

Plants and Photosynthesis

Lesson 7- Review Lesson 1

Biology - Key Stage 3

Miss White



Fact Sheet 1- Plant Key Facts

- **Cellulose** - Plant cell walls are made of tough cellulose which support the cell and allow it to keep its shape
- **Cell Wall** - Plant cell organelle which is made of cellulose and keeps the cell firm
- **Starch** - A polymer carbohydrate that is made by joining together glucose monomers
- **Stomata** - Tiny pores in the underside of the leaf, which when open, allow gases into and out of the leaf. Singular is stoma
- **Vacuole** - Plant cell organelle which stores cell sap



Fact Sheet 2- Transport Key Facts

- **Active Transport** - Process by which roots absorb minerals from the soil using energy from respiration
- **Osmosis** - The diffusion of water from an area of high water concentration to an area of low water concentration
- **Phloem** - Plant tissue that carries dissolved sugars from the leaf around the plant
- **Transpiration** - The flow of water into the root, up the stem and out of the leaves
- **Xylem** - A long, thick-walled tube found in plants, formed from many dead cells. This tissue carries water and dissolved mineral salts through the plant



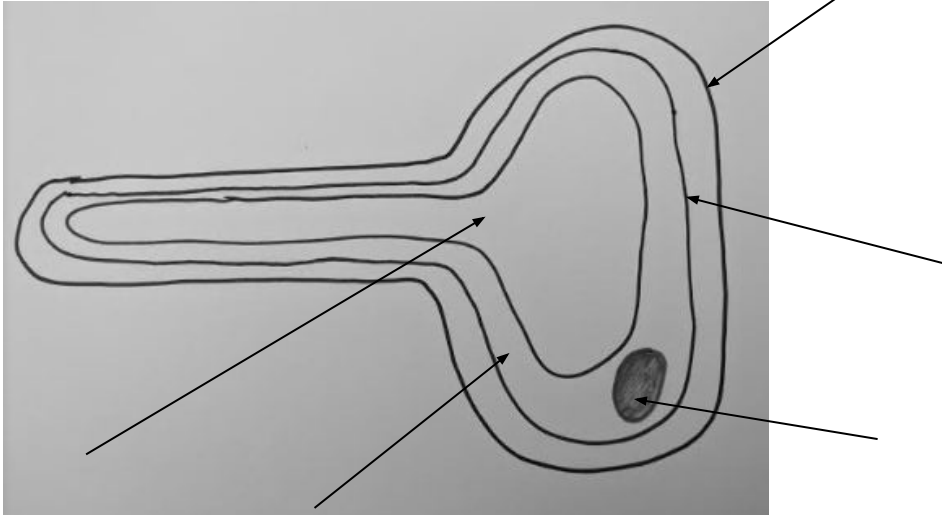
Fact Sheet 3- Photosynthesis Key Facts

- **Chloroplast** - A green disc found in plant cells where photosynthesis takes place to produce glucose and oxygen
- **Chlorophyll** - The green pigment inside chloroplasts that absorbs the energy transferred from the sun by radiation for photosynthesis
- **Glucose** - The sugar produced by photosynthesis and needed for respiration
- **Photosynthesis** - A series of reactions carried out by the green part of plants. Carbon dioxide and water combine to form glucose and oxygen. This process requires energy transferred by light



Here is a diagram of a root hair cell

Label the diagram using the key words



Cell wall
Nucleus
Cell membrane
Vacuole
Cytoplasm

Source Miss White



Plant Roots Key Questions

- 1) Name the organelle which is normally found in plant cells which is not found in root hair cells**
- 2) Explain why this organelle is not found in root hair cells**
- 3) Name two substances that are taken up by the roots**
- 4) Describe and explain two ways the root hair cell is well adapted for its job**



Answer box



Look at the table. Explain why root hair cells cannot absorb minerals by diffusion

Mineral	Concentration in the cell (ppm)	Concentration in the soil (ppm)
Potassium	4	0.2
Nitrate	25	0.7
Phosphorus	5	0.1

