PITSI TSHEGOFATSO MADIKANA (202174700) **08 MAY 2021**

SPHS000 TUESDAY GROUP

Experiment 1.2

Newton`s Second Law

Aim:

i. To verify that when a constant force is applied to objects of different masses, the resulting acceleration is inversely proportional to the mass of the object.

Calculation :

$F=M_2g$

$M_2=50$ g

$M_2=0.05$ kg

=0.05*9.81

=0.49 kg m/s^2

$F=(M_1+M_2)a$

$(M_1+M_2)=100$ g

$(M_1+M_2)=0.1$ kg

Table of measurements

trial	**M_1**	**M_1+m_2**	**$(M_1+m_2)^{-1}$**	**time**	Acceleration,a
	g	g	g^{-1}	s	$m.s^{-2}$
1	50	100	0.01	1.43	4.89
2	100	150	$6.66*10^{-3}$	1.75	3.27
3	150	200	$5*10^{-3}$	2.02	2.45
4	200	250	$4*10^{-3}$	2.26	1.96
5	250	300	$3.33*10^{-3}$	2.47	1.64

GRAPH ANALYSIS

1. The variables that will measure is time and mass. The equipment that will measure time is stopwatch and the equipment that will measure mass is stones
2. Measurement will be displayed graphically so that it can analysed the relationship between the variables.
3. Mass . When I change mass I will get at least 5 different data points for the acceleration of our object or system. Variables that must remain constant is distance and hanging mass, because the mass represent the force that was applied.
4. First one is Air resistance force of friction.

5. The acceleration of a system is inversely proportional to the mass, because when acceleration decreases the mass increases.
6. Refer to figure 1.1
7. The slope represent the force.
8. ……
9. Because we want to determine how the acceleration of an object or system will change during the experiment.
10. $F_{net}=(M_1+m_2)a$
    $=(0.10)(4,89)$
    $=0.49$

    $F_{net}=(M_1+m_2)a$
    $=(0.15)(3.27)$
    $=0.49$

    $F_{net}=(M_1+M_2)a$
    $=(0.20)(2.45)$
    $=0.49$

    $F_{net}=(M_1+m_2)a$
    $=(0,25)(1,96)$
    $=0,49$

    $F_{net}=(M_1+m_2)a$
    $=(0.30)(1.69)$
    $=0.49$
11. ……..
12.