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Review and Applications of Newton's laws on day to day life

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Abstract-This study has been undertaken to summarize the reviews and applications of Newton's laws of motion in day to day life. Also uses of the law in various activities is been explained.

Keywords-Newton's laws, Motion, Force, Object, Mass, Acceleration.

I. INTRODUCTION

In Newton's laws of motion, there are three statements to describe the relations between the force acting on a body and the motion of the body.

The newton's law of motion was invented in 1686 by an English mathematician, Physicist and author Sir Issac Newton.

The laws of motion are mentioned in a one book written by PhilosophiaeNaturalis principia Mathematicacommonly known as principia.

1. Newton's first law of motion:

- Newton's first law of motion is also called as the law of inertia, states that in the absence of an external force, a body at rest remains at rest and a body in unchanged motion in a straight line maintains in that motion.
- If a body is at rest or moving with a constant speed in a straight line at constant speed unless it is acted upon by a force.

2. Newton's second law of motion:

- Newton's second law of motion is also known as the law of acceleration, states that the acceleration produced in a body is directly proportional to the external force and inversely proportional to the mass of the object.
- The Newton's second law of motion is the force is equal to mass times acceleration. That is F=ma and its SI unit is Newton (N).

3. Newton's Third Law of motion:

- Newton third law of motion builds further on the first and second law of motion.
- The third law of motion states that, for every action there is always equal and opposite reaction. This can be observed both in objects at rest and those that are accelerating.

II. APPLICATIONS OF NEWTON'S LAWS ON DAY TO DAY LIFE

1. Newton's first law of motion:

1.1 Driving a motorbike on highway: When a motorbike once a set in a motion, it remains in it until unless external force are applied on a bike.

1.2 Marbels rolling down the ramp: When we let the marbles go down the ramp, they will continue to move until you force them to stop.

1.3 Shaking a tree: When any person shakes the tree, it remains continuous shaking until and unless external force applied on it to stop shaking it describe the newton's first law.

1.4 A person sitting in a car:when a person sitting in a car, while car start the persons feels some forces applied on him to backward direction and suddenly the person comes forward direction this is called as law of inertia nothing but newton's first law of motion.

2. Newton's second law of motion:

2.1 Thrown a ball: When thrown a ball from a certain height, the ball accelerates to a certain extent. The acceleration with which the ball moves is directly proportional to the external force on it. That is, the faster you threw the ball, the faster it will move.

2.2 Pushing a box: If you use the same force to push an empty box and push a loaded box, an empty box will have more acceleration than a loaded box, because an empty box has less mass. This is because the relation between the mass of the object, external force on it, and the acceleration produced. Since mass is inversely proportional to the acceleration, the loaded box having more mass tends to move slower and an empty box having less mass tends to move faster.

2.3 Rolling a bottle at the top of the ramp: We put two bottles of water, one empty and other full at the top of the ramp and then go off them at the same time, the filled bottle move faster than an empty bottle. Because the filled bottle had larger acceleration because the force that accelerated the bottle down the ramp was its weight. This is why the heavier bottle was the able to reach the end first.

2.4 Kicking a ball: When we kick a ball, it is thrown in a specific direction; we apply external force on it. The harder the ball is kicked, the stronger the force we put on the ball and the further away it will travel.

3. Newton's third law of motion:

3.1 Flying of a rocket: Engineers apply newton's third law when designing rockets and other devices, for example, the rush of gases from the rocket to the top when it causes it to increase its speed.

3.2 A child jump on a trampoline: When a child jump on a trampoline, the child applies the force on the jumping mat, as a reaction the springs apply an opposite force towards the child which results in the numerous jumps of the child.

3.3 Flight of helicopter: Helicopter creates lifting power by pushing the air down, thus exposing it to an upward reaction force.

3.4 Flight of birds: Birds and planes also fly by applying force on the air in the opposite direction to any force they need. For example, the wings of the bird push the air back and forth in order of lift the movement of forward.

III. CONCLUSION

Newton's laws of motion are widely used in our daily lives. We see numerous examples of all the three laws around us. Using this examples we get a ease in understanding the theory and applications of these laws. All the examples mentioned above thoroughly explain the laws. This laws are one the easiest and highly applicable laws.

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