

1. Force, Work, Energy and Simple Machines

1. Define force. Explain how force can change the shape of an object with one real-life example.
2. Differentiate between a push and a pull. Write two examples of each from daily life.
3. Why is friction both useful and harmful? Give at least two examples for each case.
4. A boy pushes a table with all his strength, but the table does not move. Has he done work in science? Explain why.
5. State the two conditions needed for work to be done. Give one example where both conditions are present.
6. Explain the difference between force and work in simple words with suitable examples.
7. What is energy? Why is energy needed to do any kind of work?
8. Name and explain any four forms of energy with one example each.
9. Distinguish between kinetic energy and potential energy. Give two examples of each.
10. A stretched rubber band, a moving bicycle, and a book kept on a shelf all have energy. Identify the type of energy in each case and explain your answer.
11. What happens to the energy of a ball when it falls from a height? Describe the change in potential and kinetic energy.
12. Why is food called a source of energy for our body? How does this energy help us in daily activities?
13. Define simple machine. How do simple machines make our work easier?
14. Name the six simple machines and give one example of each.

15. Explain what a lever is. Name its three main parts and describe the function of each part.
16. Differentiate between first-class, second-class, and third-class levers with one example of each.
17. Why are scissors called a simple machine? Also explain which type of lever they are.
18. What is an inclined plane? How does it help in lifting heavy objects with less effort?
19. A ramp is easier to use than lifting a box straight up. Explain this statement using the idea of simple machines.
20. What is a pulley? Describe how a pulley helps us lift loads more easily.
21. Give three examples from daily life where pulleys are used. Explain the use of each.
22. What is a wheel and axle? How does it reduce effort in doing work?
23. Name three tools or objects that use the wheel and axle principle. Explain how each works.
24. What is a wedge? How is it useful in cutting or splitting things?
25. Explain how a knife and an axe are examples of wedges.
26. What is a screw? How is a screw related to an inclined plane?
27. Give three examples of screws used in daily life and explain their purpose.
28. Why is a staircase considered an inclined plane? Explain with reason.
29. A student says, "Every moving object has energy." Do you agree? Give reasons and examples.
30. A student says, "If there is no movement, there is no work done in science." Is this always true? Explain with examples.
31. How does friction help us to walk without slipping? What might happen if there were no friction at all?

32. Explain the difference between muscular force, gravitational force, and frictional force with examples.
33. Why does a ball rolling on the ground stop after some time even if no one touches it?
34. Give two situations where force changes the direction of motion of an object.
35. Give two situations where force changes the speed of an object.
36. Explain with examples how force can start, stop, or change the motion of an object.
37. A child climbs up a slide and then slides down. Explain the role of force and energy in both actions.
38. Why does a loaded wheelbarrow make work easier than carrying the load in your hands? Mention the simple machine involved.
39. How does a bottle opener help us open a tight cap more easily? Which simple machine is involved?
40. Why is a longer ramp usually easier to use than a shorter steep ramp for lifting the same load?
41. A fisherman uses a fishing rod. Explain why a fishing rod is called a third-class lever.
42. Compare a seesaw, a wheelbarrow, and a pair of tongs on the basis of the type of lever they represent.
43. Explain the statement: "Simple machines do not reduce the amount of work, but they make work easier."
44. How can one machine be made of two or more simple machines working together? Give two examples.
45. A bicycle is called a complex machine. Name the simple machines present in it and explain any two.

46. Why do we say that energy can change from one form to another? Explain with two examples.
47. Describe what happens when you rub your palms together quickly. Which force and which form of energy are involved?
48. Why is it easier to drive a screw into wood than to push a nail-shaped object of the same size with bare hands?
49. Imagine you have to lift a heavy flower pot to a terrace. Which simple machine would you choose and why?
50. Write a short note on how force, work, energy, and simple machines are connected in our daily life.