

Glossary

- abortion** The removal of a developing embryo from the uterus
- activation energy** The energy required to get a chemical reaction started
- active immunity** Immunity produced by the body's manufacturing of antibodies against a foreign antigen
- active process** A process that involves the expenditure of energy
- active site** The part of an enzyme molecule that combines with the substrate
- active transport** The use of energy to move substances, usually ions, across a cell membrane
- adenosine diphosphate (ADP)** The substance formed when the end phosphate group is removed from a molecule of adenosine triphosphate (ATP)
- adenosine triphosphate (ATP)** A molecule that stores energy in cells; the energy is stored in the bond between the end phosphate group and the rest of the molecule
- adolescence** The period of transition from childhood to adulthood
- adolescent growth spurt** A rapid increase in height and weight occurring during adolescence
- ADP** See adenosine diphosphate
- adrenaline** A hormone that causes changes in the diameter of blood vessels; also called epinephrine
- adult stem cell** A stem cell harvested from tissues that are not part of an embryo, such as from bone marrow
- aerobic respiration** Respiration requiring oxygen
- afferent arteriole** The blood vessel that enters an organ
- afterbirth** The placenta, and remains of the umbilical cord, amnion and chorion; it is expelled shortly after the birth of a baby
- agglutination** The clumping together of micro-organisms or of blood cells
- albino** An individual who lacks pigmentation, resulting in white skin, white hair and pink eyes (due to the reflection from blood vessels in the eyes)
- alimentary canal** The tube via which food passes through the body, consisting of the mouth, oesophagus, stomach and intestines; also called the digestive tract
- allele** The alternative forms of a gene that occur at a given point in a chromosome
- alveolus** An air sac in the lung; also, the milk-secreting part of a mammary gland; plural: **alveoli**
- amino acids** Small molecules that join together to make proteins
- amniocentesis** A technique in which a small amount of the amniotic fluid surrounding a foetus is removed and examined for indications of possible defects in the foetus
- amnion** The membrane that forms a cavity around the embryo; it secretes a fluid (amniotic fluid) into the cavity to protect the embryo
- amniotic fluid** The fluid contained within the amnion; it protects the embryo against injury
- amylase** An enzyme that breaks down starch
- anabolic steroids** Drugs that stimulate protein synthesis, especially in skeletal muscles
- anabolism** The process of combining small molecules to make larger ones; it requires energy
- anaerobic respiration** Respiration that does not require oxygen
- anaphase** The third phase of mitosis, during which the daughter chromosomes are drawn to opposite ends of the cell
- anatomy** The study of the structure of organisms
- angina** A pain in the chest caused by reduced flow of blood to the heart muscle
- anthropology** The study of the biological and cultural variations of the human species
- antibiotic** A chemical that is able to kill or inhibit the growth of micro-organisms
- antibody** A substance produced in response to a specific antigen; it combines with the antigen to neutralise or destroy it
- antifungal** A chemical used against fungal infections
- antigen** Any substance capable of causing the formation of antibodies when introduced into the tissues
- antigen-antibody complex** A compound formed when an antibody combines with an antigen
- antimicrobial** A chemical used to kill infecting micro-organisms
- aorta** A large artery arising from the left ventricle of the heart; it distributes blood to the body
- archaeology** The study of material evidence of the past, such as tools, weapons and art, rather than written records
- arteriole** A very small artery
- arteriosclerosis** Degeneration of the walls of the arteries
- artery** A blood vessel that carries blood away from the heart
- artificial immunity** Immunity produced by giving a person an antigen that triggers the immune response, or by giving a person antibodies to an infecting antigen

