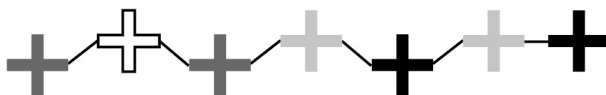


E1 Many bacteria have flexible cell walls made by linking together chains of a polymer. The links are formed in reactions catalysed by an enzyme. Penicillin stops this enzyme from working. Explain how penicillin causes bacteria to be weakened.

- 1 An enzyme in some bacteria catalyses the linking together of polymer chains in their cell walls. This makes the cell wall strong.
 - a Is this an example of a breakdown or **synthesis** reaction? Explain your answer.
 - b What does '**catalyse**' mean?
- 2 Penicillin is an antibiotic used to treat infections by some kinds of bacteria. Penicillin binds to the enzyme described in question 1. This stops the enzyme working on its **substrate**.
 - a What is the substrate for the enzyme? Explain your answer.
 - b What is the impact on the bacterial cell wall of treating an infection with penicillin?
- 3 The diagram below shows part of an enzyme.



- a What kind of organic molecule is an enzyme?
 - b Which subunits make up an enzyme molecule?
- 4 Give an example of a digestion reaction that takes place in living organisms, and explain the role of the enzyme that is involved in this reaction.
- 5 Using the example of the digestion of food in the human digestive system, explain why enzymes are important for life processes.
- 6 Give one other example that shows why enzymes are important for life processes, and explain your choice.