Name the process by which mineral ions are absorbed



Answer box



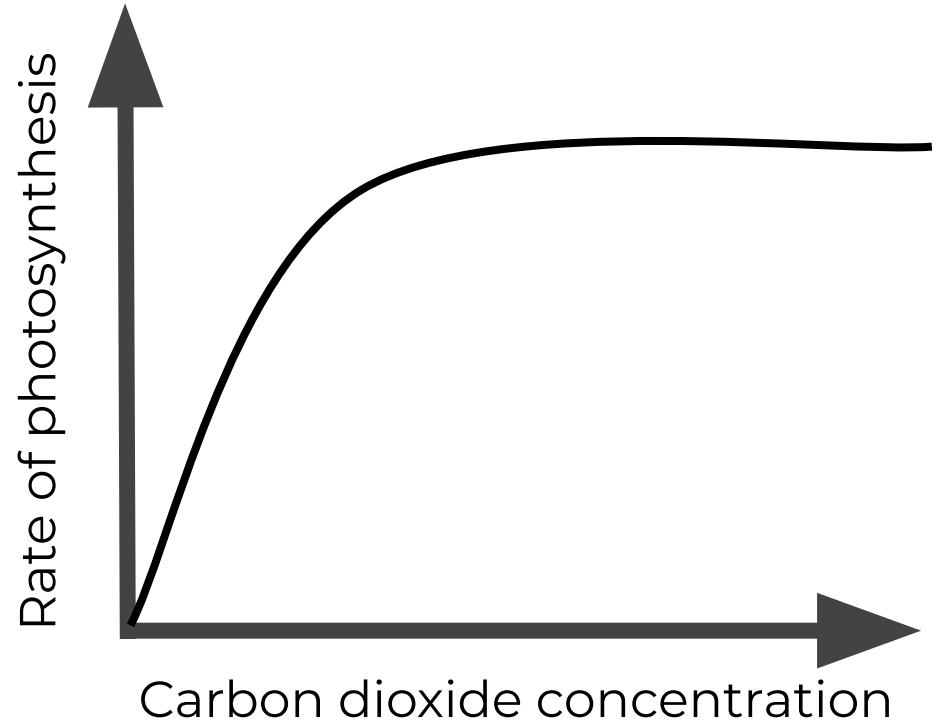
Rate of photosynthesis

Identify the independent variable

Identify the dependent variable

Describe the graph

Explain the graph



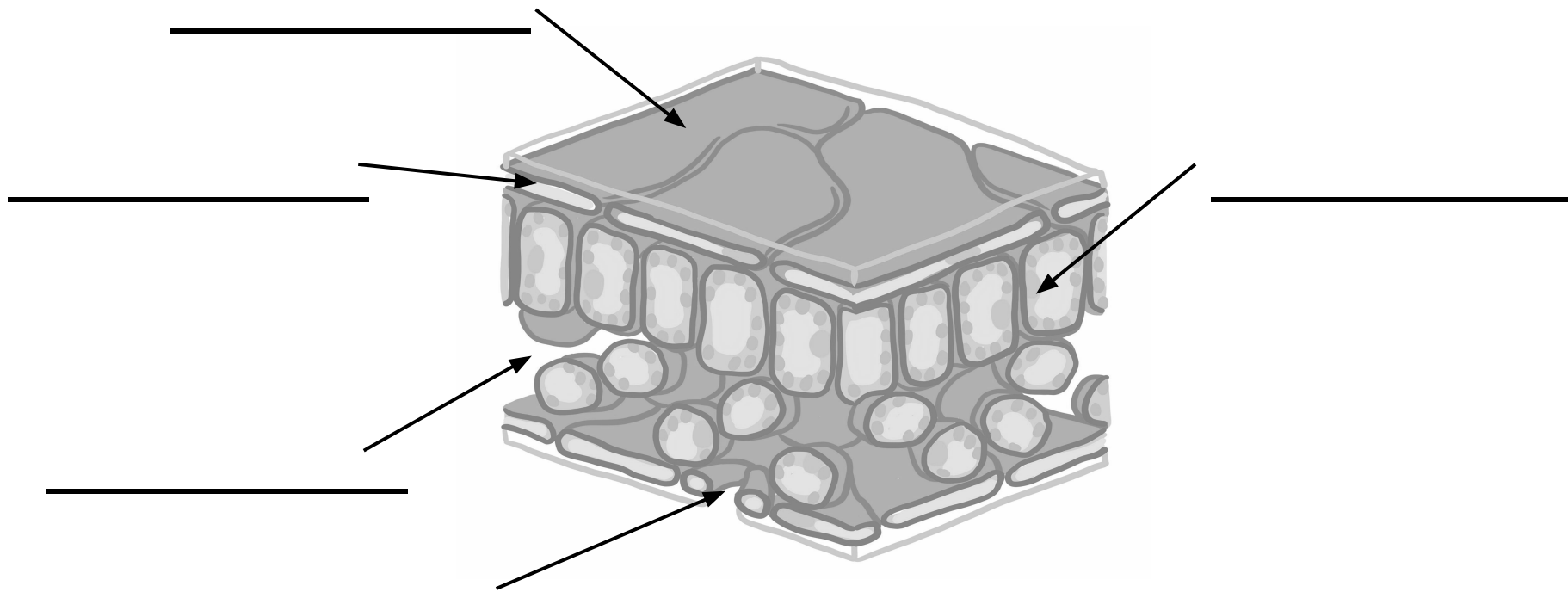
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Uses of Glucose Key Questions

- 1) Name 3 chemicals which glucose can be used to produce
- 2) Which reaction requires glucose as one of the reactants?
- 3) In which organelle does this reaction take place?
- 4) What does this reaction release?
- 5) Why is this important in the roots?





Source: Oak



Match the part to the description

Spongy Mesophyll
Upper Epidermis
Waxy Cuticle
Palisade Cell
Stoma

Waterproofs the leaf
Holes on the underside of the leaf
Upper layer of the leaf
Randomly spaced to allow for diffusion of gases
Site of photosynthesis



Leaves Key Questions

Here are three adaptations of leaves.

Explain how these features make the leaf well adapted for its job

- a) Leaves are wide and flat
- b) The palisade cells contains lots of chloroplasts
- c) Leaves have veins

Extension:

Explain why having very few stomata on the top of the leaf is an advantage to the plant



Answer box

