

MEL Scholar Plants test

K-12

Scheme of Work • Plants and Photosynthesis

Assessment Focus • Knowledge

First Name _____

Middle Name (s) _____

Last Name _____

Date of Birth Day _____ Month _____ Year _____

School Name _____


Instructions

Please read this carefully:

Questions and answers

You have **30 minutes** to complete this test.

Follow the instructions for each question.

 This pencil shows where you will need to put your answer.

For some questions you may need to draw an answer instead of writing one.

Do not write or draw over any barcodes or in the grey margins.

If you cannot do one of the questions, **go on to the next one**.

You can come back to it later, if you have time.

If you finish before the end, **go back and check your work**.

Marks

The number under each box at the side of the page tells you the maximum number of marks for each question.

Q1

MRS GREN is an acronym which help to remember all the essential features of living things. **Fill in the missing letters in the words to decipher the acronym.**



Movement

R.....

Sensitivity

G.....

R.....

Excretion

N.....



2 marks

Q2

Guess which characteristics of living things are hiding behind the definitions and examples.



Definition	Feature	Definition	Feature
Responding to temperature changes.	<i>Sensitivity</i>	Getting energy from food.	
Making copies of the organism.		Getting rid of by-products.	
The ability to change location from A to B.		Increase in mass and size.	
The need for food.			



2 marks

Q3 Which of the following is NOT a plant? Tick the box for the chosen answer.



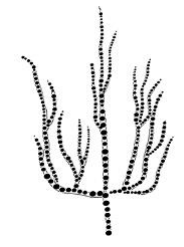
Cotton



Mango tree



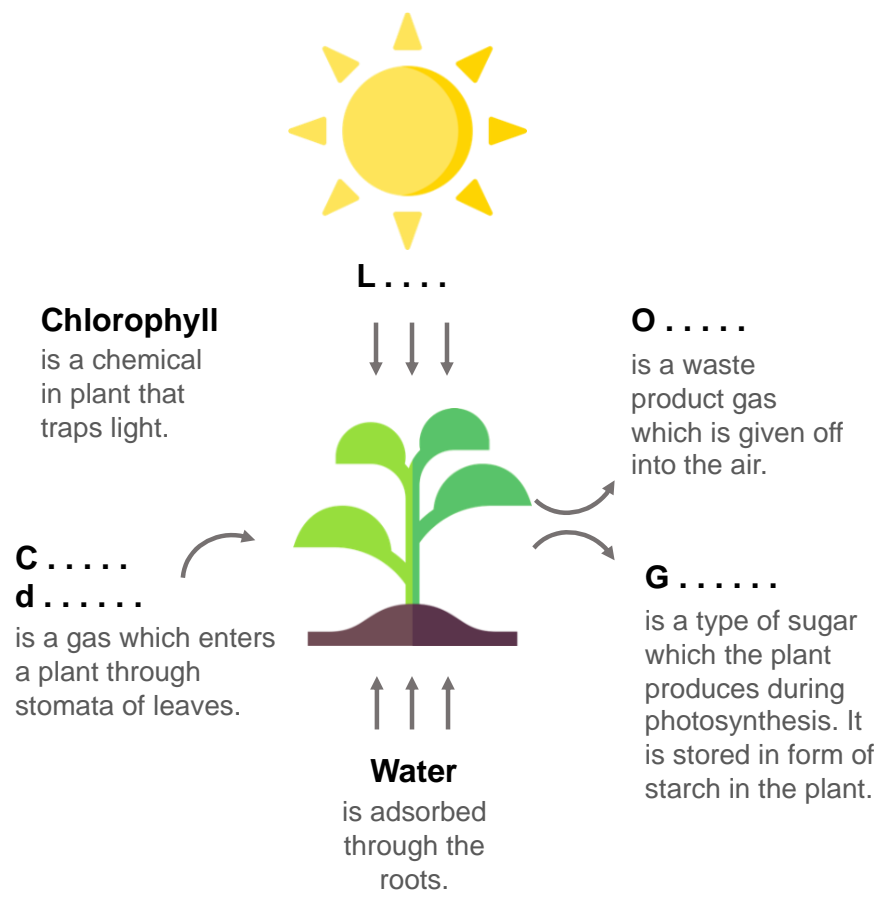
Grapevine



Bamboo coral

2 marks

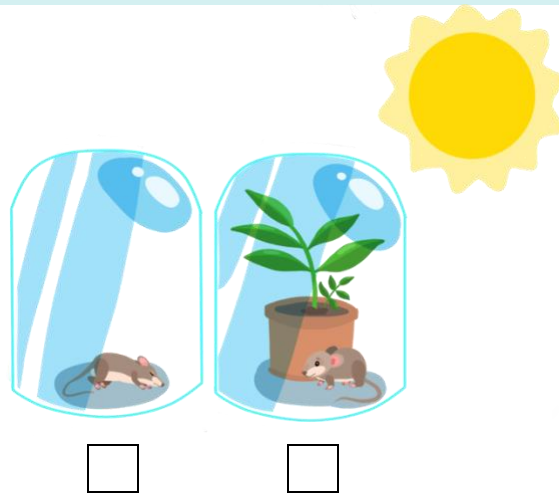
Q4.a Plants are able of manufacturing their own food with the use of energy from the Sun during a process called photosynthesis. Fill the gaps in the words for the participants in photosynthesis process – the reactants and products.



3 marks

Q4.b

Look at the picture. There are two isolated chambers – one with a mouse and another with a mouse and a plant. Guess, at which chamber carbon dioxide (CO_2) is a predominant gas, and where there is more oxygen (O_2) inside. Put CO_2 or O_2 in the following boxes.



