# Homeostasis

A-Level Biology · Vocabulary in context

| Word | Example |
|---|---|
| **homeostasis** /ˌhəʊmiːəˈstɑːsɪs/ | Sweating is part of **homeostasis**: it keeps body temperature steady. |
| **stimulus** /ˈstɪmjʊləs/ | A hot plate is a **stimulus**. |
| **receptor** /rɪˈseptə/ | A hormone fits into a **receptor** on the cell surface. |
| **nervous system** /ˈnɜːvəs ˈsɪstəm/ | The **nervous system** carries fast messages. |
| **endocrine system** /ˈendəʊkraɪn ˈsɪstəm/ | The **endocrine system** uses hormones to send messages in the blood. |
| **hormone** /ˈhɔːməʊn/ | Insulin is a **hormone**. |
| **effector** /ɪˈfektə/ | A muscle is an **effector**. |
| **gland** /glænd/ | A sweat **gland** makes sweat. |
| **negative feedback** /ˈnegətɪv ˈfiːdbæk/ | **Negative feedback** brings body temperature back to normal. |
| **liver** /ˈlɪvə/ | The **liver** makes bile. |
| **deamination** /ˌdiːmɪˈneɪʃn/ | **Deamination** turns extra amino acids into urea in the liver. |
| **amino acid** /əˈmiːnəʊ ˈæsɪd/ | Glycine is the simplest **amino acid**. |
| **urea** /juːˈrɪə/ | The liver makes **urea**. |



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| **excretion** /ekˈskreʃn/ | The kidneys carry out **excretion** of urea. |
| **kidney** /ˈkɪdni/ | Each **kidney** filters the blood and makes urine. |
| **cortex** /ˈkɔːteks/ | The **cortex** is the outer layer of the kidney. |
| **medulla** /ˈmedʌlə/ | The **medulla** is the inner part of the kidney. |
| **renal pelvis** /ˈriːnl ˈpelvɪs/ | Urine collects in the **renal pelvis** before it leaves the kidney. |
| **ureter** /jʊəˈriːtə/ | The **ureter** carries urine from the kidney to the bladder. |
| **nephron** /ˈnefrɒn/ | Each kidney has about a million tiny tubes, each one a **nephron**. |
| **glomerulus** /ˈglɒmərjʊləs/ | The **glomerulus** filters the blood. |
| **Bowman's capsule** /ˈbəʊmənz ˈkæpsjuːl/ | **Bowman's capsule** is the cup at the start of the nephron that catches the filtered fluid. |
| **proximal convoluted tubule** /ˈprɒksɪml ˌkɒnvəˈluːtɪd ˈtjuːbjuːl/ | The **proximal convoluted tubule** takes back all the glucose into the blood. |
| **loop of Henle** /luːp ɒv ˈhenl/ | The **loop of Henle** helps the kidney save water. |
| **distal convoluted tubule** /dɪˈstæl ˌkɒnvəˈluːtɪd ˈtjuːbjuːl/ | The **distal convoluted tubule** adjusts the amount of salt in the urine. |
| **collecting duct** /kəˈlektɪŋ dʌkt/ | The **collecting duct** takes back more water when the body needs it. |

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| **ultrafiltration** /ˌʊltrəfɪl'treɪʃn/ | In **ultrafiltration**, high blood pressure pushes small molecules out of the blood. |
| **glucose** /'gluːkəʊs/ | Cells use **glucose** for energy. |
| **ion** /'aɪɒn/ | An **ion** is an atom that has gained or lost electrons. |
| **filtrate** /'fɪltreɪt/ | The **filtrate** contains water, glucose and urea. |
| **selective reabsorption** /sɪ'lektɪv riːb'sɔːpʃn/ | In **selective reabsorption**, useful things like glucose go back into the blood. |
| **microvilli** /'maɪkrəʊvɪlaɪ/ | **Microvilli** make the surface area even larger. |
| **mitochondria** /ˌmaɪtə'kɒndrɪə/ | **Mitochondria** release energy from food. |
| **active transport** /'æktɪv 'trænspɔːt/ | **Active transport** uses energy to move ions into root cells. |
| **endothelium** /ˌendəʊ'θiːliəm/ | The **endothelium** is the thin, smooth layer of cells on the inside of every blood vessel. |
| **basement membrane** | The **basement membrane** is a fine net that stops proteins leaving the blood. |
| **podocytes** | **Podocytes** are cells with many small feet that wrap around the blood vessels. |
| **countercurrent multiplier** | The loop of Henle works as a **countercurrent multiplier**: two flows in opposite directions build up salt. |
| **co-transport** | In **co-transport**, sodium moving into the cell drags glucose in with it. |



