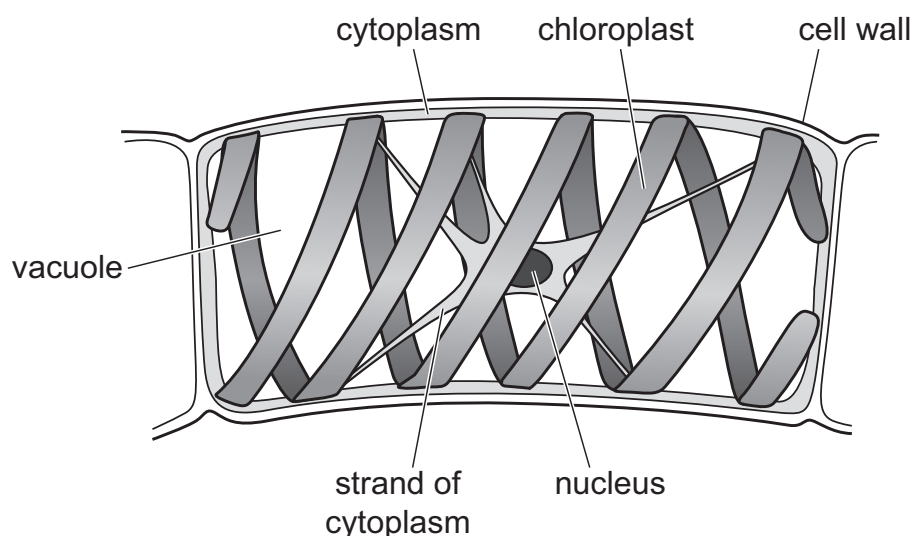


3 The diagram shows a single cell from an organism called *Spirogyra*.



Which features does *Spirogyra* share with plant cells?

	cell wall	chloroplast	cytoplasm	nucleus	vacuole
A	yes	yes	yes	yes	yes
B	yes	yes	no	no	yes
C	yes	no	yes	yes	no
D	no	yes	yes	no	yes

4 Which term describes each structure?

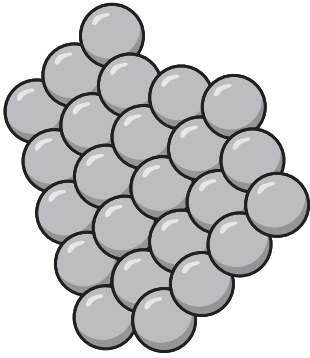
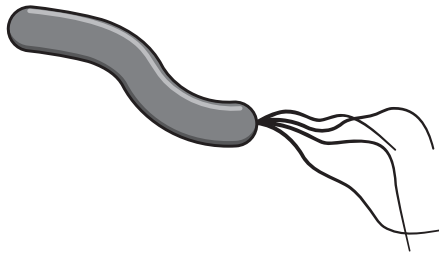
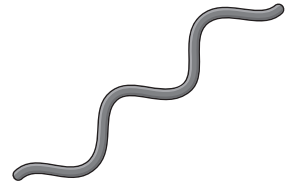
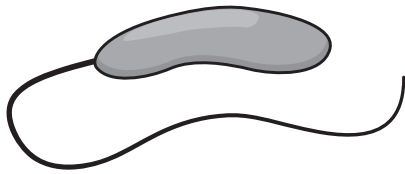
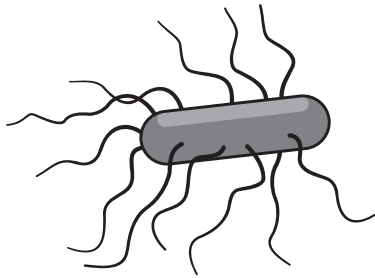
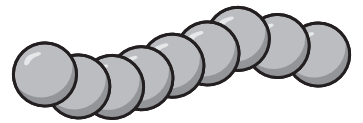
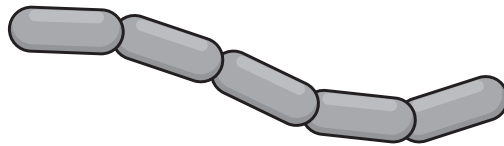
	structure		
	brain	liver	neurone
A	organ	organ	cell
B	organ	tissue	cell
C	tissue	organ	tissue
D	tissue	cell	organ

3 A palisade cell and a neurone are observed under a light microscope.

Which cell component is found only in the palisade cell?

- A** cell membrane
- B** cell wall
- C** cytoplasm
- D** nucleus

1 (a) Fig. 1.1 shows drawings of seven species of bacteria.

**A****B****C****D****E****F****G**

not to scale

Fig. 1.1

Use the key to identify each species of bacteria in Fig. 1.1.

Write the letter of each species (**A** to **G**) in the correct box beside the key.

One has been done for you.

key

1	(a)	hair-like structure or structures visible	go to 2	
	(b)	no hair-like structures visible	go to 4	
2	(a)	more than one hair-like structure	go to 3	
	(b)	one hair-like structure only	<i>Vibrio cholerae</i>	
3	(a)	hair-like structures attached at one end only	<i>Helicobacter pylori</i>	
	(b)	hair-like structures attached all over	<i>Salmonella typhi</i>	
4	(a)	bacteria have a spiral shape	<i>Treponema pallidum</i>	
	(b)	bacteria do not have a spiral shape	go to 5	
5	(a)	bacteria are grouped to form a chain	go to 6	
	(b)	bacteria do not form a chain	<i>Staphylococcus aureus</i>	
6	(a)	bacteria in the chain are cylindrical in shape	<i>Streptobacillus moniliformis</i>	
	(b)	bacteria in the chain are circular in shape	<i>Streptococcus pyogenes</i>	F

[3]

(b) (i) A cylinder-shaped bacterium has a length of $2\mu\text{m}$ and a diameter of $0.5\mu\text{m}$.

