

8th Standard- Science

Friction

Friction opposes the relative motion between two surfaces in contact. It acts on both the surfaces.

Factors Affecting Friction

- Friction depends on the nature of surfaces in contact.
- For a given pair of surfaces, friction depends upon the state of smoothness or roughness of those surfaces. It is less for smooth surfaces.
- Friction is independent of the area of contact.
- Friction depends on how hard the two surfaces pressed together.

The force required to overcome friction at the instant an object starts moving from rest is called static friction.

Sliding friction is less than static friction.

Friction is a must as well as evil:

- Friction produces heat when we vigorously rub our palms together for a few minutes.
- Friction is responsible for wear and tear of various parts of machines.
- Friction decreases the efficiency of machines as a part of the machine's energy is lost in extra friction.
- Friction is responsible for writing, walking and transmitting energy.

- Friction is responsible for starting or stopping.
- Friction is used in gripping or holding an object with our hands.

So, we can say friction is a must as well as evil.

Friction is important for many of our activities.

Friction can be reduced by using:

- grease, oil, powder, ball bearing, and cushion of dry air between the moving surfaces.
- using anti-friction alloys.

Friction can be increased by making a surface rough.

The sole of the shoes and the tyres of the vehicle are treated to increase friction.

Fluid Friction can be minimised by giving suitable shapes to bodies moving in fluids.

To overcome fluid friction bodies of fish and birds are streamlined. Similarly, the ships and aeroplanes are also made streamlined.

Ball Bearing: Ball bearings reduce friction. They are used between hubs and the axles of ceiling fans and bicycles.

Drag: The frictional force exerted by fluids is also called drag.

Fluid Friction: Fluid exerts the force of friction on objects in motion through them.

Friction: Friction is the form of force, which opposes the relative motion between the two surfaces in contact and it acts on both the surfaces.

Interlocking: Irregularities on two surfaces in contact may clasp with each other, increasing friction.

Lubricants: The substances which reduce friction are called lubricants.

Rolling Friction: When one body rolls over the surface of another body, the resistance to its motion is called the rolling friction.

Sliding Friction: When one surface is sliding over the other surface, sliding friction comes into play.

Static Friction: Static friction comes into play to counterbalance the applied force on the body.