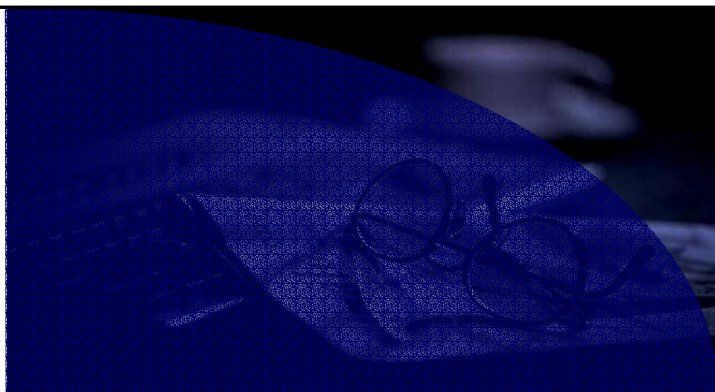


assessment for learning

year 9



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## 9D Plants for food

### Assessment for learning...year 9 (level 3-6)

Answer all questions:

Total marks	29
Time allowed	25 mins.

#### Question 1:

Changes to the environment sometimes harm plants or animals.

Use **only** the words in the list below to fill the gaps in the sentences.

You may use some of the words more than once. You do not need to use all the words.

**birds**  
**farmland**  
**fertiliser**  
**fish**  
**insects**  
**sewage**  
**wood**

(i) Rivers may be polluted by.....

and .....

2 marks

River pollution harms and sometimes kills .....  
and .....

2 marks

(ii) Hedges may be dug up to make more .....

1 mark

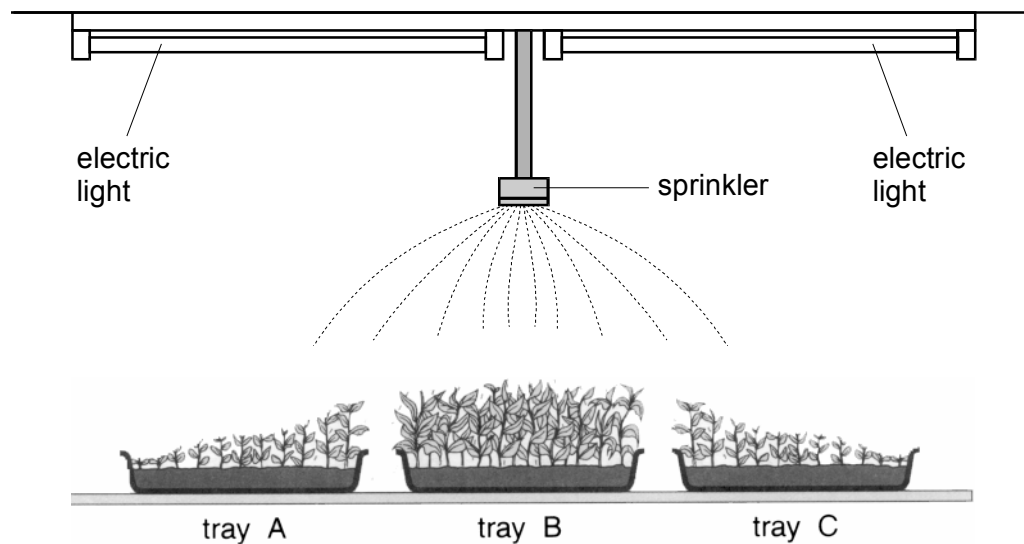
Digging up hedges destroys the homes of some .....  
and .....

2 marks

Maximum 7 marks

**Question 2:**

Some pupils put three identical trays of young plants in a greenhouse. They gave the plants a little water each morning with a sprinkler. The drawing shows the plants three weeks later.



(a) (i) Why did some of the plants in trays A and C not grow as well as the plants in tray B?

.....  
.....

1 mark

(ii) How would you move tray A to find out if your answer to part (i) is correct? What result would you expect?

.....  
.....  
.....

2 marks

(b) The sprinkler adds water to the soil. What else could the pupils add to the soil to help the plants to grow well?

.....

