Characteristics and classification of living organisms – 2020 IGCSE 0610

1. March/2020/Paper_12/No.1

Which characteristic do **all** living organisms show?

A breathing

B excretion

C photosynthesis

D tropism

2. March/2020/Paper_12/No.2

Using the binomial naming system, the Arctic fox is called *Vulpes lagopus*.

Which row is correct?

	Vulpes	*lagopus*
A	genus	kingdom
B	genus	species
C	species	genus
D	species	kingdom

3. March/2020/Paper_12/No.3

What is a characteristic of both insects and arachnids?

A eight legs

B exoskeleton

C three pairs of legs

D wings

4. March/2020/Paper_22/No.1

Which characteristic do **all** living organisms show?

A breathing

B excretion

C photosynthesis

D tropism

5. March/2020/Paper_22/No.2

Using the binomial naming system, the Arctic fox is called *Vulpes lagopus*.

Which row is correct?

	Vulpes	*lagopus*
A	genus	kingdom
B	genus	species
C	species	genus
D	species	kingdom

6. March/2020/Paper_22/No.3

What is a characteristic of both insects and arachnids?

A eight legs

B exoskeleton

C three pairs of legs

D wings

7. March/2020/Paper_22/No.4

What structures can be found in both plant and animal cells?

A cell walls and cell membranes

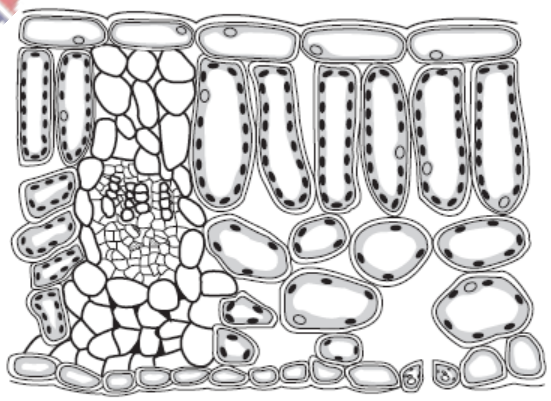
B nuclei and cell walls

C cytoplasm and chloroplasts

D cell membranes and nuclei

8. March/2020/Paper_22/No.5

The actual thickness of the leaf shown in the diagram is 2000 μm, but its thickness in the diagram is 50 mm.



What is the magnification of the diagram?

A ×0.025 **B** ×25 **C** ×100 **D** ×100 000

9. March/2020/Paper_32/No.1

(a) Fig. 1.1 shows six species of reptiles.

