

GCSE Combined Science: Trilogy

Worksheet: Communities

TIME 35 min	TOTAL 31 marks	CALCULATOR Allowed	DIFFICULTY Easy, Medium
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Topics: Communities

NAME	CLASS	DATE
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- Use black ink or black ball-point pen. Pencil should only be used for drawing.
- Answer all questions in the spaces provided.
- In all calculations, show clearly how you work out your answer.
- The marks for questions are shown in brackets.

0 1

Ecologists study living things at different levels of organisation.

0 1 . 1

Write these levels of organisation in order, from the smallest to the largest.
community · ecosystem · individual organism · population

.....

.....

[1 mark]

0 1 . 2

Table 1

Meaning	Term
All the organisms of one species living in a habitat	
All the populations of different species living in a habitat	
The interaction of a community of living organisms with the non-living parts of their environment	

Table 1 gives the meanings of three terms.

Complete Table 1. Choose answers from the list.

community · ecosystem · habitat · population

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.....

[3 marks]

0 1 . 3

What is meant by **interdependence**?

Tick (✓) **one** box.

Each species in a community depends on other species for things such as food, shelter, pollination and seed dispersal.

☐

All the species in a community compete for exactly the same resources.

☐

The number of each species in a community never changes.

☐

Species live in the same habitat but have no effect on each other.

☐

[1 mark]

0 2

Ecologists use special terms to describe organisms and their surroundings.

0 2 . 1

Which term describes all the populations of different species living in a habitat?

Tick (✓) **one** box.

Community

☐

Ecosystem

☐

Population

☐

Species

☐

[1 mark]

0 2 . 2

What is an ecosystem?

Tick (✓) **one** box.

All the organisms of one species living in a habitat

☐

The interaction of a community of living organisms with the non-living parts of their environment

☐

The place where an organism lives

☐

The variety of all the different species on Earth

☐

[1 mark]

0 2 . 3

Plants in a community compete with each other.

Give **two** things that plants compete for.

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.....

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[2 marks]

0 2 . 4

Animals in a community also compete with each other.
Give **two** things that animals compete for.

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.....

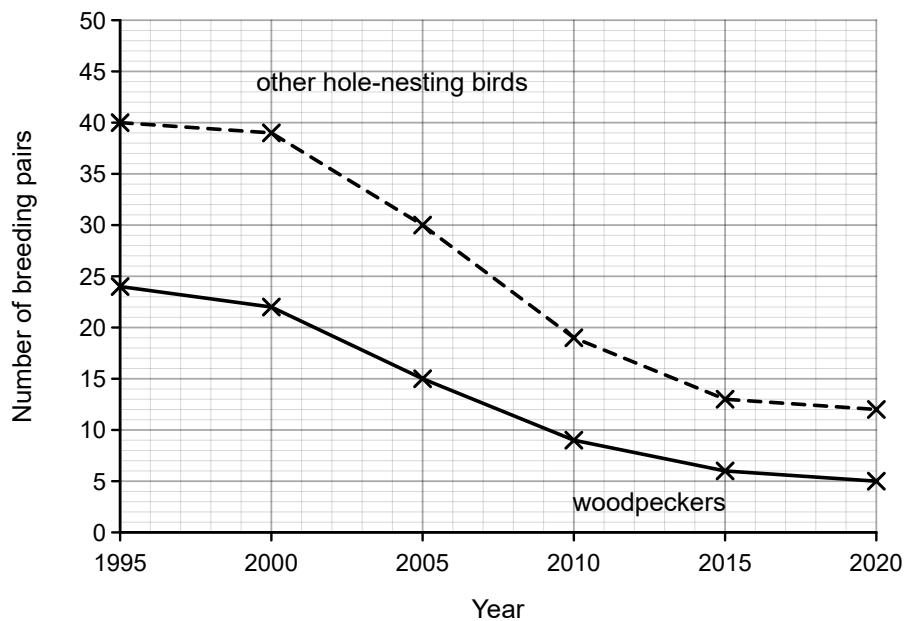
[2 marks]

0 3

In a forest, a species of woodpecker makes a new nest hole in a dead tree every year. Several other species of bird, such as nuthatches, cannot make their own holes. They nest in old woodpecker holes.

From 2000, many dead trees were removed from the forest. Figure 1 shows the numbers of breeding pairs of woodpeckers and of the other hole-nesting birds in the forest.

Figure 1



0 3 . 1

Give the number of breeding pairs of woodpeckers in 2010.

.....

.....

.....

Number of pairs =

[1 mark]

0 3 . 2

Calculate the percentage decrease in the number of pairs of other hole-nesting birds between 1995 and 2020.

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.....

.....

.....

Percentage decrease = %

[2 marks]

0 3 . 3

Explain why the number of other hole-nesting birds decreased.

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[2 marks]

0 3 . 4

Suggest **one** way that the people who manage the forest could help the hole-nesting birds.

.....

.....

