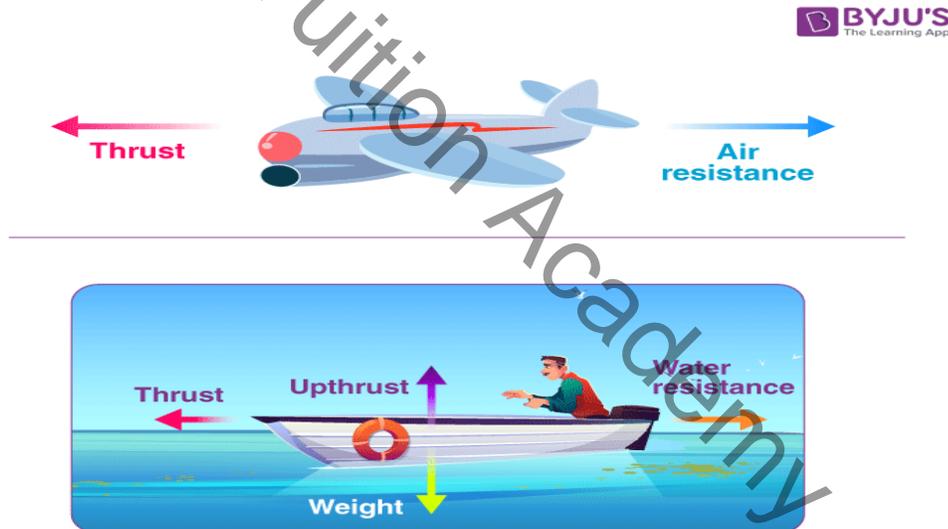
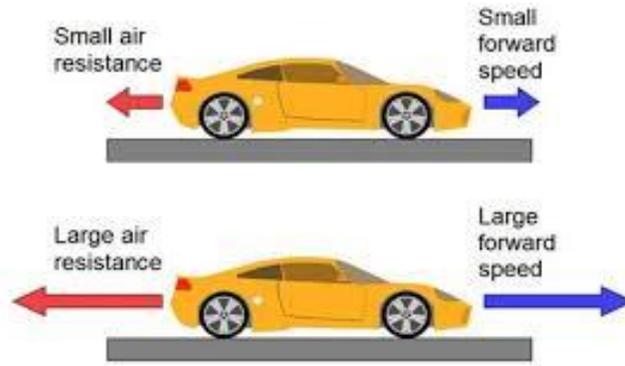


Drag

- **Definition:** It is the force acting opposite to the relative motion of any object.
- **Example:**
 - 1- The drag force always acts in the opposite direction to fluid flow. If the body's motion exists in the fluid-like air, it is called aerodynamic drag. And, if the fluid is water, it is called hydrodynamic drag.
 - 2- Streamlined objects are everywhere in nature – e.g., birds and dolphins have streamlined bodies to help them move quickly through the air and water, respectively.

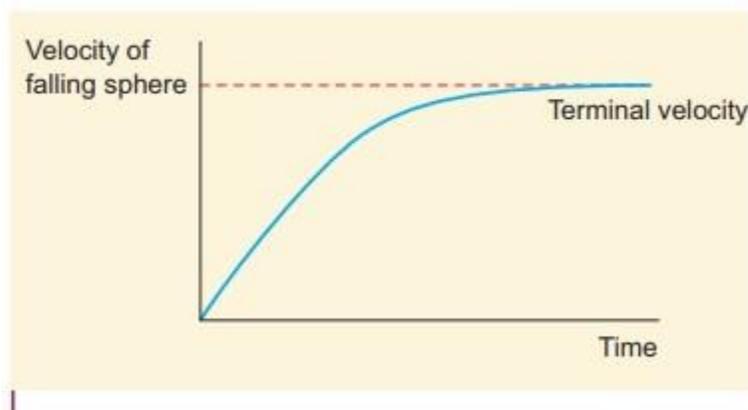


- Drag force always increase with the increase of speed. When speed is increase automatically friction or resistance increases.



Terminal Velocity

- **Definition:** Terminal velocity is the **maximum speed attainable by an object as it falls through a fluid** (air is the most common example).
- It is the balance of weight and air resistance.
- **Example:**
 - Parachutes** working by decreasing the Terminal velocity
- When object fall down the force of gravity is much more than friction force
- Gradually acceleration is decrease and at some point accelerating force and friction force get equal (Resultant Force)
- Here is the graphically representation of velocity and time



Factors that affect Terminal Velocity

- Terminal velocity depends on
 - 1- Shape
 - 2- Area
- Less streamlined object and large surface area object → less Terminal velocity
- **Example**
 - 1- If we throw marble and beach ball then terminal velocity of marble is greater than beach ball because of shape and surface area
 - 2- If 2 person falling down to the earth, one is without parachutes and other is with parachutes so the person move fast to the ground which is without parachutes. With parachutes have less velocity because it has large surface area.

