SNBP International & Senior Secondary School, Chikhali, Pune.
Affiliation No. 1130703
Academic session 2024-25
NOTES (Term -2)

Class: 5 Subject: Science
Lesson-9- Simple machines
Prepared By: Ms. Deepali Powar
Prepared on- Shared on-

I. Key words:

1. Tool
2. Effort
3. Load
4. Fulcrum
5. Complex machine
6. convenient
7. Pliers
8. Ramp
9. Lever
10. Inclined plane
11. Pulley
12. Wedge

II. Pre activity: Write some examples and uses of simple machines you used in your day today life.

III. Name the following.

Q.1. Three examples of third-class levers.

Ans- Fishing rod, forceps, tweezers

Q.2. Two examples of a wheel and axle arrangement.

Ans- Sewing machine, cycle

Q.3. Three parts of a lever.

Ans- Effort, load, fulcrum

Q.4. Three simple machines.
Ans- Levers, pulley, screw

IV. Short answers questions.

Q. 1. Define pulleys.
Ans- A wheel with a groove around its edge used to pass the rope through it is called a pulley.

Q. 2. Explain the uses of a wheel and axle arrangement.
Ans- the wheel alone cannot be used as a simple machine. It becomes usable only when a rod or an axle is attached to it. A rod attached to a wheel makes the wheel and axle usable. Most big machines have such an arrangement. Examples are vehicles, sewing machines, cycles etc.

Q. 3. Explain the working of a wedge.
Ans-* A wedge has a 'V' shape at its edge and is used to separate objects. Two inclined planes come together to make an edge.
*An axe or a knife is a wedge.
*Splitting and cutting becomes easier using these

Q. 4. Define a screw with two examples.
Ans- An inclined plane wrapped around a cylinder or cone is called a screw.
Examples-The screw thread is used in bolts, revolving stools, bottle caps and a pen cap.

Q. 5. Name the uses of a lever.
Ans-1) Less effort is applied while lifting or moving an object.
2) Levers make it easier to lift heavy materials, remove tight objects and cut items.

V. Long answers questions.
Q.1. Define simple machines and explain their uses.
Ans- Tools that make our work easier and faster are called simple machines.
1)They help us to change or increase the direction of force by applying force at a convenient point.
2) They transfer energy from one form to another.
3) Increasing the distance or speed of a force.

Q.2. Explain a lever and its classifications.
Ans- A rigid rod like structure that is fixed at the fulcrum is called a lever.
Based on the position of fulcrum, levers can be classified into three types:
• First Class Levers: A first-class lever has the fulcrum (F) in between the load (L) and the effort (E).
Ex-Screwdriver, pliers, see-saws, claw hammers,
• Second Class Levers: A second-class lever has the load (L) in between the fulcrum (F) and the effort (E).
Ex-Bottle openers, nut crackers, wheel barrows,
• Third Class Levers: A third-class lever has the effort (E) in between the fulcrum (F) and the load (L).
Ex-Fishing rod, forceps, tweeze

Q.3. Define inclines plane and explain its three uses.
Ans- A sloping surface is an inclined plane. Moving objects on a slope is easier. An inclined plane always has its one end higher than the other.
*Uses-1) Workers using inclined planes from their trucks to unload or load the cargo.
2)A ramp is an example of an inclined plane. It can be found next to the staircases in several hospitals and buildings, enabling movement for people on wheel-chair.
3) To keep the vehicle moves safely on road's circular track.

Q.4. Why is a screw more effective than a nail to hold things together?
Ans- A screw makes it easier to hold two objects tightly together. It is more efficient than a nail because a screw has a spiral or a thread.

HOTS:-

Q1- Imagine a wheel and axle arrangement with triangular or rectangular wheels. Will it be possible to work with them?
(Hint: Which shaped wheel is easier to rotate?)
Ans- It would be possible to work with them as they would not roll easily, defeating the purpose of wheel as a simple machine.

Q2-How did the staircase get invented? What kind of a machine does it represent?
Ans- Stairs are an example of inclined planes.

Post-activity- Draw flowchart of simple machines.

Subject Teacher H.O.D. Coordinator Principal