AQA - Trophic levels in an ecosystem – GCSE Combined Science Biology

1. June/2019/Paper_2F/No.5
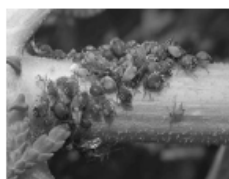
   | 0 | 5 |

   Figure 4 shows a food chain in a garden.

   Figure 4

   bean plant → blackfly → spider → blackbird

   | 0 | 5 |.| 1 | Which term describes the spider in this food chain?

   [1 mark]

   Tick (✓) **one** box.

   Primary consumer ☐

   Producer ☐

   Secondary consumer ☐

   Tertiary consumer ☐

   | 0 | 5 |.| 2 | Many of the spiders in the garden died.

   What is likely to happen to the number of blackflies in the garden?

   [1 mark]

   Tick (✓) **one** box.

   Decrease ☐

   Increase ☐

   Stay the same ☐

0 5 . 3 Give a reason for your answer to Question 05.2

[1 mark]

_____

_____

Table 2 shows the estimated biomass of organisms in the garden.

Table 2

Organism	Biomass in g
Bean plants	225
Blackflies	115
Spiders	65
Blackbirds	10

0 5 . 4 What conclusion can be made about biomass in food chains?
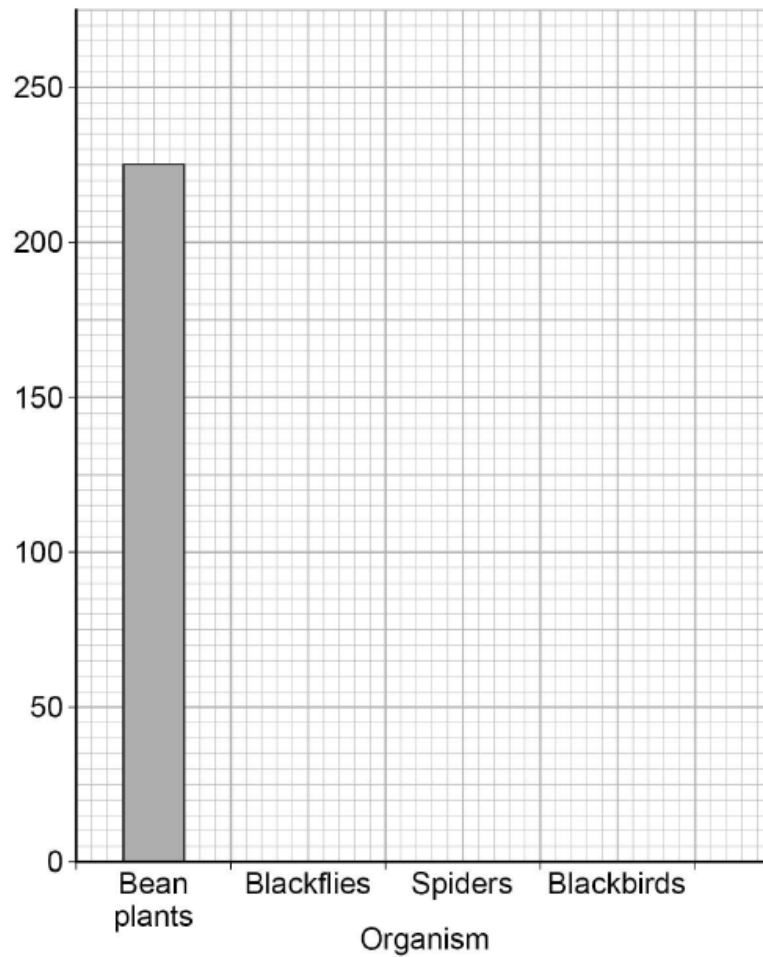
[1 mark]

_____

_____

0 5 . 5 Complete **Figure 5**.

You should:

- label the y-axis
- plot the data from **Table 2**.

[3 marks]

Figure 5

0 5 . 6 Explain why a garden is **not** a stable community.

[2 marks]

_____

_____

_____

_____

2. June/2019/Paper_2H/No.1

| 0 | 1 |

Some students investigated the effect of drinking caffeine on reaction time.

They used a drink containing 32.25 mg of caffeine per 100 cm^3

This is the method used.

1. Divide the students into four groups, **A**, **B**, **C** and **D**.

2. Measure and record the reaction time of each student using the ruler-drop test.

3. Students in:
    - group **A** drink 200 cm^3 of water
    - group **B** drink 200 cm^3 of the caffeine drink
    - group **C** drink 400 cm^3 of the caffeine drink
    - group **D** drink 600 cm^3 of the caffeine drink.

4. Repeat step 2 after 15 minutes.

| 0 | 1 | . | 1 |

Describe how to do the ruler-drop test.

[3 marks]

_____

_____

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_____

_____

0 1 . 2 **Table 1** shows the mass of caffeine taken in by each student.

Table 1

Group	Mass of caffeine in mg
A	0
B	64.5
C	129.0
D	X

Calculate value **X**.

[1 mark]

_____

_____

X = _____ mg

0 1 . 3 Why did group **A** drink water instead of the caffeine drink?

[1 mark]

_____

_____

Table 2 was used to convert the results of the ruler-drop test into reaction times.

