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FATS AND CARBOHYDRATES

Fats are found in meat, vegetable oil, pies, cheese and avocados. Carbohydrates include starches and sugars found in bread, pasta, potatoes, rice and other cereals. During digestion, starch turns into glucose. This substance gives your body energy.

CARBOHYDRATES



FATS



PROTEINS

Meat, poultry, fish, eggs and nuts are all rich in proteins. Proteins help to build and repair muscles and other body parts.

PROTEINS



DIGESTION

WHEN you eat, your body breaks down food into nutrients, a process called digestion. Proteins, fats, carbohydrates, minerals and vitamins are all nutrients the body needs. Different foods are rich in certain nutrients.

5

WHAT HAPPENS TO YOUR FOOD?

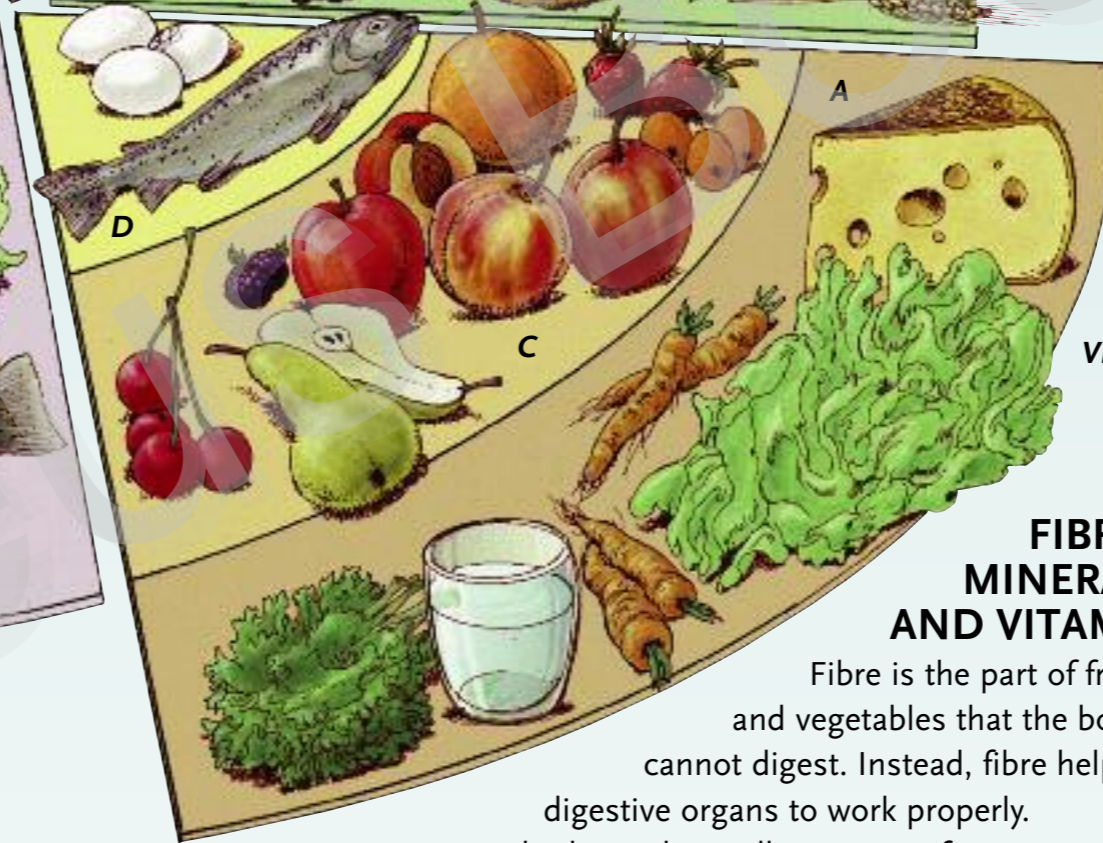
When you swallow your food, it is squeezed down the oesophagus to your stomach, a stretchy bag of muscle. Here, food is churned up and mixed with juices. The soft, gooey mixture is then squeezed through to the small intestine. Here the useful substances in your food, the nutrients, pass into the blood. All blood from the intestine passes through the liver, which stores the nutrients, releasing them when required. It also removes unwanted substances and sends them to the kidneys, which gets rid of them through your urine. When the food reaches the large intestine, or colon, all that is left is plant fibre, harmless bacteria and water. Solid waste collects in the rectum, while water is taken back into the blood.

