14.5 Tropic responses

01. 0610_m21_qp_22 Q: 27

Auxin is a chemical produced by plants. It controls plant growth.

Which statement about auxin is correct?

A Auxin affects the cells only where it is made.

B Auxin is equally distributed in response to light from one direction.

C Auxin elongates the cells in the shoot tip.

D Auxin is made in the shoot tip.

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02. 0610_s21_qp_21 Q: 28

Which statements about auxin are correct?

1 Auxin is made in all cells in plants.

2 Auxin causes cells to elongate.

3 Auxin moves between the cells by osmosis.

4 Auxin is unequally distributed.

A 1 and 3 **B** 1 and 4 **C** 2 and 3 **D** 2 and 4

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03. 0610_s21_qp_22 Q: 28

The diagram shows a plant next to a window.

Which statement explains the plant shoot's growth?

A There is a higher concentration of auxin in the cells on the shaded side of the shoot. This prevents cell elongation.

B There is a higher concentration of auxin in the cells on the shaded side of the shoot. This stimulates cell elongation.

C There is a lower concentration of auxin in the cells on the shaded side of the shoot. This prevents cell elongation.

D There is a lower concentration of auxin in the cells on the shaded side of the shoot. This stimulates cell elongation.

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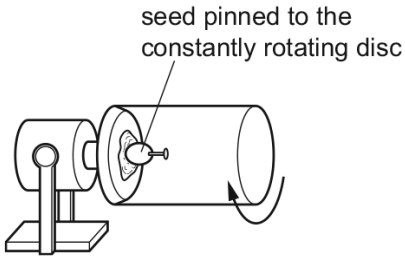
04. 0610_w21_qp_21 Q: 28

A seed is placed and grown on a rotating disc, as shown.



Which diagram shows the appearance of the seedling shoot after seven days?

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05. 0610_m20_qp_22 Q: 28

The diagram shows a shoot growing towards light.

Which statement about the role of auxin in phototropism is correct?

A Auxin will move to the dark side of the shoot and cause cells to elongate.

B Auxin will move to the dark side of the shoot and prevent cells from elongating.

C Auxin will move to the light side of the shoot and cause cells to elongate.

D Auxin will move to the light side of the shoot and prevent cells from elongating.

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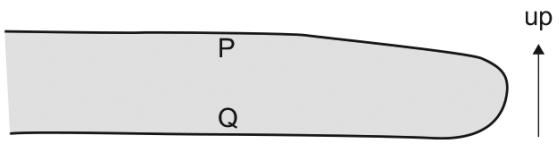
06. 0610_p20_qp_20 Q: 23

The diagram shows a shoot that has been placed on its side. The shoot begins to grow upwards.



What causes the shoot to grow upwards?

A increased cell division by meiosis at P

B increased cell division by mitosis at P

C more cell elongation at P than Q

D more cell elongation at Q than P

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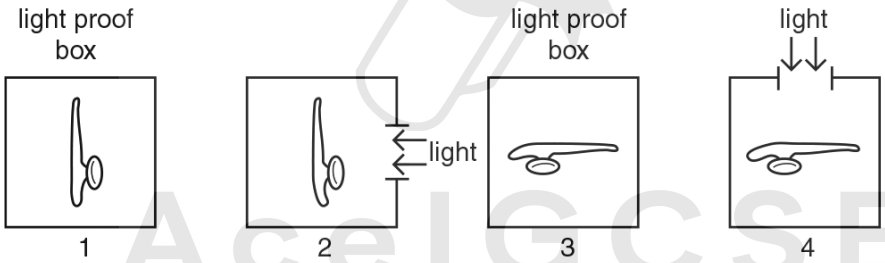
07. 0610_p20_qp_20 Q: 24

Some roots are known to be gravitropic.

Which pair of diagrams show a controlled experiment to find out if these roots are also phototropic?



