SUVA SANGAM COLLEGE

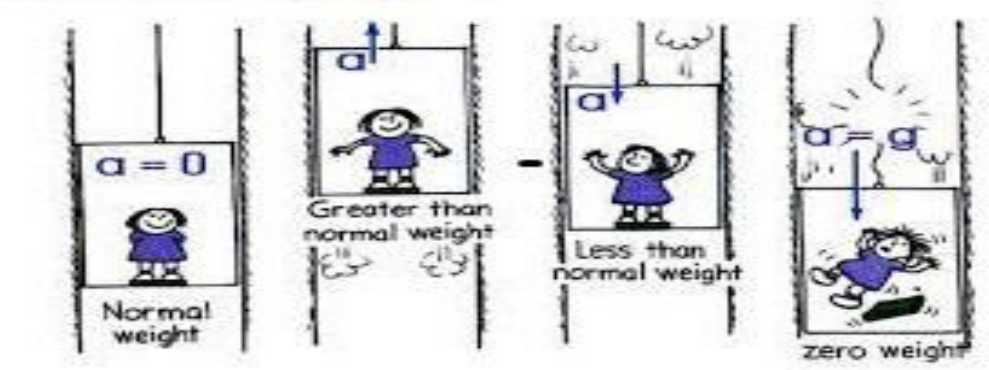
YEAR 13

PHYSICS

WORKSHEET 2

Strand 1	Mechanics
Sub-Strand	Kinematics of Linear Motion
Content Learning Outcome	Apply the concept of motion to various situations where system is accelerating up or down.
Reference from Text	Pg 9 to 12

Questions

No.	**CONCEPT IN BRIEF** :Motion in Lifts 
1.	Fill in the blanks. a) When an object is at rest the apparent weight for that object is same as its_____ but when it is in freefall its apparent weight is _____.
	b) The normal force is called the object's _____.
	CONCEPT IN BRIEF: No acceleration of lift, Lift accelerating upwards and Lift accelerating downwards.
2.	**Complete the following:** a) **Lift is at rest**. $v =$ _____ , $a =$ _____ , $R - mg =$ _____, $R =$ _____, Apparent weight_____ Actual weight.
	b) **Lift moving downward/ upward with constant velocity** $v =$ _____ , $a =$ _____ , $R - mg =$ _____, $R =$ _____, Apparent weight_____ Actual weight.

	c) Lift accelerating upwards at a rate of $'a'$. The reaction force (apparent weight) is _____ so the reading on the scale is _____than the true weight. $ma =$ _____ $-$ _____
	d) Lift accelerating downwards at a rate of $'a'$. The reaction force (apparent weight) is _____ so the reading on the scale is _____than the true weight. $ma =$ _____ $-$ _____
	CONCEPT IN BRIEF: Motion in Lifts Case 1 : When the lift is stationary or moving up/down with a constant velocity R = W Case 2 : Lift accelerating up R = W + ma Case 3 : Lift accelerating down R = W – ma $\boldsymbol{g = 9.8\ m/s^2}$**.**
3.	a) An elevator is moving vertically upward at a constant speed. A man of mass 150 kg is standing inside. Determine the reaction force of the floor on the man.
	b) A boy stands on a scale in a lift. When the lift is stationary the reading on the scale is 85 kg. Calculate the reading on the scale when the lift accelerates upwards at 4 m/s^2.
	c) Fiona who has a mass of 60 kg uses elevator while going down a building. The elevator descends at 2 m/s^2 (i) Would Fiona feel lighter or heavier while the elevator is accelerating downwards? (ii) Calculate Fiona's apparent weight if her true weight is 588 N.