



GRADE 8 INTEGRATED SCIENCE PRACTICAL

TASK 1: (10 MARKS)

A Grade 9 learner is investigating the dimensions and mass of a rectangular wooden block.

Apparatus and Materials

- i. Rectangular wooden block
- ii. Metre rule
- iii. Weighing balance

Procedure

Measure the dimensions and mass of the wooden block provided by the facilitator and record your results.

Table 1: Measurements

Quantity	Measurement
Length (L)	_____ cm
Width (W)	_____ cm
Height (H)	_____ cm
Mass (M)	_____ g

Questions

(a) Record the SI unit for each of the following quantities. (2 marks)

Quantity	SI Unit
Length	_____
Mass	_____

(b) Calculate the volume of the wooden block. (3 marks)

Working:

Volume = _____

(c) State the SI unit of volume. (1 mark)

(d) Name the instrument used to measure: (2 marks)

i. Length _____

ii. Mass _____

(e) State TWO precautions observed when taking measurements. (2 marks)

i. _____

ii. _____

2

TASK 2: (20 MARKS)

A learner places a peeled Irish potato with a cavity containing concentrated sugar solution in a dish containing water.

Apparatus and Materials

- i. Peeled Irish potato
- ii. Sugar solution
- iii. Water
- iv. Petri dish

Procedure

1. Make a cavity in the potato.
2. Fill the cavity with concentrated sugar solution.
3. Place the potato in a dish containing water.
4. Leave the setup for 30-40 minutes.
5. Observe any changes.

Questions

(a) Draw and label the experimental setup. (4 marks)

(b) State TWO observations made after the experiment. (2 marks)

i. _____

ii. _____

(c) Define the term osmosis. (2 marks)

(d) Explain the observations made in the experiment. (4 marks)

(e) State THREE conditions necessary for osmosis to occur. (3 marks)

i. _____

ii. _____

iii. _____

(f) Mention THREE importance of osmosis in living organisms. (3 marks)

i. _____

ii. _____

iii. _____

(g) Differentiate between diffusion and osmosis. (2 marks)

Diffusion	Osmosis

Learner's sign: _____.

Guardian's sign: _____.

Date completed: _____.

GRADE 8 INTEGRATED SCIENCE PAPER 2 MARKING GUIDE

TASK 1 (10 MARKS)

(a) SI Units

- Length - metre (m) (1)
- Mass - kilogram (kg) (1)

(b) Volume calculation (3)

(c) Cubic metre (m^3) (1)

(d)

- Metre rule (1)
- Weighing balance (1)

(e)

- Read scale at eye level
- Ensure instrument starts at zero
- Measure carefully
- Avoid parallax error (Any 2 × 1)

TASK 2 (20 MARKS)

(a) Correct labelled diagram (4)

(b)

- Level of sugar solution rises
- Potato becomes firm/swollen (2)

(c)

Osmosis is the movement of water molecules from a region of high water concentration to a region of low water concentration through a semi-permeable membrane. (2)

(d)

Water moves from the dish through potato tissues into the sugar solution by osmosis causing the level of solution to rise. (4)

(e)

- Semi-permeable membrane
- Difference in concentration
- Presence of water molecules (3)

(f)

- Absorption of water by roots
- Maintaining cell turgidity
- Movement of water in living organisms (3)

(g)

Diffusion

Movement of particles from high to low concentration

Does not require semi-permeable membrane

Osmosis

Movement of water molecules only

Requires semi-permeable membrane