MINERALS

CALCIUM

IRON

FIBRE



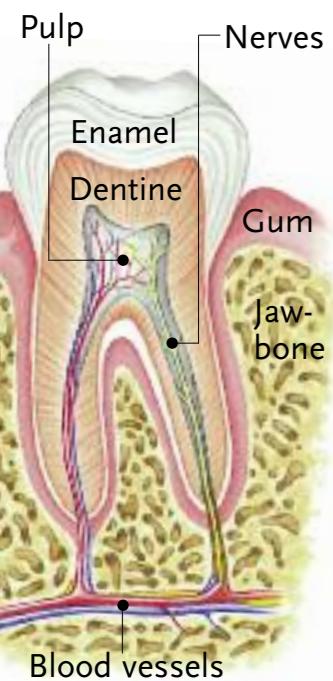
VITAMINS

FIBRE, MINERALS AND VITAMINS

Fibre is the part of fruit and vegetables that the body cannot digest. Instead, fibre helps the digestive organs to work properly.

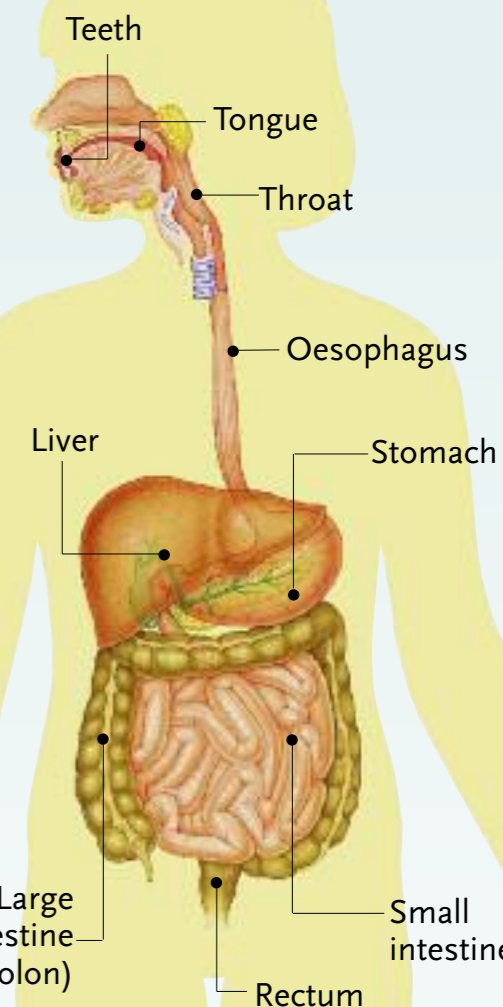
Your body needs small amounts of certain minerals. Calcium, for healthy teeth and bones, is found in milk, cheese and vegetables. Meat, bread, shellfish and nuts contain iron, used to make red blood cells.

Small amounts of chemicals called vitamins are also essential for your health. Vitamin A, found in carrots, green vegetables, milk and cheese, is needed for healthy skin. Vitamin C, which helps to heal wounds, is found in citrus fruit. Eggs and fish are rich in Vitamin D, which helps your bones grow strong.