Table 2

Distance in cm	Reaction time in s	Distance in cm	Reaction time in s
2	0.064	28	0.239
4	0.090	30	0.247
6	0.111	32	0.256
8	0.128	34	0.263
10	0.143	36	0.271
12	0.156	38	0.278
14	0.169	40	0.286
16	0.181	42	0.293
18	0.192	44	0.300
20	0.202	46	0.306
22	0.212	48	0.313
24	0.221	50	0.319
26	0.230	52	0.326

| 0 | 1 |. | 4 | Estimate the reaction time for a student who recorded a distance of 23 cm
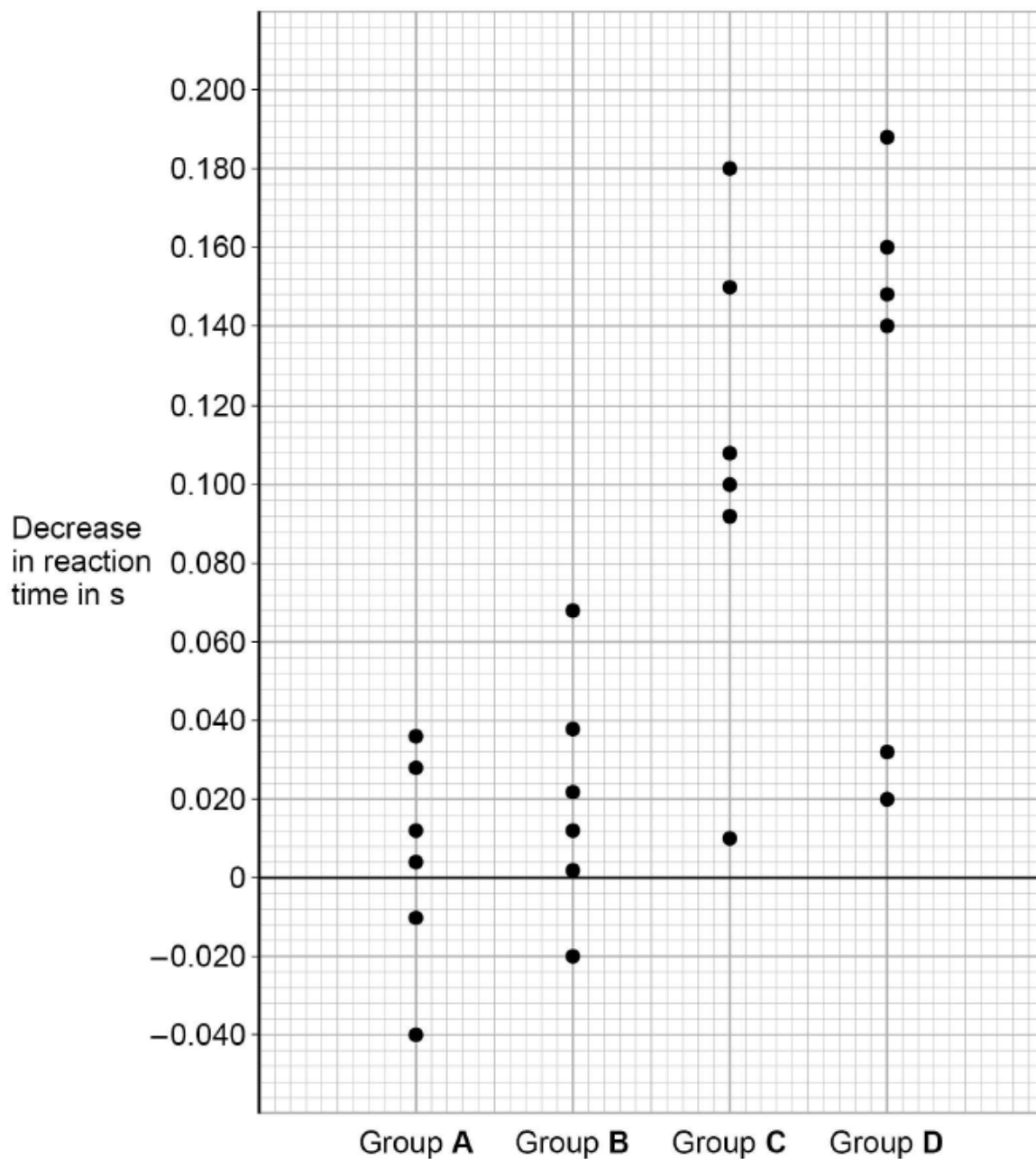
[1 mark]

_____

_____

Reaction time = _____ s

Students calculated the decrease in their reaction time after the drink compared with before the drink.

Figure 1 shows the results for each student.

Figure 1

0 1 . 5   Describe the effect of the mass of caffeine taken in on the decrease in reaction time.

[1 mark]

_____

_____

_____

| 0 | 1 |.| 6 | For three students the decrease in reaction time was negative.

Give the reason why the value was negative.

[1 mark]

_____

_____

| 0 | 1 |.| 7 | What is the range of results for group **C**?

[1 mark]

_____

| 0 | 1 |.| 8 | Suggest **two** variables that should have been controlled in this investigation.

[2 marks]

1 _____

_____

2 _____

_____

| 0 | 1 |.| 9 | Explain why the ruler-drop test does **not** involve a reflex action.

[2 marks]

_____

_____

_____

_____