

SB6a – Photosynthesis

Word	Pronunciation	Meaning
biomass		The total mass in living organisms, usually shown as the mass after drying.
cellulose	<i>sell-you-IOWs</i>	Plant cell walls are made of tough cellulose, which support the cell and allow it to keep its shape.
chloroplast	<i>klor-O-plast</i>	A green disc containing chlorophyll, found in plant cells. This is where the plant makes glucose through photosynthesis.
endothermic reaction		A type of reaction in which energy from the surroundings is transferred to the products, e.g. photosynthesis.
food chain		A diagram that uses arrows to show the flow of energy through organisms that depend on each other for food.
gas exchange		A process in which one gas diffuses across a membrane and another gas diffuses in the opposite direction.
glucose	<i>glue-cO's</i>	The sugar produced by photosynthesis and needed for respiration.
guard cell	<i>gard sell</i>	A pair of guard cells open and close plant stomata.
lipid		A substance in a large group of compounds that includes fats and oils.
palisade cell	<i>pal-iss-ayd sell</i>	Tall, column-shaped cell near the upper surface of a plant leaf.
photosynthesis	<i>fOw-tow-sinth-e-sis</i>	A series of enzyme-catalysed reactions carried out in the green parts of plants. Carbon dioxide and water combine to form glucose. This process requires energy transferred by light.
polymer		A long-chain molecule made by joining many smaller molecules (monomers) together.
producer	<i>prod-you-ser</i>	An organism such as a plant that makes its own food using photosynthesis.
protein	<i>prO-teen</i>	A polymer made up of amino acids.
protist	<i>prO-tist</i>	An organism that belongs to a kingdom of eukaryotic and mainly single-celled organisms (also called a protoctist).
respiration	<i>res-per-ay-shun</i>	A series of reactions occurring in all living cells, in which glucose is broken down to release energy.
starch		A polymer carbohydrate that is made by the joining together of glucose molecules.
stoma	<i>stO-ma</i>	A tiny pore in the lower surface of a leaf, which, when open, allows gases to diffuse into and out of the leaf. Plural is stomata.
storage organ		A plant organ used to store energy-rich substances such as starch – for example, a potato.
sucrose	<i>soo-crO's</i>	The type of sugar found in the phloem of plants and used as table sugar.

SB6b – Factors that affect photosynthesis

Word	Pronunciation	Meaning
concentration	<i>con-sen-tray-shun</i>	The amount of something found in a certain volume of another substance. For example, the amount of a solute dissolved in a certain volume of solvent.
direct proportion		A linear relationship in which the percentage change in a variable occurs with an equal percentage change in another variable. A direct proportion is seen as a straight line through the origin when the two variables are plotted on a graph.
inverse proportion		A non-linear relationship where one variable decreases in size at the same rate as another increases.
inverse square law		A mathematical relationship in which a quantity varies in inverse proportion to the square of the distance from the source of the quantity.
limiting factor		A single factor that, when in short supply, can limit the rate of a process such as photosynthesis.
linear relationship		A relationship between two variables (quantities) shown by a straight line on a graph.
rate	<i>rayt</i>	How quickly something happens.

SB6c – Absorbing water and mineral ions

Word	Pronunciation	Meaning
active transport		The movement of particles across a cell membrane from a region of lower concentration to a region of higher concentration (<i>against</i> the concentration gradient). This process requires energy.
concentration gradient	<i>con-sen-tray-shun</i> <i>gray-dee-ent</i>	The difference between two concentrations.
diffusion	<i>diff-you-shun</i>	The random movement and spreading of particles. There is a net (overall) diffusion of particles from regions of higher concentration to regions of lower concentration.
fluid		A liquid or a gas.
mineral ion		Ion from a naturally occurring salt.
nitrate	<i>ny-trayt</i>	A compound that contains nitrogen in the form of a nitrate ion.
osmosis	<i>os-mO-sis</i>	The overall movement of <i>solvent</i> molecules in a solution across a partially permeable membrane, from a dilute solution to a more concentrated one.
partially permeable membrane		Describes a membrane that will allow certain particles to pass through it but not others. Another term for semi-permeable membrane.
protein	<i>prO-teen</i>	A polymer made up of amino acids.
root hair cell		A 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.
wilt		Drooping of parts of a plant caused by a lack of water.