A 1 and 2

B 1 and 3

C 2 and 3

D 2 and 4

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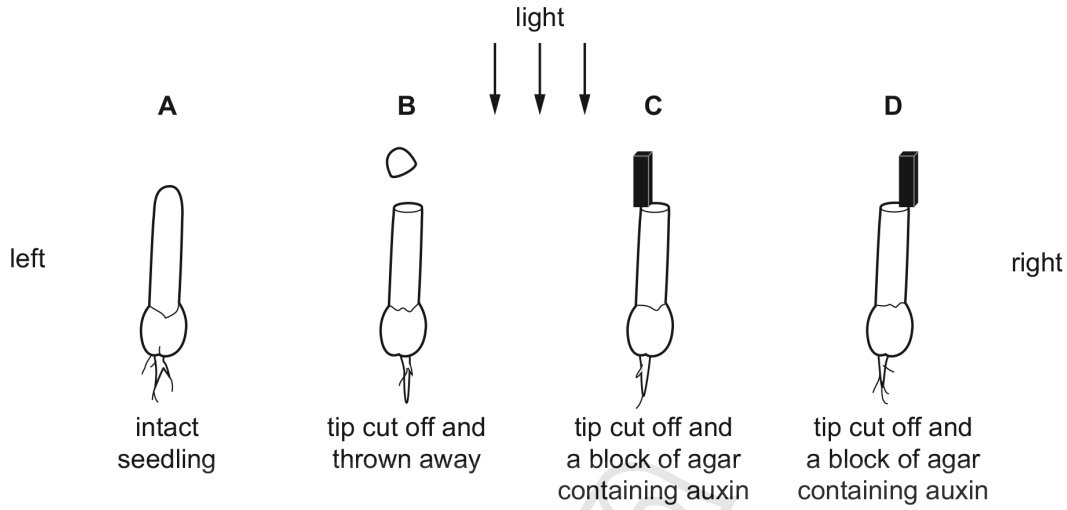
08. 0610_m19_qp_22 Q: 27

The diagram shows an experiment on oat seedlings. All the seedlings are exposed to light from directly above.

Which seedling will grow to the left?



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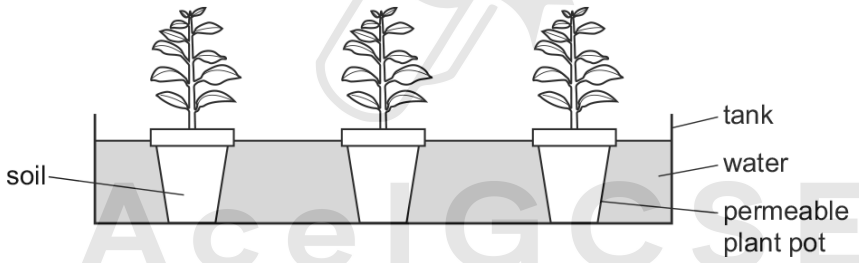
09. 0610_s19_qp_21 Q: 22

Potted plants are left for a week in a tank of water as shown.



Why do the plants die?

A The roots do not have enough oxygen.

B The roots do not have enough water.

C The roots have too much oxygen.

D The roots have too much carbon dioxide.

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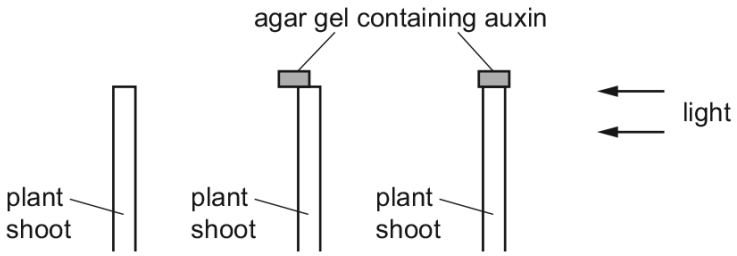
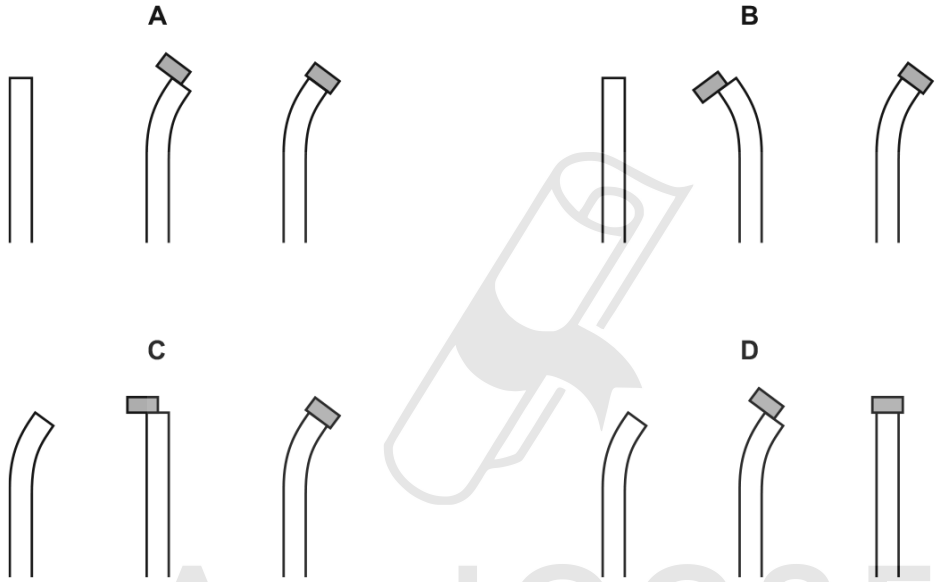
10. 0610_s19_qp_22 Q: 27