- artificial insemination** Introducing semen into the vagina using a syringe, to bring about fertilisation
- atherosclerosis** A process in which fatty deposits build up in the walls of arteries
- atrial systole** Contraction of the atria of the heart
- attenuation** The process of weakening or reducing the virulence of a micro-organism
- autologous transfusion** A transfusion using the patient's own blood
- autosomes** The non-sex chromosomes
- average** The total measurements in a group divided by the total number of measurements
- axon** An extension from the body of a nerve cell; it carries nerve impulses away from the cell body
- bacterium** A very small single-celled organism; plural: **bacteria**
- bilayer** Two layers that make up a single membrane
- bile** A secretion of the liver, stored in the gall bladder and released into the small intestine
- bile salts** Substances that break fats into tiny droplets
- biochemistry** The study of chemical substances and reactions occurring in living things
- birth canal** The passage formed by the uterus, the dilated cervix and the vagina, through which the foetus travels at birth
- blastocyst** A hollow ball of cells formed during early embryonic development
- blood** A fluid tissue that circulates in the arteries, veins and capillaries; the main transport medium of the body
- blood flow** The amount of blood flowing through an organ or blood vessel within a given time
- bone** A hard connective tissue that forms most of the skeleton
- Bowman's capsule** See glomerular capsule
- bronchiole** A very small air tube in the lung
- bulbo-urethral gland** One of a pair of small yellow glands that secrete a lubricating fluid into the urethra; also called Cowper's gland
- bulk transport** See vesicular transport
- cancer** A malignant growth; one that has the capability of spreading to other body parts
- capillary** A microscopic blood vessel which links arterioles and venules
- carbaminohaemoglobin** A molecule resulting from a combination of carbon dioxide and haemoglobin
- carbohydrates** Organic molecules that are the main source of energy for cells
- carcinogen** A cancer-causing agent
- cardiac arrest** A complete stoppage of the heart
- cardiac cycle** The cycle of events that occurs in one complete heartbeat
- cardiac muscle** The muscle that forms the wall of the heart
- cardiac output** The volume of blood pumped from one ventricle of the heart in one minute
- cardiovascular disease** Disease of the heart and/or blood vessels
- cardiovascular regulating centre** The part of the brain that regulates heartbeat
- carrier** An individual who carries a recessive allele that is not expressed in their appearance
- carrier-mediated transport** Transport of ions or molecules across a cell membrane by special proteins
- cartilage** A connective tissue that is hard but flexible; it makes up part of the skeletal system
- castration** The removal of the testes
- catabolism** Chemical reactions that break down large organic molecules into smaller ones, with the release of energy
- cell** The basic structural and functional unit of a living organism
- cell body** The part of a nerve cell containing the nucleus
- cell membrane** A membrane that forms the external boundary of a cell; also called the plasma membrane
- cell theory** The principle that all living organisms are made up of cells and the materials produced by cells
- cellular respiration** The chemical reactions that make energy available for the cell; also called tissue respiration or internal respiration
- centriole** A structure in a cell consisting of two rings of microtubules; it has a function in cell division
- centromere** A constricted portion of a chromosome that joins the two chromatids when a chromosome duplicates; the point where a chromosome attaches to a spindle fibre during cell division
- cephalocaudal development** The progressive development of a baby from head to foot
- cerebral arteries** The blood vessels that supply blood to the brain
- cervical cap** A thin rubber cap that is fitted across the cervix before sexual intercourse; it prevents sperm entering the uterus
- cervix** The neck of the uterus, leading into the vagina
- chemical digestion** The chemical breakdown of food to small molecules
- chiasma** The point at which crossing over occurs between chromatids
- chorion** One of the embryonic membranes that eventually forms part of the placenta
- chorionic villi** Finger-like projections that develop from the outer layer of cells of the early embryo; they grow to form part of the placenta; singular: **chorionic villus**
- chorionic villus sampling (CVS)** A technique in which foetal cells are removed from the chorion and examined for indications of possible defects in the foetus
- chromatid** One of a pair of identical strands formed when a chromosome duplicates; chromatids are joined together by

the centromere but separate during cell division to become daughter chromosomes

chromatin A tangled network of DNA in the nucleus of a cell that is not dividing

chromosome One of the 46 rod-like structures that appear in the nucleus of a human cell at the commencement of cell division

cilia Hair-like processes projecting from a cell; they beat rhythmically to move the whole cell or to move material across the cell surface; singular: **cilium**

circular muscle Smooth muscle with fibres arranged in a circle around an organ, such as the stomach

circulation The movement of blood through the heart and blood vessels

circulatory system The transporting system of the body, consisting of the heart, blood, blood vessels, lymph and lymph vessels

circumcision Removal of the foreskin of the penis

citric acid cycle The series of reactions that occur in the mitochondria during aerobic respiration

classification The grouping of organisms based on the similarity of their characteristics; the placement of organisms into groups

cleavage The process whereby the fertilised egg divides into a number of smaller cells

clitoris The erectile organ of the female; it is equivalent to the penis in males

clones Two or more cells, tissues or organisms that are genetically identical

clot retraction Contraction of the fibrous threads of a blood clot

clotting factors Chemical substances in blood plasma that are essential for blood clotting

codominance When contrasting alleles both affect the appearance of an individual and neither is dominant over the other

coenzymes Non-protein organic molecules that are essential for the functioning of an enzyme

cofactors The ions or non-protein molecules required by enzymes to catalyse a reaction

coitus Sexual intercourse

coitus interruptus A method of birth control that depends on the withdrawal of the penis from the vagina just before ejaculation

collecting duct The tube in the kidney that collects filtrate from a number of nephrons

colostrum A watery, yellowish-white fluid, with a high content of the mother's antibodies, that is secreted from the breast at the time of childbirth

communicable disease A disease passed from one person to another by infection with micro-organisms; also called an infectious or transmissible disease

concentration A measure of the ratio of solute to solvent in a solution

concentration gradient A difference in concentration of a solution, often between the inside and outside of a cell; also called diffusion gradient

condom A thin sheath of latex that is rolled onto the erect penis before sexual intercourse to prevent sperm from entering the vagina; a means of contraception

congenital disorder A defect or disease that is present at birth

connective tissue A binding and supporting tissue; it has large amounts of non-cellular material between the cells

connector neuron A nerve cell in the brain or spinal cord that carries messages between other nerve cells; also called an association neuron or interneuron

consanguineous marriage The union of two close relatives, usually cousins

contagious disease A disease passed on by direct contact

contraception The prevention of conception; birth control

control A procedure carried out to give a comparison in an experiment

controlled experiment An experiment in which there are two almost identical set-ups, the only difference between them being the one variable that is being tested

controlled variables Variables that are controlled in an experiment

cord blood stem cells Stem cells found in the umbilical cord blood of newborn babies

corona radiata The innermost layer of cells surrounding the egg (or ovum)

corpus albicans A fibrous mass of scar tissue left on the ovary after the corpus luteum degenerates

corpus luteum The temporary endocrine gland that forms in the ovary after release of an egg

