

Warwick School



13+ Sample Paper 2013

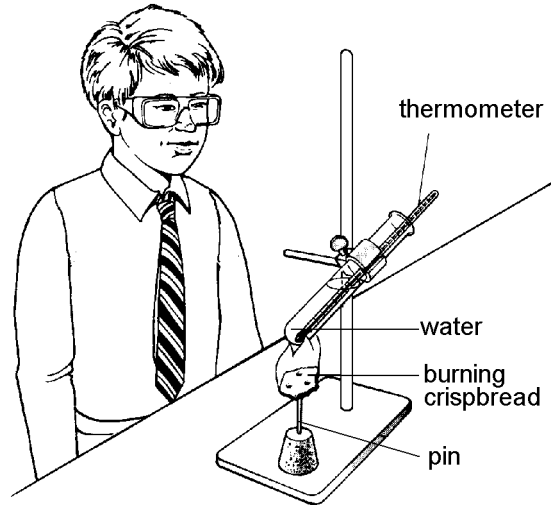
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Please write your full name here:

Before you start read these instructions:

- Time allowed 30 minutes.
- **Attempt all questions.** Write your **answers** in the spaces provided.
- If you get stuck, do not worry. Do not spend lots of time on it, just go on to the next question. You may have time at the end to try the question again.
- **HAVE YOU WRITTEN YOUR FULL NAME IN THE BOX?**

1. Peter burns a piece of crispbread to find out how much energy is stored in it. Energy from the burning crispbread raises the temperature of the water in the test-tube.



- (a) Describe one way Peter has arranged the apparatus so that he is working safely.

.....

2 marks

- (b) Peter wants to find out if potato crisps contain as much energy as crispbread. He does the experiment again using a piece of potato crisp.

Suggest **two** things he must do to make the experiment a fair test.

1.
 2.

1 mark

The table shows some of the nutritional information from a packet of crispbread and a packet of potato crisps.

	energy in kJ	protein in g	carbohydrate in g	fat in g	fibre in g
100 g of crisp bread	1455	11.6	58.1	7.3	14.7
100 g of potato crisps	2072	5.8	57.9	28.7	4.3

- (c) Crispbread does not contain vitamin C. Which of the foods in the list below is the best source of vitamin C?

Tick the correct box.

cheese eggs fish oranges

1 mark

(d) Peter burns 1.0 g of potato crisp instead of 1.0 g of crispbread in a similar experiment. What result will he get when he burns the potato crisp? Tick the correct box.

The change in the temperature of the water will be greater.

The change in the temperature of the water will be the same.

The change in the temperature of the water will be smaller.

There will be no change in the temperature of the water.

1 mark

(e) (i) Fibre contains energy. Explain why this energy can **not** be used by the human body.

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1 mark

(ii) Use the table in part (b) to give **two** reasons for choosing crispbread rather than potato crisps as part of a balanced diet.

1.

 2.

