

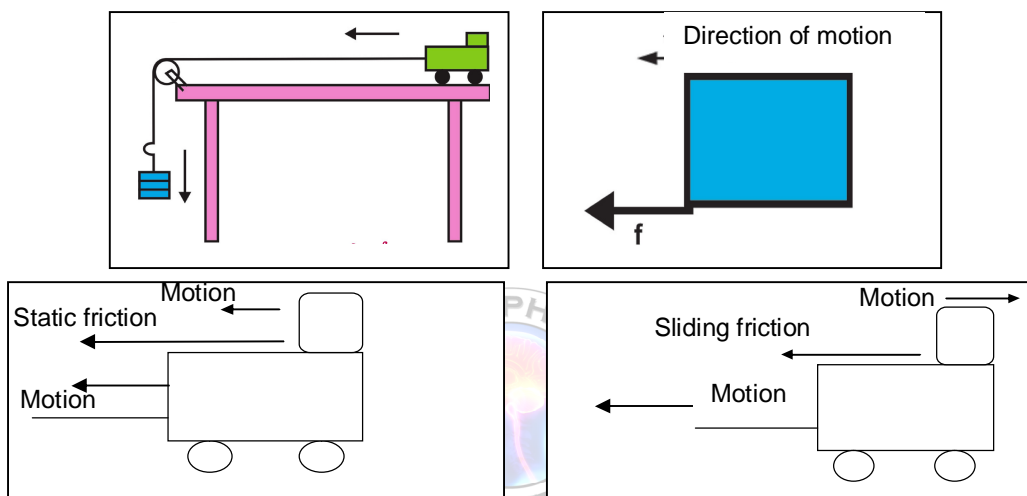
EXPERIMENT - 1

STATIC FRICTION

Aim : Understanding the nature of friction and concept of static friction.

Required : Long table, Trolley, Small wooden block, Inextensible string, Weight hanger, Weights, Pulley

Description : The force which opposes the relative motion of two surfaces of bodies in contact is called frictional force. If there is no relative motion between two bodies, the friction is static friction. If there is relative motion, the friction is called sliding friction.



Procedure:

1. Place the Trolley at one edge of the long table. Keep the small wooden block on it.
2. Arrange pulley at the other edge of the table.
3. Tie an inextensible string to the trolley and pass it over the pulley.
4. Hang the weight hanger at the free end of the string.
5. Observe the motion of the trolley and the wooden block.
6. Place the trolley at the initial place.
7. Observe the motion of the trolley and the wooden block by adding small weights on the weight hanger.
8. Continue this experiment until the motion of the wooden block is opposite to the motion of the trolley.
9. Note the observations in the table in each and every case.
10. Repeat the experiment by using iron block instead of wooden block.
11. Note the observations in the table.

Observations :

Object on the trolley	Weights on Hanger	Direction of motion of trolley Towards right side ? or Towards left side ?	Direction of motion of block kept on trolley Towards right side ? or Towards left side ?	Static friction ? or Sliding friction ?
Wooden block	50 g			
	100 g			
	150 g			
	200 g			
	250 g			
Iron block	50 g			
	100 g			
	150 g			
	200 g			
	250 g			

Precautions :

- Take the long table as long as available.
- Observe the motion of the objects carefully.
- Place the weights in the Weight hanger slowly.
- Trolley should not be light weight.

Result : Understood the nature of friction and concept of static friction.

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