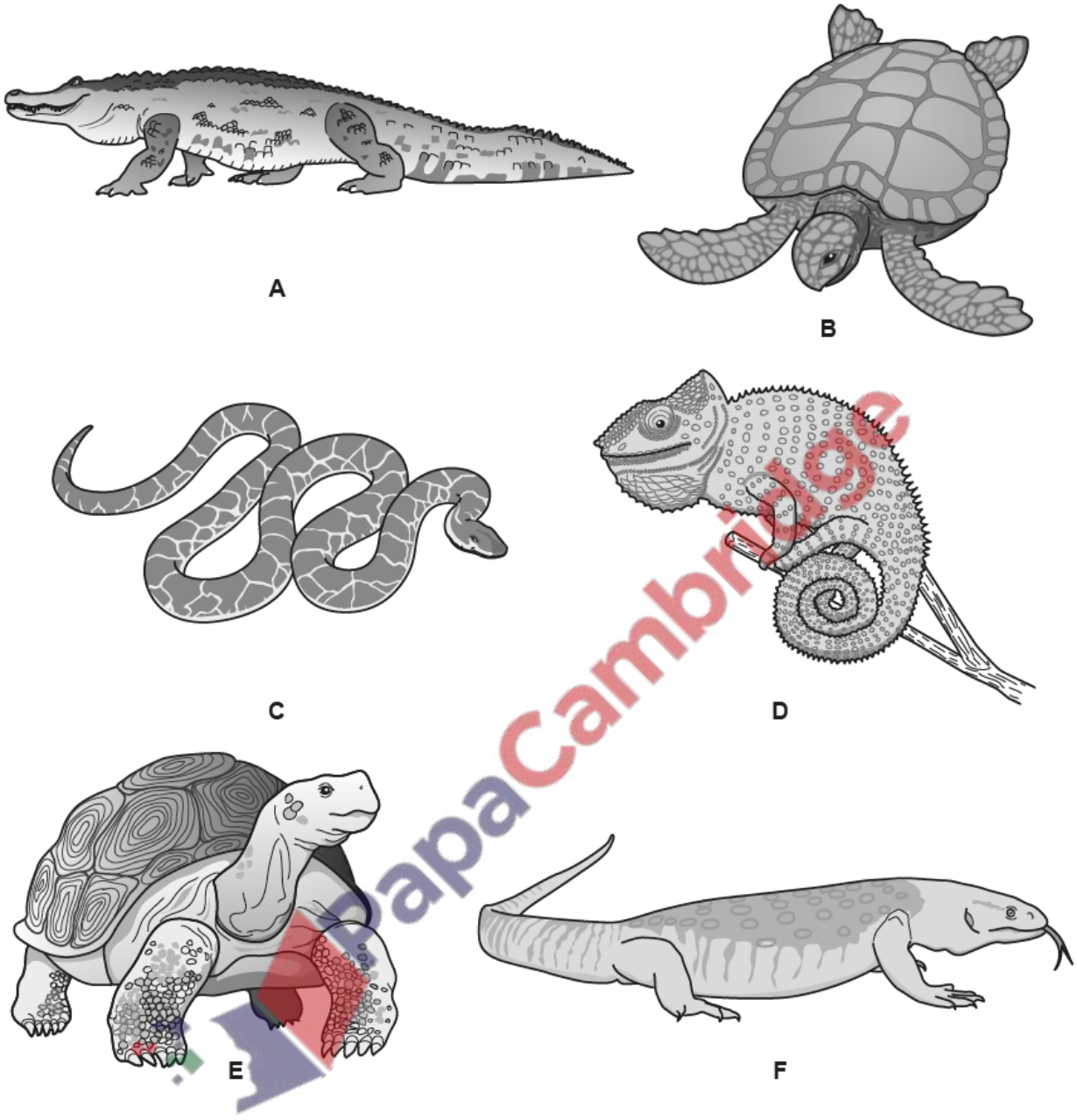


Fig. 1.1

(i) Use the key to identify each species. Write the letter of each species (**A**–**F**) in the correct empty box beside the key.

Key:

1 (a)	organism has a shell (hard covering on its back)	go to 2	
(b)	organism does not have a shell	go to 3	
2 (a)	organism has flat limbs (flippers)	*Caretta caretta*	
(b)	organism has legs and feet	*Chelonoidis nigra*	
3 (a)	organism has limbs	go to 4	
(b)	organism has a long body and no limbs	*Crotalus viridis*	
4 (a)	organism has ridges on its back	go to 5	
(b)	organism has no ridges on its back	*Varanus bengalensis*	
5 (a)	organism has a coiled tail	*Chamaeleo calyptratus*	
(b)	organism has a straight tail	*Alligator mississippiensis*	

[5]

(ii) Define the term species.

.....

.....

.....

.....

..... [2]

(b) The binomial system of naming organisms tells us the species and the genus of the organism.

State the genus name for *Chamaeleo calyptratus*.

..... [1]

(c) Table 1.1 shows some features of animals.

Place ticks (✓) next to **two** features of most reptiles.

Table 1.1

compound eyes	
fertilisation is internal	
wings	
lay eggs	
moist skin	

[2]

(d) State **two** features of cells that are shared by **all** living organisms.

1 .....