SB6d – Transpiration and translocation

Word	Pronunciation	Meaning
companion cell		A specialised cell located in the phloem tissue of plants. They pump sucrose into sieve cells.
lignin		A type of polymer that is combined with cellulose in some plant cell walls to make the cells woody, e.g. in xylem cells.
phloem tissue	<i>flow-em</i>	Living tissue formed of sieve tubes and companion cells that transports sugars and other soluble compounds around a plant.
potometer	<i>pot-om-et-er</i>	A device used for measuring the rate of water uptake by a plant.
sieve tube/cell	<i>siv</i>	Tubes formed of phloem sieve cells (so called because the cells have holes in their ends). The tubes carry sugars and other soluble compounds around the plant.
translocation	<i>trans-low-kay-shun</i>	The transport of sugars (mainly sucrose) and other soluble compounds in the phloem tissue of a plant.
transpiration	<i>trans-per-ay-shun</i>	The flow of water into a root, up the stem and out of the leaves.
xylem vessel/cell	<i>zy-lem</i>	A long, thick-walled tube found in plants, formed from many dead xylem cells. The vessels carry water and dissolved mineral salts through the plant.

SB6e Plant adaptations

Word	Pronunciation	Meaning
conifer		A type of tree that has needle-shaped leaves and has seeds contained in cones (not fruits).
cuticle	<i>cyoo-tick-ul</i>	An outer covering that is not made of cells. Plant leaves have a cuticle covering the leaves.
deciduous	<i>dess-id-yoo-us</i>	Describes a plant that sheds its leaves at a certain time of year. Deciduous plants shed their leaves in winter.
epidermis cells	<i>ep-id-der-mis sells</i>	Cells that form a surface layer in a plant or animal organ.
spongy cells	<i>spun-jee sells</i>	Irregularly shaped cells in a plant leaf that form air spaces.
stoma	<i>stO-ma</i>	A tiny hole in a leaf through which gases can diffuse into and out of the leaf. It is opened and closed by two guard cells. Plural is stomata.

SB6f Plant hormones

Word	Pronunciation	Meaning
auxins	<i>orx-ins</i>	A group of plant hormones that affect the growth and elongations of cells.
ethene	<i>ee-theen</i>	A gaseous plant hormone that is involved in the ripening of fruit.

Word	Pronunciation	Meaning
gibberellins	<i>jib-er-ell-ins</i>	A group of plant hormones that cause seeds to germinate and flowers and fruits to form.
gravitropism	<i>grav-ee-trOh-piz'm</i>	A growth response to the stimulus of gravity.
phototropism	<i>fOh-tOh-trOh-piz'm</i>	A growth response to the stimulus of light.
plant hormone		A substance released by certain cells in a plant that has an effect on other cells, usually causing the cells to grow and develop in a certain way.
response		An action that occurs due to a stimulus.
stimulus		Change in a factor (inside or outside an organism) that is detected. For example, plants detect light. Plural is stimuli.
tropism	<i>trOh-piz'm</i>	A response to a stimulus in which an organism grows towards or away from the stimulus. A positive tropism is a growth towards a stimulus, and a negative tropism is a growth away from the stimulus.

SB6g Uses of plant hormones

Word	Pronunciation	Meaning
ethene	<i>ee-theen</i>	A gaseous plant hormone that is involved in the ripening of fruit.
gibberellins	<i>jib-er-ell-ins</i>	A group of plant hormones that cause seeds to germinate and flowers and fruits to form.
photoperiodism		The response of an organism to the number of daylight hours in a day.
rooting powder		A powder containing plant hormones into which cuttings are dipped to speed up the growth of new roots.
selective weedkiller		A substance that kills a certain type of plant only, leaving others unaffected.