2.1 Forces and Their Effects

A **force** is a push or a pull. It can cause an object at rest to be in motion, or a body in motion to change its speed or direction. It can change the shape and size of an object. It has both size and direction.

Types of forces:

1) **Friction:** A force that opposes the motion of two surfaces in Contact. The force acts in the opposite direction of motion.

2) **Gravity:** This is a force that attracts objects towards the center of the Earth. E.g. Gravity keeps us on land.

3) **Centripetal force:** This is a force that keeps an object moving in a circular path. For example, the force of gravity keeps the satellite in orbit and the centripetal force keeps it moving around the Earth. For any circular motion to occur, inward perpendicular force must act upon the object.

4) **Elastic force:** A force in elastic material when stretched or compressed. E.g. Stretching a rubber band.

5) **Buoyant force:** It is an upward force exerted by a fluid on an Object immersed in it. E.g. A boat experiences a buoyant force.

6) **Magnetic force:** A force that attracts or repels objects with magnetic properties. E.g. Two magnets with unlike poles attract.

7) **Electrostatic force:** A force that attracts or repels objects that are charged. E.g. Rubbing a rule on hair and attracting small pieces of paper.

8) **Drag:** A force acting in the opposing direction off an object moving through a fluid.

9.) **Air resistance**: A force acting In the opposing direction on an object moving through air.

10) **Thrust force**: This is the force that pushes or propels an object forward. Eg, Thrust force is used to propel the rocket upward into the sky.

11) **Nuclear force**: These are forces that hold the proters and neutrons together within an atomic nucleus.

12) **Centrifugal force**: Is a force acting radially outward on a rotating Object to move it outward. E.g. the feeling of being pushed outward in a Spinning amusement park ride.

13) **Tension**: A pulling force that occurs in the string or rope when a force is applied to each element. Eg A rope supporting a hanging object.

14) **Torsional forces**: It is a force used in twisting or rotating objects. E.g. Twisting 2 ends of a wet cloth to drench water out of it.