

Evolution and Natural Selection

Chapter 8: Heredity and Evolution · Topic 2

Key Concept

Evidence for evolution includes homologous organs (similar structures with a common origin but different functions across species, like a human arm and a bat's wing), fossil records showing gradual changes across geological time, and observed cases of natural selection in action, such as antibiotic-resistant bacteria evolving due to selective pressure from antibiotic use. Evolution does not mean organisms 'try' to change; rather, random genetic variations that happen to be beneficial are naturally favoured by survival and reproduction over generations.

Quick Revision Notes

- Evolution: gradual change in a species' inherited characteristics over many generations.
- Natural selection: organisms with favourable traits survive and reproduce more, passing on those traits.
- Evidence for evolution: homologous organs, fossil records, and antibiotic-resistant bacteria.
- Evolution occurs through random genetic variation naturally favoured by survival, not intentional change.

Practice Questions

- 1 Give an example of evolution through natural selection.
- 2 Explain how homologous organs provide evidence for evolution.
- 3 Why does the evolution of antibiotic-resistant bacteria concern doctors and public health experts?