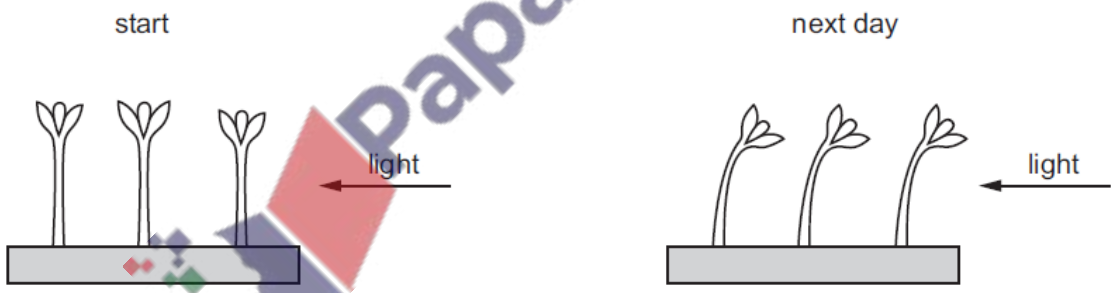
2 .....

[2]

[Total: 12]

10. June/2020/Paper_11/No.1

The diagram shows what happened in an experiment with plant seedlings.



Which characteristic of living things made the seedlings grow towards the light?

A excretion

B nutrition

C respiration

D sensitivity

11. June/2020/Paper_11/No.2

A rat has the scientific name *Rattus rattus*.

What do the two parts of this name refer to?

A genus and species

B kingdom and genus

C kingdom and species

D variety and genus

12. June/2020/Paper_11/No.3

An animal can swim, has a backbone and produces milk.

To which group does it belong?

A amphibians

B fish

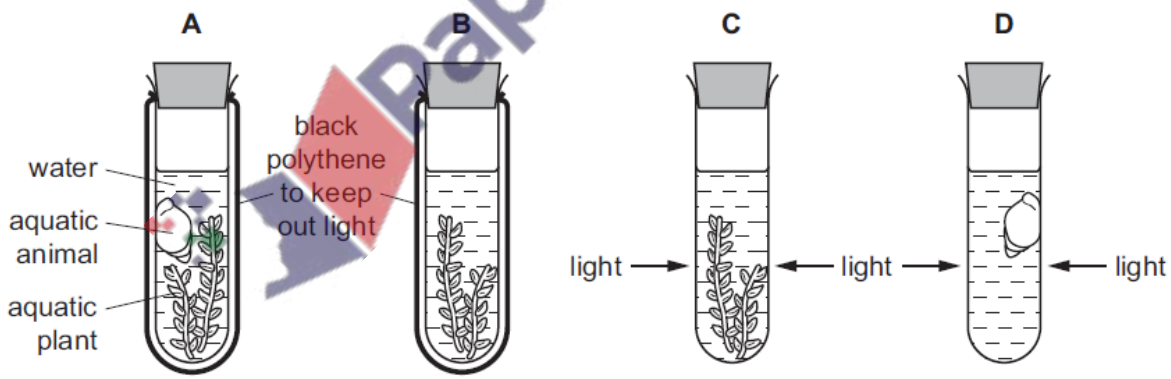
C mammals

D reptiles

13. June/2020/Paper_11/No.10

Four test-tubes are set up as shown.

Which test-tube contains the least carbon dioxide after one hour?



14. June/2020/Paper_11/No.30

What happens during respiration in germinating seeds?

A Seed temperature decreases.