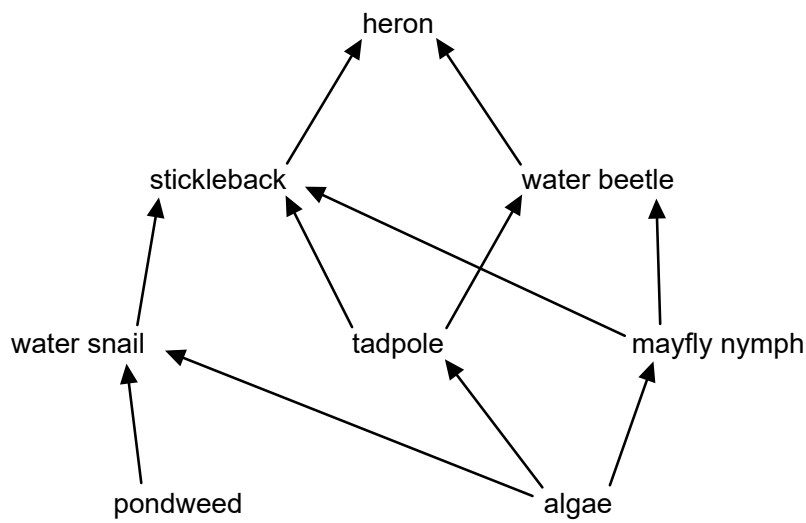
[1 mark]

.....

0 4

Figure 2 shows a food web in a pond.

Figure 2



0 4 . 1

Name **one** producer in the food web.

.....

.....

.....

[1 mark]

0 4 . 2

A disease killed most of the water snails.
Explain how this could affect the number of sticklebacks.

.....

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.....

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[2 marks]

0 4 . 3

Suggest why the number of mayfly nymphs might also decrease after the disease killed most of the snails.

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[2 marks]

0 4 . 4

Use the food web to explain what is meant by **interdependence**.

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[2 marks]

0 5

In a tropical rainforest, the tallest trees form a dense layer of leaves, called the canopy, about 40 m above the ground. Only about 2% of the light that reaches the canopy reaches the forest floor.

0 5 . 1

Suggest **two** factors that plants growing on the forest floor compete for.

.....

.....

.....

.....

[2 marks]

0 5 . 2

Epiphytes are plants that grow on the branches of tall trees. Their roots do not reach the soil.
Suggest **one** advantage and **one** disadvantage to an epiphyte of growing on a branch.

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.....

[2 marks]

0 5 . 3

When a large tree falls, it leaves a gap in the canopy. Thousands of seedlings start to grow in the gap, but only one or two of them grow into large trees.
Explain why.

.....

.....

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.....

[3 marks]

END OF QUESTIONS

Original practice questions written to match the specification. Not produced by, affiliated with or endorsed by AQA.

Mark scheme

GCSE Combined Science: Trilogy · Worksheet: Communities · 31 marks

Question 1 (5 marks)

01.1 [1 mark]

Answer: individual organism → population → community → ecosystem

- individual organism, population, community, ecosystem (1)
-

01.2 [3 marks]

Answer: population; community; ecosystem

- population (1)
 - community (1)
 - ecosystem (1)
-

01.3 [1 mark]

Correct: Each species in a community depends on other species for things such as food, shelter, pollination and seed dispersal.

Question 2 (6 marks)

02.1 [1 mark]

Correct: Community

02.2 [1 mark]

Correct: The interaction of a community of living organisms with the non-living parts of their environment

02.3 [2 marks]

- light (1)
- space (1)
- water (1)
- mineral ions (1)

Any 2 of the points above.

Notes: Allow minerals. Do not accept food or nutrients.

02.4 [2 marks]

- food (1)
- mates (1)
- territory (1)
- water / shelter (1)

Any 2 of the points above.

Question 3 (6 marks)

03.1 [1 mark]

Answer: 9

- 9 (1)

03.2 [2 marks]

Answer: 70%

- $(40 - 12) \div 40 \times 100$ (1)
- 70 (%) (1)

03.3 [2 marks]

- fewer dead trees, so there were fewer woodpeckers / fewer new holes were made (1)
- so there were fewer nesting sites (less shelter) for the other birds, so fewer of them could breed (1)

03.4 [1 mark]

- leave some dead trees standing (1)
- put up nest boxes (1)

Any 1 of the points above.

Question 4 (7 marks)

04.1 [1 mark]

Answer: Pondweed or algae

- pondweed / algae (1)

04.2 [2 marks]

- sticklebacks have less food / fewer snails to eat, so their number could decrease (1)
- (but) sticklebacks could eat more tadpoles / mayfly nymphs instead, so the decrease may be small / the number may stay the same (1)

04.3 [2 marks]

- sticklebacks have fewer snails to eat (1)
- (so) sticklebacks eat more mayfly nymphs (1)

04.4 [2 marks]

- species in a community depend on other species (for food / shelter etc.) (1)
 - if one species is removed / changes in number, it affects other species, e.g. herons depend on sticklebacks and water beetles for food (1)
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Question 5 (7 marks)

05.1 [2 marks]

- light (1)
- space (1)
- water (1)
- mineral ions (from the soil) (1)

Any 2 of the points above.

Notes: Do not accept 'food' or 'nutrients'.

05.2 [2 marks]

- advantage: it receives more light / has less competition for light, so it can photosynthesise more (1)
- disadvantage: it cannot obtain water or mineral ions from the soil (1)

05.3 [3 marks]

- the seedlings compete for light, water, mineral ions and space (1)
- the fastest-growing / tallest seedlings get the most light and shade the others (1)
- shaded seedlings cannot photosynthesise enough, so they grow slowly and die (1)
- so only the most successful competitors survive to become large trees (1)

Any 3 of the points above.
