

PARAGON CONVENT SCHOOL

SECTOR : 24 B, CHANDIGARH

CHAPTER - 11

FORCE, WORK AND ENERGY

Summary:

- Force can move, stop, speed up, slow down or change the direction or shape of an object.
- Gravity and friction are the two types of forces that act all the time.
- Lever, pulley, inclined plane, screw, wedge and wheel and axle are simple machines that make our work easier.
- When a force moves an object in its direction, work is done.
- The sun, wind and water are the sources of energy.

Multiple Choice Questions (Page No. 86)

1. (c) 2. (b) 3. (b)

Multiple Choice Questions (Page No. 87)

1. (c) 2. (b) 3. (c)

EXERCISES

Section A

Oral Questions

Q1.- How can you say that friction slows down the movement of an object?

Ans.- When we roll a ball on the floor, it slows down gradually due to friction.

Q2.- When do we say that work is done?

Ans.- When the force applied on an object moves it through a distance in the direction of the force, work is said to be done.

Q3.- Why do we use simple machines?

Ans.- We use simple machines because they make our work easier and faster.

Science Quiz

Q1.- Name the force responsible for the falling of ripe fruits.

Ans.- The gravitational force

Q2.- Which force help us to write on a paper?

Ans.- The frictional force

Q3.- What is wind energy?

Ans.- Energy obtained from the wind is called wind energy.

Multiple Choice Questions

1. (b) 2. (a)

Circle the odd ones. Give reason for your choice

1. Wedge Pulley Ball

Ans.- Ball - Others are types of simple machines, whereas it is used for playing.

2. Screw Bicycle Pulley

Ans.- Bicycle - Others are types of simple machines, whereas bicycle is not an example of simple machine.

3. Solar cooker Solar heater Electric heater

Ans.- Electric heater - Others run by solar energy, whereas electric heater is run by electrical energy.

Fill in the blanks with the help of given words.

1. shape 2. screw 3. Energy 4. windmill 5. Dam

Identify the simple machines and write their names in the spaces provided.

1. Screw 2. Axe (wedge) 3. Wheel and axle

Section B

Multiple Choice Questions

1. (c) 2. (a)

Very short answer questions

Q1.- Name the force by which the earth pulls the objects towards it.

Ans.- Gravitational force

Q2.- Give an example of a wedge.

Ans.- Knife/Axe

Q3.- Give an example of a wheel and axle.

Ans.- Bicycle pedals /Steering wheel

Short answer questions

Q1.- Why is friction essential for us?

Ans.- Friction is essential for us because of the given reasons-

I) It helps to write on a paper.

II) It helps to walk on a surface.

Q2.- When a wall is pushed, it does not move from its place. Is any work done in this situation? Why?

Ans.- No work is done in this situation. It is because the position of the wall has not changed. Work is said to be done only when force applied on an object makes the object move in the direction of force.

Q3.- Rishabh's mother seldom uses LPG and electrical equipment and mostly uses solar energy for cooking and heating purposes. Rishabh has convinced his friends and neighbours also to do so.

A) What is solar energy?

B) What value does Rishabh's mother show by using solar energy?

Ans.- (a) The energy that we get from the Sun is called solar energy.

(b) We learn to take care of the environment and save energy.

Q4.- What is meant by gravitational force?

Ans.- The force by which the Earth pulls the objects towards itself is called gravitational force (gravity).

Q5.- What is friction?

Ans.- Friction is a force that tries to stop a moving object.

Long answer questions

Q1.- What is the difference between a lever and a pulley?

Ans.-

<u>LEVER</u>	<u>PULLEY</u>
1. A lever is a simple machine used to cut things, lift weights and open lids.	1. A pulley is a simple machine used to draw water from the wells. It consists of a rope running over a wheel. The wheel is grooved to prevent the rope from slipping off.
2. Scissors, see-saw and bottle opener are examples of lever.	2. Flagpole is an of pulley.

Q2.- What is water energy? How is it related to hydroelectricity?

Ans.- The energy of flowing water is called water energy or hydroenergy. Energy of water falling from dams is used to rotate the turbines of the generator to generate electricity. Electricity produced by the energy of flowing water is called hydroelectricity.

Q3.- Discuss the effects of force.

Ans.- The effects of force are -

- (i) Force can move a resting object.
- (ii) Force can speed up a moving object.
- (iii) Force can change the direction of a moving object.
- (iv) Force can stop a moving object.
- (v) Force can change the shape of an object.
- (vi) Force can slow down a moving object.