

## Chapter 7

1. An (1)\_\_\_\_\_ is a substance that speeds up the rate of a biochemical reaction. All living (2)\_\_\_\_\_ make enzymes.
2. Large quantities of useful enzymes can be produced by culturing the (3)\_\_\_\_\_ that make them in industrial (4)\_\_\_\_\_.
3. A (5)\_\_\_\_\_ is a cleansing agent such as washing powder. A (6)\_\_\_\_\_ detergent contains enzymes able to (7)\_\_\_\_\_ stains; a non-biological detergent does not contain enzymes.
4. Some people are (8)\_\_\_\_\_ to the enzyme in biological washing powders and develop skin rashes or (9)\_\_\_\_\_. The enzymes are now (10)\_\_\_\_\_ in a harmless coating of wax to allow them to be handled safely.
5. Whereas non-biological washing powder only works well at (11)\_\_\_\_\_ temperatures (e.g. 90°C), biological washing powder works well at (12)\_\_\_\_\_ temperatures (e.g. 40°C) because the enzymes in it digest stains well at these lower temperatures.

6. A lower temperature wash saves (13)\_\_\_\_\_ and causes less (14)\_\_\_\_\_ to delicate fabrics.
7. Since less energy is needed for a lower temperature wash, the demand made on the (15)\_\_\_\_\_ stations that generate (16)\_\_\_\_\_ by burning (17)\_\_\_\_\_ fuel is reduced. Decreased combustion of fossil fuel cuts down the quantities of harmful gases such as (18)\_\_\_\_\_ dioxide released into the atmosphere. As a result (19)\_\_\_\_\_ of the environment is reduced.
8. Detergents contain chemicals called (20)\_\_\_\_\_. If waste water containing phosphates is released into a river or loch, the phosphates may act as (21)\_\_\_\_\_ and encourage the growth of huge populations of (22)\_\_\_\_\_.
9. When the algae die, they are decomposed by bacteria which increase in (23)\_\_\_\_\_ and use up the river's (24)\_\_\_\_\_ supply. Lack of oxygen in the water results in the death of river animals such as (25)\_\_\_\_\_. The detergent is therefore said to be (26)\_\_\_\_\_ (poisonous) to wildlife.

10. In some countries, phosphates are (27)\_\_\_\_\_ from use in detergents and replaced by other chemicals. A more effective method of controlling the phosphate content of water is to remove them at a (28)\_\_\_\_\_ works before the water is released into a local (29)\_\_\_\_\_.

algae allergic bacteria banned biological cells  
damage detergent digest eczema electricity  
enclosed energy enzyme fermenters fertilizer  
fish fossil high moderate number oxygen  
phosphates pollution power river sewage  
sulphur toxic

-----Word Bank-----

## Chapter 7

1. An enzyme is a substance that speeds up the rate of a biochemical reaction. All living cells make enzymes.
2. Large quantities of useful enzymes can be produced by culturing the bacteria that make them in industrial fermenters.
3. A detergent is a cleansing agent such as washing powder. A biological detergent contains enzymes able to digest stains; a non-biological detergent does not contain enzymes.
4. Some people are allergic to the enzyme in biological washing powders and develop skin rashes or eczema. The enzymes are now enclosed in a harmless coating of wax to allow them to be handled safely.
5. Whereas non-biological washing powder only works well at high temperatures (e.g. 90°C), biological washing powder works well at moderate temperatures (e.g. 40°C) because the enzymes in it digest stains well at these lower temperatures.
6. A lower temperature wash saves energy and causes less damage to delicate fabrics.
7. Since less energy is needed for a lower temperature wash, the demand made on the power stations that generate electricity by burning fossil fuel is reduced. Decreased combustion of fossil fuel cuts down the quantities of harmful gases such as sulphur dioxide released into the atmosphere. As a result pollution of the environment is reduced.
8. Detergents contain chemicals called phosphates. If waste water containing phosphates is released into a river or loch, the phosphates may act as fertilizer and encourage the growth of huge populations of algae.

9. When the algae die, they are decomposed by bacteria which increase in number and use up the river's oxygen supply. Lack of oxygen in the water results in the death of river animals such as fish. The detergent is therefore said to be toxic (poisonous) to wildlife.
10. In some countries, phosphates are banned from use in detergents and replaced by other chemicals. A more effective method of controlling the phosphate content of water is to remove them at a sewage works before the water is released into a local river.