SUBJECT	PHYSICAL SCIENCES	GRADE 11
ASSESSMENT	FORMAL PRACTICAL REPORT	
DATE; 25/02/2025		
TIME: 60 MINUTES		MARKS: 25
TERM NO: 1 ASSESSMENT NO: 1		

BAHANANWA NORTH CIRCUIT

TITLE: VERIFICATION OF NEWTON `S SECOND LAW OF MOTION

NAME OF THE SCHOOL:……

LEARNER `S FULL NAMES:……

VERIFICATION OF NEWTON `S SECOND LAW OF MOTION

Method:

1. Place a trolley on smooth runway and tilt the runway very slightly so that the slope compensates for the friction between the wheels and the runways.
2. N.B. If pushed gently the trolley should move at a constant velocity down the track
3. Measure the mass of the trolleys
4. Attach the ticker tape to the trolley and thread the tape through the ticker timer
5. Attach a smooth pulley vertically to the bottom of the runway
6. Tie a light thread to the trolley and allow the thread to hang freely over the almost frictionless pulley
7. Tie a small hook to other side of the thread from which a mass piece can hang,test the trolley without a mass piece to see if it will move at a constant velocity
8. Place a mass piece on the hook and place the other three on the trolley
9. Switch the ticker timer on and allow the trolley to be pulled down the slope by the mass piece
10. Repeat the experiment at least three times ,each time hanging another 100g mass piece on the hook

Write a scientific report which must include the following :

1. Aim (2)

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2. Variables

2.1.Independent variable :…….. (1)

2.2.Dependent Variable :…… (1)

2.3.Controlled Variable :…… (1)

3. Method (4)

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4. List of apparatus (2)

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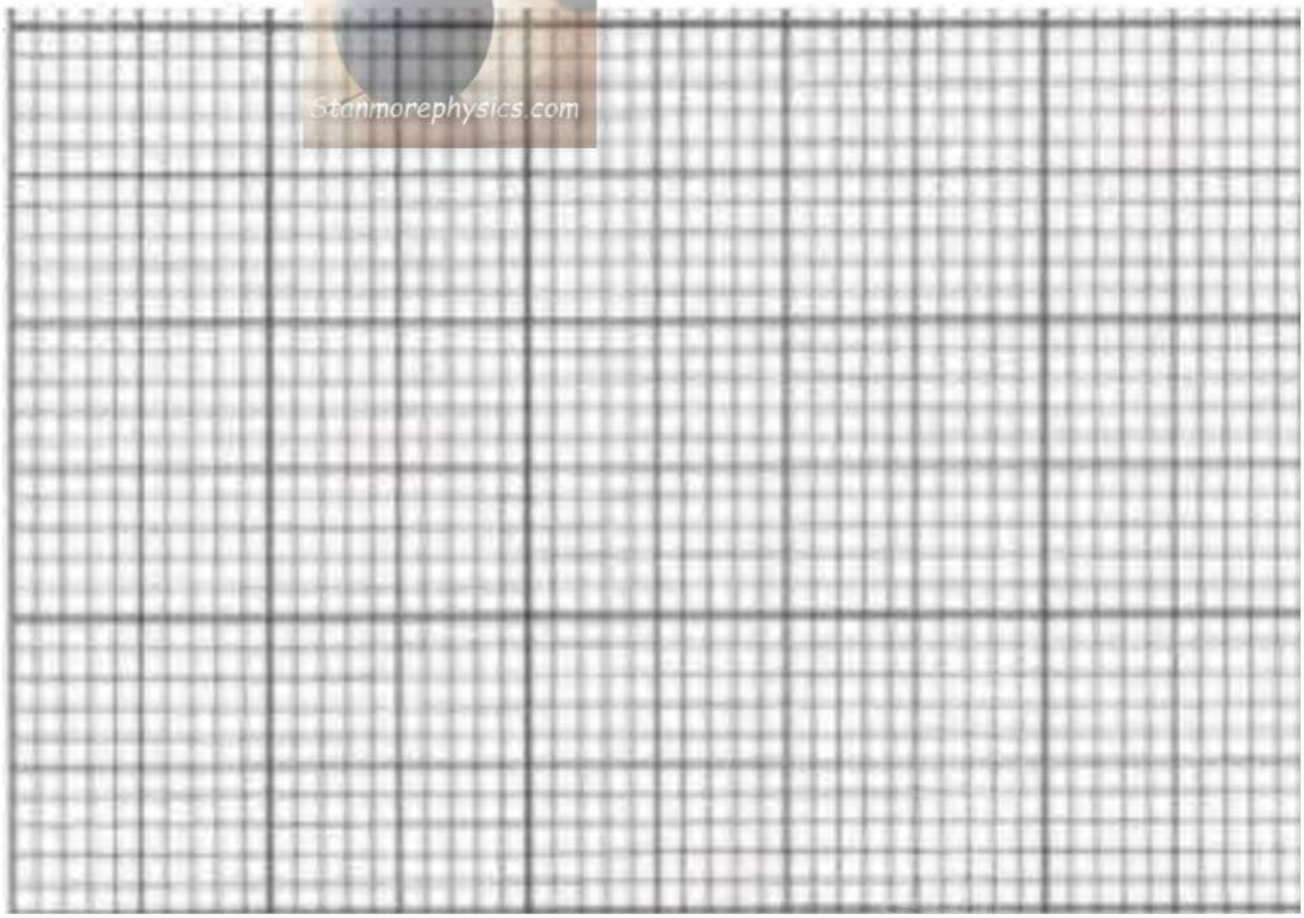
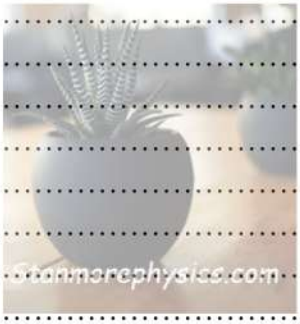
5. RESULTS (5)

	Mass of the hanging mass pieces	Fnet = hanging weight	Acceleration ($m.s^{-2}$)
Trial 1			
Trial 2			
Trial 3			
Trial 4			

6. Draw the graph of the net force versus acceleration (4)



7. Calculate the mass of the system (3)



8. Conclusion (2)

…….. TOTAL = 25 MARKS ……..

