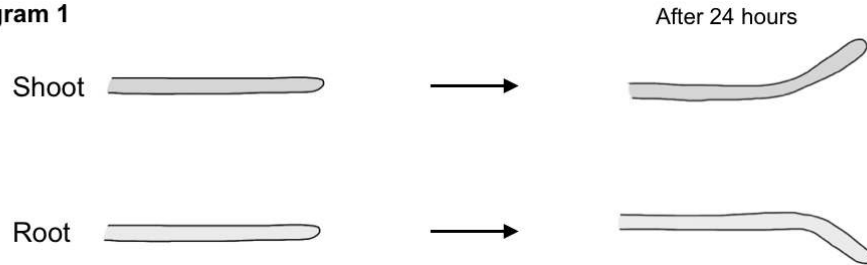


0 1

Plants have hormones which help them to grow. Auxins are hormones that control the direction of growth of roots and shoots

The diagram below shows the effect of auxins on a root and a shoot

Diagram 1



0 1

1

Describe the effect of auxins in roots and shoots which causes the changes shown in the diagram [2 marks]

Roots

Auxin inhibits or slows growth [1]

WARNING : Be careful not to say auxin causes growth, because the shoot is already growing. The auxin changes the growth rate

Shoots

Auxin stimulates or increases growth [1]

0 1

2

Another effect observed in shoots is called phototropism. Phototropism is the response of shoots to light. The diagram shows the effect of light on a shoot

Diagram 2



Explain how the interaction of auxin and light causes the effect shown in Diagram 2. [3 marks]

The auxin or hormone [1]

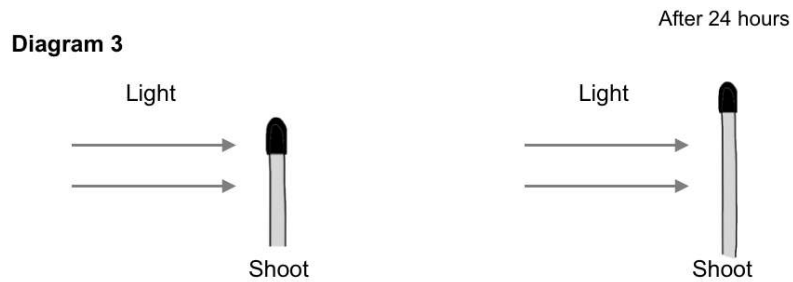
has uneven or unequal distribution. [1]

More hormone on dark side or side with no/less light [1]

stimulates or increases growth on dark side. [1]

0	1	.	3
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In another experiment, a shoot was set up in the same way as Diagram 2. In addition, a small cap was added to the tip of the shoot. Diagram 3 shows the results of the experiment.



What conclusion can be drawn about the part of the shoot that detects the light?

[1 mark]

light detected in the tip or top (of the shoot) [1]

0	1	.	4
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Suggest why the conclusion might not be accepted based on the experiment being carried out as shown in **Diagram 3**.

[1 mark]

Not enough repeats or more shoots needed or the experiment should be done more times or a named number of times (more than 3) [1]

TOP TIP : you could also say that you need a 'control' shoot as a comparison.