TEETH

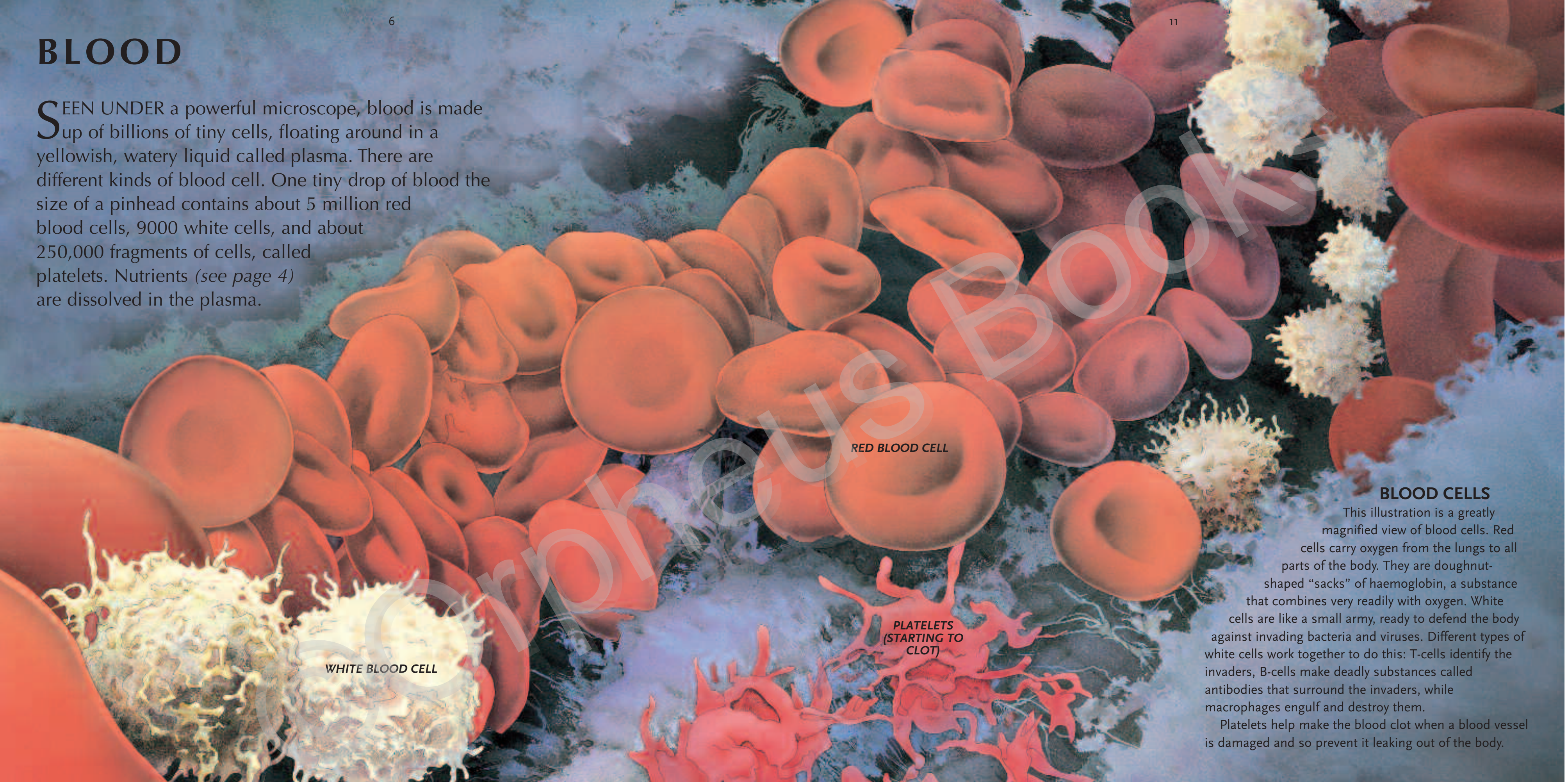
Beneath the gums, deep roots firmly anchor your teeth to the jawbone. Teeth are made of a substance called dentine, cased in a tough layer of enamel. Inside there is a cavity containing a soft tissue called pulp and a cluster of tiny nerves and blood vessels.



- Teeth
- Tongue
- Throat
- Oesophagus
- Liver
- Stomach
- Small intestine
- Rectum
- Large intestine (colon)

BLOOD

SEEN UNDER a powerful microscope, blood is made up of billions of tiny cells, floating around in a yellowish, watery liquid called plasma. There are different kinds of blood cell. One tiny drop of blood the size of a pinhead contains about 5 million red blood cells, 9000 white cells, and about 250,000 fragments of cells, called platelets. Nutrients (see page 4) are dissolved in the plasma.



RED BLOOD CELL

WHITE BLOOD CELL

PLATELETS
(STARTING TO
CLOT)

BLOOD CELLS

This illustration is a greatly magnified view of blood cells. Red cells carry oxygen from the lungs to all parts of the body. They are doughnut-shaped “sacks” of haemoglobin, a substance that combines very readily with oxygen. White cells are like a small army, ready to defend the body against invading bacteria and viruses. Different types of white cells work together to do this: T-cells identify the invaders, B-cells make deadly substances called antibodies that surround the invaders, while macrophages engulf and destroy them.

