FORCE AND LAWS OF MOTION

TYPES OF FORCES

Force

Force is pushing or pulling any object resulting from the object's interaction with another object. Without force, nothing can be moved, stopped or change the direction. It is a quantitative interaction between two physical bodies, between an object and its environment. There are various types of forces in nature.

If an object is in its motion state than its current state will be either static or motion. Its position will only be changed if it is pushed or pulled. The external push or pull applied on the object changes its current state of motion is known as Force. This force can be of different types. They are stated below.

Different Types of Forces

Force is a physical cause that can change the state of motion of any object or the dimensions. Different types of Forces are listed below-

Contact forces

The contact forces are the forces which occurs when we apply some effort on an object. Following is the classification of contact force:

Spring Force
Applied Force
Air Resistance Force
Normal Force
Tension Force
Frictional Force

Non-Contact forces

The non-contact forces are the forces which occurs from a distance. Following is the classification of non-contact forces:

Electromagnetic Force

Gravitational Force

Nuclear Force

Spring Force

This force works opposite to the displacement of molecules. Like in a spring or elastic rubber band etc.

Applied Force

The force which is applied by our muscles is called applied force is also called muscular force. For example, pushing a box or kicking a ball etc.

Air Resistance Force

The force exerted by a gas acting upon a body on the opposite direction is called air resistance force. The examples are the forces experienced by a skydiver or a downhill skier etc.

Normal Force

It is referred to the force which acts when two surfaces are in contact. This force is perpendicular to the surface and acts in the direction out of the surface. For example, a box on top of a table.

Tension Force

This type of force is experienced by a rope or a string which holds an object. The tension force is always a pull not a push. The tension force is same throughout the cable. For example, a ball hanging with the help of a string.

Frictional Force

Frictional force acts when the objects on a surface is trying to move relative to surface. For example, when a box is slid on a table.

Electromagnetic Force

These are the magnetic and electric interactions between atoms and molecules which helps in binding and defining the structure of solids. For example, in a magnet, poles attract each other.

Gravitational Force

The gravitational force is defined as the force acting between objects due to presence of matter. For example, Earth's gravity acting upon objects and is given as:

$F_{grav} = m \times g$

Nuclear Force

The force responsible for the bonding of nucleus is known as nuclear force. For example, forces resulting in radioactive decay.

Balanced Force

When two forces are in opposite direction and possess equal magnitude then these forces called are a Equal and opposite forces together acting on an object when it's not in a motion is said to be in equilibrium.

Unbalanced Force

The unbalanced force can be defined as when two forces acting on a body are of unequal size.