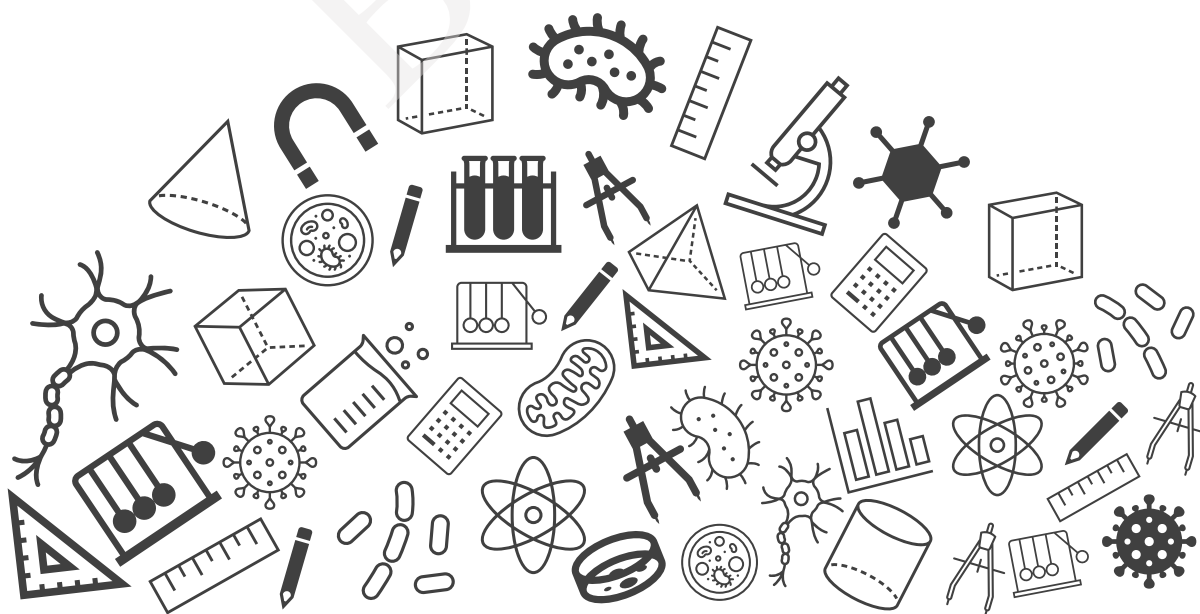




# Grade 08

## Chapter Notes

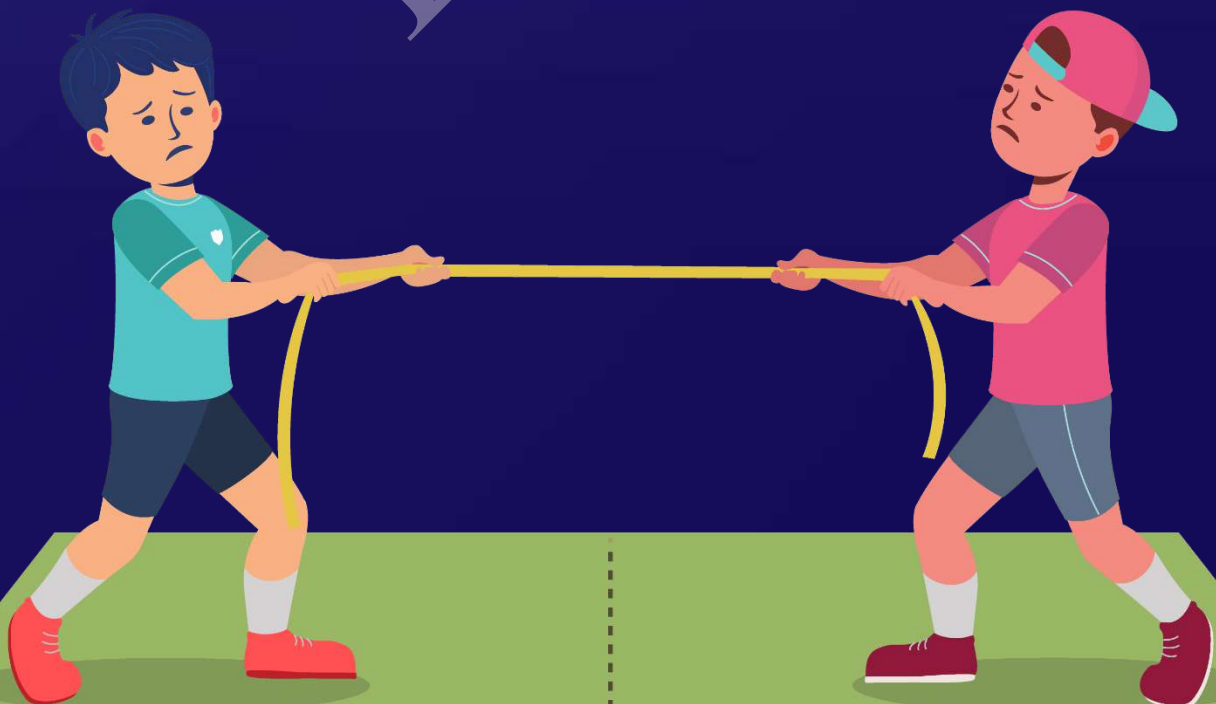


# BYJU'S Classes

## Class Notes

### Force and Pressure

Grade 08



# Topics to be Covered

**1**

## Understanding Force

- 1.1 Push and Pull
- 1.2 Force as an Interaction between Bodies

**2**

## Types of Force

- 2.1 Contact Force
- 2.2 Non-contact Force

**3**

## Effects of Force

**4**

## Net Force

- 4.1 Finding Net Force
- 4.2 Balanced and Unbalanced Forces