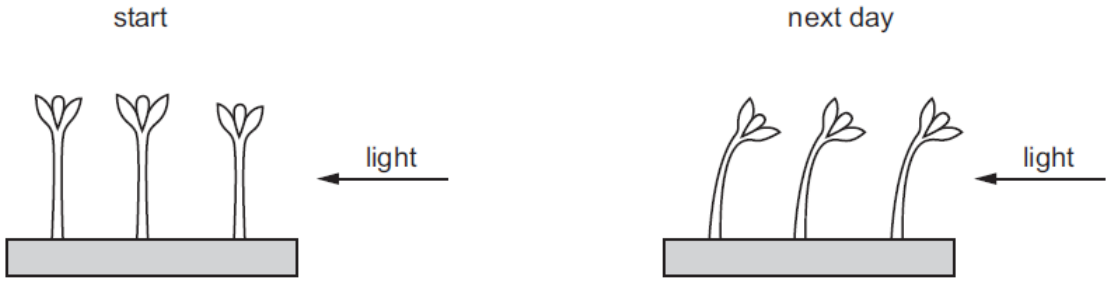
B Carbon dioxide is taken up by the seeds.

C Glucose is used up by the seeds.

D Oxygen is given out by the seeds.

15. June/2020/Paper_12/No.1

The diagram shows what happened in an experiment with plant seedlings.



Which characteristic of living things made the seedlings grow towards the light?

A excretion

B nutrition

C respiration

D sensitivity

16. June/2020/Paper_12/No.2

A rat has the scientific name *Rattus rattus*.

What do the two parts of this name refer to?

A genus and species

B kingdom and genus

C kingdom and species

D variety and genus

17. June/2020/Paper_12/No.3

Which list contains **only** arthropods?

A amphibians, insects, myriapods

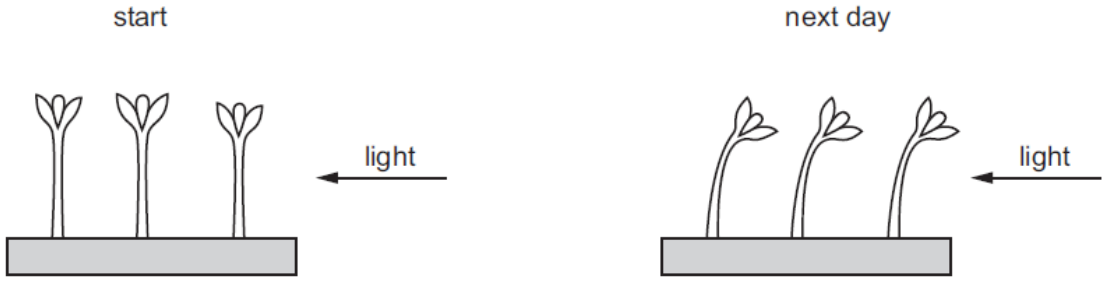
B arachnids, crustaceans, myriapods

C crustaceans, insects, fish

D insects, myriapods, reptiles

18. June/2020/Paper_13/No.1

The diagram shows what happened in an experiment with plant seedlings.



Which characteristic of living things made the seedlings grow towards the light?

A excretion

B nutrition

C respiration

D sensitivity

19. June/2020/Paper_13/No.2

A rat has the scientific name *Rattus rattus*.

What do the two parts of this name refer to?

A genus and species

B kingdom and genus

C kingdom and species

D variety and genus

20. June/2020/Paper_13/No.3

Explorers have found an unknown animal living in a rainforest. The animal

- lives on land but has also been seen in water
- lays soft-shelled eggs on land
- does not have gills
- has scaly skin
- is 1.0 m long
- does not produce milk.

To which group is the animal most likely to belong?