Three plant shoots have their tips removed. Two of the shoots have a piece of agar gel placed on them, as shown in the diagram. The agar gel contains auxin. The shoots are exposed to light coming from one direction.

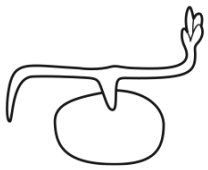


What is the appearance of the shoots after two days?



11. 0610_w19_qp_22 Q: 24

The diagram shows the shoot and root of a seedling responding to gravity.



Which row shows where the auxin accumulates and the effect of this in the shoot?

	accumulates	effect
A	lower surface	inhibits cell elongation
B	lower surface	promotes cell elongation
C	upper surface	inhibits cell division
D	upper surface	promotes cell division

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12. 0610_w19_qp_23 Q: 24

In a plant shoot, where is auxin made and what is its effect?

	where made	effect
A	leaves	promotes cell division
B	leaves	promotes cell elongation
C	shoot tip	promotes cell division
D	shoot tip	promotes cell elongation

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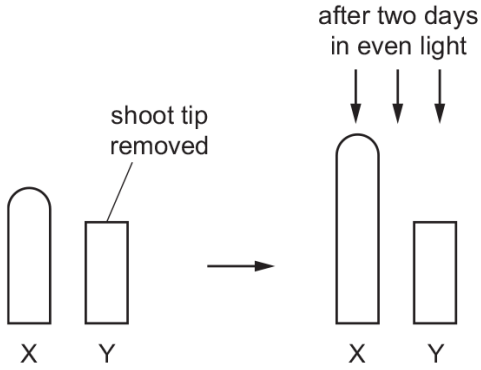
13. 0610_m18_qp_22 Q: 22

The diagram shows an experiment using wheat shoot tips to investigate plant growth.



Which statement is supported by the evidence provided by this experiment?

A Auxin moves through the plant by osmosis.

B Auxin is made in the shoot tip.

C Auxin is unequally distributed in response to light.

D Auxin inhibits cell elongation.

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14. 0610_s18_qp_21 Q: 26

A seedling was placed in a horizontal position.

Which diagram shows the result of the gravitropic responses in the seedling?

A

B

C

D

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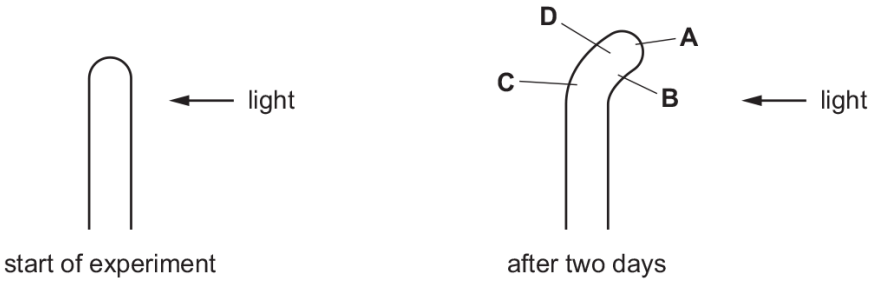
15. 0610_s18_qp_23 Q: 26

In an experiment to investigate phototropism, a plant shoot is grown with light coming from one side only.