Cowper's gland See bulbo-urethral glands

crossing over The interchange of the parts of the chromatids of a homologous pair of chromosomes during the first stage of meiosis; it creates new combinations of alleles

cystic fibrosis A disorder controlled by a recessive allele; it results in chest infections, a lack of digestive enzymes and increased salt loss

cytokinesis The division of the cytoplasm to form two daughter cells

cytology The branch of science that deals with the study of cell structure

cytoplasm The contents of a cell, excluding the nucleus; also called protoplasm

data Observations and measurements; the results of an experiment

daughter cell One of the cells resulting from the division of a cell

deamination The removal of the amino group from an amino acid molecule

dendrite An extension from the body of a nerve cell; it carries nerve impulses into the cell body

deoxygenated blood Blood that contains little oxygen

deoxyribonucleic acid (DNA) A molecule in the nucleus of a cell that determines the types of protein that a cell can make

dependent variable In an experiment, the factor that changes in response to changes in the independent variable; also called the responding variable

Depo-Provera A form of contraception; a progesterone hormone that is injected to provide contraception for up to 14 weeks

dialysis A method of removing wastes from the blood when kidney failure occurs

diaphragm The dome-shaped skeletal muscle between the chest and abdominal cavities; also, a thin rubber cap that is fitted across the vagina before sexual intercourse to prevent sperm from entering the uterus

diarrhoea The frequent passing of watery faeces

diastole The period of relaxation of the heart (between contractions), during which it fills with blood

differentially permeable membrane A membrane that permits the passage of certain substances (usually small molecules) but restricts the passage of others (large molecules); also called a semipermeable, partially permeable or selectively permeable membrane

differentiation Of cells; the process by which unspecialised cells develop special characteristics to suit particular functions

diffusion The movement of particles of a liquid or a gas so that they are distributed evenly over the available space; usually taken to mean the net movement of ions or molecules from a higher to a lower concentration until they are evenly distributed

diffusion gradient See concentration gradient

digestion The mechanical and chemical breakdown of food to small molecules that can be absorbed into the body

digestive system The system that breaks down the food taken into the body ready for absorption into the cells

dihybrid An offspring produced by parents each pure-breeding for two pairs of contrasting characteristics

diploid cell A cell in which the chromosomes exist in pairs; designated 2n

distal convoluted tubule The second set of convolutions of the kidney tubule; it receives the forming urine after it has passed through the loop of Henle

DNA See deoxyribonucleic acid

dominant characteristic One of a pair of contrasting characteristics, which is controlled by an allele that is not masked by other alleles

double helix The spiral shape of the DNA molecule

Down syndrome See trisomy-21

Duchenne muscular dystrophy A wasting disease of the

leg muscles and later of the arms, shoulders and chest; see also muscular dystrophy

ductus arteriosus The foetal blood vessel that enables blood in the pulmonary artery to bypass the lungs and flow directly into the aorta

ductus venosus The foetal blood vessel that enables blood to bypass the liver

duodenum The first part of the small intestine

ectoderm The outer tissue layer of the embryo; it gives rise to the outer covering of the body

ectoparasite A parasite that lives on the outside of another organism

efferent arteriole The blood vessel that leaves a glomerulus in the kidney

ejaculation Muscular contractions that propel semen from the penis

embryo The early stage of development of an organism; in humans, from fertilisation to the end of the eighth week of pregnancy

embryoblast See inner cell mass

embryology The study of the early development of an organism; in humans, from fertilisation to birth

embryonic membranes The membranes lying outside the embryo, which protect and nourish it as it develops

embryonic stem cells Stem cells that are cultured from an embryo; usually from fertilised frozen eggs resulting from in-vitro fertilisation procedures

endocrine gland A gland that secretes hormones directly into adjacent tissue; also called a ductless gland

endocytosis The process by which a cell takes in materials by enfolding and enclosing them; includes phagocytosis and pinocytosis

endoderm The inner tissue layer of the embryo; it gives rise to the lining of the digestive tract and the glands associated with it, as well as to the respiratory tract and parts of the excretory and reproductive systems

endometrium The soft mucous membrane lining the uterus

endoparasite A parasite that lives inside another organism

endoplasmic reticulum (ER) A network of membranes forming channels through the cytoplasm of a cell; it is used for storage, support, synthesis and transport within the cell

endoscope A tube-like instrument with lenses and illumination, used to look inside body cavities

endoscopy The visual examination of body cavities using an endoscope

enzyme An organic substance (usually a protein) that increases the speed of chemical changes without being altered or destroyed in the change; an organic catalyst

