

# 14.5 Tropic responses

Name: \_\_\_\_\_ Class: \_\_\_\_\_ Date: \_\_\_\_\_

Total: 7 marks

## Objective

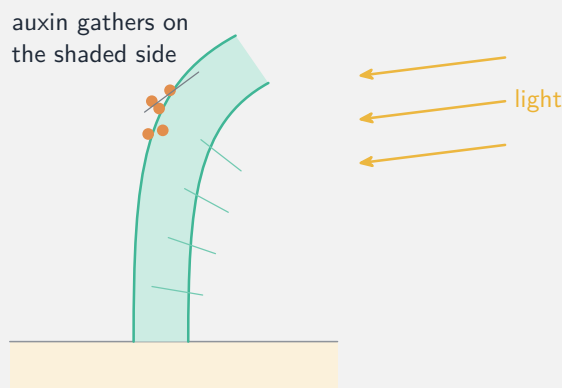
Build the skills to answer exam questions on **tropic responses** 向性反应—**phototropism** 向光性 and **gravitropism** 向地性, and the role of **auxin** 生长素.

You must be able to:

- define phototropism and gravitropism
- describe how auxin controls a shoot's response to light
- predict the direction of growth

## 1 Worked examples

### ■ Phototropism and auxin



cells on the shaded side grow longer, so the shoot bends towards the light

*Auxin from the tip gathers on the shaded side; those cells grow longer, so the shoot bends to the light*

- **phototropism:** growth towards light (shoots positive). **gravitropism:** roots down, shoots up.
- auxin made in the shoot tip; it makes cells elongate.

## 2 Practice

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**2.1** Define phototropism. [1]

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**2.2** State the direction a root grows in response to gravity. [1]

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### 3 Exam-style questions

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**3.1** A shoot lit from one side bends towards the light because auxin: [1]

- **A** is destroyed by light
  - **B** gathers on the shaded side and makes those cells grow longer
  - **C** stops the shoot growing
  - **D** gathers on the lit side
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**3.2** Auxin controls phototropism.

(a) State where auxin is made. [1]

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(b) Explain how unequal auxin makes a shoot bend towards the light. [3]

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### 4 Go further

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You are now ready for the real exam questions on this subtopic. Open the **14.5 Tropic responses** past-paper sheet in the Library, or try these in **Practice mode**:

- 0610/22 N25 —Q21 (tropisms)
- 0610/23 N25 —Q25 (phototropism / auxin)

## Solutions

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**2.1** a plant's growth response towards (or away from) the direction of light.

**2.2** downwards (towards gravity).

**3.1 B.** Auxin gathers on the shaded side and makes those cells grow longer.

**3.2** (a) in the shoot tip.

(b) light makes auxin spread to the shaded side; auxin makes those cells elongate (grow longer); so the shaded side grows faster and the shoot bends towards the light.