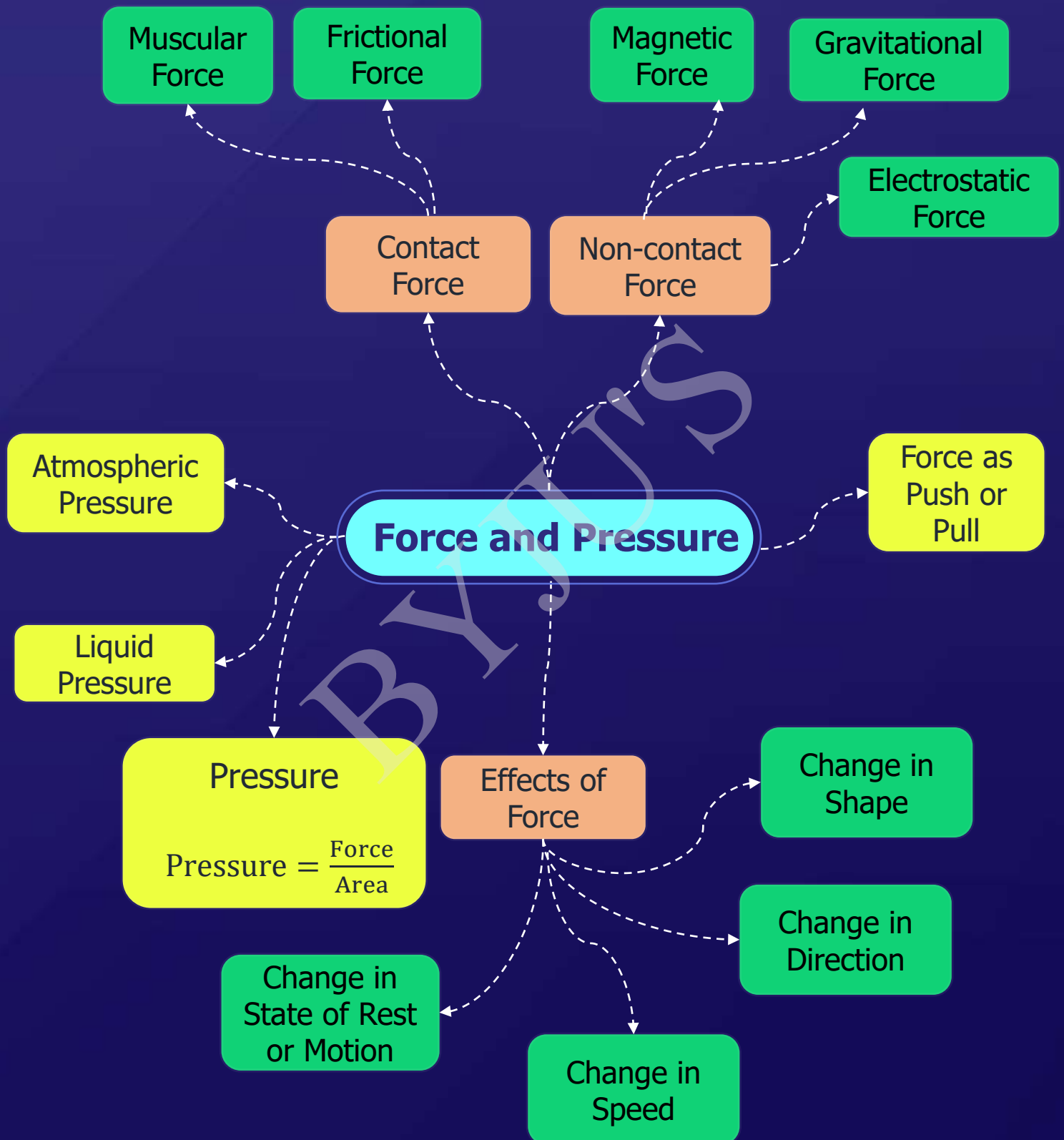
**5**

## Pressure

- 5.1 Pressure
- 5.2 Liquid Pressure
- 5.3 Gaseous and Atmospheric Pressure

# Mind Map

B



# Force

B



**A force is a push or pull acting on an object.**

Examples of pushing force:

- Pushing a trolley
- Force on keys while typing
- Inserting a plug in a socket

Examples of pulling force:

- Opening curtains
- Drawing water from a well
- Opening a drawer

- The SI unit of force is newton (N).

