



**STATE COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING  
TELANGANA, HYDERABAD**

**ACADEMIC YEAR- 2020-21, LEVEL – 2**

**Class: VIII**

**Medium: English**

**Subject: Physical Science**

**Name of the chapter : Friction**

**Worksheet No. 11**

**Topic / Concept: Friction – Understanding the Concept of Force of Friction**

**KEY CONCEPTS**

1. Understanding the concept of force of Friction.

**LEARNING OUTCOMES**

Students....

1. Able to explain the concept of force of friction.
2. Identify the forces acting on a body through an activity.

**INTRODUCTION:**

When we roll a ball on different plane surfaces like carpet, rough roads and on smooth floor by applying same external force, we observe that the motion of the ball is different in each case. The ball moved a large distance on smooth floor on comparing with carpet and rough surface. The force of resistance to the motion seems to be more on the rough surface. The rolling ball moves farther on a smooth marble floor than on a rough sandy surface.

The resistance offered to the motion of a body over the surface of another body is called Force of Friction.

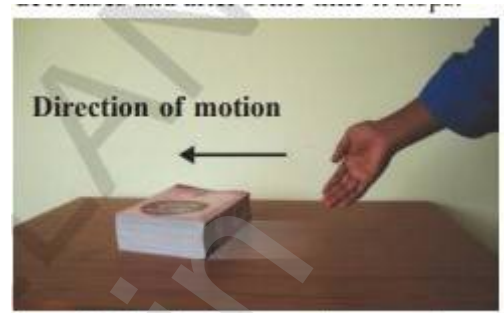
**Activity-1: IDENTIFYING THE FORCES ACTING ON A BODY AND EFFECT OF FRICTIONAL FORCE.**

1. Place a book on the surface of a table and gently push the book as shown in the fig.1.
2. We observe that the book stops after covering some distance.



*Fig-1: Pushing the book*

- The book moves with non-uniform speed with respect to the surface of table. This can be observed in fig.2. If a body has to be in non-uniform motion, a net force should act on it.

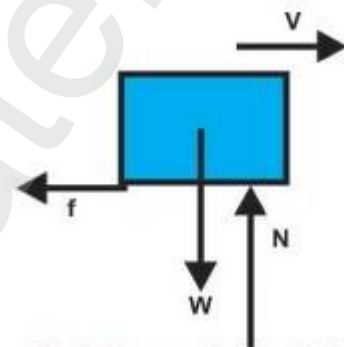


*Fig-2 : The book acquires a speed*

Let us examine the forces acting on the book:

Two forces act on the book in the vertical direction as shown in the fig.3.

- Weight of the book ( $W$ ) or gravitational force acting vertically downwards.
- Normal force ( $N$ ) or reaction force applied by the floor vertically upwards.



*Fig-3: Forces acting on the book*

As there is no change in motion of the book along the vertical direction, the net force acting on the book in the vertical direction is zero.

That is,  $W - N = 0$  or  $W = N$ .

The speed of the book gradually decreases in the horizontal direction i.e., the book has acceleration opposite to the direction of motion which we call deceleration.

The force applied by the floor (surface) on the book is called Frictional force or Friction.

The force which opposes the relative motion of two surfaces of bodies in contact is called Frictional force. This type of friction between the book and the floor is called sliding friction.

### **SLIDING FRICTION:**

The friction which comes into play when the surface of one object moves relative to the surface of another object is called sliding friction.