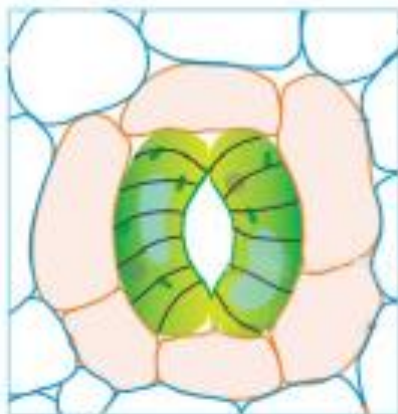
1 mark

Q5

Based on your knowledge of stomata function and structure, complete the sentence by circling the correct answer.



The stomata are surrounded by two cells, which regulate the flow of gas between the leaf and its environment and control the amount of passing through a leaf.



Surrounding, urine

Security, soil

Guard, water



1 mark

Q6

The list below comprises of parts of leaves and parts of flowers. Put **L** for a part of a leaf and **F** for a part of a flower.

Epidermis

Stomata

Stigma

Chloroplast

Petal

Anther

3 marks

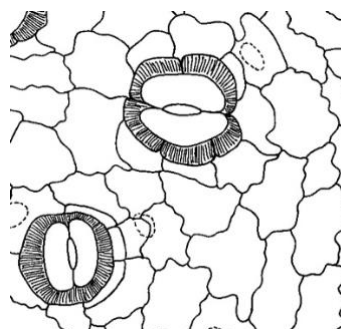
Q7

Plants require water for photosynthesis. Also, plants lose water during respiration.

Where does water come in and come out of leaf? Put **IN** and **OUT** in front of the following plant parts.



Roots



Stomata

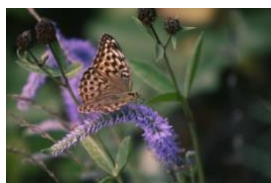
3 marks

Q8

Use the words in the box below to complete the following:



... is the process of transferring ... from the male ... to the female ...



Stigma Pollen grains Pollination Anther

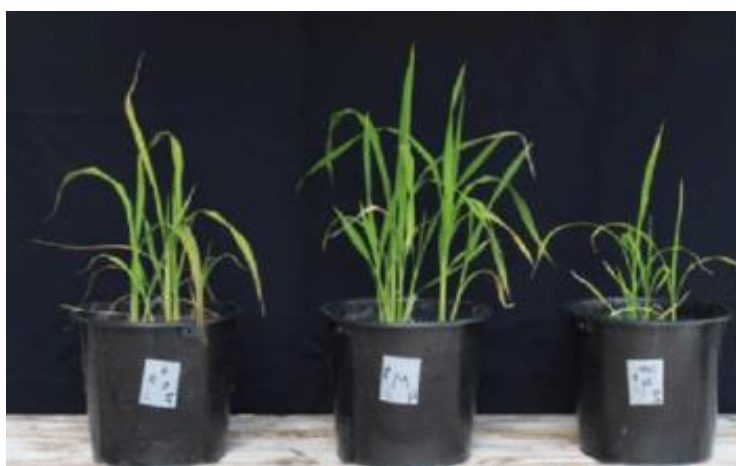


3 marks

Q9

For healthy plant growth, the variety of minerals are needed. The illustration below shows rice plants under different iron (Fe) concentration – low, optimal and high.

Distinguish Fe concentration in each pot, if elimination of all nutrients leads to insignificant growth, and over fertilizing is harmful for a plant.



1. _____ 2. _____ 3. _____

Low Fe Optimal Fe High Fe



2 marks

Q10

Which of the following plant part is responsible for minerals adsorption?
Tick the box of the chosen answer.



Flower



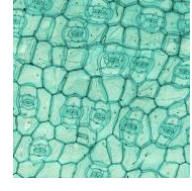
Stem



Leaves



Roots



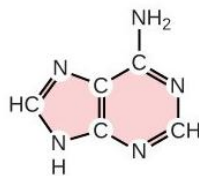
Stomata

2 marks

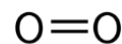
Q11

The chemical formulas below describe some important plant components. The letters (e.g. O, H, C) stand for chemical symbol of an element in formula, and dashes mean bonding between two elements.

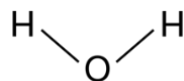
Look carefully and tick the boxes with the compounds where carbon (C) can be found.

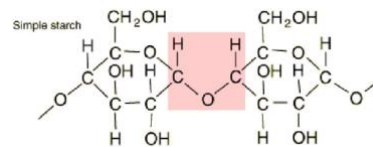


Adenine (part of DNA)

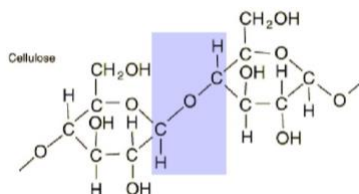


Oxygen

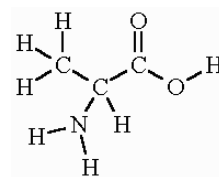




Starch



Cellulose



Alanine (part of proteins)


2 marks

Q12

How much carbon dioxide does a tree absorb per year?

Calculate the amount of carbon dioxide (CO₂) adsorbed every year by a 1000kg 35 years old tree, if 3.67kg of CO₂ is needed to create 1kg of carbon (C) in a tree, and carbon is 23.75% of the mass of the tree.

Use the table below to complete your calculations.



(1) Mass of carbon in 1000kg tree	Mass (C) =
(2) Mass of carbon dioxide adsorbed by the tree throughout its life	Mass (CO ₂) =
(3) Mass of carbon dioxide adsorbed by the tree every year	Mass (CO ₂) per year = $\frac{\text{Mass}(\text{CO}_2)}{35} =$

Annual amount of CO₂ = ____ kg



2 marks



2 marks