



## 9D Plants for food...mark scheme

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

#### Question 1:

where two answers are required, mark only the first two responses

- (i) sewage 1  
fertiliser 1

*answers may be in either order*

- any **two** from 2
- insects
  - fish
  - birds

- (ii) farmland 1  
insects 1  
birds 1

*answers may be in either order*

**[7]**

#### Question 2:

- (a) (i) they received less water 1

*accept 'the plants in tray B  
got more water'  
do **not** accept 'they got less  
light'*

- (ii) **The first mark is for describing how tray A could be moved. The second mark is for predicting that the plants now being watered would grow more quickly.** 1

any **one** from 1

- turn it around
- swap it with tray B

*accept 'move it into the middle'*

- swap with tray C without turning it round

*accept 'swap it with tray C'*

the plants being watered would grow more quickly

*accept 'the plants in the water would grow faster' **or** 'the plants in the middle would grow better'*

*if the first point was 'turn it around' **or** 'swap it with tray C' then accept 'the smaller plants would grow more quickly'*

***or** 'the bigger plant would grow more slowly'*

*if the first point was 'swap it with tray B' then accept 'all the plants in tray A would grow quickly **or** the same'*

- (b) fertiliser 1

*accept 'nutrients' **or** 'nitrates' **or** 'minerals' **or** 'manure'*

***or** 'plant food' **or** trade names for fertilisers  
do **not** accept 'food'*

- (c) longer stems ✓ 1  
paler leaves ✓

*if more than **two** boxes are ticked, deduct **one** mark for each incorrectly ticked box  
minimum mark zero*

**[6]**

### Question 3:

- (a) **answers should convey the idea that fertilisers are needed to replace the nutrients used up by the plants**

any **one** from 1

- as the plant grows, nutrients are used up
- to replace the nutrients **or** minerals used by the plant

*do **not** accept 'soil in the pot contains a limited amount of nutrients'*

- (b) (i) P: phosphorus 1  
 K: potassium 1  
 (ii) K 1

*do **not** accept 'potassium'*

**[4]**

**Question 4:**

- (a) any **one** from 1  
 • DDT does not break down easily

*accept 'it does not break down'*

- it is excreted slowly  
*persistent'*

*accept 'it is not excreted' **or** 'it is*

*accept 'it is absorbed by fat'*

*do **not** accept 'they cannot get rid of it' **or** 'it is stored'*

- any **one** from 1  
 • fish have higher concentrations of DDT **or** plants have lower concentrations

*accept 'fish contain more DDT than plants'*

- herons are higher up in a food chain than moorhens

*accept 'they are high in a food chain'*

*accept 'the concentration increases as you go up the food chain'*

- (b) DDT killed predators **or** ladybirds 1

*accept 'the predators were killed so the population rose'*

- the red scale were **or** became resistant to DDT 1

*accept 'DDT had no effect on the red scale' **or** 'the red scale's competitors were killed'*

- on untreated trees predators **or** ladybirds kept the number of red scale low 1

*accept 'the predators  
survived on the  
untreated trees'*

[5]

**Question 5:**

(a)



2

*one mark should be awarded  
if the second layer is wider  
than the first*

*the second mark should be  
awarded if the top three  
layers gradually reduce in  
width*

(b) (i)

any **two** from

2

- sparrowhawks eat great tits which contain insecticide
- great tits eat insects which contain insecticide
- a sparrowhawk eats lots of great tits **or** each great tit eats lots of caterpillars
- the insecticide is concentrated at each level in the food chain
- insecticide is not easily eliminated from an animal's body **or** sparrowhawk's body
- the insecticide is persistent

(ii)

any **one** from

1

- disease
- climate change
- lack of food **or** water
- reduced habitat
- fewer great tits

*accept 'new predators'  
accept 'increase in  
predators'*

(c) **either**

(i)

1961 because the number of great tits was highest

1

*accept '1960' **or** '1962' for  
1961  
both the date and the  
evidence are required for the  
mark*

(ii)

fewest great tits were eaten

1

**or**

- (i) 1976 because the number of great tits was lowest 1  
*accept '1975' or '1977' for  
1976  
both the date and the  
evidence are required for the  
mark*
- (ii) not enough food for the sparrowhawks 1

**[7]**

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