causes the hairs in the skin to stand on end, forming **goosebumps**. When you shiver, your **muscles** release heat to warm you up.

The opposite happens when the body is cold. The blood vessels near the surface <u>dilate</u> (get wider) causing more blood to circulate near the surface, so that more heat is lost. The action of sweating helps to cool the the body. As the sweat evaporates, it draws heat away from the skin.



Acidic A liquid that contains acid.

Adolescence The time between childhood and adulthood (during the teenage years).

Adulthood When our bodies are fully developed.

Allergen

A substance that can trigger an allergy (where the body's immune system might over-react).

Alveoli A tiny air sac in the lungs that exchanges gas.

Anatomy The structure of the body.

Antioxidants A substance that reduces damage due to oxygen.

Antibiotic A drug (created using live organisms) that kills bacteria.

Antibody These are produced by white blood cells. They attach themselves to viruses, marking them as 'invaders'.

Antigen

A marker on the surface of different bacteria, that the immune system recognises as 'foreign'.

Artery

A blood vessel that carries oxygen-rich blood from the heart to the tissues.

Asborb To take in or soak up.

Baby A very young child.

Bacteria A group of micro-organisms tat can cause diseases.

Balanced Diet

A healthy balance of food types that are all eaten in the right quantities.

Beats

The action of the heart, pumping blood around the body.

Bile

Fluid that supports digestion. It is produced by the liver and stored in the gall bladder.

Bladder

A sac in the abdomen that stores urine before it is removed from the body.

Blood

The red liquid that circulates in the arteries and veins of the body.

Blood cells A type of cell normally found in the blood. Bloodstream The flowing blood in the circulatory system.

Blood vessel A tube that carries blood (a vein, artery or capillary).

Bone A piece of hard tissue that is part of the skeleton.

Bone Marrow The soft tissue inside most bones.

Brain The most complex organ on the planet, enabling us to think, feel, learn, move, see and more.

Breath The air taken into or expelled from the lungs.

Bronchi The branches of the windpipe inside the lungs.

Calcium Used by the body to build teeth and bones.

Cancer One of several different diseases, caused by cells dividing out of control.

Canines Teeth that are used for stabbing and gripping food.

Capillary A tiny blood vessel that allows food and gases to move in and out of the blood.

Carbohydrates One of the types of nutrients in our food. Carbohydrates can be broken down into energy.



Can you write definitions for these words?

blood	
ear drum	
exercise	
joint	
nose	
saliva	
skeleton	
tongue	





Lungs

Large spongy organs found in the chest.

Oxygen passes into the blood here and carbon dioxide passes back out.



Brain

Controls all of the body's functions.

Found in the head and protected by the skull.



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