

Plant Nutrition Leaves and Roots

KS3 Biology · Follows the national curriculum

Name _____ Class _____ Date _____

1. Worked example

Where does a plant get its food from?

Step 1 · Not the soil

Plants do not 'eat' soil. They make their own food — glucose — by photosynthesis in their leaves.

Step 2 · What does it need from outside?

Carbon dioxide from the air, water from the soil and light energy.

Step 3 · From the soil

Water and small amounts of mineral ions, taken in through the roots.

Answer: Leaves make glucose by photosynthesis; roots take in water and minerals

Check: Minerals are not food — they provide no energy.

2. Now try one with the steps

Explain how a root hair cell is adapted to absorb water.

Step 1 · Shape

Step 2 · Why it helps

Step 3 · Other features

Answer:

3. Practice

Show your working. The marks tell you how much is expected.

1. Where in a plant are carbohydrates made? [1]

2. Name TWO things a plant takes in through its roots. [2]

3. Which cells absorb most of the water from the soil? [1]

4. Which mineral is needed to make chlorophyll? [1]
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5. Which mineral is needed to make proteins for growth? [1]
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6. What do the letters N, P and K stand for on a fertiliser bag? [1]
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7. Name the tissue that carries water up from the roots to the leaves. [1]
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8. Plants turn some glucose into starch. Why is starch good for storage? [2]
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9. Plants also turn glucose into cellulose. What is cellulose used for? [1]
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10. Explain why root hair cells do not have chloroplasts. [1]
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11. A plant has yellow leaves but green veins. Which mineral is it probably short of? [1]
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12. A plant grew from 20 g to 85 g. What was its increase in mass, in g? [1]
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13. Farmers add fertilisers to fields year after year. Explain why the soil runs out of minerals. [2]
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14. Plan an investigation into whether nitrate affects growth. Give the independent and dependent variables and ONE control variable. [3]
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4. Before you hand it in

"Plants get their food from the soil."

Plants MAKE their food (glucose) by photosynthesis. The soil supplies water and minerals, not food.

"Minerals give plants energy."

Minerals are raw materials for making substances such (nitrate) and chlorophyll (magnesium).

"Fertiliser is plant food."

Fertiliser supplies mineral ions. The plant still has to make its own food by photosynthesis.