

# Definitions and Concepts for WJEC (Wales) Biology GCSE

## Topic 2.5: Response and Regulation

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

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

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

**Blind spot** - A small portion of the retina that doesn't contain light receptor cells because it is the site where the optic nerve enters the eye.

**Blink reflex** - A reflex of the eye causing it to blink to prevent foreign bodies entering.

**Cardiovascular disease** - A non-communicable disease that affects the heart or blood vessels.

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

**Choroid** - A thin layer between the retina and sclera which has many blood vessels and allows oxygen into the retina cells.

**Coordinator** - **Receives information from the receptor and sends it to the effector to produce a response.**

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

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

**Endocrine gland** - Glands that are involved in the production of hormones and then secrete them directly into the bloodstream.

**Enzymes** - Biological catalysts that increase the rate of chemical reactions.

**Erector muscle** - Muscles in the skin that contract when the body is too cold. This raises the hairs on the skin, trapping a layer of air next to the skin for insulation.

**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.**

**Glucose** - A type of carbohydrate (simple sugar) which is used in respiration to produce energy in the form of ATP.

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**Glycogen** - A form of glucose which is stored in the body.

**Gravitropism** - The growth response of a plant to gravity.

**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.

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

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

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

**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.

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

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

**Protein** - A large molecule synthesised from amino acid monomers.

**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.

**Pupil reflex** - A reflex of the eye causing the pupil to constrict in response to light to prevent damage to the eye.

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

**Reflex action** - A fast, automatic response to 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. It is found in the spinal cord.

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

**Sclera** - The white outer layer of the eye which protects the eye.



**Sense organs** - Groups of receptor cells, which respond to specific stimuli and then relay this information as electrical impulses along neurones to the central nervous system. †

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

**Shivering** - Rapid muscle contractions when the body is too cold. Respiration is required to produce the energy for contractions; respiration releases some energy as heat.

**Sweat gland** - Glands under the skin that produce sweat when the body is too hot. The sweat leaves via the sweat duct. The sweat evaporates from the skin, cooling the body down.

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

**Synaptic cleft** - The space in between two neurones.

**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.

**Vasoconstriction** - The narrowing of blood vessels when the body is too cold to conserve heat loss.

**Vasodilation** - The widening of blood vessels to increase heat loss from the body when the body is too hot.

**Withdrawal reflex** - A reflex of the body causing you to pull away when touching something hot.

† Definition taken from: [WJEC \(Wales\) GCSE in BIOLOGY Specification V.2 January 2019](#)