After two days, in which region has the greatest rate of growth occurred?

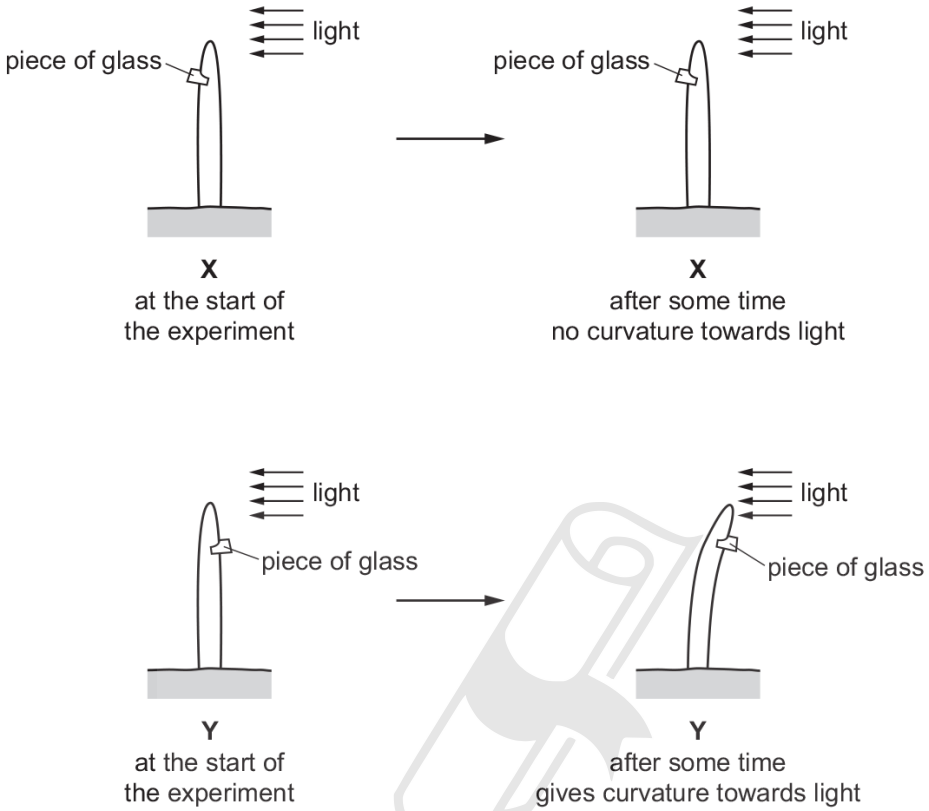


start of experiment after two days

16. 0610_w18_qp_21 Q: 24

A student used two seedlings X and Y to investigate phototropism.

The diagram shows their investigation.



Which statement explains the difference in results between **X** and **Y**?

A The piece of glass destroyed the auxin on the shaded side of the seedling.

B The piece of glass destroyed the auxin on the side of the seedling facing the light.

C The piece of glass in **X** stopped the auxin travelling down the shaded side of the seedling.

D The piece of glass in **X** stopped the auxin travelling down the side of the seedling facing the light.

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17. 0610_s17_qp_23 Q: 25

What is meant by the term *phototropism*?

A absorbing mineral ions using light energy

B directional growth in response to gravity

C directional growth in response to light

D making food using light energy

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18. 0610_w17_qp_22 Q: 24

Which row shows the function of rod cells?

	have greater sensitivity to light	give colour vision
A	✓	✓
B	✓	✗
C	✗	✓
D	✗	✗

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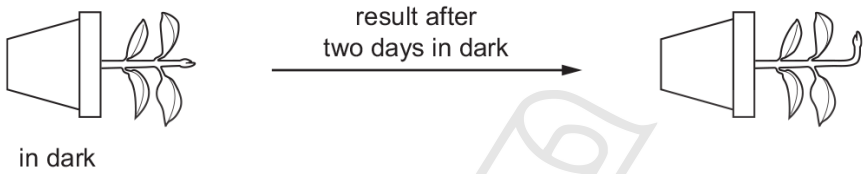
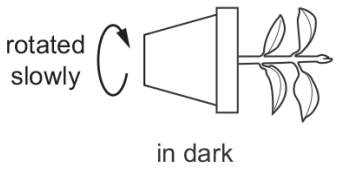
19. 0610_m16_qp_22 Q: 28

The diagram shows an experiment to investigate the response of a plant stem to gravity.