epididymis A highly folded tubule behind each testis in which the sperm mature

epithelial tissue See epithelium

- epithelium** Tissue that forms the outer part of the skin and which lines hollow organs and ducts; a covering tissue; also called epithelial tissue; plural: **epithelia**
- erectile tissue** Spongy tissue in the penis which fills with blood to bring about erection of the penis
- erection** The state of the penis becoming firm, enlarged and erect
- erythrocyte** See red blood cell
- Essure** A device inserted into each uterine tube, blocking them and bringing about permanent birth control
- ethics** Moral principles or values
- excretion** Removal from the body of the wastes of metabolism
- excretory system** The system of the body that removes wastes of metabolism and passes them to the exterior
- exocrine gland** A gland that secretes into a duct or directly onto a surface
- exocytosis** The process whereby the contents of the vesicles of cells are pushed out through the cell membrane
- experimental variable** See independent variable
- expiration** Breathing out
- extracellular fluid** Fluid found outside the cells; it includes tissue fluid and blood plasma
- facilitated diffusion** The process whereby carrier proteins assist the movement of substances through the cell membrane
- facultative reabsorption** The active reabsorption of water from the filtrate in the renal tubule of the kidney
- faeces** Material passed out of the rectum
- Fallopian tube** See uterine tube
- Femidom** A female condom; a lubricated polyurethane sheath that lines the vagina
- fertilisation** Fusion of sperm and egg
- fetoscopy** The direct visual examination of a foetus through a small telescope-like instrument
- fever** A rise in body temperature above the normal temperature of 37 °C
- filtrate** The fluid remaining after filtration has taken place
- filtration** In the kidney; passage of liquid through the capillary wall from the glomerulus into the glomerular capsule
- fimbriae** The finger-like projections of the uterine tube
- foetal alcohol syndrome (FAS)** Abnormalities in a newborn baby due to the mother's excessive alcohol consumption during pregnancy; frequently results in lower than normal birthweight, a small head and slow growth
- foetus** The developing individual after the second month of pregnancy
- follicle-stimulating hormone** A hormone that stimulates the development of a follicle in the ovary
- foramen ovale** An opening between the atria of the foetal heart; it allows blood to flow directly from the right atrium into the left atrium
- foreskin** The loose skin covering the head of the penis
- formed element** Any cell or cell-like structure in the blood
- fraternal twins** Twins produced as a result of two separate eggs being fertilised by two separate sperm
- frequency** The number of times an event occurs
- gamete** A sperm or egg cell
- gametogenesis** The formation and development of the gametes
- gastric juice** The digestive juice secreted by the glands of the stomach
- gene** The factor that determines a hereditary characteristic; part of a chromosome
- gene therapy** The treatment of genetic abnormalities by replacing the faulty genes with healthy ones
- genetic code** The information stored in DNA molecules
- genetic engineering** Introducing foreign or modified DNA into the cells of an organism; also called recombinant DNA technology
- genetic disease** A disease caused by an abnormality or abnormalities in an individual's genes
- genetics** The study of the inheritance of characteristics
- genome** The complete set of genetic information of an organism
- genotype** The genetic constitution of an individual
- germ cells** Cells in the ovary that are able to develop into ova
- gestation** The period of development of an organism in the uterus; the time between conception and birth
- glomerular capsule** The double-walled cup-like structure at the end of each kidney tubule; it collects filtered water and other substances from the blood; also called Bowman's capsule
- glomerular filtration** The filtration of blood in the kidney
- glomerulus** The tightly coiled mass of capillaries that is surrounded by the expanded part of each kidney tubule
- glycolysis** The breakdown of a glucose molecule to pyruvic acid; it releases energy to form two molecules of adenosine triphosphate (ATP)
- Golgi apparatus** A structure in the cytoplasm of a cell consisting of a stack of flattened channels; it packages materials for secretion from the cell
- gonad** A sex organ; a testis or an ovary
- gonadotropins** Hormones that affect the sex organs
- Graafian follicle** A fluid-filled structure in the ovary; it contains an immature egg and its surrounding tissues
- gross to specific development** Ability to control larger muscle movements before finer muscle movements
- haemodialysis** The process of dialysis whereby blood is passed through an artificial kidney or dialysis machine
- haemoglobin** The pigment in red blood cells; it is involved in the transport of oxygen and some carbon dioxide through the body

haemophilia An inherited disorder in which the blood clots slowly or not at all

haploid cell A cell having half the usual number of chromosomes; an egg or sperm cell; designated n

heart A hollow, muscular organ that pumps blood

heart attack Damage to part of the heart due to a decrease in blood supply (and therefore oxygen supply) to that part of the heart muscle; also called a myocardial infarction

heart rate The number of heartbeats per minute

hemizygous Having no allelic counterpart; occurs with alleles in the X chromosome in males

heparin A substance that helps to prevent blood from clotting

herd immunity The immunity of a population

heredity The transmission of inherited characteristics from parents to offspring

heterozygous Possessing different alleles for a given characteristic

histamine A substance released in response to injury to cells; it results in an increase in blood flow

histones Proteins in the nucleus to which DNA molecules are attached

homeostasis The maintenance of a relatively constant internal environment despite fluctuations in the external environment

homologous chromosomes The pairs of chromosomes containing genes that control the same characteristics

homozygous Possessing the same alleles for a given characteristic

hormone A chemical secreted by an endocrine gland, and often carried in the blood, that affects the functioning of a cell or organ

host The organism on which, or in which, a parasite lives

human chorionic gonadotropin A hormone produced by the placenta during pregnancy

Huntington disease A hereditary disease, the symptoms of which seldom appear before 40 years of age, characterised by occasional involuntary flailing movements of the arms and legs

hybrid An offspring that is the result of a mating between individuals of two different genetic constitutions

hymen The fold of tissue that covers the external opening of the vagina

hypertension Abnormally high blood pressure

hypothesis A possible explanation to account for observations; plural: **hypotheses**

hysterectomy The complete or partial removal of the uterus

identical twins Twins produced when a single fertilised egg divides completely during early embryonic development, resulting in two separate individuals being formed

immune response A response triggered by a foreign substance or micro-organism entering the body

immunisation The introduction of antigens to the body so that immunity is acquired without suffering an illness; also called vaccination

immunity Resistance to infection by micro-organisms

immunoglobulin A group of proteins; antibodies are immunoglobulins

Implanon A matchstick-sized capsule that is implanted beneath the skin to deliver progesterone, providing protection against pregnancy for up to three years; a form of contraception

implantation The process whereby an embryo sinks into the lining of the uterus

independent variable In an experiment, the factor that is being investigated; the factor that is deliberately changed to determine its effect; also called the experimental variable or the manipulated variable

infectious disease See communicable disease

inflammation The response to damage to a tissue; it involves swelling, heat, pain and redness to the affected area

ingestion The intake of food, liquids or drugs into the mouth

inheritance Transmission of characteristics from parents to offspring

inner cell mass The group of cells in the blastocyst that develop into the embryo; also called the embryoblast