A amphibians

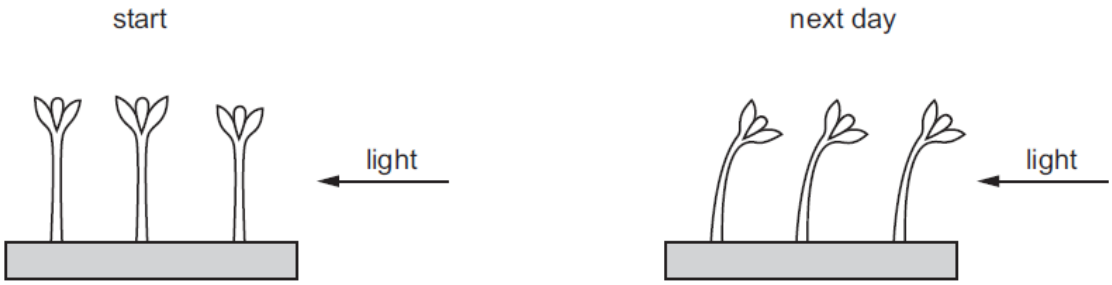
B arthropods

C mammals

D reptiles

21. June/2020/Paper_21/No.1

The diagram shows what happened in an experiment with plant seedlings.



Which characteristic of living things made the seedlings grow towards the light?

A excretion

B nutrition

C respiration

D sensitivity

22. June/2020/Paper_21/No.2

A rat has the scientific name *Rattus rattus*.

What do the two parts of this name refer to?

A genus and species

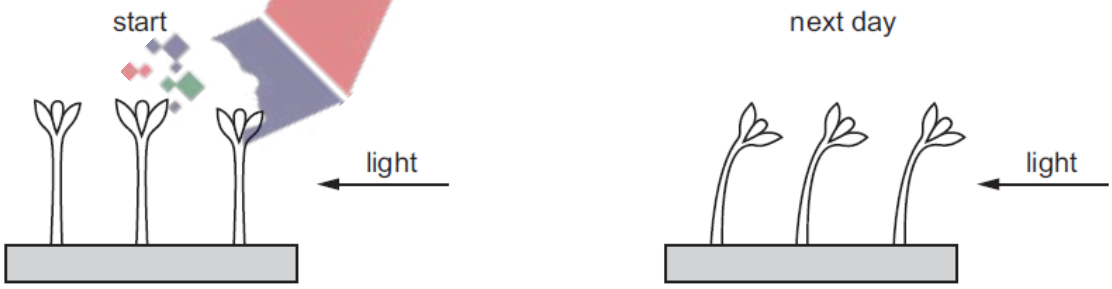
B kingdom and genus

C kingdom and species

D variety and genus

23. June/2020/Paper_22/No.1

The diagram shows what happened in an experiment with plant seedlings.



Which characteristic of living things made the seedlings grow towards the light?

A excretion

B nutrition

C respiration

D sensitivity

24. June/2020/Paper_22/No.2

A rat has the scientific name *Rattus rattus*.

What do the two parts of this name refer to?

A genus and species

B kingdom and genus

C kingdom and species

D variety and genus

25. June/2020/Paper_23/No.1

The diagram shows what happened in an experiment with plant seedlings.

Which characteristic of living things made the seedlings grow towards the light?

A excretion

B nutrition

C respiration

D sensitivity

26. June/2020/Paper_23/No.2

A rat has the scientific name *Rattus rattus*.

What do the two parts of this name refer to?

A genus and species

B kingdom and genus

C kingdom and species

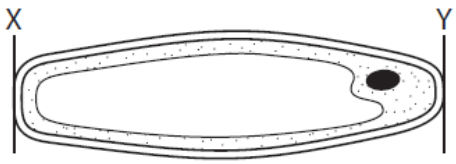
D variety and genus

27. June/2020/Paper_23/No.4

The diagram shows an onion plant epidermal cell.

The distance between X and Y on the diagram is 60 mm.

The actual length of the cell between X and Y was 150 μm.



What is the magnification of the cell?

A ×40 **B** ×250 **C** ×400 **D** ×2500

28. June/2020/Paper_32/No.5

(a) Fig. 5.1 is a photograph of part of a flower.

Some of the outer structures have been removed to show the internal parts.

Fig. 5.1

(i) Label these structures on Fig. 5.1 with a label line and the name:

- anther
- petal
- stigma.

[3]

(ii) Describe **two** features visible in Fig. 5.1 that suggest that this is an insect-pollinated flower.

1 .....

.....

2 .....

.....

[2]

(b) Many living organisms can be classified as plants or animals.