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| **co-transporter protein** | A **co-transporter protein** carries two different molecules across the membrane together. |
| **osmosis** /ɒz'məʊsɪs/ | Water enters the root by **osmosis**. |
| **osmoregulation** /ˌɒzmɔːgjʊ'leɪʃn/ | **Osmoregulation** keeps the right amount of water in the body. |
| **hypothalamus** /ˌhaɪpəʊ'θælæməs/ | The **hypothalamus** in the brain checks the water level of the blood. |
| **water potential** /'wɔːtə pə'tenʃl/ | Water moves from high **water potential** to low water potential. |
| **pituitary gland** /pɪ'tjuːɪtəri glænd/ | The **pituitary gland** is at the base of the brain. |
| **antidiuretic hormone** /ˌæntɪˌdɪjuː'retɪk 'hɔːməʊn/ | **Antidiuretic hormone** makes the kidneys save water, so urine is darker. |
| **aquaporin** /'ækwəpɔːrɪn/ | An **aquaporin** is a channel that lets water pass through the membrane quickly. |
| **glucagon** /'gluːkægən/ | **Glucagon** raises the level of sugar in the blood. |
| **cell signalling** /sel 'sɪgnəlɪŋ/ | Hormones are one kind of **cell signalling**: one cell sends a message to another. |
| **conformational change** /kɒnfɔː'meɪʃənl tʃeɪndʒ/ | When a hormone binds, the receptor goes through a **conformational change**: its shape changes. |
| **G-protein** /dʒiː 'prəʊtiːn/ | A **G-protein** passes the signal from the receptor to an enzyme inside the cell. |
| **adenylyl cyclase** /'ædənɪlɪl 'saɪklɪeɪz/ | **Adenylyl cyclase** turns ATP into cyclic AMP. ATP |

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| **second messenger** /'sekənd 'mesɪndʒə/ | Cyclic AMP is a **second messenger**: it carries the signal inside the cell. |
| **cyclic AMP** /'saɪklɪk ˌeɪ em 'pi:/ | **Cyclic AMP** passes the hormone's message on inside the cell. |
| **protein kinase A** /'prəʊti:n 'kɪneɪs eɪ/ | Cyclic AMP switches on **protein kinase A**. |
| **enzyme cascade** /'enzaɪm kə'skeɪd/ | In an **enzyme cascade**, each enzyme switches on many more, so the signal grows. |
| **enzyme** /'enzaɪm/ | The **enzyme** speeds up the reaction. |
| **phosphorylation** /ˌfɒsfɔ:rɪ'leɪʃn/ | In **phosphorylation**, a phosphate group is added to a molecule, such as ADP to make ATP.<br>ADP ATP |
| **amplification** /ˌæmplɪfɪ'keɪʃn/ | Because of **amplification**, one hormone molecule can release millions of glucose molecules. |
| **glycogen** /'glaɪkədʒn/ | The liver stores **glycogen**. |
| **insulin** /'ɪnsju:lɪn/ | **Insulin** lowers the level of sugar in the blood. |
| **islets of Langerhans** | The **islets of Langerhans** are groups of cells in the pancreas that make insulin and glucagon. |
| **glycogenesis** | In **glycogenesis**, the liver turns glucose into glycogen to store it. |
| **glycogenolysis** | In **glycogenolysis**, the liver breaks glycogen down into glucose. |



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| **gluconeogenesis** | In **gluconeogenesis**, the liver makes new glucose from amino acids or fat. |
| **test strip** /test strɪp/ | A **test strip** changes colour when glucose is in the urine. |
| **biosensor** /ˌbaɪəʊ'sensə/ | A **biosensor** uses an enzyme to measure blood glucose. |
| **glucose oxidase** /'glu:kəʊs 'ɒksɪdeɪs/ | **Glucose oxidase** is the enzyme in glucose test strips. |
| **peroxidase** /'perɒksɪdeɪs/ | **Peroxidase** makes the dye on the strip change colour. |
| **stomata** /'stəʊmətə/ | Gases enter the leaf through the **stomata**. |
| **carbon dioxide** /'kɑ:bən daɪ'ɒksaɪd/ | We breathe out **carbon dioxide**. |
| **photosynthesis** /ˌfəʊtəʊ'sɪnθəsɪs/ | Plants make sugar by **photosynthesis**. |
| **transpiration** /trænspə'reɪʃn/ | **Transpiration** is the loss of water from leaves. |
| **guard cell** /gɑ:d sel/ | Each stoma is surrounded by two **guard cells** that open and close it. |
| **water stress** /'wɔ:tə stres/ | In a drought, plants suffer **water stress**. |
| **abscisic acid** /əb'sɪzɪk 'æsɪd/ | **Abscisic acid** makes stomata close when the plant is short of water. |
| **calcium ion** /'kælsɪəm 'aɪɒn/ | A **calcium ion**, $Ca^{2+}$, triggers muscle contraction.<br>$Ca^{2+}$ |