# MIND MAP

## FORCE

**Force**

A push or pull on the body is called force.

A force can–

(a) move a stationary body

(b) stop a moving body

(c) change the speed of a moving body

**Balanced**

If the resultant of all the forces acting on a body is zero.

**Unbalanced**

If the resultant of all the forces acting on a body is not zero.

## LAWS OF MOTION

**First Law:** A body continues to be in a state of rest or in a state of uniform motion unless compelled by an external force to change its state of rest or of uniform motion.

Inertia is that property of a body due to which it resists a change in its state of rest or uniform motion.

**Applications of Ist law**

1. When a hanging carpet is beaten with a stick, the dust particles come out.
2. When a tree is shaken vigorously, its fruits and leaves fall down.
3. When a car or bus starts suddenly, the passengers fall backward.
4. When a running car or bus stops suddenly, the passengers are jerked forward.
5. When a bus or car turns a corner sharply

**Second Law:** The rate of change of momentum of an object is proportional to the applied unbalanced force in the direction of force.

The momentum of a body is defined as the product of its mass and velocity.

**Applications of IInd law**

1. Road accidents at high speed are much worse than accident at low speed.
2. A karate player can break a pile of tiles or a slab of ice with a single blow of his hand.
3. A cricket player lowers his hand backwards to prevent injury.
4. The use of seat belts in car.

**Third Law:** To every action, there is an equal and opposite reaction.

According to the principle of conservation of momentum, momentum is never created or destroyed.

**Applications of IIIrd law**

1. To walk on the ground.
2. To swim in water.
3. Recoiling of a gun.
4. The flying of rockets and jet planes.