

GLOSSARY OF TERMS



ALIMENTARY CANAL - A long tube that stretches from the mouth to the anus along which food is passed and is digested. The alimentary canal is up to 9m long. The structure of the tube changes to suit different purposes.

ALVEOLI - A tiny thin walled sac which allows gases (particularly oxygen and carbon dioxide) to be exchanged between air and blood. Alveoli occur in clusters in the lungs.

ANTIBODY - A protein made by lymphocytes with its own chemical pattern which is able to lock on to an antigen on the surface of an invader. It helps to either disable the invader, or mark the invader so that it can be destroyed by phagocytes. Antibodies are present in blood. There are many types of antibodies and each has its own chemical pattern.

ANTIGEN - Antigens are foreign substances that trigger the immune system into action. Most antigens are proteins, and are usually found on the surface of invaders such as bacteria and viruses.

ARTERY - A blood vessel that carries blood away from the heart. They have strong walls and carry blood away from the heart under high pressure. Most arteries carry oxygen rich blood.

ARTERIOLE - A small blood vessel that stems from an artery.

ASTHMA - A condition which affects the lungs and the ability of a person to breathe. It is usually an allergic reaction to substances in the air, or a response to sudden changes in air temperature. During an asthma attack the bronchioles narrow making it difficult to breathe.

BILE - A greenish-yellow liquid made by the liver. It is 97% water, but contains excretory substances (such as cholesterol and bilirubin) which help to turn fats into small droplets so they are easier to digest.

BLOOD - A complex fluid that supplies the body's cells with oxygen and nutrients and transports the waste products away from cells. It consists of billions of cells suspended in a watery fluid. Blood also carries heat around the body and fends off invading organisms. The main constituents of blood are red blood cells, white blood cells, platelets, and plasma.

BLOOD VESSEL - A tube that carries blood. Some types of blood vessels include arteries, veins, arterioles, and venules.

BONE MARROW - Found in the central space of spongy bone. White blood cells are formed in the bone marrow.

BRONCHI - A tube that carries air into and out of the lungs. Each lung has a primary bronchus that divides into two or three secondary bronchi, the secondary bronchi divide into tertiary bronchi.

BRONCHIOLE - The smallest part of a lung's air tubes. They carry air into alveoli.

CAPILLARY - The smallest of the blood vessels.

CARBON DIOXIDE - A gas that is produced by cells when they manufacture energy.



CELL - The smallest part of the body that is completely alive. All living creatures are made up of these tiny units. They, in turn, consist of many smaller parts called organelles that enable the cell to function. Cells use oxygen to produce energy for the body, and manufacture proteins for use in the body. There are many different kinds of cells in the body and they carry out a variety of tasks. Cells are usually arranged into groups called tissues.

CILIA - A short, hair-like projection found in the lungs that sweeps backward and forward to move things along their surface.

DERMIS - The dermis is the inner layer of the skin and contains only living cells (as opposed to the epidermis).

DIAPHRAGM - A muscular dome that separates the chest from the abdomen.

ENZYME - A type of protein that speeds up chemical reactions in the body. Without enzymes, chemical reactions would occur so slowly that life would be impossible.

EPIDERMIS - The outer layer of the skin that contains a layer of living cells which die and are pushed outwards to form a layer of protective dead cells.

GALL BLADDER - A small, bag-like organ tucked underneath the liver that stores bile. Bile from the liver is collected and concentrated in the gall bladder.

HEART - A fist-sized, muscular organ that pumps blood around the body.

KERATIN - A structural protein that skin, hair, and nails contain. It is tough, waterproof and able to resist chemical attack.

LARGE INTESTINE - A part of the intestine that absorbs water and concentrates waste.

LIVER - An organ which carries out hundreds of chemical reactions, and stores vital chemicals such as vitamins and glycogen until they are needed.

LYMPHOCYTES - A type of white blood cell that makes up part of the body's immune system by producing antibodies. They are originally formed in the bone marrow, but develop in the spleen. They circulate in the blood.

MELANIN - A brownish-black pigment found in the skin, hair, and the retina and iris of the eye. It absorbs harmful ultraviolet light from the sun and prevents it from damaging our bodies.

MUCUS - A thick fluid that lubricates parts of the alimentary canal and traps foreign particles such as airborne dust.

NERVE - A bundle of cells that carries messages (such as temperature, pressure, and pain) to the brain. They reach all parts of the body.

