

Section 1.4 Asexual Reproduction in Bacteria, Protists, Fungi, and Animals

Answer Key

1) **Define asexual reproduction is the creation of a new cell that has the same genetic information as its parent.**

2) How do bacteria reproduce? **Bacteria reproduce asexually.**

3) **Define binary fission is when a cell divides so that each new cell has a single chromosome containing a complete set of DNA identical to the parent.**

4) How are bacteria cells different from the cells that you have been studying? **Bacteria have a single chromosome that is not surrounded by a nuclear membrane.**

5) Suppose you get on a bus to go to school. At 8:20 A.M., you yawn, and a single Streptococcus bacterium drifts into your open mouth and settles in your throat. Under ideal conditions, a single bacterium can reproduce in 20 minutes. So, by the time the bus drops you off at Clifford School at 8:40 A.M., there are two bacteria in your throat. When you arrive in Mr. Riediger's class at 9:00 A.M., there are four.

a) Assume that the bacteria continue to reproduce asexually every 20 minutes. How many bacteria will be in your throat by: (i) – 12:00 noon; (ii) at the end of the school day (3:20 P.M.); (iii) – supper time (6:00 P.M.); (iv) bedtime (10:00 P.M.)?

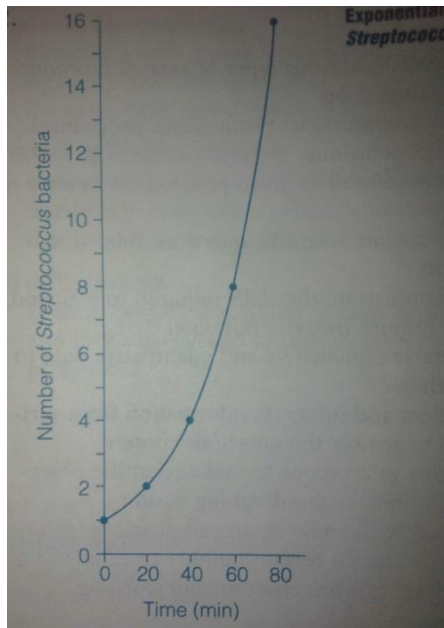
(i) **12:00 noon: 2048 or 2^{11}**

(ii) **3:20pm: 2 097 152 or 2^{21}**

(iii) **6:00pm: 526 870 912 or 2^{29}**

(iv) **10:00pm: 2^{41}**

b) Make a graph showing the growth of the Streptococcus population in your throat.



c) Do you think the bacteria can keep multiplying in this way indefinitely (forever)? Explain. **The bacteria will probably continue to spread only if there is enough food and space.**

d) At what time do you think your throat may feel sore? How many bacteria will be present in your throat? Your throat will probably feel sore between 4 and 6pm when there is between 2^{28} and 2^{29} .

6) Why are protists important? **They are the source of many food chains and they are to blame for many diseases that affect humans.**

7) What are the three methods that fungi use to reproduce asexually? **Fragmentation, Budding and spores.**

8) Define fragmentation. **Fragmentation is when a small piece breaks off the main part of the hyphae and grows into a new individual.**

9) Define budding. **Budding is when a bud forms on an organism and breaks away when it is large enough.**

10) Define spore. **A spore is a reproductive cell that grows through mitotic cell division.**

11) What two groups can animals be divided into? **Vertebrates and Invertebrates.**

12) Give 3 examples of each group. **Vertebrates – Humans, dogs and cats. Invertebrates – Jellyfish, worms and shellfish.**

13) What can many invertebrates do? **Many of them can reproduce asexually.**