Practical investigation 1: Page 32

Aim: To investigate what plants need to grow.

Questions:

1. Give an investigative question for this experiment. That is, formulate the question that led to this investigation being conducted.

What is necessary for the plant to survive?
(Investigative question must be in the form of a question. It may not be a question with only yes or no as an answer.)

2. Give the hypothesis of this experiment. (Remember: a hypothesis is always a statement and is a possible answer to the investigative question.) The hypothesis cannot start with words like "I think …" or "Maybe …".

Sunlight, water, mineral salts and CO_2 (carbon dioxide) are necessary for a plant to survive.
OR
Sunlight, water, mineral salts and CO_2 (carbon dioxide) are not necessary for a plant to survive.
(Hypothesis must be a statement. It may be proven correct or incorrect.)

3. Describe the appearance of each plant after ten days. Also compare how much each plant has grown in ten days. Give the table a descriptive heading.

Description of the appearance of the various plants after ten days

Plant	Description of the plant after ten days
Plant 1: Control plant	
Plant 2: In the dark cupboard	
Plant 3: No water	
Plant 4: No CO_2	
Plant 5: No minerals	

4 Use your observations in Question 3 and say what you could deduce about the necessity of each of the following factors for photosynthesis:

4.1 Water

Water is necessary for photosynthesis. Without it the plant will die.

4.2 CO_2

CO_2 is necessary for photosynthesis. Without it the plant will die.

4.3 Sunlight

Sunlight is necessary for photosynthesis. Without it the plant will die.

4.4 Mineral salts

Mineral salts are necessary for photosynthesis. Without them the plant will die.

5. Was your hypothesis correct or incorrect?

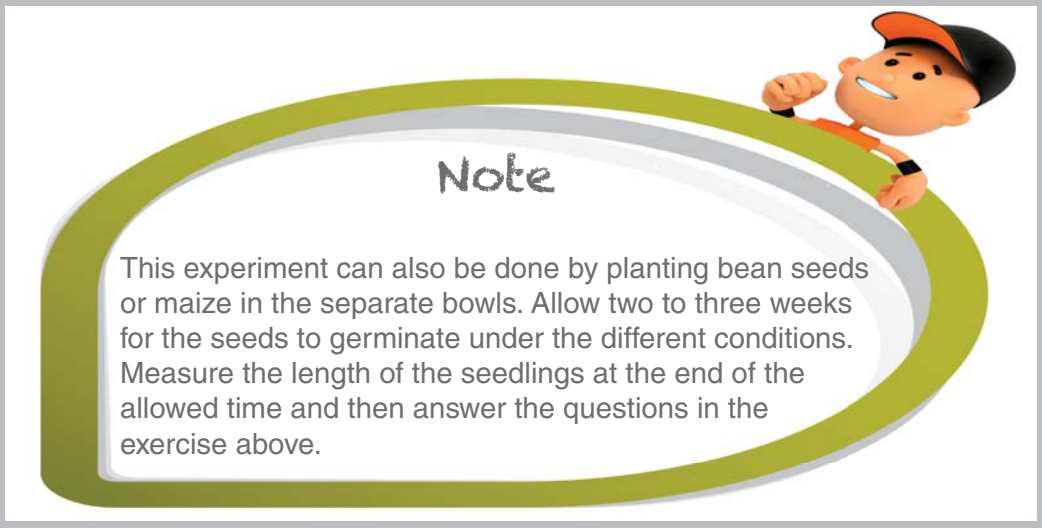
Correct or incorrect, depending on the hypothesis

6. Now use your findings from the experiment above and explain why flowers in a vase filled with water, standing in the sun, will eventually wither and die.

No mineral salts – flowers will die.

Rubric:

Levels of performance	1	2	3	4
Laboratory technique	Learner struggles to do practical and is not capable of taking successful readings.	Learner is diligent, but cannot work alone.	Needs help to handle apparatus and obtain correct results.	Class time was well used. Little help needed to set up apparatus. Correct readings were taken.
Report of results (Question 3)	Does not understand; unsuccessful in drawing comparisons.	Meaningful comments or comparisons.	Insightful comments and good comparisons.	Comparisons and comments are relevant. They are well worded and shows good understanding.



Exercise 3: Page 36

1.

Hydrosphere	Atmosphere	Lithosphere
Fish and algae Catfish Fish and coral Seal Polar bear Crab Geese	Eagle Geese	Lion Eagle Squirrel Catfish (in drought) Seal Polar bear Crab Geese Dandelion Pine tree