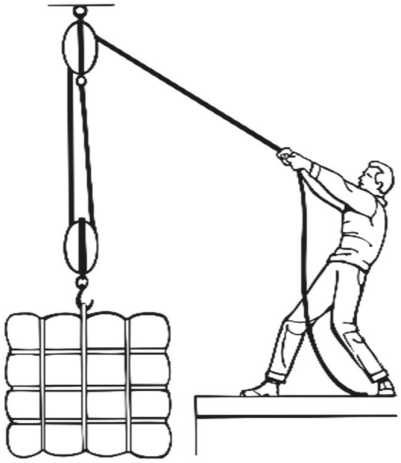
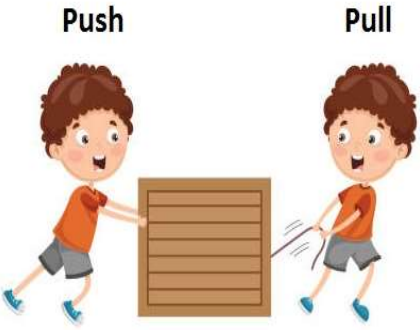
Grade 10 Science

Reading Material



Unit 4

Newton's Laws of Motion



Nature of force and its effects

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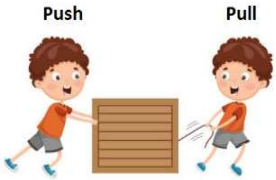
Nature of force and its effects



- Applying forces:
  - When push something
  - When pull something

- Results of applying forces are:
  - Lifting
  - Compressing

- Instances of applying a force
  - Pushing a table
  - Pushing a bus
  - A cart pulled by a bull

- Pushing a table
  - Try to push
  - If it does not move, increase the force
  - When keep increasing the force, at some points,
  - It will begin to move

- Pushing a bus
  - Try to push the bus (it would not more)
  - Push it with the help of a group of people (It would move)

Theory:

- If applies a force sufficient to overcome a force that tends to oppose the motion of an object, then it would begin to move.
- If the force that apply is small, It would balance with the resistive force. Since the net force acting on the object at such an instance is zero, the object would not move.

Friction: -

The force that opposes the motion of the object is a resistive force called **friction**

Unbalanced force: -

When apply a sufficient large force, the resistive force would not be able to balance it. This force is known as **unbalanced force.**

- The results of applying a force depends on the direction of the force.

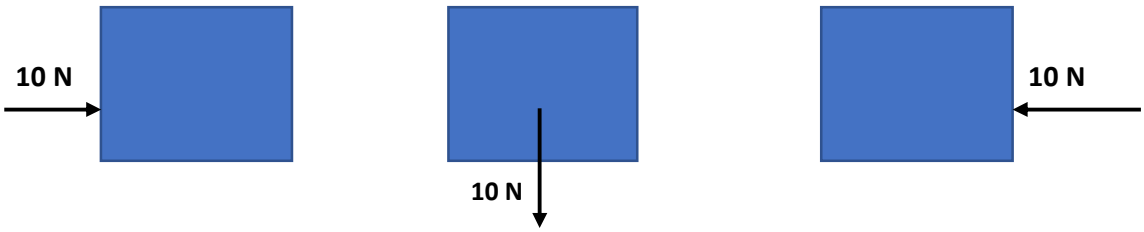
  E.g.: - A cart pulled by a bull

- When applies a force from behind, in the direction that the cart would move faster. If a force is applied in the direction opposite to the direction of motion, the cart would slow down.

Vectors and Scalars

Vector	Scalar
has both a magnitude and direction. e.g.: Velocity Displacement Acceleration Force	has only a magnitude. no proper direction. e.g.: Speed Time Distance

The line of action of the force



The direction of a force acting on some point can be indicated by a straight line drawn from that point. This line is called the line of action of the force.