



PHYSICS

BOOKS - NAND LAL PUBLICATION

FORCE AND PRESSURE

Questions Asked In Between The Chapter

1. Do you recall what helps us to decide whether an object is moving faster than the other?



3. Have you ever wondered what makes an object slow down or go faster, or change its direction of motion?

4. What do you do to make a football move?



5. What do you do to make a moving ball move

faster?

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6. How does a goalkeeper stop a ball?





7. How do fielders stop the ball hit by a

batsman?

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8. What is a force?

9. What can force do to bodies on which it is applied?
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10. Can these terms be replaced with one or

more terms?



11. Table gives some examples of familiar situations involving motion of objects. You can add more such situations or replace those given here. Try to identify actions involved in each case as a push or a pull and record your observations in the Table. One example has been given to help you.



12. Do you notice that each of the actions can be grouped as a pull or push or both? Can we infer from this that to move an object it has to be pushed or pulled?

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13. When does a force come into play?

14. I learnt in class VI that a magnet attracts a piece of iron towards it. Is attraction also a pull? What about repulsion between similar poles of two magnets? Is it a pull or push?



15. Suppose a man is standing behind a stationary car. Will the car move due to his presence?



16. Can you move the stationary car?



17. Is it easier to move it now? Can you explain why?



18. when does the object move?





19. Is it not similar to the situation shown in

fig.



20. What happen when you and your friend

pushed the heavy object in the same direction.



23. Push the ball while it is still moving. Is there any change in its speed? Does it increase or decrease?



24. Does your palm apply a force on the ball?

What happens to the speed of the moving ball?



25. What would happen if you let your palm

hold the moving ball?

26. Paheli is curious to know whether application of a force results always in a change in speed of an object.

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27. Does the ball continue to move in the same

direction after it strikes the ruler?

28. In each case, note your observations about the direction of motion of the ball after it

strikes the ruler.

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29. Can you give some more examples of this

kind?

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30. Try to observe the effect of force in as many situations as possible. You can also add similar situations using available material. Note your observations in Columns 4 and 5 of the Table.

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31. What do you conclude from the observations noted in Table ?

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32. Can you push or lift a book lying on a table

without touching it?

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33. Can you lift a bucket of water without holding it?

34. Could it be a muscular force that does it?



36. Can you list a few more examples of the

force exerted by the muscles in our body?



38. What causes a change in their state of motion? Could some force be acting on them! Can you guess the direction in which the force must be acting in each case?



39. You may be wondering whether it is essential for the agent applying a force on an object to be always in contact with it?

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40. Observe what happens. Next, bring the other end of the magnet near the same end of the magnet placed on the rollers (Fig.). Note what happens to the magnet placed on the

rollers every time another magnet is brought

near it.



41. Does the magnet on the rollers begin to move when the other magnet is brought near it? Does it always move in the direction of the approaching magnet?

42. What do these observations suggest? Does

it mean some force must be acting between

the two magnets?



43. Do you have to bring the magnets in contact for observing the force between them?



44. What do you observe?



46. The leaves or fruits also fall to the ground when they get detached from the plant. Have





48. Try to push a nail into a wooden plank by

its head. Did you succeed?

49. Try now to push the nail by the pointed end into wooden block. Could you do it?



50. Why a sharp knife cuts better than a blunt

one?

51. Do you get a feeling that the area over which the force is applied (for example, the pointed end of the nail) plays a role in doing these tasks easier?

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52. The bags and suitcases are provided with

broad handles. Explain why.

53. Do liquids and gases also exert pressure? Does it also depends on the area on which the force acts?

O Watch Video Solution

54. Does the rubber sheet bulge out?

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55. Can you see any relation between the amount of the bulge in the rubber sheet and the height of the water column in the cylinder?

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56. What do you observe? Why does the rubber sheet fixed to the glass tube bulge this time? Pour some water in the bottle. Is there any change in the bulge of the rubber sheet?



57. Does the bulging of the rubber sheet indicate that water exerts pressure on the sides of the container as well?

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58. What do you observe? Do the different streams of water coming out of the holes falls at the same distance from the bottle? What does this indicate?



60. I have seen fountains of water coming out of the leaking joints or holes in pipes supplying water. Is it not due to the pressure exerted by water on the walls of the pipes?





61. When you inflate a balloon, why do you

have to close its mouth?

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62. What happens when you open the mouth

of an inflated balloon?

63. Suppose you have a balloon which has holes. Would you be able to inflate it? Why not?

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64. Can we say that air exerts pressure in all

directions?

65. Do you recall what hanpens to the air in the bicycle tube when it has a puncture? Do these observations suggest that air exerts pressure on the inner walls of an inflated balloon or a tube?

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66. How large or small is the atmospheric

pressure?

67. Does it stick to the surface? Now try to pull

it off the surface. Can you do it ?

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68. Does it give you an idea how large the atmospheric pressure is?

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69. Do you recall what helps us to decide whether an object is moving faster than the other?



