

# PHYSICS

(Class 8)

## CHAPTER- Force and Pressure

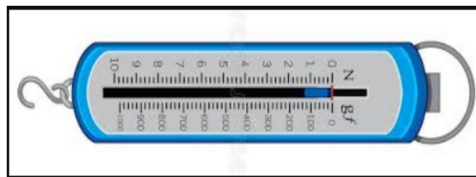
### PART 1 (Force)

**[Definition]Force:** - A push or a pull on an object is called force.

S.I. Unit of Force is **Newton(N)**.



\*Force can be measured by a device called spring balance.



\*It has both magnitude and direction.

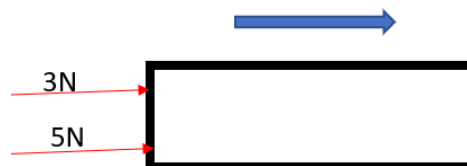
\*It comes in notice when at least 2 bodies interact.

**Note:** Magnitude means numerical value of any physical quantity.

e.g.: 6N, here 6 is magnitude and N is unit of force

### Characteristics of Force

1. When 2 forces act in the same direction, the net resultant force on an object is the sum of these 2 forces.



$$\text{Net force} = 3\text{N} + 5\text{N} = 8\text{N}$$

2. When 2 forces act in opposite direction, the net resultant force is the difference of these 2 forces.

Object will always move in the direction of larger force.

**a) Balanced force:** - Forces that are equal in magnitude but opposite in direction are called balanced force.

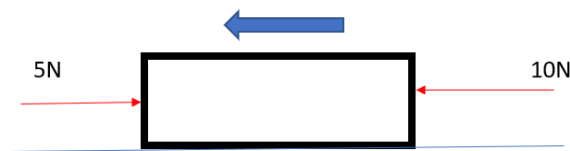
\*It does not cause any change in motion.

\*When balanced forces act on an object at rest, the object will not move.



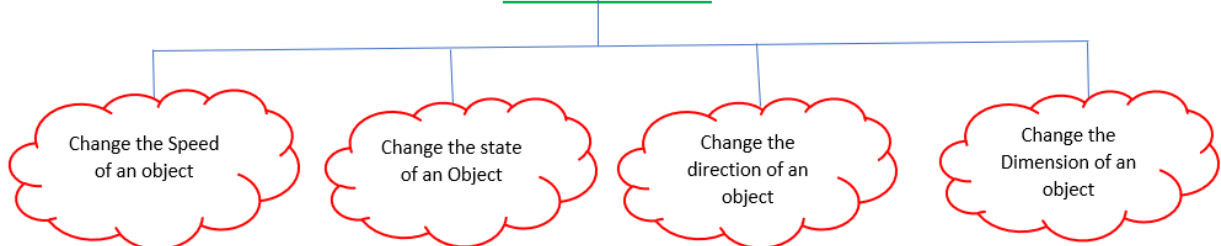
$$\begin{aligned}\text{Net force} &= 5\text{N} - 5\text{N} \\ &= 0\text{N}\end{aligned}$$

**b) Unbalanced force:** - Forces that cause a change in the motion of an object are unbalanced force.

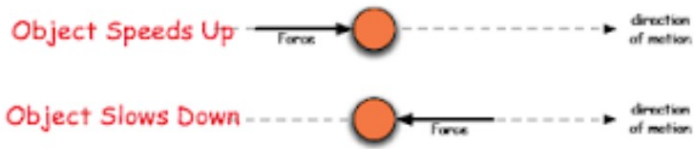


$$\begin{aligned}\text{Net force} &= 10\text{N} - 5\text{N} \\ &= 5\text{N (In the direction of 10N applied force)}\end{aligned}$$

### Effects of Force



### 1. Change in speed of an object.



a) When 2 or more forces act in same direction, speed of an object increases.

b) When 2 forces act in opposite direction, speed of object decreases (Body will move in the direction of larger force).

### 2. Change in state of an object.

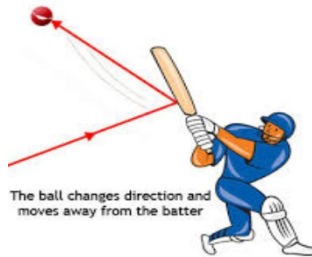


(a) The trolley moves along the direction we push it.

a) Force can stop the motion.

