

## Definitions and Concepts for OCR (A) Biology GCSE

### Topic 3: Organism Level Systems

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

*Definitions marked by '\*' are for separate sciences only*

\***ADH** - A hormone secreted by the pituitary gland which increases water reabsorption in the kidney (making the kidney tubules more permeable to water).

**Adrenaline** - A hormone released by the adrenal gland which increases heart rate and breathing rate (involved in fight/flight). It also raises blood sugar levels by increasing the conversion of glycogen into glucose.

\***Auxin** - A plant hormone that is responsible for cell elongation.

**Central nervous system (CNS)** - The brain and the spinal cord.

\***Cerebellum** - The region of the brain that controls unconscious functions such as posture, balance and muscular movement.

\***Cerebral cortex** - The outer layer of the cerebrum.

\***Cerebrum** - The highly folded region of the brain that is responsible for controlling voluntary actions such as learning, personality and memory. It is divided into the right and left hemispheres.

\***Ciliary body** - An extension of the iris. It contains the ciliary muscle which can contract or relax allowing the eye to focus.

\***Colour blindness** - A condition where a person has a defect in the receptors or a lack of receptors in the retina.

**Contraception** - Methods that are used to prevent pregnancy.

\***Cornea** - The part of the eye that refracts light as it enters, focusing it onto the retina.

\***Dormancy** - A period of time in which seeds hibernate. This stops when they germinate.

**Effector** - A gland or muscle that produces a response to the stimulus to restore optimum conditions.

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**Endocrine glands** - A group of cells that are specialised in secreting chemicals (hormones) directly into the bloodstream.

**Endocrine system** - A chemical messenger system that releases hormones directly into the bloodstream to control metabolism, development, growth and reproduction.

**\*Ethene** - A plant hormone that promotes fruit ripening.

**Follicle stimulating hormone (FSH)** - A female reproductive hormone that is released by the pituitary gland. It is responsible for the maturation of an egg in the ovary.

**\*Geotropism** - The growth response of a plant to gravity.

**\*Germination** - The process by which seeds develop into plants.

**\*Gibberellins** - Plant hormones that initiate germination and flowering.

**Glucagon** - A hormone produced by the pancreas which works with insulin to control blood sugar levels. It increases blood glucose concentration by converting glycogen into glucose.

**\*Herbicide** - A type of pesticide used to kill unwanted plants (weeds).

**Homeostasis** - The maintenance of a stable internal environment in the body despite fluctuations in internal and external conditions.

**Hormone** - A chemical messenger secreted by the endocrine glands into the bloodstream and transported to receptors on target organs.

**\*Hypothalamus** - The part of the brain that is the regulation centre for temperature and water balance of the body.

**Infertility** - The inability to reproduce after 12 months or more of unprotected sex.

**Insulin** - A hormone produced by the pancreas which controls the body's blood sugar levels. It works to decrease glucose levels.

**In vitro fertilisation (IVF)** - The fertilisation of an egg using sperm outside of the body. IVF is used when a couple are having difficulty conceiving.

**\*Iris** - The part of the eye that contracts or relaxes to control the amount of light entering the eye.

**\*Kidney** - The organ in the body that maintains water balance and produces urine.

**\*Lens** - A part of the eye that further refracts light to focus it onto the retina.

**\*Long-sightedness (hyperopia)** - A defect of the eye where distant objects appear out of focus due to the convergence of light rays in front of the retina.



**Luteinising hormone (LH)** - A female reproductive hormone released by the pituitary gland that stimulates the release of an egg.

**Medulla** - The part of the brain responsible for non-voluntary movement such as breathing rate and heart rate.

**Menstrual cycle** - The monthly cycle in women that involves the development of the uterus lining, ovulation, maintenance of the uterus lining and its shedding.

**Motor neurone** - The neurone that transmits impulses from the relay neurone to the effector to produce a response.

**Negative feedback system** - A system which works to reverse the initial stimulus.

\***Nephron** - A kidney filtering unit.

**Oestrogen** - A female sex hormone produced in the ovaries that regulates the menstrual cycle and controls the development of secondary sexual characteristics.

\***Optic nerve** - The nerve that carries impulses between the brain and the eye.

\***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.

\***Osmotic lysis** - When water moves into an animal cell causing it to burst.

\***Osmotic shrinking** - When water moves out of an animal cell causing the cell to shrink.

\***Parthenocarpic fruit development** - The development of seedless fruit.

\***Phototropism** - The growth response of a plant to unilateral light.

\***Pituitary gland** - The gland that stores and releases hormones which regulate many bodily functions.

**Progesterone** - The hormone that maintains the uterus lining during the later stages of the menstrual cycle and pregnancy.

\***Pupil** - A hole in the centre of the iris. It is controlled by the muscles of the iris and changes size depending on the brightness of the light.

**Receptor** - A cell or organ that recognises the stimulus.

**Reflex arc** - The pathway of neurones involved in a reflex action:

stimulus → sensory → sensory → relay → motor → effector → response  
                                   receptor    neurone   neurone   neurone

**Relay neurone** - The neurone that transmits electrical impulses from the sensory neurone to the motor neurone.



\***Renal artery** - The blood vessel that provides the kidney with blood.

\***Renal vein** - The blood vessel that takes blood away from the kidney.

\***Retina** - The layer at the back of the eye that contains light receptors and is sensitive to light.

\***Root cuttings** - A method of cloning plants in which a root is cut from a parent plant and replanted in compost.

\***Rooting powder** - A powder that contains auxins. The cut root is dipped into this before being replanted (during root cuttings).

**Sensory neurone** - The neurone that detects the stimulus and transmits the electrical impulse to the relay neurone located in the spinal cord.

\***Short-sightedness (myopia)** - A defect of the eye where distant objects appear out of focus due to the convergence of light rays in front of the retina.

\***Suspensory ligaments** - Attach the lens to the ciliary muscle.

**Synapse** - The junction between two neurones (nerve cells).

**Testosterone** - The male reproductive hormone that controls sperm production and the development of the secondary sexual characteristics.

**Thyroxine** - A hormone released by an endocrine gland (thyroid gland) that controls the metabolic rate and the rate of glucose uptake during respiration. It also promotes growth.

**Tissue culture** - A method of cloning plants where plants are grown in a growth medium containing many nutrients.

**Type 1 diabetes** - A condition in which the pancreas fails to produce insulin resulting in high blood sugar levels.

**Type 2 diabetes** - A condition in which a person develops insulin resistance or doesn't produce enough insulin.

\***Urine** - A liquid produced by the kidneys to help maintain water balance. It contains mineral ions, water and urea.

\***Vasoconstriction** - The constriction of blood vessels.

\***Vasodilation** - The dilation of blood vessels.

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

‡ Definition taken from: [OCR Gateway Science Biology A Specification \(J247\) V3.1 \(July 2020\)](#)