70. What does the distance moved by an object in unit time indicate?



71. Have you ever wondered what makes an object slow down or go faster, or change its direction of motion?



72. What do you do to make a football move?






77. What can force do to bodies on which it is

applied?

78. Can these terms be replaced with one or

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observations in the Table. One example has

been given to help you.



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89. What happens when force acting on an

object are in opposite direction and equal?

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90. when the ball begin to move?

91. Push the ball while it is still moving. Is there

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decrease?



92. Does your palm apply a force on the ball?

What happens to the speed of the moving

ball?

93. Does it increase or decrease? What would happen if you let your palm hold the moving ball?



94. Explain with an example force can change

the speed of an object.



95. Does the ball continue to move in the same

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Watch Video Solution

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99. What do you conclude from the observations noted in Table ?

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100. Can you push or lift a book lying on a

table without touching it?

101. Can you lift a bucket of water without holding it? Watch Video Solution

102. Could it be a muscular force that lift a

bucket of water?



103. Where are these muscles located which

make breathing possible?

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104. Can you list a few more examples of the

force exerted by the muscles in our body?

105. give an example where a moving object

stops on its own?

Watch Video Solution

106. What can we do to an object to change its

state of motion ?



107. You may be wondering whether it is essential for the agent applying a force on an object to be always in contact with it?



108. Does the magnet on the rollers begin to move when the other magnet is brought near it? Does it always move in the direction of the approaching magnet?

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110. What do these observations suggest? Does it mean some force must be acting between the two magnets?

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111. Do you have to bring the magnets in contact for observing the force between them?

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112. What do you observe?

View Text Solution

113. What do you observe When both the straws are rubbed with paper bring near to each other.



114. The leaves or fruits also fall to the ground

when they get detached from the plant. Have

you ever wondered why it is so?



115. Is there any relation between pressure and

force?



116. Try to push a nail into a wooden plank by

its head. Did you succeed?

117. Try now to push the nail by the pointed

end into wooden block. Could you do it?

Watch Video Solution

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View Text Solution

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128. I have seen fountains of water coming out of the leaking joints or holes in pipes supplying water. Is it not due to the pressure exerted by water on the walls of the pipes?





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View Text Solution



 Give two examples each of situations in which you push or pull to change the state of motion of objects.



2. Give two examples of situations in which applied force causes a change in the shape of an object.



3. An archer stretches her bow while taking aim at the target. She then releases the arrow , which begins to move towards the target. Based on this information fill up the gaps in the following statements using the following terms.

Muscular, contact, non-contact, gravity, friction, shape, attraction.

To stretch the bow, the archer to applies a

force that causes change in its.....

4. An archer stretches her bow while taking aim at the target. She then releases the arrow , which begins to move towards the target. Based on this information fill up the gaps in the following statements using the following terms.

Muscular, contact, non-contact, gravity, friction, shape, attraction.

The force applied by the archer to stretch the

bow is an example offorce.

5. An archer stretches her bow while taking aim at the target. She then releases the arrow , which begins to move towards the target. Based on this information fill up the gaps in the following statements using the following terms.

Muscular, contact, non-contact, gravity, friction, shape, attraction.

The type of force responsible for a change in the state of motion of the arrow is an example of a force.

6. An archer stretches her bow while taking aim at the target. She then releases the arrow, which begins to move towards the target .Based on this information, fill up the gaps in the following statements using the following terms. Muscular, contact, non -contact, gravity, friction, shape, attraction While the arrow moves towards its target, the forces acting on it are due to..... of air.

7. In the following situations identify the agent exerting the force and the object on which it acts. State the effect of force in each case Squeezing a piece of lemon between the fingers to extract its juice.

Watch Video Solution

8. In the following situations identify the agent exerting the force and the object on which it acts. State the effect of force in each
case

Taking out paste from a toothpaste tube.



9. In the following situations identify the agent exerting the force and the object on which it acts. State the effect of force in each case

A load suspended from a spring while its other end is on a hook fixed to a wall.



10. In the following situations identify the agent exerting the force and the object on which it acts. State the effect of force in each case

An athlene making a high jump to clear the bar at a certain height.

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11. A blacksmith hammers a hot piece of iron while making a tool . How does the force due

to hammers affect the piece of irohn?

Watch Video Solution

12. An inflated balloon was pressed against a wall after it has been rubbed with a piece of synthetic cloth. It was found that the balloon sticks to the wall.What force might be responsible for the attraction between the balloon and the wall ?



13. Name the forces acting on a plastic bucket containing water held aove ground level in your hand. Discuss why the forces acting on the bucket do not bring a change in its state of motion.

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14. A rocket has been fired upwards to launch a satellite in its orbit. Name the two forces acting on the rocket on the rocket immediately after leaving the launching pas.



15. When are press the bulb of a dropper with its nozzle kept in water, air in the pressure on the bulb, water gets filled in the dropper. The rise of water in the dropper is due to

- A. Pressure of water
- B. Gravity of the earth
- C. Shape of rubber bulb
- D. Atmospheric pressure

Answer: D



16. Give two examples each of situations in which you push or pull to change the state of motion of objects.

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18. An archer stretches her bow while taking aim at the target. She then releases the arrow , which begins to move towards the target. Based on this information fill up the gaps in the following statements using the following terms.