insemination The deposition of sperm within the vagina

inspiration Breathing in

intercellular fluid See tissue fluid

interphase The stage in the life cycle of a cell when it is not dividing; the stage between mitotic divisions

interstitial cell A cell located in the mature testis; it secretes testosterone

interstitial fluid See tissue fluid

intestinal juice The digestive juice secreted by the glands of the small intestine

intracellular fluid Fluid found inside cells

intrauterine device (IUD) A plastic or metallic device inserted into the uterus; it prevents conception

in-vitro fertilisation Fertilisation outside the body of the female

involuntary muscle See smooth muscle

karyotype A photograph or drawing of the chromosomes displayed in order

kidney The principal excretory organ of the human body; it filters wastes from the blood and regulates the balance of water and salts in the blood plasma

kidney failure When the kidneys lose their ability to excrete wastes and control the level of fluid in the body

labia The fleshy folds of skin lining the opening to the vagina and urethra

labour The sequence of events that precede birth and result in the expulsion of the foetus through the vagina

- lactation** The initiation and maintenance of milk secretion, as well as the delivery of milk to the young
- lacteal** A lymph capillary in the small intestine; it absorbs fat from digested food
- lactogenic hormone** A hormone that promotes milk production during and after pregnancy
- large intestine** The part of the intestine between the small intestine and the anus; it is made up of the caecum, colon and rectum
- larynx** Part of the respiratory system that contains the vocal cords
- lethal recessives** Recessive alleles that cause death of an embryo or foetus unless masked by a normal dominant allele
- leucocyte** A white blood cell; also spelt **leukocyte**
- lipase** An enzyme that breaks down fats
- lipids** Large organic molecules made up of fatty acids and glycerol
- listeriosis** An illness caused by eating food contaminated with listeria bacteria
- longitudinal muscle** Smooth muscle with fibres arranged lengthwise along an organ
- loop of Henle** The U-shaped section of the kidney tubule; it plays a major role in the reabsorption of water and salts from the filtrate
- lung** One of a pair of organs for gas exchange, occupying the chest cavity
- luteinising hormone** A hormone that promotes final maturation of the ovarian follicle and formation of the corpus luteum
- lymph** The colourless fluid that circulates through the lymphatic vessels to be returned to the blood
- lymph capillary** A microscopic vessel that carries lymph; it is closed at one end
- lymph gland** See lymph node
- lymph node** An oval or bean-shaped structure found on the lymphatic vessels; it is involved in protection against infection; also called a lymph gland
- lymphatic system** A system of vessels that drains excess fluid from the tissues; also called the lymph system
- lymphatic vessel** A large vessel that collects lymph from the lymph capillaries; lymphatic vessels join up and eventually return lymph to the blood
- lymphocyte** A type of white blood cell; lymphocytes are also found in lymph nodes and in lymph
- lymphoid tissue** Tissue containing many lymphocytes and macrophages; it is found mostly in the lymph nodes but also in the bone marrow, tonsils, spleen and thymus
- lysozyme** An enzyme that kills bacteria; it is found in tears, saliva and perspiration
- macrophage** A phagocytic cell derived from a monocyte (a type of white blood cell)
- mammary gland** A modified sweat gland of the female, which secretes milk for the nourishment of the young
- mammogram** The X-ray examination of the breasts
- mast cell** A type of cell found in loose connective tissue; mast cells are involved in the inflammatory response
- mechanical digestion** The mechanical breakdown of food into small particles
- meiosis** A type of cell division resulting in sperm or eggs; the sperm or eggs have half the chromosome number of the parent cell
- melanin** A yellow-black pigment produced by special skin cells
- melanocytes** Special skin cells that synthesise melanin from a particular amino acid called tyrosine
- memory cells** Cells that bring about a more rapid response to a second or subsequent exposure to an antigen
- menarche** The onset of menstruation in a female
- menopause** The time when a woman ceases to menstruate
- menstrual cycle** The regular series of changes that take place in the walls of the uterus of a non-pregnant female
- menstruation** The periodic discharge of blood and tissue fluid due to the breakdown of the lining of the uterus
- mesoderm** The middle tissue layer of an embryo; it gives rise to the muscles, connective tissues and the alimentary canal
- messenger RNA** An RNA molecule that transfers coded information from the nucleus to the ribosomes
- metabolic wastes** Substances produced by cells that cannot be used and that would be harmful if allowed to accumulate; also called wastes
- metabolism** All the chemical reactions occurring in a living organism
- metaphase** The second phase of mitosis, during which the chromosomes (pairs of chromatids) line up across the centre of the cell
- microtubules** Fine tubes that help to maintain the shape of the cell and hold the organelles in place
- microvilli** Microscopic projections from the membranes of cells lining the small intestine; they increase the surface area for absorption; singular: **microvillus**
- milk let-down reflex** The series of events that occur in a woman's body to enable the release of milk when a child suckles on her nipple
- mitochondrial DNA** DNA found in the mitochondria
- mitochondrion** A structure in the cytoplasm of a cell in which the aerobic stage of respiration occurs; plural: **mitochondria**
- mitosis** The process of division of the nucleus of a cell in which the two daughter nuclei have the same number and type of chromosomes as the parent nucleus; often used loosely to mean cell division
- molecular biology** The study of the macromolecules of the cell

