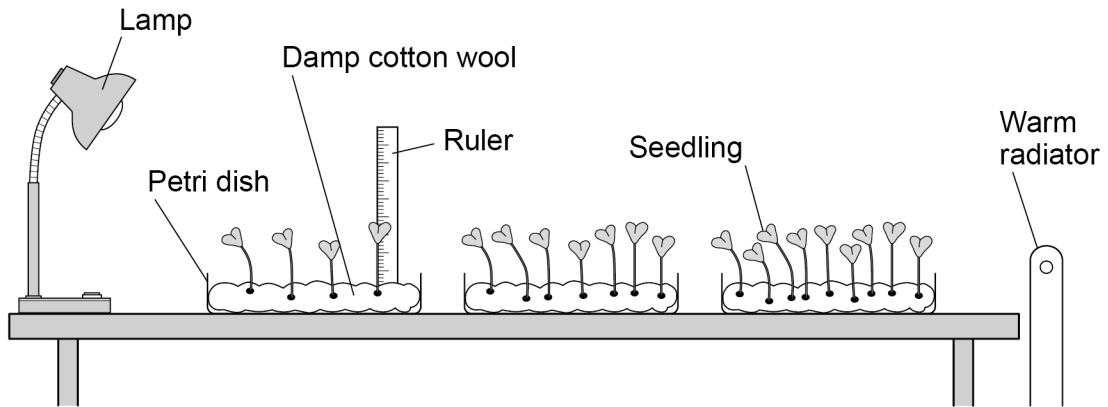


0 2

A student investigated the effect of light intensity on the growth of seedlings.

Figure 2 shows the equipment.

Figure 2



0 2 . 1

Which **two** improvements should the student make to the investigation?

[2 marks]

Tick (✓) **two** boxes.

Give more water to the seedlings nearest the lamp

Leave some of the seedlings for a few more days

Open a window to let more air in

Put all the dishes the same distance from the radiator

Use equal numbers of seedlings in each dish



**0 2 . 2** What is the dependent variable in the investigation?

**[1 mark]**

Tick (✓) **one** box.

The height of the seedlings

The mass of cotton wool

The temperature of the room

**0 2 . 3** In each dish the seedlings compete with each other.

Give **two** factors the seedlings compete for.

**[2 marks]**

1 \_\_\_\_\_

\_\_\_\_\_

2 \_\_\_\_\_

\_\_\_\_\_

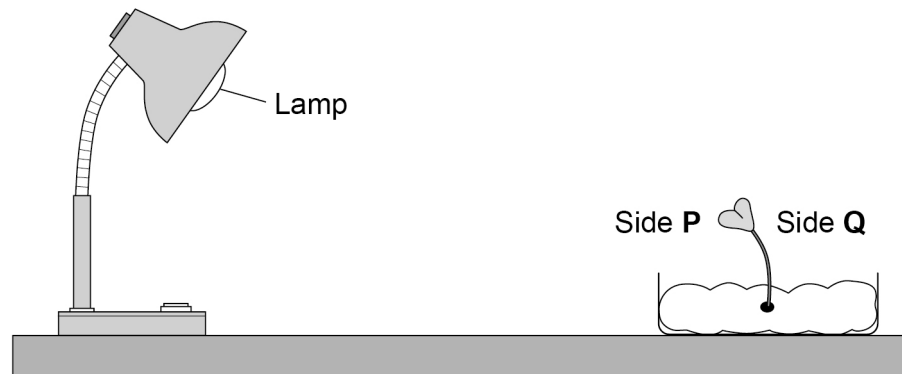
**Question 2 continues on the next page**

**Turn over ►**



Figure 3 shows a seedling growing towards a lamp.

Figure 3



0 2 . 4

What happened to the growth of the seedling on side **P** compared with the growth on side **Q**?

[1 mark]

Tick (✓) **one** box.

Side **P** has grown less than side **Q**

Side **P** has grown more than side **Q**

Side **P** has grown the same as side **Q**



**0 2 . 5** Plant responses are called tropisms.

Which tropism causes the seedling to grow towards light?

**[1 mark]**

Tick (✓) **one** box.

Geotropism

Gravitropism

Phototropism

**0 2 . 6** Which hormone causes the seedling to grow towards the light?

**[1 mark]**

Tick (✓) **one** box.

Auxin

Insulin

Testosterone

**8**

**Turn over for the next question**

**Turn over ►**



Question	Answers	Extra information	Mark	AO / Spec. Ref.
<b>02.1</b>	put all the dishes the same distance from the radiator		1	AO3 4.5.4.1 RPA8
	use equal numbers of seedlings in each dish		1	
<b>02.2</b>	the height of the seedlings		1	AO1 4.5.4.1 RPA8
<b>02.3</b>	any <b>two</b> from: <ul style="list-style-type: none"> <li>• light</li> <li>• water</li> <li>• mineral(s) / ions / salts</li> </ul>	allow nitrate / magnesium / nitrogen / nutrients  allow space ignore food ignore carbon dioxide / oxygen ignore heat	2	AO2 4.7.1.2
<b>02.4</b>	side <b>P</b> has grown less than side <b>Q</b>		1	AO3 4.5.4.1 RPA8
<b>02.5</b>	phototropism		1	AO1 4.5.4.1 RPA8
<b>02.6</b>	auxin		1	AO1 4.5.4.1
<b>Total</b>			<b>8</b>	