

## SB2a Mitosis

Word	Pronunciation	Meaning
<b>anaphase</b>	<i>an-na-fays</i>	The stage of mitosis in which the separated chromosomes move away from each other.
<b>asexual reproduction</b>		Producing new organisms from one parent only. These organisms are genetically identical to the parent.
<b>cancer cell</b>		Cell that divides uncontrollably.
<b>cell cycle</b>		A sequence of growth and division that happens in cells. It includes interphase and mitosis, and leads to the production of two daughter cells that are identical to the parent cell.
<b>clone</b>		Offspring from asexual reproduction. All the cells in a clone are genetically identical to each other and to the parent's cells.
<b>cytokinesis</b>	<i>site-O-kY-nee-sis</i>	When the cytoplasm of the cell is separated as the cell membrane is pinched to divide the cell into two daughter cells.
<b>daughter cell</b>		New cell produced by cell division.
<b>diploid</b>	<i>dip-loyd</i>	A cell with two sets of chromosomes.
<b>DNA replication</b>	<i>rep-li-kay-shun</i>	The copying of the DNA within a cell.
<b>haploid</b>	<i>hap-loyd</i>	A cell with one set of chromosomes.
<b>interphase</b>	<i>in-ter-fays</i>	The stage when the cell prepares itself for the process of cell division, and DNA replication takes place. The cell also makes more of its sub-cellular structures.
<b>metaphase</b>	<i>met-a-fays</i>	The stage of mitosis when the chromosomes line up across the middle of the cell.
<b>mitosis</b>	<i>my-toe-sis</i>	The process of cells dividing to produce two daughter cells that are genetically identical to the parent.
<b>multicellular</b>	<i>mul-tee-sell-U-lar</i>	An organism that is made of many cells.
<b>prophase</b>	<i>prO-fays</i>	The stage of mitosis in which the nucleus starts to break down and spindle fibres appear.
<b>spindle fibre</b>	<i>spin-del fY-ber</i>	Filament formed in a cell during mitosis, which helps to separate chromosomes.
<b>telophase</b>	<i>tee-lO-fays</i>	The stage of mitosis in which the chromosomes arrive at opposite ends of the cell and the nucleus membrane reforms.
<b>tumour</b>	<i>tyoo-mer</i>	Lump formed of cancer cells.

**SB2b Growth in animals**

Word	Pronunciation	Meaning
<b>differentiation</b>	<i>diff-er-en-shi-ay-shun</i>	When a group of similar things, such as cells, become different in form from each other.
<b>growth</b>		A permanent increase in the number or size of cells in an organism.
<b>percentile</b>	<i>pur-sent-iyl</i>	A $\frac{1}{100}$ th division of a group. For example, 10 per cent of the data items are below the 10th percentile and 50 per cent are below the 50th percentile.

**SB2c Growth in plants**

Word	Pronunciation	Meaning
<b>differentiate</b>		To change into different types, for example when meristem cells differentiate into specialised cells such as xylem or root hair cells.
<b>elongation</b>		When something gets longer (such as a cell in a plant root or shoot before it differentiates into a specialised cell).
<b>meristem</b>		A small area of undifferentiated cells in a plant, such as near the shoot tips and root tips, where cells are dividing rapidly by mitosis.
<b>root hair cell</b>		Cell found on the surface of plant roots that has a large surface area to absorb water and dissolved mineral salts quickly from the soil.
<b>xylem cell</b>	<i>zy-lem sell</i>	Cell that joins with other xylem cells to form long, thick-walled vessels after they die. The vessels carry water and dissolved mineral salts through the plant.

**SB2d Stem cells**

Word	Pronunciation	Meaning
<b>adult stem cell</b>		Stem cell found in specialised tissue that can produce more of the specialised cells in that tissue for growth and repair.
<b>cancer</b>	<i>can-ser</i>	Disease caused by the uncontrolled division of stem cells in a part of the body.
<b>embryonic stem cell</b>		Stem cell from an early embryo that can produce specialised cells of many different types.
<b>meristem cell</b>		Stem cell found in a plant meristem.
<b>rejection</b>		When the immune system attacks and kills cells and tissue that come from another person, such as blood (after transfusion) or stem cells.
<b>stem cell</b>		Unspecialised cell that continues to divide by mitosis to produce more stem cells and other cells that differentiate into specialised cells.

## SB2e The brain

Word	Pronunciation	Meaning
cerebellum	<i>ser-eb-ell-um</i>	Part of the brain that controls balance, posture and fine muscle movements.
cerebral cortex	<i>ser-eb-ral kor-tex</i>	The main part of the brain, which is used for most of our senses, language, memory, behaviour and consciousness.
cerebral hemisphere	<i>ser-eb-ral hem-iss-fear</i>	One half of the cerebral cortex. (The cerebral cortex has two cerebral hemispheres.)
medulla oblongata		Part of the brain at the top of the spinal cord. It controls breathing and heart rate.
nerve		Large bundle of neurones (and blood vessels).
neurone		A cell that transmits electrical impulses in the nervous system.

