

# Tropic responses: practice questions

5 questions • 14 marks • mark scheme at the back

For Cambridge IGCSE Biology 0610 (and 0970, which has the same content). **Supplement** is Extended content, only examined on Papers 2 and 4.

Name .....

Total ..... / 14

- 1** A seedling is placed on its side in the dark. After some days the root grows downwards. [1 mark]  
Which statement describes this response?

- A. ☐ Growth away from gravity  
B. ☐ Growth towards light  
C. ☐ Growth towards gravity  
D. ☐ Growth away from light

- 2** Define the term phototropism. [2 marks]

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- 3** **Supplement** [4 marks]  
Light shines on a shoot from one side only. Explain why the shoot grows towards the light.

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- 4** A student investigates phototropism in cress seedlings. Describe how the student could carry out the investigation and state two variables that should be kept the same. [4 marks]

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Supplement

[3 marks]

A potted plant is laid on its side in the dark. After two days the shoot has bent upwards.  
Explain this response.

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# Mark scheme

One mark for each point unless a maximum is given. Words in brackets are not needed for the mark.

1. [1]

C C (1)

2. [2]

- a response in which parts of a plant grow (1)
- towards or away from the direction of the light source (1)

3. [4] **Supplement**

- auxin is made in the shoot tip (1)
- auxin diffuses down the shoot (1)
- auxin is unequally distributed: more auxin on the shaded side (1)
- auxin stimulates cell elongation (1)
- cells on the shaded side elongate more so the shoot bends towards the light (1)
- Max 4

4. [4]

- grow seedlings in a box / container with a hole or slit so light comes from one side only (1)
- have a control set with light from all sides, or in the dark (1)
- leave for several days and observe / measure the direction of growth (1)
- same species / age / height of seedlings (1)
- same temperature / volume of water / light intensity (1)
- Max 4

5. [3] **Supplement**

- auxin is unequally distributed: more on the lower side of the shoot (1)
- auxin stimulates cell elongation, so cells on the lower side elongate more (1)
- shoot bends upwards / away from gravity (1)