- monohybrid cross** A mating between individuals in which only one pair of contrasting characteristics is being considered
- monosomy** Where an individual has only one copy of a chromosome instead of two
- motor skills** Skills involving controlled movements of parts of the body
- mucosa** A mucous membrane; in particular the mucous membrane that forms the internal lining of the alimentary canal
- mucous membrane** The membrane that forms the lining of the alimentary canal, the reproductive tract, the respiratory system and the urinary tract; see also mucosa
- mucus** A thick fluid secreted by mucous glands and by mucous membranes
- multiple drug resistance** Resistance of a strain of bacteria to many different antibiotics
- multipotent stem cells** Stem cells that are able to give rise to a limited number of other cell types, for example, blood stem cells will give rise to red blood cells, white blood cells and platelets
- muscle** A tissue, or organ, capable of shortening in length
- muscular dystrophy** A general term referring to a number of muscle-wasting diseases; see also Duchenne muscular dystrophy
- mutagen** See mutagenic agent
- mutagenic agent** An environmental factor that increases the rate at which mutations occur; also called a mutagen
- mutant** An organism with a characteristic resulting from a mutation
- mutation** A new variation, resembling neither parent, that occurs quite suddenly and purely by chance; it results from a change in a gene or chromosome
- myocardial infarction** See heart attack
- natural immunity** Immunity that occurs without human intervention
- natural selection** The process by which a species becomes better adapted to its environment; those individuals with favourable characteristics have a survival advantage and so pass those characteristics on to subsequent generations
- nephron** The functional unit of the kidney
- nervous system** The body system involved with the control and co-ordination of the body
- nervous tissue** The nerve cells that make up the nervous system; tissue that initiates and carries messages
- net diffusion** See diffusion
- non-disjunction** When one or more of the chromosome pairs fail to separate during meiosis
- non-self antigen** Any compound foreign to the body which triggers an immune response
- non-specific defence** A defence that works against all pathogens
- nuclease** An enzyme that digests nucleic acids
- nucleotide** Units of phosphate, sugar and nitrogen base that make up the DNA molecule
- nutrient** Any substance in food that provides energy, is essential for growth or assists in the functioning of the body
- nutrition** The food required for normal body functioning; also, the processing of food within the cells; also, the study of the food requirements of humans
- obligatory absorption** Reabsorption of water by osmosis from the renal tubule into the peritubular capillaries
- observation** The use of the senses, sometimes with instruments that enhance the senses, to gather information
- oesophagus** The tube that carries food from the throat to the stomach
- oestrogen** A general name for a female sex hormone; it develops or maintains female reproductive structures
- oogenesis** The formation and development of the ovum within the ovary
- oogonia** The egg mother cells located in the ovaries
- oophorectomy** The surgical removal of the ovaries
- organ** A body structure that has a definite form and function; an organ is usually composed of two or more tissues
- organelle** A structure within a cell; it is specialised for a particular function within the cell
- organism** An individual living thing
- orgasm** The climax of sexual intercourse
- osmosis** The diffusion of water molecules through a differentially permeable membrane from an area of higher water concentration to an area of lower water concentration
- osmotic pressure** The pressure due to differences in concentration on either side of a differentially permeable membrane
- outliers** Measurements well beyond the range of the rest of the measurements in a set
- ova** Mature egg cells; singular: **ovum**
- ovarian cycle** The regular series of events that take place within an ovary of a non-pregnant female, associated with the maturation of an egg
- ovarian follicle** A layer of cells enclosing a germ cell in the ovary
- ovary** The organs in which the female gametes—the ova (or eggs)—are produced
- oviduct** See uterine tube
- ovulation** The release of the egg from the follicle
- ovum** A mature egg cell; plural: **ova**
- oxygen debt** Extra oxygen required after exercise in addition to the normal resting requirement; it is required to remove the lactic acid produced during exercise
- oxygenated blood** Blood containing a lot of oxygen
- oxyhaemoglobin** Oxygen combined with haemoglobin
- palaeontology** The study of fossils
- pancreatic juice** The liquid secreted by the pancreas

