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KWAZULU-NATAL PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

GENERAL EDUCATION AND TRAINING

GRADE 8

NATURAL SCIENCES

PLC FORMAL PRACTICAL TASK

2026 TERM 1

Stanmorephysics.com

Duration : **2 Hours**
Total Marks : **40**

INSTRUCTIONS

1. Write your Surname, Name and class on the answer sheet.
2. Answer ALL questions.
3. Follow the instructions and numbering of each question.
4. All drawings should be done in pencil and labelled in blue or black ink.
5. Write neatly and legibly.

NB. This question paper consists of **3** pages

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Investigating whether sunlight is necessary for photosynthesis.

This activity entails investigating whether sunlight is necessary for photosynthesis. In order to do this, the photosynthesis must take place in the plant and glucose will be produced. The glucose will be converted to starch in the leaves. To check whether photosynthesis has taken place, a leaf from the plant must be tested for starch.

PART ONE

Apparatus:

- A healthy plant with green leaves
- Aluminium foil
- Scissors
- Water
- Iodine solution
- Ethanol
- Test tubes
- Beakers
- Bunsen/spirit burner with tripod and gauze
- Tweezers
- White tiles
- Dropper
- Notebook and pen for observations



Method:

Preparation:

1 Find a healthy plant with green leaves on the school yard. (Preferably young soft leaves, small enough to fit in a test tube).

2 Ensure that the plant is not in the shade.

3 Cover some leaves with the aluminium foil the day before the test is done.

Investigation:

1 Pick a leaf that has been exposed to sunlight from the plant.

2 Place the leaf in a test tube and cover with water.

3 Boil the leaf for at least 3 minutes.

4 Remove the leaf from the water using tweezers.

5. Place the leaf in a test tube containing ethanol/methylated spirits.

6 Place the test tube with the leaf in a large beaker of boiling water.

7 Boil the leaf in ethanol for at least 3 minutes.

8 Remove the leaf from the ethanol and wash it with water.

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9 Place the leaf on the white tile and add a few drops of iodine to the leaf.

10 Record observations

Repeat steps 1 – 10 for the leaf covered in aluminium foil.



Data collection:

1.1 State the aim of the investigation. (2)

1.2 State the hypothesis for this investigation. (2)

1.3 Identify the following variables for this investigation:

1.3.1 Independent variable (1)

1.3.2 Dependent variable (1)

1.3.3 TWO controlled variables (2)

1.4 Explain the reason for the following:

1.4.1 Boiling the leaf in water. (2)

1.4.2 Boiling the leaf in ethanol (1)

1.4.3 Using a water bath when boiling leaf in ethanol. (2)

1.5 What substance does the iodine indicate the presence of? (1)

1.6 How does iodine indicate a positive result for the substance mentioned in 1.5? (2)

1.7 Write down THREE safety precautions for the investigation (3)

1.8 What was observed when iodine was added to the leaf that was covered with an aluminium foil? (2)

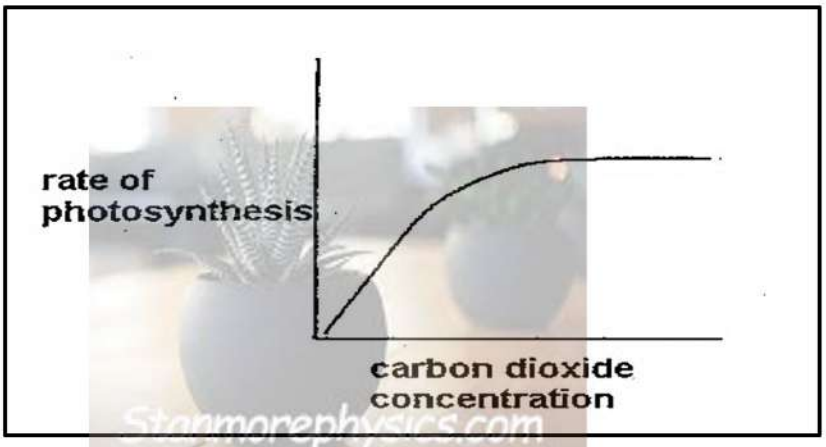
1.9 What conclusion can be drawn from the results? (2)

PART ONE TOTAL [23]

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PART TWO: APPLICATION OF KNOWLEDGE

Study the graph below and answer the questions that follow:



2.1 Apart from carbon dioxide, write down THREE requirements for photosynthesis. (3)

2.2 What conclusion about the relationship between rate of photosynthesis and carbon dioxide can be drawn from the graph? (2)

2.3 Explain the importance of photosynthesis to other organisms. (2)

2.4 What is the function of the chlorophyll during photosynthesis? (2)

2.5 Complete the following word equation for photosynthesis. Write down only the letter and the correct term next to it. (2)

$$Carbon\ Dioxide + \boldsymbol{A} \xrightarrow{Chlorophyll\ \&\ Sunlight} Glucose + \boldsymbol{B}$$

2.6 Write down THREE differences between photosynthesis and respiration. (6)

PART TWO TOTAL [17]

GRAND TOTAL [40]