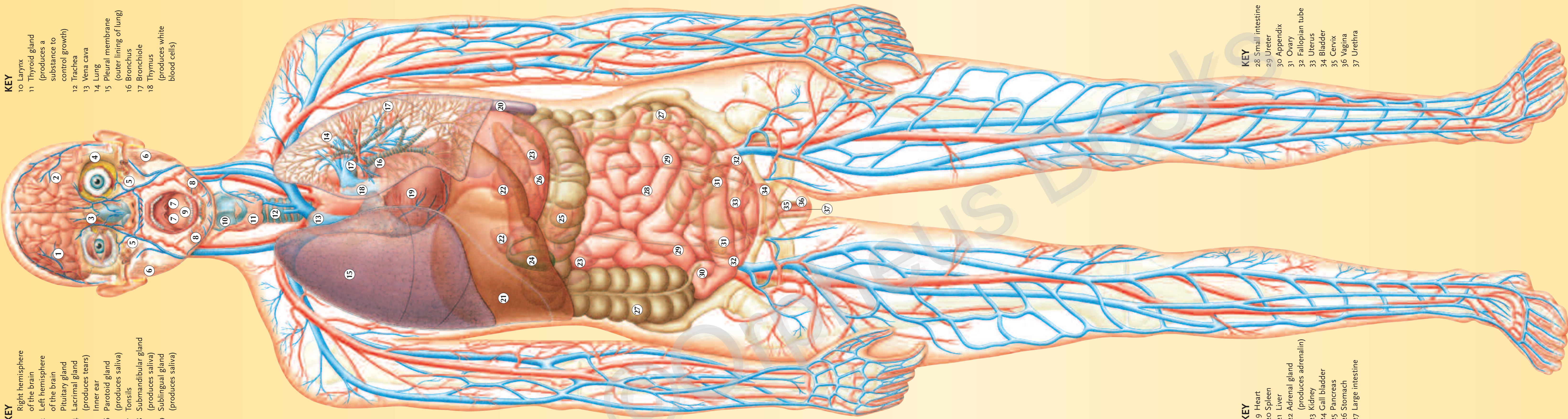
Platelets help make the blood clot when a blood vessel is damaged and so prevent it leaking out of the body.

KEY

- 1 Right hemisphere of the brain
- 2 Left hemisphere of the brain
- 3 Pituitary gland
- 4 Lacrimal gland (produces tears)
- 5 Inner ear
- 6 Parotid gland (produces saliva)
- 7 Tonsils
- 8 Submandibular gland (produces saliva)
- 9 Sublingual gland (produces saliva)

KEY

- 10 Larynx
- 11 Thyroid gland (produces a substance to control growth)
- 12 Trachea
- 13 Vena cava
- 14 Lung
- 15 Pleural membrane (outer lining of lung)
- 16 Bronchus
- 17 Bronchiole
- 18 Thymus (produces white blood cells)

**KEY**

- 19 Heart
- 20 Spleen
- 21 Liver
- 22 Adrenal gland (produces adrenalin)
- 23 Kidney
- 24 Gall bladder
- 25 Pancreas
- 26 Stomach
- 27 Large intestine

KEY

- 28 Small intestine
- 29 Ureter
- 30 Appendix
- 31 Ovary
- 32 Fallopian tube
- 33 Uterus
- 34 Bladder
- 35 Cervix
- 36 Vagina
- 37 Urethra

INSIDE THE HUMAN BODY

The Internal Organs

THE HUMAN BODY is the most studied object in all of science. Yet every year we learn even more about its most detailed structures and its innermost workings. Even in ancient times people have known basic facts—for example, that there are 206 bones in its skeleton. Since the invention of the microscope nearly 400 years ago, people have studied the body's billions of tiny building blocks, known as cells. In more recent years we have learned about the instructions for making the body—its genes.

The body's main parts, like the brain, heart, lungs and stomach are called organs. Different groups of organs work together as systems. Each system has a vital job to keep the whole body alive and healthy. For example, the heart, the body-wide network of tubes called blood vessels, and the blood itself, together form the circulatory system. This carries essential nutrients and oxygen to all body parts and collects waste materials for disposal. There are about a dozen major systems, including the digestive and breathing systems.