- At least two objects must interact for a force to come into play. For example, to push a trolley, a person has to interact with the trolley.

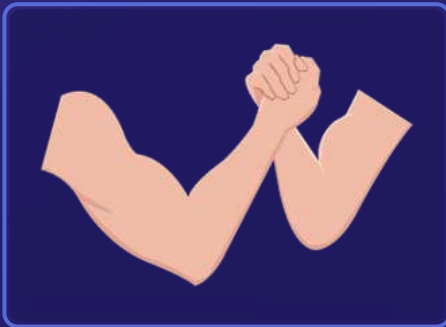
# Types of Force

B

Forces are broadly classified into two types: Contact forces and Non-contact forces.

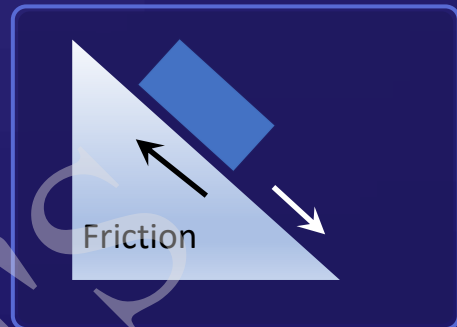
## Contact Forces

A force which requires physical contact between bodies and cannot act from a distance is called a contact force.



