

### Activity 6: Making a mark scheme and marking experimental planning questions

Make a CORMS mark scheme for this question.

(c) Plant growth substances stimulate root growth from a cut stem.

Describe an investigation to find the best concentration of plant growth substance to stimulate root growth.

You should include experimental details in your answer and write in full sentences.

(6)

C:

O:

R:

M1:

M2:

S1:

S2:

Use the official mark scheme to mark each of the responses.

A. I will take several oat seedlings. I will grow them so that their roots begin to develop. I will then add a range of different auxin concentrations to each of the roots. I will repeat each concentration with three plants to make it reliable. I will put the plants into soil and see how much they grow over a constant time period. I will keep everything the same, such as the amount of nutrients in the soil.

Marks:

B.

C: different auxin concentrations

O: same species

R: repeats

M: length of root in one week

S: oxygen, minerals, carbon dioxide

I will make a range of concentrations of auxin. I will then take plants of the same species (and same age) and place the different concentrations of auxin on the roots of each one. I will repeat this two more times so that there are three for each concentration. I will measure the lengths of the roots for all the plants. I will put the plants into soil with the same compost (same mineral ion concentrations-). I will measure the lengths of the roots one week later to see how much they have grown. I will keep the oxygen and carbon dioxide concentrations the same.

**Marks:**

C: Take two plants of the same species. Place the roots of one in plant hormones but not the other. The plant hormones should make the roots grow longer than the one without the hormones. This is because the plant hormones affect the speed which roots and shoots grow. The hormones used could include auxin which also affects phototropism and geotropism. I will repeat the experiment.

**Marks:**