- parasite** An organism that lives on, or in, another living thing and derives food and shelter from it
- parturition** The process of birth
- passive immunity** Immunity produced by the introduction of antibodies from another person
- passive process** A process that occurs without any input of energy
- pathogen** A disease-causing organism
- pedigree** A family tree
- penis** The copulatory organ of the male
- peripheral vascular disease** Disease of blood vessels in the legs and arms
- peristalsis** Waves of muscular contraction that push food along the alimentary canal
- peritoneal dialysis** Dialysis occurring inside the body using the peritoneum as the membrane across which wastes can be removed
- peritoneum** The membrane that lines the inside of the abdominal cavity
- peritubular capillaries** The capillaries in the kidney that surround the convoluted tubules of the nephron, the loop of Henle and the collecting duct
- phagocytes** Cells that are able to engulf and digest micro-organisms and cell debris
- phagocytosis** The process by which a cell surrounds, and takes in, solid particles
- pharynx** The throat; the pharynx joins the mouth cavity to the oesophagus and larynx
- phenotype** The appearance of an individual as determined by the genetic constitution
- phenylketonuria (PKU)** An inherited disease resulting in damage to the growing brain and thus extreme mental deficiency, also a tendency towards epileptic seizures and a failure to produce normal skin pigmentation
- physiology** The science of the functioning of living things
- pinocytosis** The process by which cells enfold, and take in, drops of liquid
- pituitary gland** An endocrine gland located below the brain
- placebo** An inactive substance that looks like real medication, used in medical experiments
- placenta** The organ that supplies nutrients to, and removes wastes from, the foetus; it also produces a number of hormones including oestrogens and progesterone
- placental stem cells** Stem cells extracted from discarded placental tissue (and umbilical cord) and preserved for later use
- plaque** A deposit of fatty material (containing cholesterol) on the inside of the wall of an artery
- plasma** The fluid part of the blood in which the cells are suspended
- plasma cells** Cells that develop from a B cell and produce antibodies
- plasma membrane** See cell membrane
- platelet** One of the formed elements of blood; a fragment of cytoplasm enclosed in a membrane but lacking a nucleus; also called a thrombocyte
- pluripotent stem cells** Stem cells that are able to give rise to many, but not all, of the cell types necessary for foetal development
- polar body** The small cell resulting from the unequal division of cytoplasm when an egg is produced by meiosis
- postnatal** The term used to describe events following the birth of a child
- prehistory** The study of events before the time of written records
- primary germ layers** The embryonic tissues from which all tissues and organs of the body will develop; the ectoderm, endoderm and mesoderm
- primary sex organs** The organs that produce gametes; testes and ovaries
- primatology** The study of the non-human members of the order Primates (apes, monkeys, lemurs, lorises and tarsiers)
- progeny** Offspring
- progesterone** A female sex hormone produced by the ovaries; it helps prepare the uterine lining for a fertilised egg, and also prepares mammary glands for milk secretion
- proliferation** The process by which cells replicate themselves
- pronucleus** The nucleus of the egg and of the sperm that fuse at fertilisation
- prophase** The first phase of mitosis, during which the chromosomes become visible, the nuclear membrane breaks down and the spindle forms
- prostate gland** A single gland that surrounds the urethra just below the bladder; it secretes a fluid that becomes part of the semen
- protein** Very large organic molecules made up of amino acids
- protease** An enzyme that breaks down proteins
- proximal convoluted tubule** The first set of convolutions of the kidney tubule, located between the glomerular capsule and the loop of Henle
- proximodistal development** The coordination of movements of the parts of limbs close to the body before parts at the extremities
- psychology** The study of behaviour and the mental processes that control behaviour
- puberty** The period during which a person becomes sexually mature
- puerperium** The period following birth during which the reproductive organs return to their normal non-pregnant state
- pure-breeding** The production of the same characteristic in each succeeding generation when individuals are bred among themselves; homozygous

pus The thick fluid that results from inflammation; it contains dead phagocytes

pyloric sphincter A ring of smooth muscle between the stomach and the duodenum

range The difference between the highest and lowest measurements in a group

rate A ratio that shows how long it takes to do something

ratio A numerical statement of how one variable relates to another

reabsorption In the kidney, the process by which substances are transported from the filtrate in the renal tubules into the blood of the peritubular capillaries

receptor A structure that detects a stimulus

recessive characteristic One of a pair of contrasting characteristics, which is controlled by an allele that is masked by dominant alleles

recombinant DNA technology See genetic engineering

recombination A changing of the order of alleles along a chromosome

red blood cell One of the formed elements of the blood; red blood cells contain haemoglobin

reflex A rapid, automatic response to a change in the external or internal environment, which tries to restore homeostasis

reliability The extent to which an experiment gives the same result each time it is performed

renal artery The blood vessel transporting blood into the kidney

renal pelvis The cavity of the kidney which collects urine before it passes to the ureter

renal tubule The kidney tubule; it leads away from the glomerular capsule and empties into a collecting duct

renal vein The blood vessel transporting blood away from the kidney

repetition Performing the same experiment many times

replication The process by which a DNA molecule forms an exact replica of itself

respiration The exchange of gases between the atmosphere, blood and body cells of an organism; also, the chemical reactions that make energy available for cells

respiratory system The system specialised for the intake of oxygen and the removal of carbon dioxide

rhythm method A method of contraception in which sexual intercourse is avoided around the time that ovulation is likely to occur

rubella A viral infection that, if contracted by a pregnant woman, can have serious consequences for her unborn child; the child may be born deaf, blind or with heart malformations

SA node See sino atrial node

scientific method The systematic collection and classification of data, and the making and testing of hypotheses based on the data

scientific model A simplified representation of a complex idea or process

scrotum The pouch outside the abdominal cavity in which the testes are located

secondary sex organs Organs essential for reproduction but which do not produce gametes

secondary sexual characteristic A characteristic associated with an individual's sex but not involved in sexual reproduction

selective reabsorption In the renal tubules, reabsorption of some substances and not others

self-antigen Any large molecule produced in a person's own body which does not cause an immune response in that person

semen The liquid that nourishes and aids the transport of sperm; also called seminal fluid

seminal fluid See semen

seminal vesicles A pair of pouch-like organs that secrete a thick fluid which is a major part of semen

seminiferous tubule A tightly coiled duct, located in the testis, where sperm are produced

serum Blood plasma without the clotting substances, squeezed out of a blood clot during clot retraction

sex chromosomes The pair of chromosomes that determines the sex of an individual

sex-linked characteristic A characteristic determined by genes carried on the X chromosome

sex selection Choosing to have a baby of a particular sex

sexual intercourse The sex act during which gametes are passed from the male to the female

sickle-cell anaemia An inherited disease in which abnormal haemoglobin causes the red blood cells to become sickle-shaped when oxygen concentration is low

single gene disorder A disorder caused by the inheritance of a single defective gene

sino atrial node A group of cells in the wall of the right atrium of the heart that regulate heartbeat; the heart's pacemaker; also called the SA node

smooth muscle Muscle that is not attached to the skeleton; contracts automatically; found in walls of internal organs

sociology The study of the nature of human society

species The basic unit of biological classification; members of a species are capable of interbreeding and producing fertile offspring

