

6 Plants need mineral ions to ensure healthy growth.

\*(a) The optimum concentration of nitrate ions for healthy growth of *Pelargonium* plants is thought to be about 200 parts per million.



*Pelargonium*  
Magnification  $\times 0.1$

Describe how you would carry out an investigation to find the optimum concentration of nitrate ions needed for the healthy growth of *Pelargonium* plants in a laboratory.

(5)

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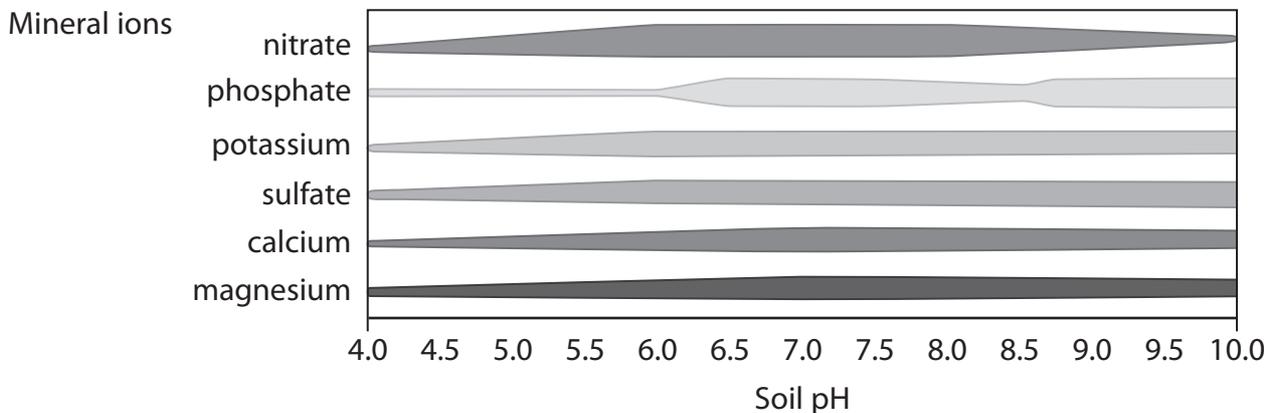
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(b) The availability of mineral ions to a plant is affected by the pH of the soil.

The chart below shows the effect of soil pH on the availability of mineral ions to plants.

The width of each bar indicates the availability of each mineral ion.



(i) Using the information from the chart, suggest the optimum soil pH for healthy growth of a plant. Give **one** reason for your answer.

(2)

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(ii) Using information from the chart, explain why a low soil pH could result in reduced photosynthetic activity by plants.

(2)

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**(Total for Question 6 = 9 marks)**

