

18.3 Selection

Name: _____ Class: _____ Date: _____ Total: 7 marks

KEY WORDS antibiotic • bacteria • resistant • selection
• natural selection

Objective

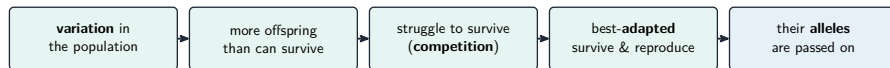
Build the skills to answer exam questions on **selection** – **natural selection**, antibiotic resistance, and **selective breeding**.

You must be able to:

- describe the steps of natural selection
- explain antibiotic resistance as natural selection
- describe selective breeding and contrast it with natural selection

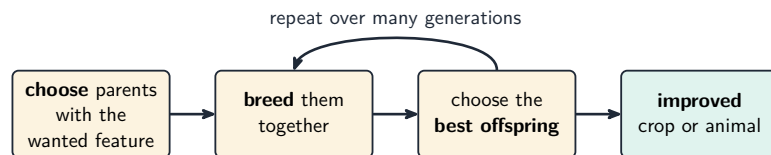
1 Key knowledge and worked examples

■ Natural and artificial selection



over many generations the population becomes better adapted

Variation → too many offspring → struggle/competition → best-adapted survive and reproduce → pass on alleles



humans choose which breed (not the environment)

Selective breeding: humans choose which organisms breed, over many generations

- key difference: the **environment** selects (natural) vs **humans** select (artificial).

2 Practice

2.1 State what is meant by natural selection. [1]

2.2 State who or what “selects” in selective breeding. [1]

3 Exam-style questions

3.1 In natural selection, the individuals most likely to survive and reproduce are those that are: [1]

- ☐ **A** the largest
☐ **B** best adapted to the environment
☐ **C** chosen by humans
☐ **D** identical to each other

3.2 Some bacteria become resistant to an antibiotic.

(a) Explain how antibiotic resistance spreads, using natural selection. [3]

(b) State the main difference between natural selection and selective breeding. [1]