Calculate:

- the radius of this bacterium
- the volume of this bacterium.

Include the units in your answers.

Space for working.

radius

volume

[4]

(ii) State the name of the kingdom that bacteria belong to.

..... [1]

(c) Fig. 1.2 is a diagram of a virus.

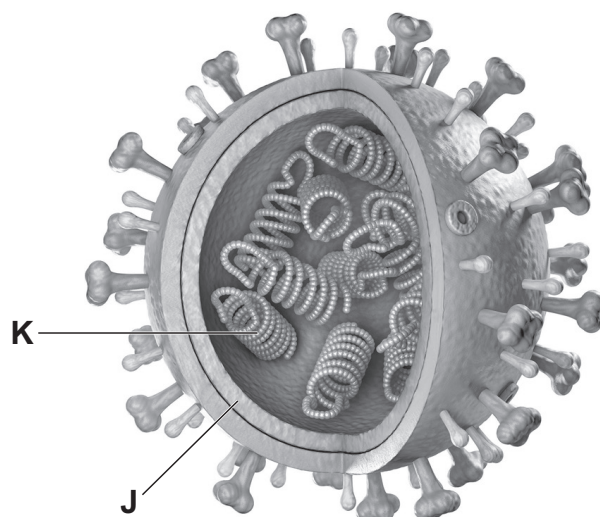


Fig. 1.2

(i) State the name of the parts labelled **J** and **K** in Fig. 1.2.

J

K

[2]

(ii) State **two** structures present in bacteria that are absent in viruses.

1

2

[2]

[Total:12]

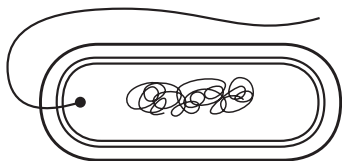
3 Which structures are found in both plant and animal cells?

- A** cell walls and cell membranes
- B** nuclei and cell walls
- C** cytoplasm and chloroplasts
- D** cell membranes and nuclei

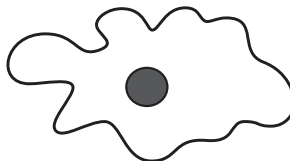
2 The diagrams show four organisms.

Which organism is a prokaryote?

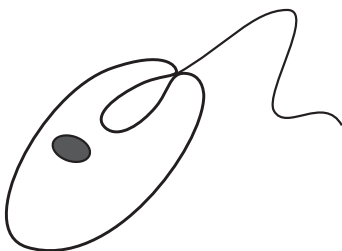
A



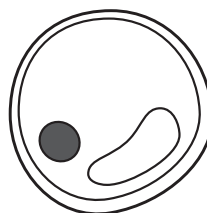
B



C



D



NOT TO
SCALE

5 Fig. 5.1 is a diagram of a plant root hair cell.

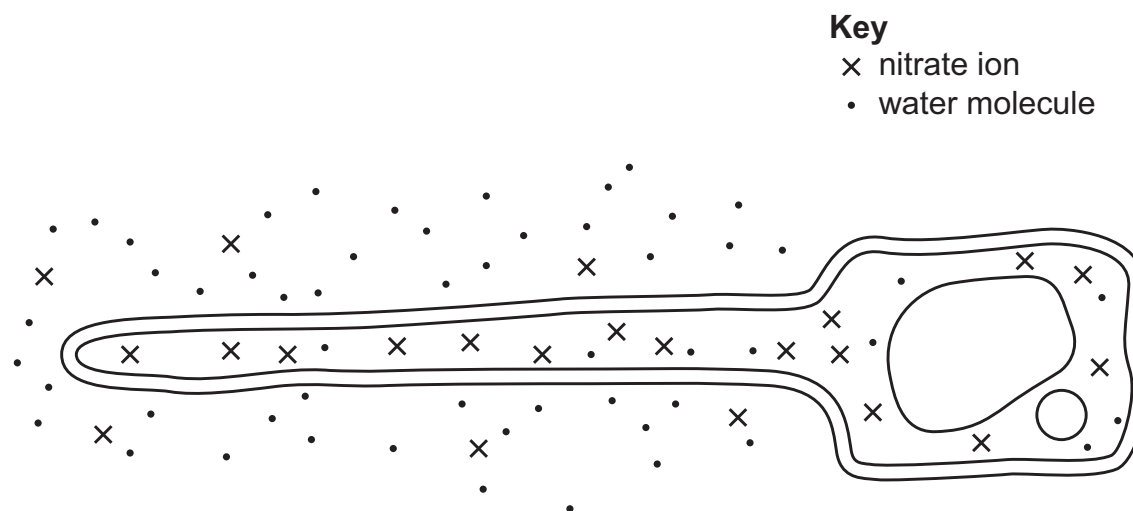


Fig. 5.1

- (a) (i) Using the information in Fig. 5.1, explain how nitrate ions are transported into the root hair cell.

.....

.....

.....

.....

.....

.....

.....

.....

..... [4]

- (ii) State **two** ways that nitrogen fixation occurs.

1

2 [1]

- (b) State the name of the process that moves water molecules into root hair cells.

..... [1]

(c) Describe differences **and** similarities between the structure of a plant root hair cell and a bacterial cell.

[5]

[Total: 11]

3 Which structures are found in both plant cells and bacterial cells?

	cell membrane	cell wall	plasmid	ribosomes
A	yes	yes	yes	no
B	no	yes	yes	yes
C	yes	no	yes	yes
D	yes	yes	no	yes