D3.1 Reproduction in plants

What the Cell · DP Biology · worksheet · plant statements D3.1.8–12

Name _____ **Date** _____ **Total** _____ / 36

About 35 minutes, or one section at a time. A calculator is allowed. The number of marks shows how many separate points to make.

Section A: Recall

7 marks

1 **State** the function of the stigma. D3.1.9 **[1]**

2 **State** what a pollen tube delivers, and where. D3.1.8 **[2]**

3 **Define** cross-pollination. D3.1.10 **[1]**

4 **State** two external conditions needed for germination. D3.1.12 **[2]**

5 **State** the plant growth substance produced by the embryo during germination. D3.1.12 **[1]**

Section B: Understanding

15 marks

6 **Distinguish** between pollination and fertilization. D3.1.8 **[2]**

7 **Draw** a half-flower of an insect-pollinated plant, with five parts labelled. D3.1.9 **[5]**

8 **Outline** two methods that promote cross-pollination. D3.1.10 **[2]**

9 **Explain** how self-incompatibility maintains genetic variation in a species. D3.1.11 **[3]**

10 **Explain** why it is an advantage for a seed to be dispersed away from its parent. D3.1.12 **[3]**

Section C: Working with data

14 marks

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

11 D3.1.12

Five dishes of 50 cress seeds were kept for 5 days under different conditions. The number that germinated was counted.

Dish	Conditions	Germinated	Germination / %
A	Moist, 22 °C, air	46	
B	Dry, 22 °C, air	0	
C	Moist, 4 °C, air	3	
D	Moist, 22 °C, no oxygen	1	
E	Moist, 22 °C, air, dark	45	

a **Calculate** the percentage germination for dishes A and C. **[2]**

b **Explain** the result for dish C. **[2]**

c **Explain** the result for dish D. **[2]**

d **Deduce** what dishes A and E show about the need for light. **[1]**

e **Suggest** why germination in dish A did not reach 100%. **[1]**

12 D3.1.12

The dry mass of 10 pea seedlings, grown in the dark, was measured over 10 days.

Day	**0**	**2**	**4**	**6**	**8**	**10**
Dry mass / g	2.50	2.42	2.30	2.15	2.05	2.00

a **Calculate** the percentage decrease in dry mass from day 0 to day 10. **[2]**

b **Explain** the decrease. **[2]**

c **Predict** what would happen after day 10 if the seedlings were moved into the light. **[2]**

What the Cell. Original questions written for this course.