OESOPHAGUS - A muscular tube that runs from the mouth to the stomach through which food passes.



OXYGEN - A gas that is required by the body so that cells can produce energy. Our bodies extract oxygen from the air through the respiratory system.

PANCREAS - An organ that produces digestive fluids and regulates blood sugar levels in the body.

PATHOGEN - Any micro organism that causes disease in a living organism (eg bacteria, virus)

PHAGOCYTE - A type of white blood cell that engulfs foreign matter (including pathogens) and digests it. When phagocytes die, they sometimes form a whitish fluid called pus.

PLASMA - A watery, yellowish liquid that contains dissolved substances such as nutrients from digestion, ions, and plasma proteins. It also contains antibodies.

PLATELET - A small cell fragment present in the blood. It helps blood to coagulate by sticking together with other platelets to form a solid mass.

RED BLOOD CELL - A cell present in the blood which contains haemoglobin, a protein which enables the red blood cell to collect and release oxygen.

SALIVA - A digestive fluid that helps food to slip down the throat. It contains an enzyme that digests starch.

SEBACEOUS GLAND - A gland connected to the hair follicle that produces an oily substance called sebum, which keeps skin and hair soft and flexible.

SMALL INTESTINE - A part of the intestine that digests food and absorbs nutrients.

SPLEEN - An organ that develops lymphocytes and phagocytes to fight infection. It also filters the blood to remove old, worn out red blood cells.

STOMACH - An elastic organ that stores food and produces a powerful digestive juice to break down proteins. The walls are muscular to churn up food so that it can be digested.

SUBCUTANEOUS FAT - a layer underneath the dermis that acts to insulate the body.

TRACHEA - An air pipe which leads from the mouth and nose to the bronchi. It is stiffened with rings of cartilage that ensure the airway is kept open.

VEIN - A blood vessel that carries blood from the body toward the heart. It has thinner walls than an artery and carries the blood under less pressure.

WHITE BLOOD CELL - A large cell which circulates in the blood. They make up the mobile defence force that protects the body from infection.



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Books

Dewey Decimal Number: 612

Burnie, David. **Concise Encyclopedia of the Human Body.** Dorling Kindersley, 1995.

- A good teacher reference book. Easily laid out and easy to navigate.

Farndon, John. **1000 Things you should know about the Human Body.** Miles Kelly Publishing, 2000.

Farndon, John & Angela Koo. **Fantastic Facts about the Human Body.** Parragon Books, 2000.

- Great illustrations, but doesn't cover all of the body systems.

Parker, Steve. **All about the Human body.** Parragon, 1999.

Parsons, Alexandra. **An Amazing Machine.** Watts Books, 1996.

- Great fact-finding book written for children.

Tunncliffe, Hilary. **Breathing.** Franklin Watts, 1990.

- A thorough investigation of the respiratory system. Includes many ideas for activities.

Ward, Alan. **Science about Yourself.** Dryad Press Ltd, 1988.

- Written for children. Covers the senses very thoroughly, and contains many ideas for activities.

Whitfield, Philip (ed). **The Human Body Explained.** Henry Holt, 1995.

- A great teacher reference book, with good illustrations.

Websites

Exploratorium: Revealing Bodies

www.exploratorium.edu/bodies/

- explore the changing ways humans look at their bodies in terms of medicine and science.

Grossology

www.grossology.org/

- looks at gross functions of the human body

Human Body

<http://tjunior.thinkquest.org/5777/>

Surfing inside the Human Body

<http://library.thinkquest.org/J001614F/>

- includes illustrations, games, and a quiz



Human Body Adventure
<http://vilenski.com/science/humanbody/index.html>

Inside the Human Body
http://www.imcpl.org/kids_body.html

KidsHealth.org: My Body
http://kidshealth.org/mis_page/mybody_sw.html
• has information about individual body systems

Your Gross and Cool Body
<http://yucky.kids.discovery.com/noflash/body/index.html>

The Cancer Society
www.cancernz.org.nz

Nutrition Education
www.sunshine.co.nz

Teacher Activities
www.accessexcellence.org

Nutrition explorations
www.nutritionexplorations.org/teacher_central.html

National Library School's Service

The National Library School's service have a variety of resources available about the human body, including books, videos, and CD Roms.

To contact the national library call them on phone 0800 17 17 17, or fax 0800 90 70 00.



