

# 5.1.1 Homeostasis

## AQA GCSE Biology (Higher) Question and answer notes

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### How to use these notes

These notes cover everything you need to know for this part of the specification. They have been written in question-answer format to make them easier for you to study from.

In order to study successfully, I recommend you do the following for each question and answer:

- Read it carefully and make sure you **understand** it.
- **Memorise** the answer.
- **Practice** applying your understanding to past exam questions.

A good way to memorise information is to use **retrieval practice**. This is when you practise retrieving information from your memory. You could do this by making a flashcard for each question with the question on one side and the answer on the other. Or you could use a flashcard app. Alternatively, use a sheet of paper to cover up the answer so you can only see the question. Try to answer the question and then check how you did.

You should practise retrieving each answer from your memory until you can do it perfectly. Even once you can retrieve the answer perfectly, your ability to retrieve it will probably fade as time passes without practising. Therefore you will need to keep going back to the questions that you have previously mastered and practising them again. However, each time you re-learn the answer, the memory will be stronger and will last longer than the time before.

### What is homeostasis?

Homeostasis is the regulation of a cell or organism's internal conditions in order to maintain optimum conditions for function in response to internal and external changes.

### What is a stimulus?

A stimulus is a change in the internal or external environment that an organism responds to.

### What is the plural of 'stimulus'?

The plural of 'stimulus' is 'stimuli'.

### Why is homeostasis needed for enzymes to work effectively?

Every enzyme has an optimum temperature and an optimum pH. Homeostasis maintains these optimum conditions, which allows enzymes to work effectively.

**Why is homeostasis needed for all cell functions?**

All cell functions involve enzymes. Since homeostasis is required for enzymes to work effectively, it is therefore required for all cell functions.

**In the human body, which conditions are kept constant through homeostasis?**

In the human body, many conditions are kept constant through homeostasis, including:

- Blood glucose concentration
- Body temperature
- Water levels

**What are the human body systems that carry out homeostasis?**

The main human body systems that carry out homeostasis are the nervous system and the hormonal system.

**What three types of structures does homeostasis in the human body always involve?**

Homeostasis in the human body always involves:

- Receptors
- A coordination center
- Effectors

**What are receptors?**

Receptors are cells that detect stimuli.

**What is a coordination center?**

A coordination center is a part of the body that receives and processes information from receptors.

**What are three examples of coordination centers in the human body?**

Three examples of coordination centers in the human body are:

- The brain
- The spinal cord
- The pancreas

**What are effectors?**

Effectors are muscles or glands. They bring about responses that restore optimum conditions.