Table 5.1 shows some features of animals and plants.

Place ticks (✓) in the boxes to show the correct features of animals and plants.

Table 5.1

feature	animals	plants
can respire		
can grow		
can make their own food		
contain DNA		
can respond to changes in their environment		

[5]

(c) State **two** structures that are present in plant cells but **not** in animal cells.

1 .....

2 .....

[2]

[Total: 12]

29. June/2020/Paper_41/No.5

Ciliates are classified in the kingdom Protoctist. Bacteria are classified in the kingdom Prokaryote.

(a) State **two structural** features that distinguish the cells of a protoctist from a prokaryote.

1 .....

.....

2 .....

.....

[2]

(b) Fig. 5.1 shows five species of ciliate that are found in sewage treatment works.

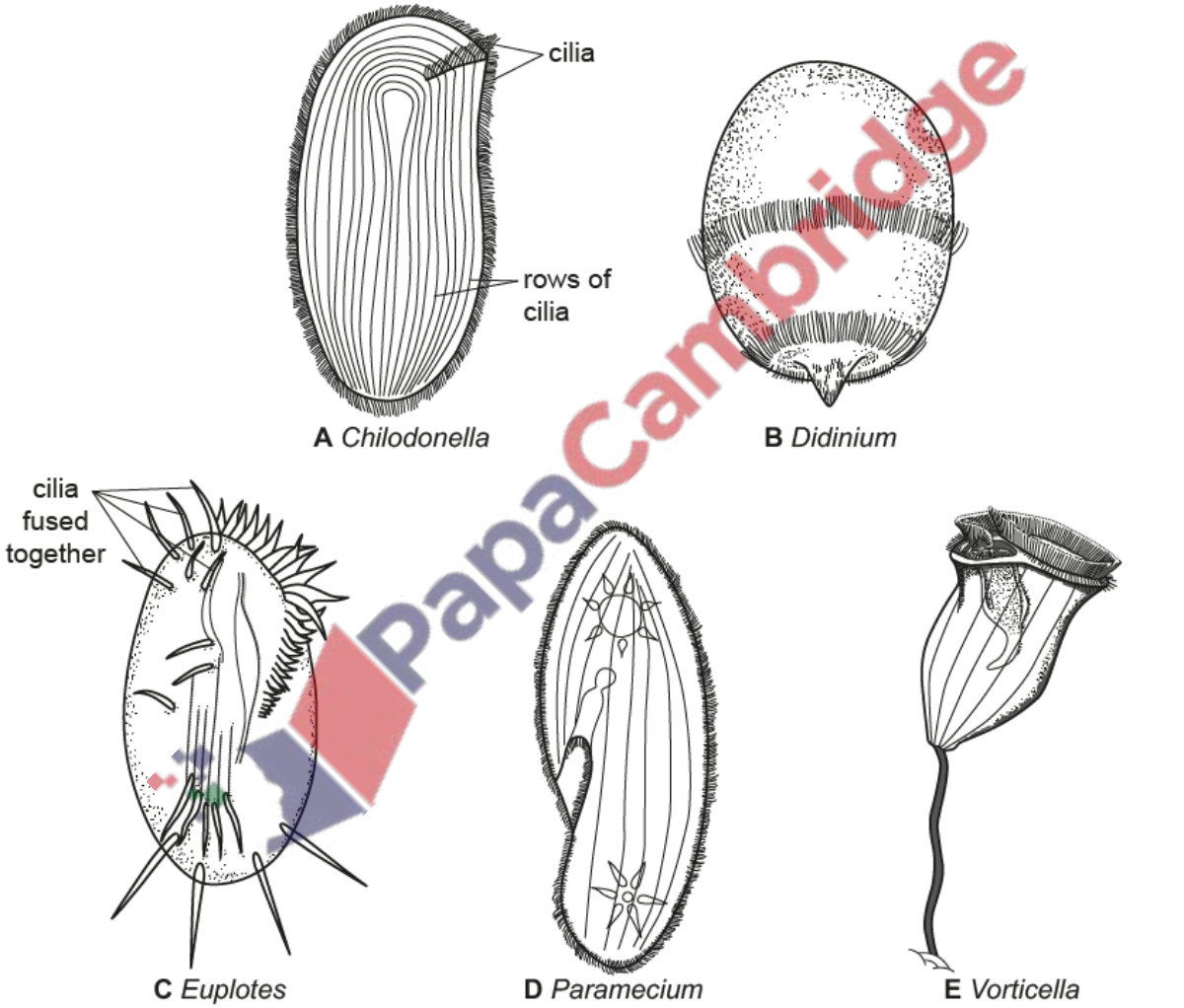


Fig. 5.1

Fig. 5.2 is a dichotomous key to identify the ciliates shown in Fig. 5.1.

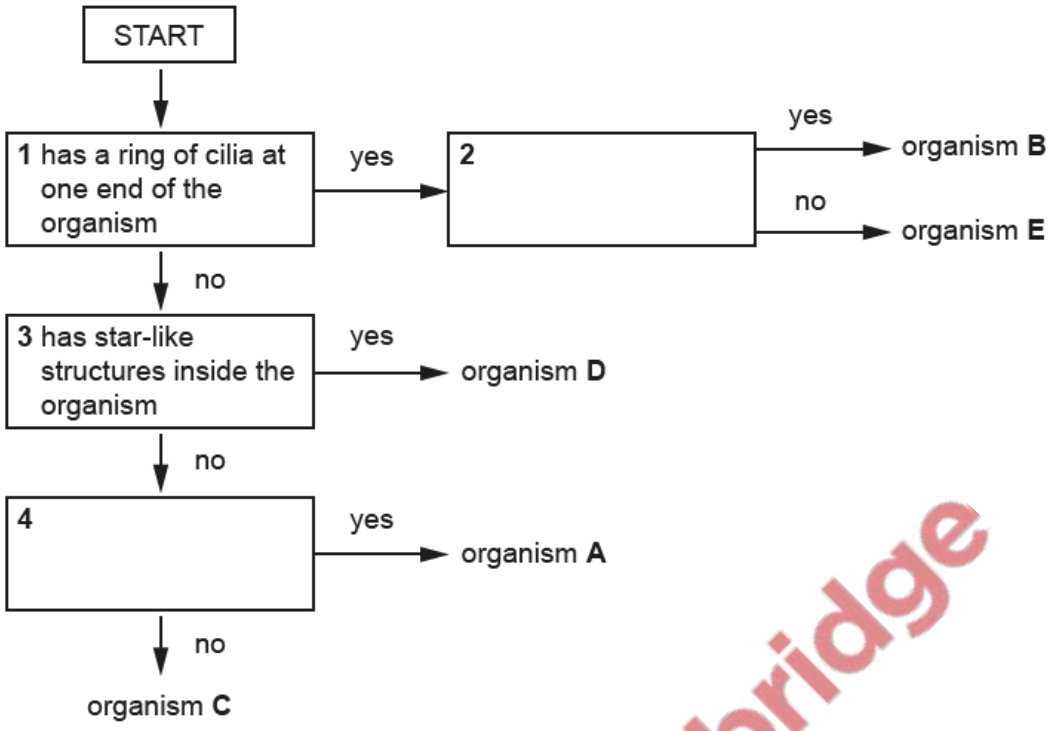


Fig. 5.2

Complete the key in Fig. 5.2 by writing suitable statements:

- for box 2 to distinguish species **B** and **E**
- for box 4 to distinguish species **A** and **C**.

text for box 2 .....

.....

.....

text for box 4 .....

.....

.....

[2]

(c) *Didinium* is a predatory ciliate. A video recording was made of one *Didinium* feeding on a *Paramecium*. Fig. 5.3 shows a sequence of still photographs taken from the video.

