

## 10. Force and Types of Force

- A push or pull on an object is called a **force**.
  - **Push** – When an object is moving away from the applier of force
  - **Pull** – When an object is moving towards the applier of force
  - Force is a push or a pull which changes or tends to change the state of rest or of uniform motion, or direction of motion or the shape or size of a body.
  - Force is any action that has the tendency to change the position, shape, or size of an object.
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- Force is a push or pull upon an object resulting from the object's interaction with another object. The various effects of force are:
    - Force can move a body initially at rest.
    - Force can bring a moving body to rest.
    - Force can change the direction of a moving body.
    - Force can change the speed of a moving body.
    - Force can change the shape of a body.
    - Force can change the size of a body.
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- Non-contact force come into play even when the bodies are not in contact.
  - **Magnetic force** – Force acting between two magnets or a magnet and a magnetic material (eg. iron, steel, nickel, cobalt etc.). It can be attractive and repulsive.
  - **Electrostatic force** – Force due to electric charges. It can be attractive and repulsive.
  - **Gravitational force** – It is a kind of attractive force that comes into play because of the mass of a body. (eg. earth's gravitational attraction).
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- **Muscular force** – It involves the action of muscles.
    - Animals make use of muscular force to carry out their physical activities and other tasks.
  - **Friction** – It is an opposing force that acts between surfaces in contact moving with respect to each other.
    - Frictional force always acts between two moving objects, which are in contact with one another.
    - Frictional force always acts opposite to the direction of motion.
    - Frictional force depends on the nature of the surface in contact.
  - **Tension Force** - This force appears in a string, attached to a rigid support, when an object is suspended by it.
  - **Mechanical Force** - It involves the force generated by machines.
  - **Force exerted during collision** - Two objects push each other with an equal but opposite forces if collision occurs between them. These forces are known as the force of action and force of reaction.
  - **Combined Forces** - When two or more forces are acting on the same object.