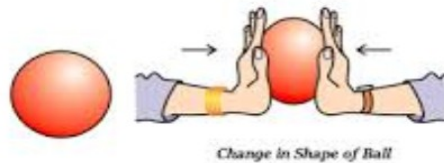
b) Force can start the motion.

### 3. Change in direction of an object.

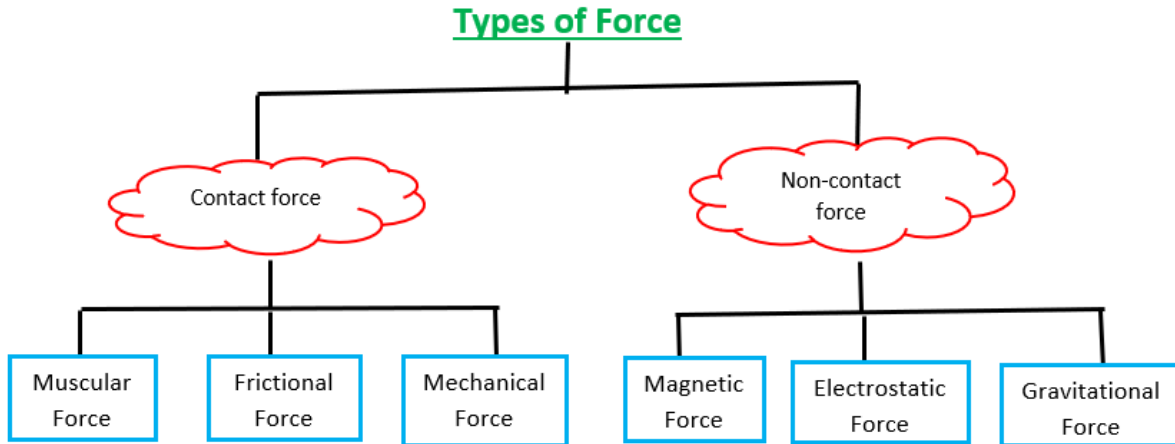


Note: If force acts perpendicular to the direction of motion, speed of object will be constant.

### 4. Change the dimension of an object.



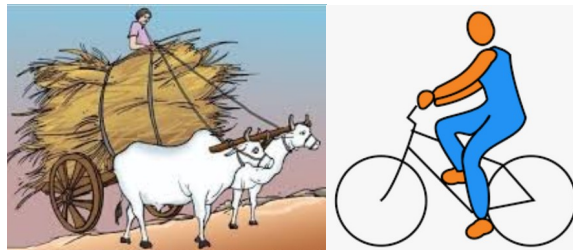
Note: Dimension means Shape and Size.



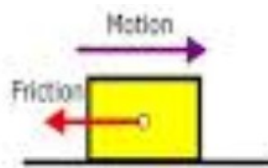
**1. Contact Force-** The forces act on a body when the source of force is in actual contact with the body.

The point where the force is applied on an object is called point of contact.

**a) Muscular Force-** The force exerted by the muscles of the body.



**b) Frictional Force-** The force that opposes the motion of an object.



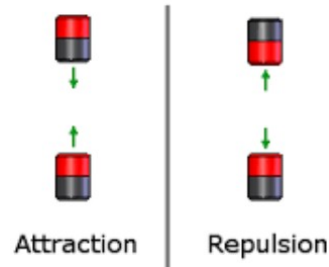
**c) Mechanical Force-** The force produced by a machine.



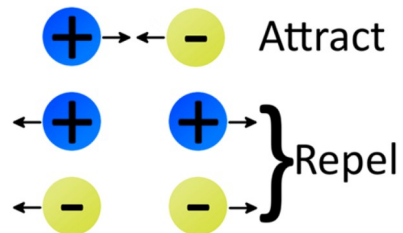
Mechanical Force

**2. Non-Contact force-** Forces which do not involve physical contact between 2 bodies on which they act.

**a) Magnetic Force-** The force exerted by any magnetic object is called magnetic force.



**b) Electrostatic Force-** The force exerted by a charged particle is called electrostatic force.



**c) Gravitational Force-** It is an attractive force that is applied by the earth on all the objects.

It is also called force of gravity or Gravity.



**-Mamta Sharma**