

Plant Hormones

GCSE Biology · Written to the shared content for AQA, Edexcel and OCR

Name _____ Class _____ Date _____

1. Worked example

Describe what is meant by phototropism and gravitropism. (2 marks)

Step 1 · Phototropism

A growth response to light: shoots grow towards light.

Step 2 · Gravitropism (geotropism)

A growth response to gravity: roots grow downwards, shoots upwards.

Answer: Growth responses to light and to gravity

Check: Positive = towards the stimulus; negative = away.

2. Now try one with the steps

Explain how auxin causes a shoot to bend towards light. (3 marks)

Step 1 · Unequal distribution

Step 2 · Effect in shoots

Step 3 · Result

Answer:

3. Practice

Show your working. The marks tell you how much is expected.

1. Name the plant hormone that controls phototropism and gravitropism. [1]

2. Which way do shoots grow in response to light? [1]

3. Which way do roots grow in response to gravity? [1]

4. Suggest why it is an advantage for shoots to grow towards light. [2]

5. Suggest why it is an advantage for roots to grow downwards. [2]
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6. Describe the effect of auxin on cells in shoots and in roots. [2]
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7. Seedlings grew 18, 20, 22, 19 and 21 mm. Calculate the mean. [1]
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8. A seedling grew from 8 mm to 30 mm. Calculate the percentage increase in length. [2]
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9. Explain how auxin makes a horizontal root bend downwards. [3]
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10. Give one use of auxins in agriculture or horticulture. [1]
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11. Give two uses of gibberellins. [2]
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12. Explain why auxin selective weed killers kill broad-leaved weeds but not grass. [2]
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13. Explain why gibberellins are used in brewing. [2]
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14. Explain why a shoot tip covered with foil does not bend towards light. [2]
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4. Before you hand it in

"Auxin makes all cells grow faster."

Auxin STIMULATES elongation in shoots but INHIBITS it in roots.

"The shoot bends because the lit side grows faster."

Auxin builds up on the SHADED side, which elongates more, bending the shoot towards light.

"Plants have nerves to sense light."

Plant responses are coordinated by hormones such, not a nervous system.