Definitions and Concepts for OCR (A) Biology GCSE

Topic 7: Practical Skills

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*Definitions in **bold** are for higher tier only*

Definitions marked by '' are for separate sciences only*

Abiotic factors - The non-living factors of an ecosystem, e.g.temperature, light intensity, moisture, wind direction, wind intensity, soil pH, soil mineral content, carbon dioxide levels and oxygen levels.

Active site - The part of an enzyme which is specific to the substrate and has a complementary shape to it.

Agar dish - A petri dish containing the growth medium with added nutrients.

***Aseptic technique** - A range of techniques used to culture microorganisms under sterile conditions in order to minimise contamination.

Benedict's reagent - A reagent used to test for reducing sugars that produces a different colour (from a blue solution to a brick red precipitate) based on the amount of reducing sugar present.

Biotic factors - The living factors of an ecosystem, e.g. food availability, pathogens, predators and other species.

Biuret reagent - A reagent used to test for the presence of peptide bonds. A colour change from blue to violet indicates the presence of peptide bonds.

Biuret test - A test used to check for the presence of peptide bonds.

Carbohydrate - A large molecule that is synthesised from simple sugars.

Controlled variable - A variable that remains constant throughout the experiment.

Cover slip - A small piece of glass placed on top of a specimen to protect it from the lens.

Enzyme - A biological catalyst that increases the rate of chemical reactions.

Ethanol - A chemical that is used to test for the presence of lipids. A cloudy emulsion indicates a positive result.

Hazard - Something that may cause harm. In an experiment it could be a chemical that could burn your skin or a messy workplace causing you to trip.

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Heart rate - The number of heartbeats per unit time (usually measured in beats per minute).

Hypothesis - A prediction with a suitable reasoning regarding the possible outcome of an experiment.

Independent variable - The variable that changes throughout the experiment.

Inverse square law - A law stating that light intensity is inversely proportional to the square of the distance from the light source:

$$\text{light intensity} \propto \frac{1}{\text{distance}^2}$$

Iodine solution - A solution used to test for the presence of starch. A colour change from brown to blue-black indicates a positive result.

Irritant - Something that may injure the skin, airways or eyes upon exposure.

Light microscope - A microscope that uses light to produce an image of a specimen.

Line transect - A line (usually created by a tape measure) along which samples are taken. It is used to measure the abundance and distribution of organisms in an ecosystem.

Lipid - A large molecule that is synthesised from three fatty acids and a molecule of glycerol.

Lock and key hypothesis - A theory that describes how substrates must be the correct shape to fit the active site of an enzyme.

Magnification - How many times larger the image appears relative to the original object.

$$\text{magnification} = \text{image size} / \text{actual size}$$

Microscope slide - A thin piece of glass on which the specimen is placed.

Non-reducing sugar - A sugar which doesn't have a reducing species (an aldehyde functional group).

Osmosis - The net movement of water molecules from a region of high water concentration to a region of low water concentration across a partially permeable membrane.

Photosynthesis - An endothermic reaction that takes place in the chloroplasts, converting carbon dioxide and water into glucose and oxygen using light energy. It is a two stage process.

$$6CO_2 + 6H_2O \xrightarrow{\text{Sunlight energy}} C_6H_{12}O_6 + 6O_2$$

Population size - Population size can be calculated using:

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$$\text{population size} = \frac{\text{total area}}{\text{area of quadrat}} \times \text{mean number of individuals in quadrats}$$

Potometer - A piece of capillary tube that is used to investigate transpiration. Water loss from the surface of the leaf is measured by the distance that the air bubble travels over a certain period of time.

Protein - A large molecule synthesised from amino acid monomers.

Quadrat - A square grid used for sampling a known area to determine the abundance and distribution of organisms.

Random sampling - A sampling technique used to avoid bias in which the sample area is chosen at random.

Rate of reaction - The rate at which reactants are turned into products.

Reducing sugar - A sugar that has a reducing end (aldehyde functional group) present. It acts as a reducing agent and is oxidised itself.

Reliability - A measure of the consistency of the results. If an experiment is reliable the same result is found after each repeat.

Resolution - The ability to see two cells as two separate entities (measured in dpi).

Respiration - The process by which energy is released from glucose molecules. This can be done aerobically (in sufficient oxygen) or anaerobically (in an oxygen debt). It is part of the carbon cycle and releases carbon dioxide into the air.

Risk - The possibility that an individual may be harmed by the hazards identified in an experiment.

Scalpel - A sharp tool that is used for dissections.

Soda lime - A chemical mixture present in spirometers that absorbs carbon dioxide.

Spirometer - A piece of equipment that is used to measure ventilation rate.

Staining - A technique used to add a coloured dye to biological tissue so that its structure is visible under a microscope.

Sterilisation - The process in which equipment is treated to remove any living microorganisms present.

Transect - A line (usually created by a tape measure) along which samples are taken. It is used to measure the abundance and distribution of an organism in an ecosystem.

Water bath (thermostatically-controlled) - A container filled with heated water. It is used to incubate samples at a chosen temperature over a period of time.

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Water potential - A measure for the tendency of water to move from one area to another area. It is represented by the sign Ψ (Psi).

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