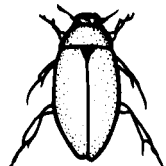
2 marks

Maximum 8 marks

2. The animals shown below live in different parts of a river.



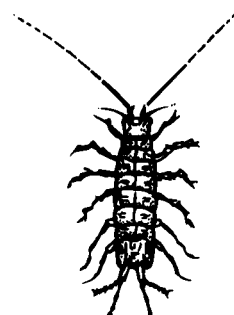
A



B



C

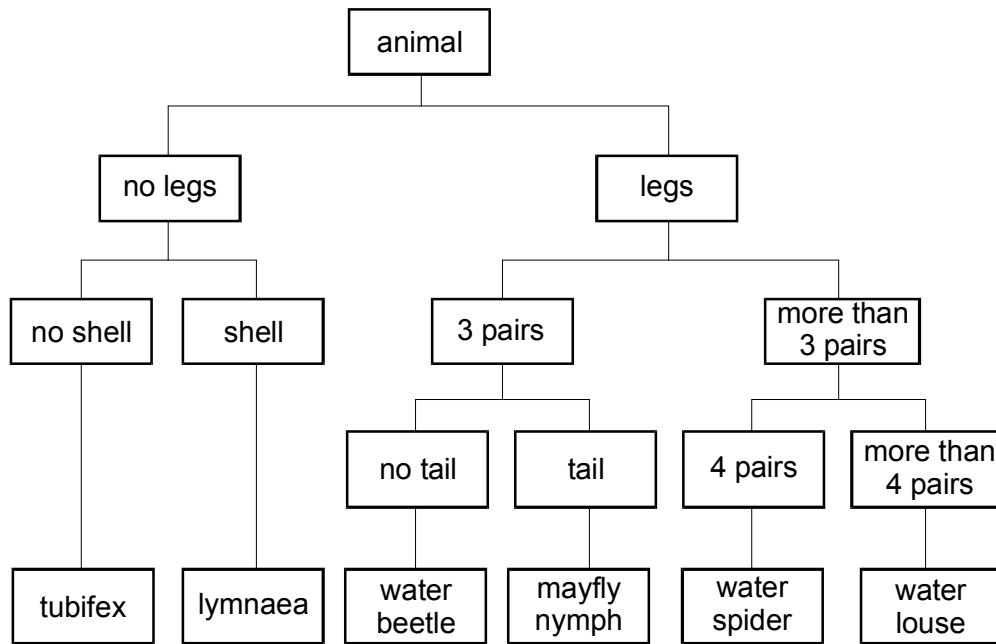


D



E

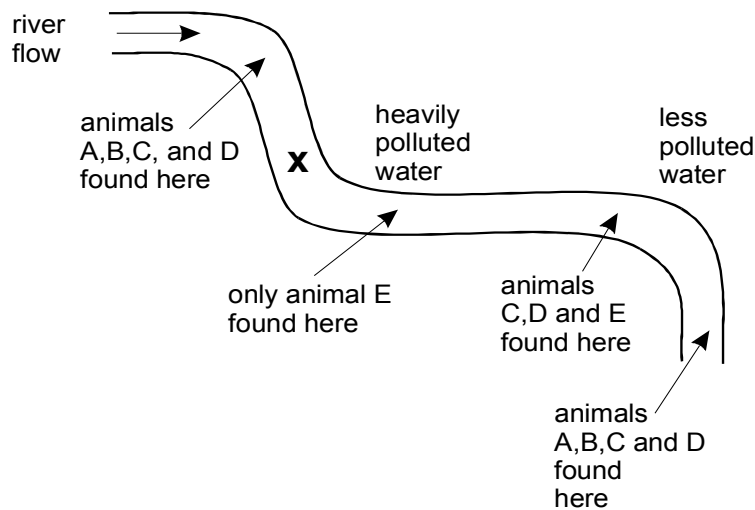
(a) Use this key to identify animals A, B and C.



- (i) Animal **A** is a
- (ii) Animal **B** is a
- (iii) Animal **C** is a

3 marks

- (b) The diagram shows a river. Sewage pollutes the river at **X**. The amount of pollution gets less as you go down the river from **X**. The animals A, B, C, D and E were found living in the river at the places shown.



- (i) Which animal survives best in polluted water? Give the **letter** of the animal.

.....

