Force and its effects
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Force and Pressure

Force:-

⇒ A push or pull of an object is called force.
⇒ The direction in which the force is applied is called direction of force.
⇒ Squeeze, Lift, Stretch, Twist, Press are categorised as push or pull.
⇒ The cause of force is due to an interaction between objects.
⇒ Force has magnitude as well as direction SI unit Newton (N) or Kgm/s^2.
⇒ If the forces are acting in same direction, then the net force is calculated by adding the magnitude of the forces.

⇒ If the forces are applied in a direction opposite to each other, then the net force is calculated by substracting the magnitude of the forces.

Force is due to an Interaction:-

An interaction of objects with one another results in a force between the objects.

⇒ In interaction each object leave an effect of force on the other object.

Fig.11.2(a) : *A man standing behind a stationary car*

Fig.11.2 (b) : *A car being pushed by a man*

Effects of Forces :-

i) It can move a stationary object.

(a) (b) (c)

Fig. 11.1 : **(a)** *A goal keeper saving a goal,* **(b)** *A hockey player flicking a ball, and* **(c)** *A fielder stopping a ball*

ii) It can stop a moving object.

iii) It can change the speed of an moving object.

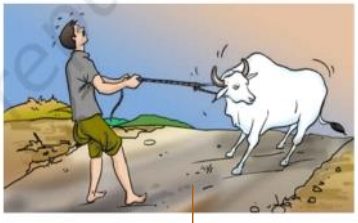
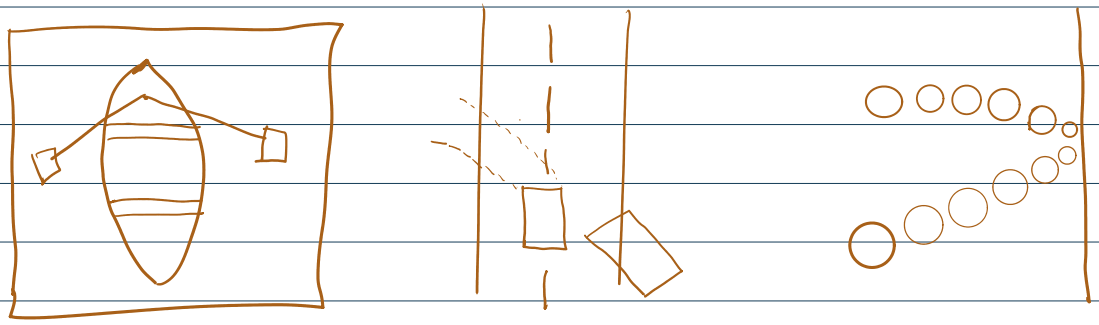


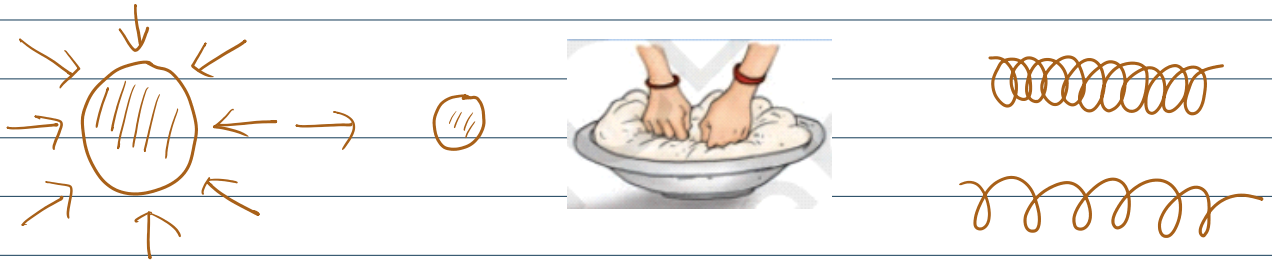
Fig 11.3 (c) : *Who is pulling whom?*

Fig. 11.5 : *The rope may not move if the two teams pull at it with equal force*

iv) It can change the direction of an moving object.



v) It can change the shape and size of an object.



Example:-

i) A golf ball being hit by the player/football.

ii) A goalkeeper stops a moving ball

iii) Pushing moving cycle in same direction increases the speed and speed decreases when force applied in opposite direction.

iv) When a cricketer hit the ball, the direction of the ball changes

v) Stretching of a rubber band or Squeezing of a sponge ball

MCQ

1) When does a force arises between two objects?

- ☐ When they are stationary
- ☐ At least two body interact
- ☐ When there is no interaction
- ☐ Only one body involved

2) When opening the door, in which direction the force is applied?

- ☐ Towards
- ☐ Upwards
- ☐ Away from
- ☐ Downwards

3) How do equal and opposite forces applied to a rope affects its movement?

- ☐ Increases Speed
- ☐ Cancel Each other's effect
- ☐ Decreases Speed
- ☐ Induce Rotation

Matching

a) Goal Keeper	i) change in motion
b) Hockey Player	ii) Stop a motion an object
c) Brakes of car	iv) Increase in speed
d) Force of Gravity on an falling object	v) decrease in speed

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