1 mark

(c) At the same time, the pupils grew another tray of the same type of plants. They put the tray in a dark cupboard and kept the soil damp. After three weeks, how were the plants grown in the dark different from the plants grown in the greenhouse?

Tick **two** boxes.

The plants grown in the dark had:

larger leaves

longer stems

more leaves

paler leaves

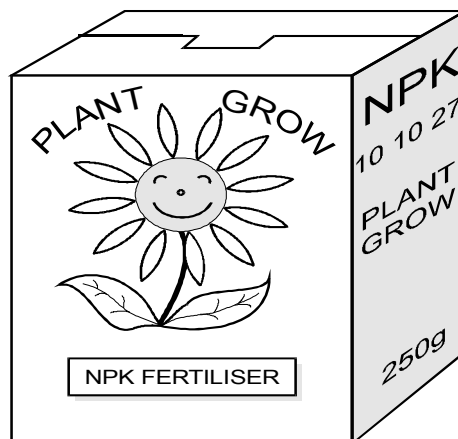
more roots

2 marks

Maximum 6 marks

**Question 3:**

The drawing shows the label on a box of fertiliser for houseplants.



(a) To maintain healthy growth of their potted plants, people have to keep adding fertiliser to the soil. Explain why they need to keep adding fertiliser.

.....

.....

1 mark

(b) Part of the Periodic Table is shown below. The three elements N, P and K shown on the fertiliser label are also shown in the table.

		H				He		
Li	Be		B	C	<b>N</b>	O	F	Ne
Na	Mg		Al	Si	<b>P</b>	S	Cl	Ar
<b>K</b>	Ca		Ga	Ge	As	Se	Br	Kr

(i) The element N is nitrogen. What are the names of the other **two** elements?

P .....

K .....

2 marks

(ii) Give the symbol for the most reactive metal shown in this part of the Periodic Table.

.....

1 mark

Maximum 4 marks

**Question 4:**

DDT is an insecticide that was discovered in 1939. In the 1950s and 1960s it was sprayed from planes over fields and lakes. Its use was banned in the 1970s.

(a) The table shows the concentrations of DDT in the tissues of two types of bird from the same area.

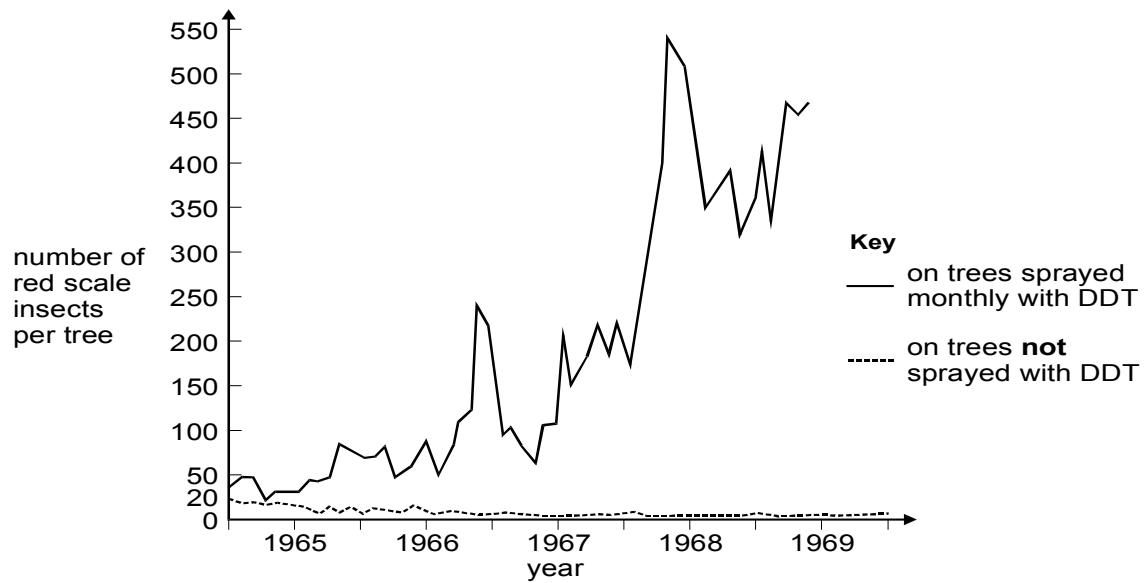
type of bird	concentration of DDT in the bird's tissues, in parts per million	bird's diet
heron	14	mainly fish
moorhen	0.2	mainly aquatic plants

Explain why DDT builds up in an animal's tissue and why herons had higher concentrations of DDT in their tissues than moorhens did.