1 mark

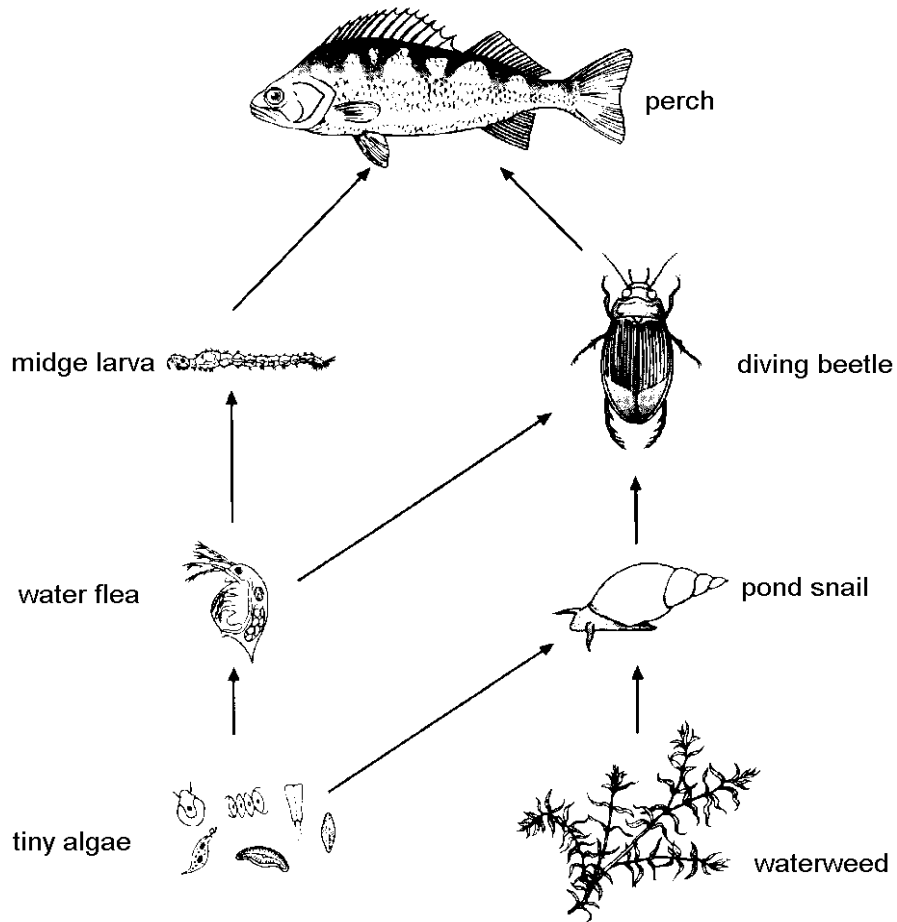
- (ii) **Two** of the animals cannot live in polluted water. Give the **letters** of these two animals.

..... and

2 marks

Maximum 6 marks

3. The diagram below shows part of a food web in a pond.



not to scale

(a) (i) The numbers of tiny algae and waterweed in the pond increase. What effect will this have on the numbers of pond snails and water fleas?

.....

1 mark

(ii) Some more perch are put into the pond. What will happen to the numbers of midge larvae and diving beetles?

.....

1 mark

(b) From the food web:

(i) give the name of **one** predator;

1 mark

(ii) give the name of its prey;

1 mark

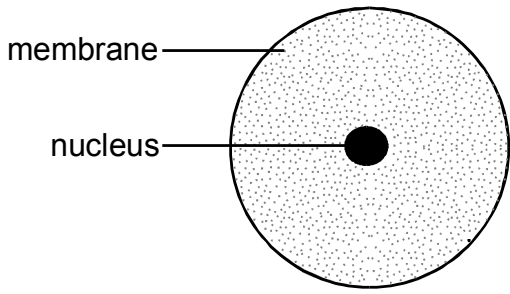
(iii) write **one** complete food chain which ends with perch.

..... □..... □..... □perch

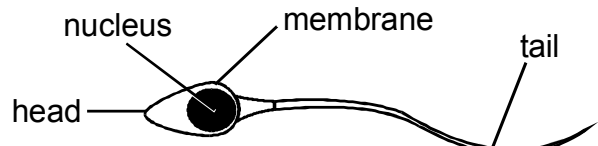
1 mark

Maximum 5 marks

4. The diagrams below show a human ovum (egg) and a human sperm.



human ovum (egg)



human sperm

not to scale

(a) What are eggs and sperm?
Tick the correct box.

animals cells organs

1 mark

(b) Which part does a sperm use to swim towards an egg?