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20. An archer stretches her bow while taking aim at the target. She then releases the arrow , which begins to move towards the target. Based on this information fill up the gaps in the following statements using the following terms. Muscular, contact, non-contact, gravity, friction, shape, attraction. The type of force responsible for a change in the state of motion of the arrow is an example of a force. Watch Video Solution

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A. Pressure of water

B. Gravity of the earth

C. Shape of rubber bulb

D. Atmospheric pressure

Answer: D

Exercises Fill In The Blanks

- 1. Fill in the blanks in the following statements
- :- To draw water from a well we have toat

the rope.

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2. Fill in the blanks

A charged bodyan uncharged body



4. Fill in the blanks in the following statements

:- The north pole of a magnetthe

north pole of another magnet.



5. Fill in the blanks in the following statements

:- To draw water from a well we have toat

the rope.

Watch Video Solution

6. Fill in the blanks

A charged bodyan uncharged body



8. Fill in the blanks in the following statements

:- The north pole of a magnetthe

north pole of another magnet.



Additional Questions Multiple Choice Questions

1. Which of the following is an example of contact force?

A. An apple falling from tree

B. A child riding a bicycle

C. Attraction between two magnets

D. A stone falling from the top of a tower.

Answer: B

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2. The magnitude of force is expressed in ,

A. Newton

B. Pascal

C. Decibel

D. Hertz

Answer: A



3. Which of the following is always an attractive force?

A. Magnetic force

B. Gravitational force

C. Electrostatic force

D. None of these





Answer: C



A. shape and speed

B. direction and speed

C. shape and direction

D. only shape.

Answer: B





- **6.** Which of the following is an example of contact force?
 - A. An apple falling from tree
 - B. A child riding a bicycle
 - C. Attraction between two magnets
 - D. A stone falling from the top of a tower.

Answer: B



7. The magnitude of force is expressed in ,

A. Newton

B. Pascal

C. Decibel

D. Hertz

Answer: A

8. Which of the following is always an

attractive force?

A. Magnetic force

B. Gravitational force

C. Electrostatic force

D. None of these

Answer: B

9. A body is said to have zero speed when,

A. its speed is uniform

B. it does not change its direction

C. it is at rest

D. it changes its direction

Answer: C

10. Which of the following changes take place

when a batsman hit a moving ball?

A. shape and speed

B. direction and speed

C. shape and direction

D. only shape.

Answer: B

 The direction of frictional force is always.....to the direction of motion of the object.

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2. Explain why Atmospheric pressure at a height of about 6 km decreases to nearly half of its value at the sea level, though the height of the atmosphere is more than 100 km



5. The speed of an object when the force

applied is in the direction of its motion.



6. The direction of frictional force is always......to the direction of motion of the object.

7. Explain why Atmospheric pressure at a height of about 6 km decreases to nearly half of its value at the sea level, though the height of the atmosphere is more than 100 km

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8. Force applied on large area exert

pressure.

9. When does a force come into play?



Additional Questions True Or False


3. Give few example of muscular force.

4. Wtate whether the following statements are

true or false :

Similar poles f a magnet repel each other .

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5. A force can not change the shape of an

object. (true/false)

1. Name the force which stops the moving ball

on its own.

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2. Name an instrument which is used to

measure pressure in liquids.

3. What happens when force acting on an object are in opposite direction and equal?
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4. Due to which force does the water of river

flow downward?

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5. What do we call the envelope of air around

Additional Questions Very Short Answer Type Questions

1. What happens when force acting on an

object are in opposite direction and equal?

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2. Define force.





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4. What is state of motion of an object?

5. Give few example of muscular force.



1. What is the effect of applied force on solids

?



2. What is contact force? Explain with the help

of suitable examples.



4. Define pressure. How is it related to area of

contact?





5. Why is electrostatic force called a non-

contact force?

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6. What is normal atmospheric pressure ?

7. Give reason : a gas exerts pressure on the

walls of the container.





1. How will you show that pressure exerted by water at the bottom of the container depends on the height of its column?





Additional Questions Higher Order Thinking Skills Hots

1. How does a parachute help in safe landing

of a person?

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Additional Questions Value Based Question

1. Sameer's mother was impressed by the miracle performed by a Baba who did not get hurt even after lying on a bed of nails. Sameer did not believe in Baba's miracle and explained his mother the principle used behind this trick. What explanation did Sameer give to his mother?



2. Sameer's mother was impressed by the miracle performed by a Baba who did not get hurt even after lying on a bed of nails. Sameer did not believe in Baba's miracle and explained his mother the principle used behind this trick. What explanation did Sameer give to his mother?



Additional Questions Self Practice Problems

1. When the force applied on an object is doubled how does the pressure exerted on the object change ?

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2. Give reasons for the following :A sharp blade is more effective in cutting an object than a blunt blade.

3. What is a non-contact force ? Explain giving

suitable example.