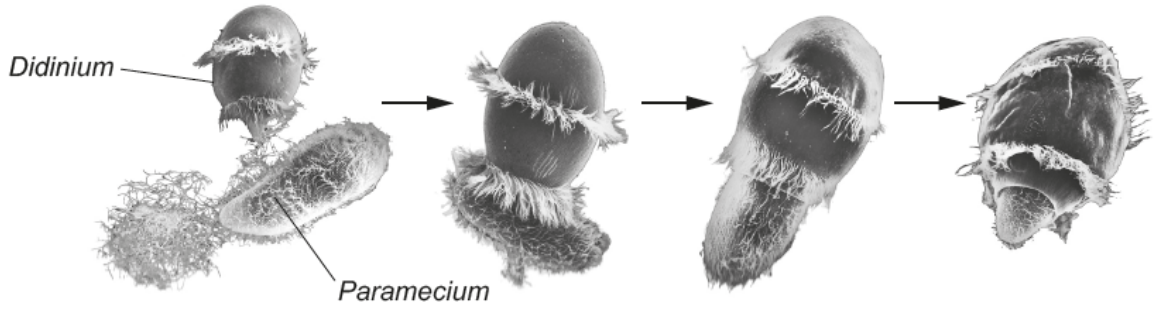


Fig. 5.3

Complete the table by putting a tick (✓) by each characteristic of life that can be seen in the still photographs from the video in Fig. 5.3.

excretion		nutrition	
growth		reproduction	
movement		respiration	

[1]

(d) Fig. 5.4 is a food web for some of the microorganisms in a sewage treatment works.

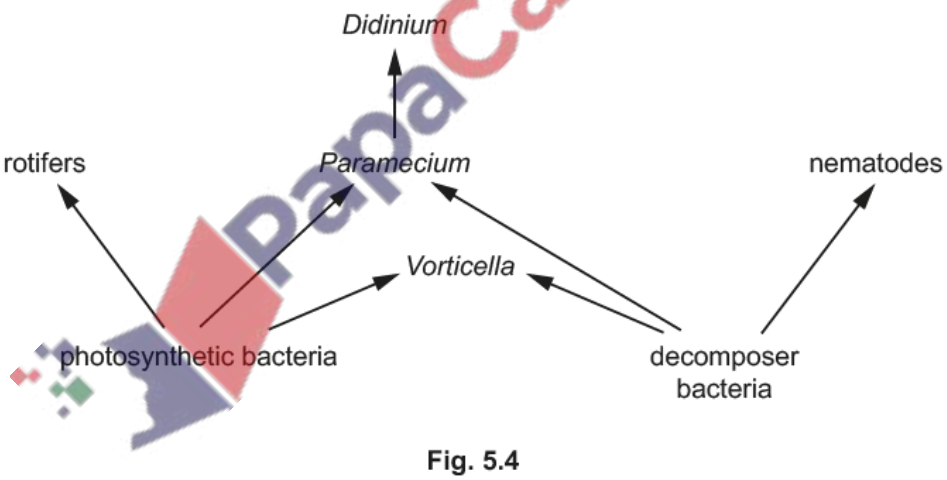


Fig. 5.4

(i) Construct **one** food chain with three trophic levels that use energy derived from the breakdown of sewage. Do **not** draw the organisms.

..... [1]

(ii) The water that passed out of the sewage works was often cloudy with suspended matter.

Scientists discovered that ciliates reduce the cloudiness of water during sewage treatment.

Suggest how the ciliates reduce the cloudiness of the water using the information in Fig. 5.4.

.....

.....

.....

.....

..... [2]

(iii) Explain how sewage treatment reduces the spread of disease.

.....

.....

.....

.....

.....

.....

..... [3]

(iv) Nitrifying bacteria are found in sewage works.

Explain the importance of nitrifying bacteria in the nitrogen cycle.

.....

.....

.....

.....

.....

.....

..... [3]

[Total: 14]