.....  
 .....  
 .....  
 .....

2 marks

(b) Red scale insects are pests which feed on lemon trees in California. Ladybirds eat red scale insects. The graph below shows the effect of spraying lemon trees with DDT.



Explain why the number of red scale insects on lemon trees which had been sprayed with DDT increased and why the number on untreated trees stayed nearly constant.

.....

.....

.....

.....

3 marks  
Maximum 5 marks

**Question 5:**

(a) Scientists studied the animals and plants in a large wood, over a period of time. One food chain in the wood is shown below.

oak trees → winter moth caterpillars → great tits → sparrowhawks

In the space below, draw a pyramid of numbers for this food chain.

2 marks

(b) Insecticide was sprayed onto fields near the wood. Some of the insecticide was blown into the wood by the wind.

(i) In the food chain above, the sparrowhawks contained the highest concentration of insecticide. Explain why.

.....  
.....  
.....  
.....

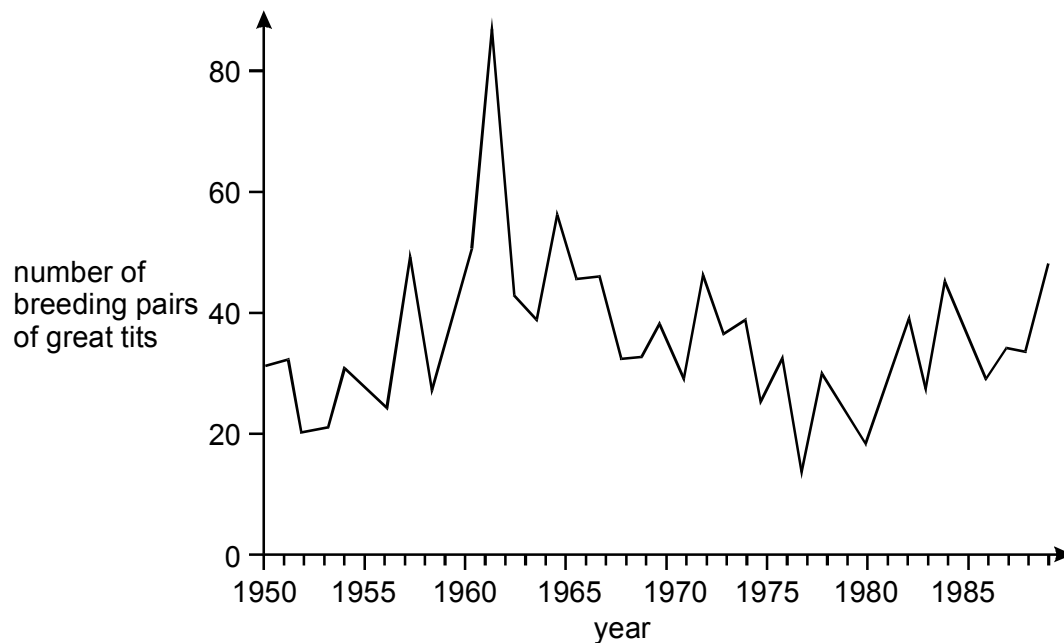
2 marks

(ii) The use of insecticides could cause the population of sparrowhawks to decrease. Give **one** other reason why the population of sparrowhawks might decrease.

.....  
.....

1 mark

(c) The graph shows how the number of pairs of great tits changed in the wood over a period of time.



(i) Use the graph to suggest the year when there were probably fewest sparrowhawks in the wood.

.....

What is the evidence from the graph for your answer?

.....

.....

1 mark

(ii) Explain the reasoning for the answer you have given in part (c) (i).

.....

.....

1 mark

Maximum 7 marks