

## Topic 1.2 What are different ways that living things reproduce sexually?

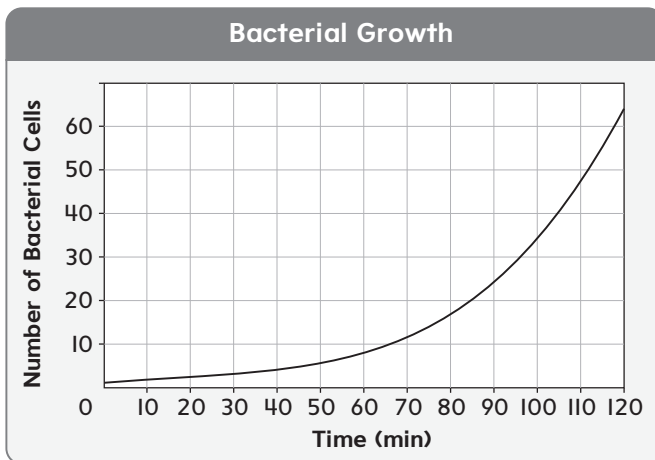
### Binary Fission, pages 14–15

#### 1. Binary fission

2.

Time (min)	Number of Bacterial Cells
0	1
20	2
40	4
60 (1 h)	8
80	16
100	32
120 (2 h)	64
140	128
160	256
180 (3 h)	512

#### 3. x-axis: Time (minutes); y-axis: Number of Bacterial Cells



4. In a relatively short amount of time, the population grows rapidly and the line is not linear; i.e. the relationship between bacteria number and time is not linear.

5. a) The formula can be used:

initial number of cells  $\times 2^n =$  number of cells; where  $n$  is number of generations.

In 12 hours, the bacteria will have divided 36 times.

$$1 \times 2^{36} = 6.87 \times 10^{10} \text{ bacterial cells}$$

b)  $1 \times 2^{72} = 4.72 \times 10^{21}$  bacterial cells

***Binary Fission, Budding and Spore Formation, page 16***

1. **a)** budding **d)** binary fission  
**b)** binary fission **e)** budding  
**c)** spore formation **f)** binary fission
2. **a)** budding  
**b)** binary fission  
**c)** binary fission  
**d)** spore formation

***Cell Cycle and Mitosis, page 17***

1. **a)** telophase **d)** cytokinesis  
**b)** interphase **e)** prophase  
**c)** metaphase **f)** anaphase
2. **a)** interphase **h)** interphase  
**b)** cytokinesis **i)** interphase  
**c)** prophase **j)** metaphase  
**d)** interphase **k)** telophase  
**e)** prophase **l)** telophase  
**f)** interphase **m)** anaphase  
**g)** prophase

***Vegetative Propagation, page 18***

1. Text features include
  - the boldfaced words *vegetative propagation* and *clone* with definitions
  - the boldfaced words *splitting*, *grafting*, *cutting*, *simple layering*, *air layering* and *tissue culture* with descriptions
  - the heading *artificial vegetative propagation*
  - Table 1.1

1.2 Assessment, pages 19–22

- |      |       |       |       |
|------|-------|-------|-------|
| 1. A | 7. D  | 13. C | 19. D |
| 2. C | 8. B  | 14. C | 20. D |
| 3. D | 9. B  | 15. B | 21. D |
| 4. B | 10. A | 16. D | 22. C |
| 5. F | 11. A | 17. B | 23. D |
| 6. E | 12. C | 18. B |       |

24.

