

4 The evolution of antibiotic resistance in bacteria has occurred as a result of natural selection.

(a) Name **two** ways in which a bacterium can become resistant to an antibiotic.

.....  
..... [2]

(b) The World Health Organisation regularly analyses bacterial DNA sequence data.

Suggest **one** way in which this contributes to solving the problem of antibiotic resistance in bacteria.

.....  
.....  
..... [1]

(c) Some infectious bacterial diseases are treated with the antibiotic streptomycin.

If a person does **not** finish the prescribed course of streptomycin, bacteria are more likely to become resistant to the antibiotic.

Explain why a streptomycin-resistant strain of bacteria is more likely to develop as a result of natural selection when a person does **not** complete the prescribed course of antibiotics.

.....  
.....  
.....  
.....  
.....  
..... [3]

[Total: 6]

**Question 5 starts on page 12.**