## SB2f Brain and spinal cord problems

Word	Pronunciation	Meaning
blood–brain barrier		Barrier that stops substances diffusing out of capillaries and into the brain. The barrier is mainly due to the cells of the capillary walls fitting together tightly.
chemotherapy		The use of drugs to kill cancer cells.
CT scan		A scan in which multiple X-rays are taken of part of the body and put together by a computer. CT stands for computed tomography.
gamma ray		A high-frequency electromagnetic wave emitted from the nucleus of a radioactive atom. Gamma rays have the highest frequencies in the electromagnetic spectrum.
PET scan		A scan in which a radioactive marker is used to pinpoint certain areas in the body, such as very active cells. PET stands for positron emission tomography.
quadriplegia	<i>kwad-drep-lee-jee-a</i>	A condition in which both arms and both legs are paralysed.
radioactive		A substance is radioactive if it emits ionising particles, or radiation.
radiotherapy		The use of ionising radiation to treat diseases, such as to kill cancer cells.
tumour		A lump formed of rapidly dividing cells.

## SB2g The nervous system

Word	Pronunciation	Meaning
axon		The long extension of a neurone that carries an impulse away from the dendron or dendrites towards other neurones.
axon terminal		Small 'button' at the end of the branches that leave an axon.

Word	Pronunciation	Meaning
<b>central nervous system</b>		The main part of the nervous system – the brain and spinal cord. Abbreviated to CNS.
<b>CNS</b>		Stands for central nervous system.
<b>dendrite</b>		A fine extension from a neurone, which carries impulses towards the cell body.
<b>dendron</b>		Large, long extension of a sensory neurone that carries impulses from dendrites towards the axon.
<b>impulse</b>		Electrical signal transmitted along a neurone.
<b>myelin sheath</b>	<i>my-ell-in sheeth</i>	Fatty covering around the axons of many neurones. It speeds up the transmission of impulses along their length and helps to insulate them from one another.
<b>nerve cell</b>		Another term for neurone.
<b>nervous system</b>		An organ system that contains the brain, spinal cord and nerves, and carries impulses around the body. This system helps us to sense and respond quickly to changes inside and outside our bodies.
<b>neurone</b>	<i>nyor-own</i>	A cell that transmits electrical impulses in the nervous system.
<b>neurotransmission</b>	<i>new-ro-trans-mish-un</i>	Impulses passing from neurone to neurone.
<b>receptor cell</b>	<i>re-sep-tor sell</i>	Cell that receives a stimulus and converts it into an electrical impulse to be sent to the brain and/or spinal cord.
<b>response</b>		Action that occurs due to a stimulus.
<b>sense organ</b>		Organ that contains receptor cells.
<b>sensory neurone</b>	<i>sens-or-ee nyor-own</i>	Neurone that carries impulses from receptor cells, towards the central nervous system.
<b>spinal cord</b>	<i>spy-nal cord</i>	Large bundle of nerves, leading from the brain and down the back.
<b>stimulus</b>		Change in a factor (inside or outside the body) that is detected by receptors. Plural: stimuli.

## SB2h The eye

Word	Pronunciation	Meaning
<b>cataract</b>		Protein built up in the lens of the eye so that it becomes cloudy.
<b>ciliary muscle</b>	<i>sill-ee-ar-ee muss-ell</i>	A muscle that relaxes or contracts to change the shape of the lens in the eye.
<b>colour blindness</b>		An eye defect in which someone cannot see the full range of colours.
<b>cone (cell)</b>		A cell in the retina that detects different colours of light.
<b>constrict</b>		To make narrower.
<b>cornea</b>		The transparent front part of the eye, which covers the iris and pupil.
<b>dilate</b>	<i>dye-late</i>	To make wider.

Word	Pronunciation	Meaning
<b>iris</b>		The coloured part of the eye. Muscles in it control the diameter of the pupil.
<b>lens (biology)</b>		Part of the eye that further converges light rays (which have been converged by the cornea) to focus them on the retina.
<b>long-sightedness</b>		An eye condition in which close objects appear blurred.
<b>optic nerve</b>		The nerve that takes impulses from the retina to the brain.
<b>pupil</b>		The hole in the front of the eye through which light can pass.
<b>receptor cell</b>	<i>re-sep-tor sell</i>	Cells that detect stimuli, such as cells in the eye that detect changes in light.
<b>retina</b>		The part at the back of the eye that changes energy transferred by light into nerve impulses. The retina contains rods and cones.
<b>rod (cell)</b>		A cell in the retina that detects low levels of light. It cannot detect different colours.
<b>short-sightedness</b>		An eye condition in which distant objects appear blurred.

### SB2i Neurotransmission speeds

Word	Pronunciation	Meaning
<b>effector</b>		Muscle or gland in the body that performs an action when an impulse from the nervous system is received.
<b>motor neurone</b>	<i>mO-ter nyor-own</i>	Neurone that carries impulses to effectors.
<b>neurotransmitter</b>	<i>new-rO-trans-mit-ter</i>	Substance that diffuses across the gap between two neurones at a synapse, and triggers an impulse to be generated in the neurone on the other side of the synapse.
<b>reflex</b>	<i>ree-flex</i>	Response to a stimulus that does not require processing by the brain. The response is automatic. Also called a reflex action.
<b>reflex arc</b>	<i>ree-flex ark</i>	Neurone pathway consisting of a sensory neurone passing impulses to a motor neurone (often via a relay neurone), which allows reflexes to occur.
<b>relay neurone</b>	<i>ree-lay nyor-own</i>	A short type of neurone, found in the spinal cord and brain. Relay neurones link with sensory, motor and other relay neurones.
<b>synapse</b>	<i>sY-naps</i>	Point at which two neurones meet. There is a tiny gap between neurones at a synapse, which cannot transmit an electrical impulse.