Muscular Force

**Muscular force is the force exerted by** the action of muscles.

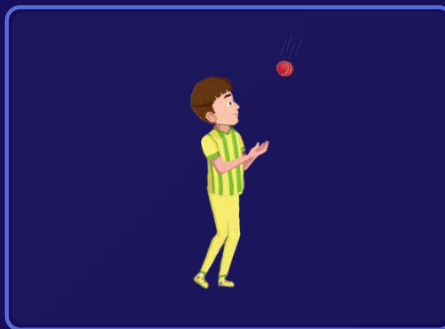


Frictional Force

**Friction** a force that opposes slipping or relative motion between surfaces in contact.

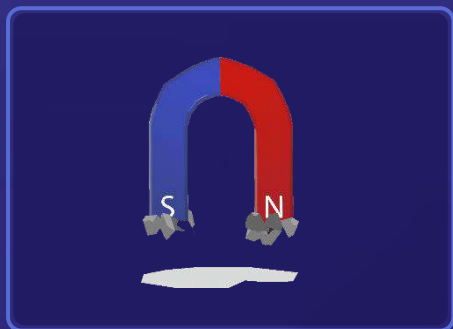
## Non-contact Forces

A force which can be exerted from a distance without any physical contact is called a non-contact force.

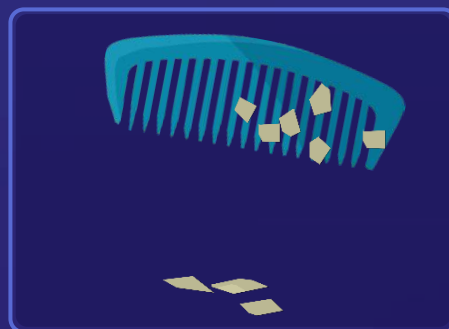


Gravitational Force

**Gravitational force** is an attractive force that exists between any two bodies having mass.



Magnetic Force



Electrostatic Force

**Magnetic force** is the force exerted by a magnet on another magnet or magnetic material.

It can be attractive or repulsive in nature.

**Electrostatic force** is a force due to electric charge particles at rest.

It can be attractive or repulsive in nature.

### Effects of Force

Change in state of rest or motion

Change in speed

Change in direction

Change in shape

### Examples -

Change in state of rest or motion – A fielder catching a ball

Change in speed – A car slowing down on application of brakes

Change in direction – A car taking a U turn

Change in shape – Kneading dough

# Net Force



Net force: Sum of the two applied forces



Net force: Difference between the two applied forces



Balanced Forces

Net force = 0



Unbalanced Forces

Net force  $\neq$  0



# Pressure

- Pressure is defined as perpendicular force acting on a unit area.

- SI Unit → pascal (Pa)

- $1 \text{ Pa} = 1 \text{ N/m}^2$

## Formula

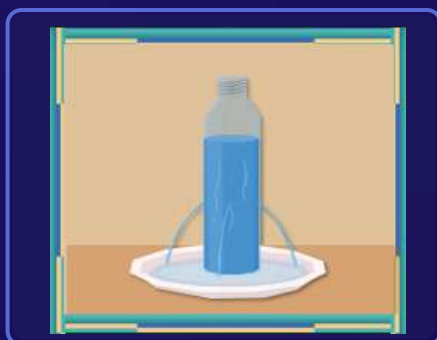
$$\text{Pressure} = \frac{\text{Force}}{\text{Area}}$$

## Liquid Pressure

Just like solids, liquids also exert pressure. Following are the properties of liquid pressure:



Acts on the walls of the container



Equal at the same depth



Increases with depth

## Gaseous Pressure

B

Gases also exert pressure. For example: a balloon bursts when we blow excess air into it.



## Atmospheric Pressure

- The gaseous envelope which surrounds the earth is known as the **atmosphere**.
- The weight of the air column over a unit area of Earth's surface is known as **atmospheric pressure**.
- Atmospheric pressure **decreases** with altitude.
- Generally, atmospheric pressure is measured in atm.

$$1 \text{ atm} = 10^5 \text{ Pa}$$

A straw uses atmospheric pressure for its working. One end of the straw is dipped in the liquid. When we suck at the other end of the straw, air pressure inside the straw reduces. But the pressure on the free surface of the liquid is equal to the atmospheric pressure. This difference in pressure pushes the liquid up the straw.

