

# FORCE & PRESSURE

CLASS – VIII

## DAY-1:

*Force is a physical factor or quantity which can be realised on a body in the form of **PUSH OR PULL.***



**BALANCED FORCE**



When two forces are applied over an object in the opposite direction:

When two forces are applied over an object in the opposite directions, the total effective or net force is the difference of magnitude of two forces.

Example:

(i) When two persons push the box in the opposite direction with the magnitude of forces of each 2 N, then resultant force will be-

Net force:-  $2\text{N} - 2\text{N} = 0\text{N}$  (Box will not move)



**UNBALANCED FORCE**



When two or more forces are applied over an object in the same direction:

When two or more forces are applied in the same direction, then the total or net force is the addition of magnitude of both the forces.

Example: When two persons push the box in the same direction with the magnitude of forces of each 2 N, then resultant force will be-  
Net force:-  $2\text{N} + 2\text{N} = 4\text{N}$  (In the direction of applied force)

If one person is applying a force of 6 unit in one direction and another person is applying a force of 8 unit in opposite direction,  
Then the resultant force:  $8\text{N} - 6\text{N} = 2\text{N}$  (In the direction of higher magnitude force)  
In this case, force will act in the direction of higher magnitude of force.

➤ Force is a **vector** quantity as it has **magnitude** and **direction**.

➤ S.I. unit of Force is Newton; written as **N**.

## ***EFFECT OF FORCES:-***

### **1. Force can change the state of motion: An Object can be in two states.**

- (a) **Rest State:** When an object is not moving. This means a stationary object is called in the state of rest. For example -A ball and book kept over the ground and not moving.



- (b) **Motion State:** A moving object is called in the state of motion. For example - a moving car, a moving ball, etc.



A Force can move a stationary object. A force can speed up, decrease the speed and change the direction of a moving object. Force can stop a moving object. Finally we can say that force can change the state of motion

### **Some examples:**

- (i) A boy want to move a tyre faster it has to be pushed repeatedly.



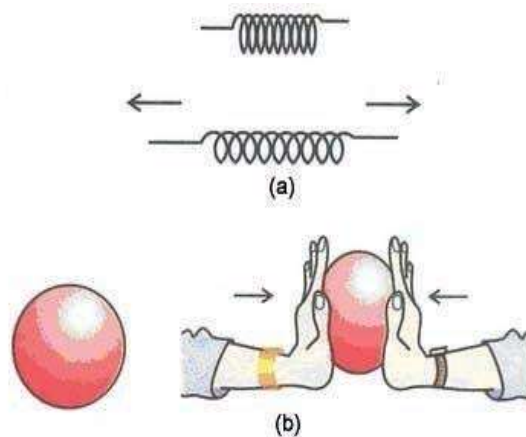
- (ii) Change in the direction of moving ball after it strikes the ruler placed in its path.
- (iii) In the Football game, a goalkeeper stops the football going towards the goal post by applying a force by his hand.
- (iv) In the cricket game, a batsman can push a fast moving ball in the same direction or opposite direction or change the direction of the movement of ball. Because of force being applied from his bat.

**2. Force can change the shape of an object:**

- (i) When you apply force on an inflated balloon by pressing it using your hand from both sides, then the force of pressure changes the shape of balloon.



- (ii) You can change the shape of rubber band and spring by stretching it in opposite direction.
  - (iii) You can change the shape of dough into bread by applying force with a rolling pin.
- So we can say that forces can change the shape of an object.



**Brain Teasing Session:**

1. Define Force. What is its unit in S.I.?
2. Why force is a vector quantity?
3. Mention effects of unbalanced force.
4. What is balanced force? Give an example of it.
5. Differentiate between rest and motion state of a body.