



CLASS IV

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SUBJECT : SCIENCE

LESSON-3. Force, work and energy

Prepared on _____

Shared on _____

New words

- 1) Gravitational force 2) Mechanical force 3) Magnetic force 4) Muscular force 5) Frictional force
6) Lubricants 7) Lever 8) Fulcrum 9) Effort 10) Load 11) Pulley 12) Inclined plane 13) Screw
14) Wedge 15) Axle 16) Fossil fuel 17) Renewable 18) Non renewable

Pre-activity

1. Name some machines used at home.
2. Give examples of push or pull performed everyday.

Q1) Give reasons for each of these.

1. A ball rolls faster on a cemented floor than a grassy field.

Ans . Grassy field provides more friction in comparison to cemented floor. Hence, the ball rolls faster on the cemented floor.

2. It is easier to move heavy furniture when we put a piece of cardboard under it.

Ans. When a piece of cardboard is placed under heavy furniture, the friction reduces. Hence, it can be moved easily.

Q2) Answer these questions in brief.

1. What is force?

Ans. Force is a push or a pull or a twist applied on a body.

2. What is mechanical force? Give an example of mechanical force.

Ans . Mechanical force: Sometimes, we use the force of a machine to do things. Such a force is called mechanical force. Pushing bicycle pedals to move forward and using a crane to lift things are examples of mechanical force.

3. Define work.

Ans. Work is said to be done when we apply force on an object and it moves in the direction of the force applied or changes position.

4. What are the ways in which machines help us ?

Ans. In our daily lives, we use different types of machines. These machines make our work easy. They help us to do work with less effort and in less time.

Q.3) Answer these questions in detail.

1. Write a list of things that force can do.

Ans. Force can stop a moving object. Force can move an object. Force can change the shape of an object like kneading dough. Force can change the direction and speed of a moving object

2. What are the different kinds of machines? Describe briefly and give one example of each.

Ans. There are different kinds of simple machines like an inclined plane, a wedge, wheel and axle, pulley, a screw, a lever.

- An inclined plane is a flat surface that is higher on one end, that is, it has a slope. It helps to move an object to a lower or higher place . Slides, ramps and escalators are examples of inclined planes.
- A wedge is made up of two planes, with one or both inclined or slanting planes, which join to form a sharp edge. It is used to split things apart. An axe blade, a kitchen knife, a push pin, a nail, a fork examples of wedges
- . A screw consists of an inclined plane wrapped around a cylinder. Screws are used to hold things together. Examples of screws are bolts, bottle caps.
- A lever is a simple machine that has two parts—a rod or an arm and a point or a fulcrum around which the lever turns. A lever can help us lift objects, open cans and cut things. Some examples of levers are can opener, nut cracker, scissors, see-saw and hammer.
- A pulley simple machine is made up of a rope running between the grooves of a wheel. Pulleys help us to move loads upwards, downwards or sideways. Water from a well is drawn out with the help of a pulley.
- A wheel and axle consists of a wheel and a rod known as axle that passes through the centre of the wheel. Moving heavy objects becomes easier with the help of wheel and axle. The wheels of a car and a bicycle, and skates are examples of wheel and axle.

Q.4) Out of the box.

1. Most of our cities are polluted by harmful gases in the air. What is responsible for this pollution? How can we make the air cleaner?

Ans. Burning fuels and things made up of wood, rubber and plastic produce harmful gases. Vehicles also release many harmful gases. To make air cleaner, we should reduce the use of vehicles and should not burn things made up of rubber and plastic.

POST ACTIVITY:

1. Draw the concept map of force and simple machine.

SUBJECT TEACHER

HOD

COORDINATOR

PRINCIPAL