

Homeostasis and temperature control

Revision notes · What homeostasis is, and why the body keeps conditions such as blood glucose and body temperature within narrow limits.

For Edexcel GCSE Combined Science 1SC0. **Higher tier** is only on the Higher paper.

Homeostasis and temperature control Spec 7.9-7.12B

Maintaining a constant internal environment Spec 7.9

Homeostasis Maintaining a constant internal environment in response to internal and external change.

Conditions inside the body change. Eating a meal changes blood glucose. Exercise raises body temperature. A hot or cold day changes the temperature outside. The body responds to keep the conditions inside **constant**.

Conditions the body keeps constant

Condition	Example of a change
Blood glucose concentration	A meal raises it, exercise lowers it
Body temperature	Hot or cold surroundings, or exercise
Water content of the blood	Sweating, or drinking a lot

This matters because **enzymes and cells work best in a narrow range of conditions**. If conditions drift too far, reactions in cells slow down or stop. Many of these controls use negative feedback.

Exam tip: Constant does not mean the level never changes. It means the body brings it back to a set level, so say 'kept within narrow limits'.

Quick check

1. Define homeostasis.
2. Why does a high body temperature stop reactions in cells? (Triple only)
3. What happens to animal cells if the blood is too dilute? (Triple only)
4. Which part of the brain coordinates temperature control? (Triple only)
5. How does shivering warm the body? (Triple only)

Quick check answers

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1. Maintaining a constant internal environment in response to internal and external change.
2. Enzymes are denatured, so substrates no longer fit the active site.
3. Water enters by osmosis. The cells swell and may burst.
4. The hypothalamus.
5. Muscles contract rapidly. Respiration in the muscle cells transfers energy as heat.