B4.1 Adaptation to environment

What the Cell · DP Biology · worksheet · SL statements B4.1.1–8

Name _____ **Date** _____ **Total** _____ / 40

About 40 minutes, or one section at a time. The number of marks shows how many separate points to make.

Section A: Recall

7 marks

1 **Define** habitat. B4.1.1 **[1]**

2 **State** two abiotic variables that affect the distribution of animals. B4.1.3 **[2]**

3 **List** three conditions required for coral reefs to form. B4.1.5 **[3]**

4 **Name** the two climate factors that decide land biomes. B4.1.6 **[1]**

Section B: Understanding

14 marks

5 **Explain** two adaptations of a grass species to life on sand dunes. B4.1.2 **[4]**

6 **Explain** how mangrove trees survive in waterlogged, salty soil. B4.1.2 **[3]**

7 **Explain** why biomes on different continents have similar communities. B4.1.7 **[3]**

8 **Compare and contrast** adaptations to hot deserts and tropical rainforests, using named species. B4.1.8 **[4]**

Hot desert	Tropical rainforest

Section C: Working with data

13 marks

All data in this section are invented for practice. The patterns are realistic.

9 B4.1.4

A transect was run from open grass into a wood. At each point, light was measured and a shade plant was counted in a quadrat.

Distance / m	0	5	10	15	20	25
Light / klx	40	32	18	9	4	1
Number of plants	0	1	6	14	9	2

a **Describe** how numbers of the plant change as light falls. **[2]**

b **Estimate** the optimum light level and the range of tolerance. **[2]**

c **Suggest** a reason why the plant is rare at 25 m. **[1]**

d **Explain** why these data do not prove that light controls the distribution. **[2]**

10 B4.1.6, B4.1.7

Climate data for three sites are shown.

Site	Mean temperature / °C	Rainfall / mm per year
P	26	2800
Q	−10	200
R	27	100

a **Identify** the likely biome at each site. **[3]**

b **Explain** why trees are absent at site Q. **[2]**

c **Suggest** why few plants grow at site R. **[1]**

Section D: Longer answer

6 marks

11 **Explain** how abiotic factors determine where coral reefs can form, and how coral reefs depend on a relationship between two organisms. **[6]** B4.1.3, B4.1.5