B4.2 Ecological niches

What the Cell · DP Biology · worksheet · SL statements B4.2.1–13

Name _____ **Date** _____ **Total** _____ / 48

About 50 minutes, or one section at a time. The number of marks shows how many separate points to make.

Section A: Recall

10 marks

1 **Define** ecological niche. B4.2.1 **[1]**

2 **State** the type of organism that cannot tolerate oxygen. B4.2.2 **[1]**

3 **Name** three groups of organisms that photosynthesize. B4.2.3 **[1]**

4 **List** the stages of holozoic nutrition, in order. B4.2.4 **[2]**

5 **Name** one mixotrophic protist. B4.2.5 **[1]**

6 **State** two ways in which a plant can resist herbivores. B4.2.9 **[2]**

7 **State** two possible outcomes when two species compete for one niche. B4.2.13 **[2]**

Section B: Understanding

17 marks

8 **Distinguish** between a habitat and a niche. B4.2.1 **[2]**

9 **Describe** saprotrophic nutrition, and explain its importance to an ecosystem. B4.2.6 **[3]**

10 **Outline** the diversity of nutrition in archaea. B4.2.7 [3]

11 **Explain** how an aphid obtains its food. B4.2.9 [3]

12 **Compare and contrast** a liana and an epiphyte. B4.2.11 [3]

Liana	Epiphyte

13 **Suggest** one chemical, one physical and one behavioural adaptation in prey animals. B4.2.10 [3]

Section C: Working with data

15 marks

Data in question 14 are invented for practice, using the pattern in Gause's experiments. Data in question 15 are approximate.

14 B4.2.12, B4.2.13

Two species of Paramecium were grown separately, and then together in one flask.

Day	0	4	8	12	16
Species A, alone / cells per cm^3	5	60	180	200	200
Species B, alone / cells per cm^3	5	40	110	130	130
Species A, together	5	50	140	185	195
Species B, together	5	30	40	15	2

a **Describe** the changes in numbers of species B when grown together with A. [2]

b **Deduce** what these data show about the niches of the two species. [2]

c **State** the principle shown by these data. [1]

d **Suggest** what might have happened if the flask had two separate regions with different food. [2]

15 B4.2.8

Feature	Homo sapiens	Paranthropus robustus
Molar surface area / mm^2	About 100	About 200
Enamel	Thinner	Very thick
Jaw muscles	Smaller	Very large

a **Deduce** the diet of Paranthropus robustus, giving two reasons. **[3]**

b **Explain** why smaller teeth in Homo sapiens fit an omnivorous diet. **[2]**

c **Suggest** a limitation of inferring diet from teeth alone. **[1]**

d **State** one advantage of using digital models of fossils. **[2]**

Section D: Longer answer

6 marks

16 **Explain** how different modes of nutrition allow many species to live in one ecosystem. B4.2.1, B4.2.3–6 **[6]**