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BAHANANWA NORTH CIRCUIT

MEMORANDUM

Write a scientific report which must include the following :

1. Aim (2)

To verify newton `s law of motion √√

2. Variables

2.1.Independent variable : Net force √ (1)

2.2.Dependent Variable : Acceleration √ (1)

2.3.Controlled Variable : Mass √ (1)

3. Method (4)

The method must be written in past tense to allow another person to perform the experiment √√√√

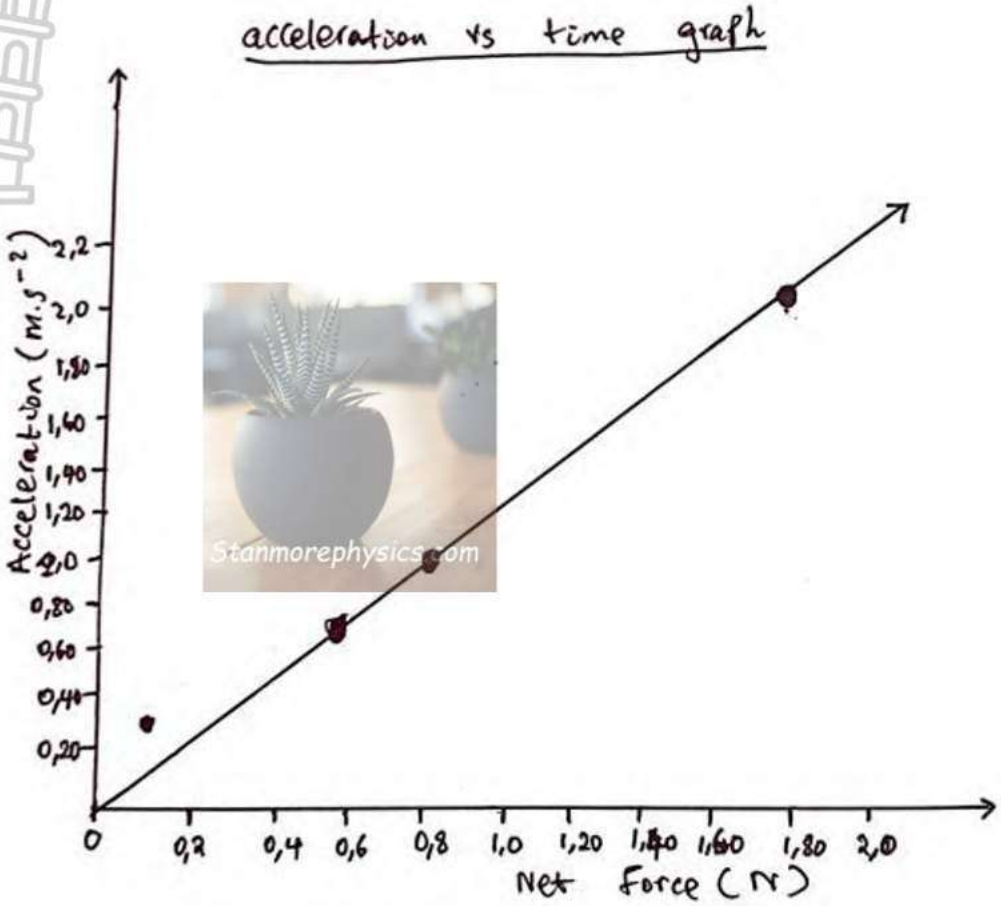
4. List of apparatus (2)

- A power supply (12 V)
- Trolley track
- A light inextensible string
- Frictionless pulley
- Clamp
- Ticker timer and tape
- Trolley
- Mass pieces and Mass meter √√

5. RESULTS (5)

	Mass of the hanging mass pieces	Fnet = hanging weight	Acceleration ($m.s^{-2}$)
Trial 1	50g √	0,10	0,21 √
Trial 2	50g	0,60	0,60 √
Trial 3	50g	0,81	0,81 √
Trial 4	50g	1,18	1,18 √

6. Graph of the net force versus acceleration (4)



ALLOCATION OF MARKS FOR THE GRAPH

1 mark for correct labelling of axes √

2 marks for correct plotting of the points √√

1 mark for line of best fit √

7. Calculate the mass of the system (3)

Gradient $= \frac{\Delta a}{\Delta F}$

$= \frac{a_1 - a_2}{fnet_1 - fnet_2}$ √ (any suitable values from the learner `s graph)

= accurate calculation √

From the graph we have gradient $= \frac{\Delta a}{\Delta F} = \frac{\Delta a}{m\Delta a} = \frac{1}{m}$ √

8. Conclusion (2)

When a net force acts on an object, the object will accelerate in the direction of the force .the acceleration is directly proportional to the net force √√

…….. TOTAL = 25 MARKS ……..