APPENDIX



PERSONAL PROFILE OF

Age: ____ years ____ months

Height: _____ cm

Weight: _____ cm

Hand Span: _____ cm

Length of Index Finger: _____ cm

Wrist Circumference: _____ cm

Writing Hand: _____ hand

Length of Right Arm: _____ cm

Hair Colour: _____

Hair Length: _____

Hair Type: _____

Ankle Circumference: _____ cm

Shoe Size: _____

Length of leg: _____ cm

Length of stride: _____ cm

Eye Colour: _____

Number of Teeth:

Top Row: _____ Bottom Row: _____

Special Features:

Neck Size: _____ cm

Ear Lobes: _____ (Attached or Unattached?)



Mineral	Source	Function	Deficiency symptoms
Calcium (Ca)	Dairy products, green vegetables, seafood, nuts, tapwater	Helps build bones and teeth; involved in nerve action	Stunted growth; rickets; osteoporosis; convulsions
Chlorine (Cl)	Table salt, seafood, milk, meat, eggs	Maintains balance of ions in body; forms acid in stomach	Muscle cramps; mental apathy; reduced appetite
Iodine (I)	Fish, shellfish, sea salt	Essential thyroid hormone	Reduced metabolic rate; swollen thyroid gland
Iron (Fe)	Red meat, liver, green vegetables, grains, nuts	Essential part of haemoglobin	Anaemia
Phosphorus (P)	Meat, milk, dairy products, fish, cereals	Helps build bones	Weak or malformed bones
Potassium (K)	Meat, milk, cereals, fruit, vegetables	Maintains balance of ions in body, used by nerves	Muscle weakness
Sodium (Na)	Most food except fruit	Maintains balance of ions in body, used by nerves	Muscle cramps; mental apathy; reduced appetite
Zinc (Zn)	Meat, eggs, fish, cereals	Essential part of some enzymes; promotes healing	Growth failure; loss of appetite

Fat-Soluble Vitamins

Vitamin	Source	Function	Deficiency symptoms
A (retinol)	Green & yellow vegetables, fish oil, egg yolk, liver, milk	Important in growth and formation of teeth and bones; used in vision; helps prevent infection	Night blindness; dry scaly skin; lowered resistance to infection
D (calciferol)	Fish oil, egg yolk; also produced in skin during exposure to sun	Regulates the use of phosphate and calcium in bone formation; aids absorption of calcium from food	Rickets, a disease in which bones and other hard parts of the body fail to grow properly
E (alpha tocopherol)	Green vegetables, plant oils, whole-grain cereals, liver	Essential for formation of red blood cells; enables some enzymes to function; prevents breakdown of fatty acids in cells	Breakdown of red blood cells
K	Green vegetables; also made by bacteria in intestines	Involved in production of chemicals that enable blood to clot	Failure of blood clotting system,

Water-Soluble Vitamins

Vitamin	Source	Function	Deficiency symptoms
B1 (thiamine)	Whole grains, liver, peas, beans, yeast, nuts	Essential for functioning of enzymes that promote breakdown of carbohydrates; helps nerves and muscles function normally	Beriberi, a disease causing weakness and inflammation of nerves
B2 (riboflavin)	Milk, leafy vegetables, eggs, cheese; also made by bacteria in the intestines	Helps form enzymes that control build-up and breakdown of carbohydrates and proteins	Cracked skin; defective vision
Niacin	Lean meat, wheat germ, cereals, fish, yeast	Helps form enzymes that control respiration	Pellagra, a disease causing skin disorders and diarrhoea
B12 (cyanocobalamin)	Liver, kidney, fish, eggs, milk, meat, oysters	Helps form enzymes involved in making proteins; promotes formation of red blood cells and use of carbohydrates	Anaemia; impaired function of nervous system
Folic acid (folate)	Green leafy vegetables, liver, wheat germ, fruit, yeast	Helps form enzymes involved in making nucleic acids; plays a part in manufacture of red blood cells	Anaemia; sores in mouth
C (ascorbic acid)	Citrus fruits, tomatoes, potatoes, leafy vegetables	Promotes formation of collagen; promotes growth of bones, teeth and blood vessels; essential for normal functioning of many enzymes, aids healing of wounds	Swollen gums and nosebleeds; severe deficiency produces the disease scurvy, which causes internal bleeding and swollen joints