specific defence A defence against disease that is directed towards a particular pathogen

sperm See spermatozoa

sperm duct See vas deferens

spermatogenesis The formation and development of the spermatozoa

spermatogonia Immature cells lining the seminiferous tubules

- spermatozoa** The male gamete; also called sperm
- spermicide** A substance that immobilises sperm
- spindle** The framework of fibres (microtubules) that radiate out from the poles of a cell during cell division
- stem cells** Cells that have the ability to produce different types of body cells
- stroke** A condition in which a blood vessel in the brain is blocked so that some of the brain tissue does not receive enough oxygen
- stroke volume** The volume of blood pumped from the left ventricle during one contraction
- stroma** Connective tissue in the ovary
- surrogacy** When a woman bears a child for another woman
- sweat glands** Glands in the skin that produce sweat
- synthesis** A chemical reaction in which small molecules are joined to make larger molecules
- system** A group of organs that work together for a common function
- table** An organised and concise means of presenting data
- target cell** A cell whose activity is affected by a particular hormone
- target organ** An organ whose activity is affected by a particular hormone
- telophase** The final phase of mitosis, during which the daughter chromosomes group at opposite ends of the cell and two daughter nuclei form
- teratogenic agent** An agent that causes physical defects in a developing foetus
- testis** The male sex organ that produces sperm and the hormone testosterone; plural: **testes**
- testosterone** The male sex hormone secreted by endocrine cells within a mature testis
- thalassaemia** An inherited disease caused by a recessive allele, in which anaemia results from defects in the formation of haemoglobin
- thalidomide** A teratogen that causes babies to be born with limb malformations
- theory** A hypothesis becomes a theory when there is overwhelming evidence in support of it
- thrombocyte** See platelet
- tissue** A group of cells that are similar in structure and function
- tissue fluid** Fluid found in the spaces between the cells; also called interstitial fluid or intercellular fluid
- totipotent stem cell** A stem cell able to create any of the types of cell necessary for embryonic development
- toxin** Any poisonous substance produced by bacteria or by other plants or animals
- toxoids** Inactivated toxins
- traits** The characteristics that determine the genetic constitution of an individual
- transfer RNA** An RNA molecule that brings amino acids from the cytoplasm to the ribosomes
- transfusion** The transfer of blood, or of some of the components of blood, into the circulation of a person
- transmissible disease** See communicable disease
- trisomy-21** A genetic disorder resulting from an extra copy of chromosome 21; affected individuals have an altered physical appearance and variable degrees of mental retardation; also called Down syndrome
- tubal ligation** Female sterilisation; the removal of a small piece, or the clamping off, of each uterine tube
- tubular secretion** The process whereby ions and drugs are secreted from the blood into the kidney tubule
- ultrasound** A technique in which inaudible, high-frequency sound waves are used to produce an image, especially of the foetus during pregnancy
- umbilical cord** The cord that attaches the foetus to the placenta
- umbilicus** The small scar on the abdomen that marks the former attachment of the umbilical cord to the foetus; commonly called the navel
- ureter** The tube that leaves each kidney and drains into the urinary bladder
- urethra** The duct that carries urine from the bladder to the exterior; in males it also carries semen
- urine** The fluid produced by the kidneys that contains wastes and excess materials
- uterine tube** The tube that carries the eggs from the ovaries to the uterus; also called a Fallopian tube or oviduct
- uterus** The hollow, pear-shaped organ situated between the urinary bladder and the rectum in females; commonly called the womb
- vaccination** See immunisation
- vaccine** An antigen preparation used in immunisation
- vacuole** A membrane-bound cavity within the cytoplasm of a cell
- vagina** The canal leading from the uterus to the exterior of the female body
- validity** The extent to which an experiment tests what it is supposed to test
- variable** Any factor that may change during an experiment
- variation** Differences between individuals of a species
- vas deferens** The tube that carries the sperm away from the testis; also called the sperm duct; plural: vasa deferentia
- vasectomy** Male sterilisation; the removal of a small piece of each vas deferens
- vasoconstriction** A decrease in the diameter of blood vessels, restricting the flow of blood through them
- vasodilation** An increase in the diameter of blood vessels, allowing for an increase in the flow of blood
- vasodilator** A substance that produces a local widening, or dilation, of blood vessels

vector An agent, such as an insect, capable of transferring a disease-causing organism from one person to another

vein A blood vessel that carries blood towards the heart

ventilation Breathing

ventricular systole The phase of the heartbeat when the ventricles contract

venule A small vein

vernix The waxy substance covering the baby at birth

vesicle A small membrane-bound cavity in the cytoplasm of a cell, smaller than a vacuole

vesicular transport The transport of materials into or out of a cell in membrane-bound sacs; also called bulk transport

villi Projections from the internal lining of the small intestine; also, projections of the chorion that grow into the lining of the uterus; singular: **villus**

virulence The disease-producing power of a micro-organism

virus An infectious agent consisting of a protein sheath surrounding a core of nucleic acid; viruses are totally dependent on living cells for reproduction

vulva The region comprising the external genitalia of the female

wastes See metabolic wastes

white blood cell One of the blood cells; it contains a nucleus but no haemoglobin

X chromosome One of the two sex chromosomes; it contributes to the determination of the sex of an individual

X-ray A form of electromagnetic radiation that is able to penetrate soft body tissues but which is stopped by more solid material such as bone

Y chromosome One of the two sex chromosomes; it contributes to the determination of the sex of an individual

zygote The fertilised egg from which a new individual develops