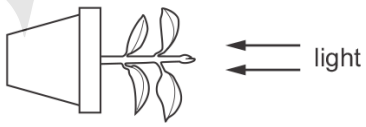


What is a suitable control for this experiment?

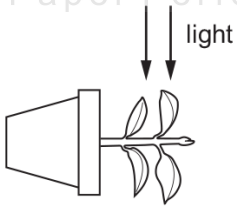
A



B



C



D

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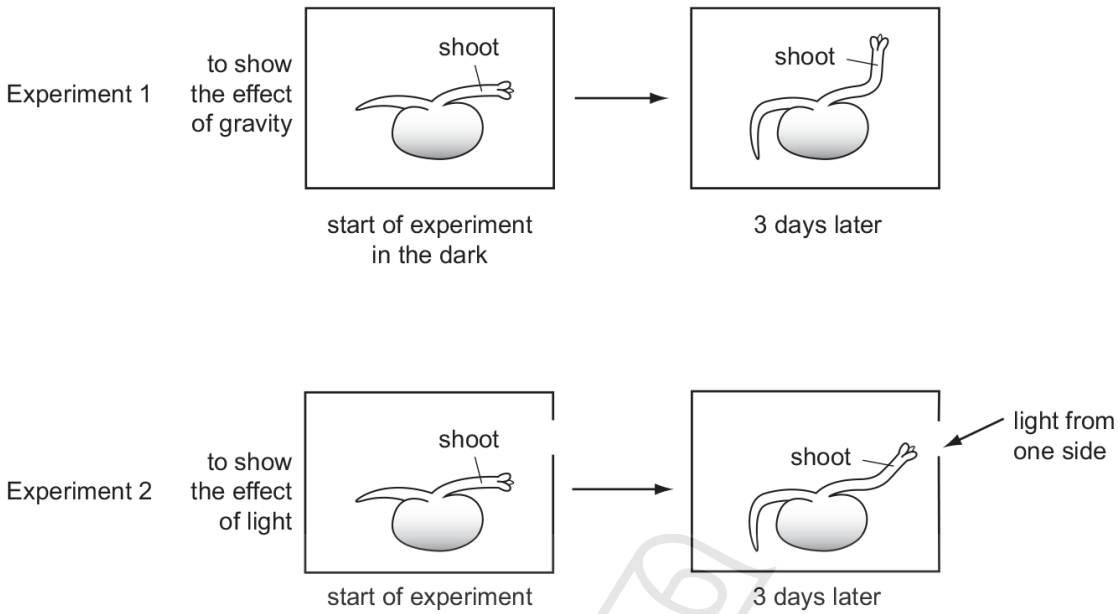
20. 0610_w16_qp_21 Q: 27

The diagram shows seedlings in two experiments on the tropic response of seedlings to gravity and light.



How have the seedlings responded?

	to gravity	to light
A	✓	✓
B	✓	✗
C	✗	✓
D	✗	✗

key

✓ = tropic response shown

✗ = no tropic response shown

SN	Paper	Q. No.	Answer
01	0610_m21_qp_22	27	D
02	0610_s21_qp_21	28	D
03	0610_s21_qp_22	28	B
04	0610_w21_qp_21	28	A
05	0610_m20_qp_22	28	A
06	0610_p20_qp_20	23	D
07	0610_p20_qp_20	24	A
08	0610_m19_qp_22	27	D
09	0610_s19_qp_21	22	A
10	0610_s19_qp_22	27	A
11	0610_w19_qp_22	24	B
12	0610_w19_qp_23	24	D
13	0610_m18_qp_22	22	B
14	0610_s18_qp_21	26	C
15	0610_s18_qp_23	26	C
16	0610_w18_qp_21	24	C
17	0610_s17_qp_23	25	C
18	0610_w17_qp_22	24	B
19	0610_m16_qp_22	28	A
20	0610_w16_qp_21	27	A