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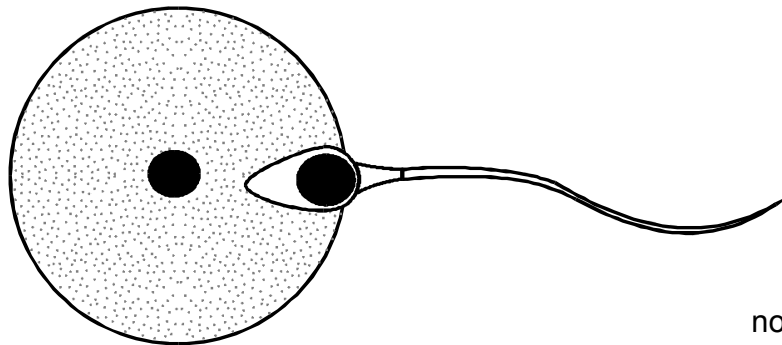
1 mark

(c) Give the name of the male reproductive organ where sperm are made.

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1 mark

(d) The diagram below shows a sperm joining with an egg.



not to scale

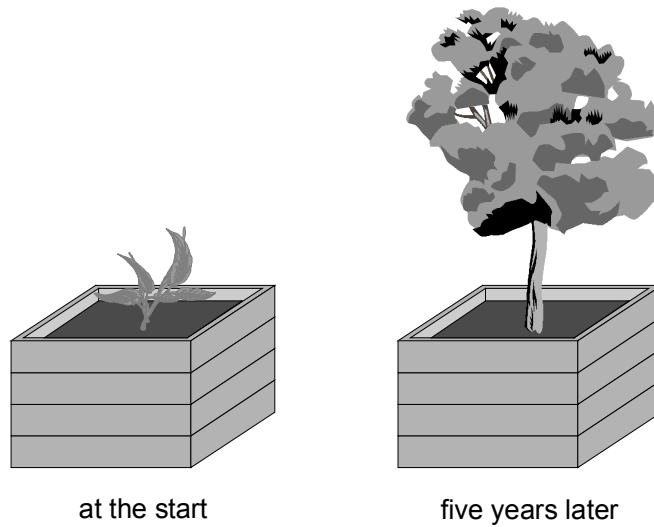
What is this process called?
Tick the correct box.

fertilisation growth
nutrition respiration

1 mark

Maximum 4 marks

5. In the seventeenth century a Belgian scientist, Van Helmont, planted a young willow tree in a tub of dry soil. During the next five years he watered the plant with rain water but he did not add anything else to the tub.



not to scale

After five years Van Helmont removed the willow tree from the tub and weighed the tree. He also dried and weighed the soil. Results from Van Helmont's experiment are shown in the table.

	mass of willow tree, in kg	mass of dried soil, in kg
at the start	2.3	90.6
five years later	76.7	90.5

- (a) Van Helmont concluded that the increase in the mass of the willow tree was due only to a gain in water.

- (i) What **two** pieces of evidence did Van Helmont use to reach his conclusion?

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2 marks

- (ii) We now know that Van Helmont's conclusion is **not** correct. Explain why the mass of the willow tree increased by such a large amount.

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2 marks

- (b) Van Helmont believed that a plant would always grow faster if it was given more water. We now know that this is **not** true. Give **two** environmental conditions which can slow down the growth of a plant, even when it has plenty of water.

1.

.....

2.

.....

2 marks

- (c) The fresh mass of a plant includes water. To measure plant growth accurately, scientists calculate the increase in the dry mass rather than the increase in the fresh mass of a plant.

Why is finding the increase in fresh mass **not** a reliable way to measure plant growth?

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1 mark

Maximum 7 marks

Total for paper = 30 marks