

SCIENCE (PHYSICS)
WORKSHEET_090824
CHAPTER 09 FRICTION

SUBJECT: SCIENCE
CLASS : VIII

MAX. MARKS : 40
DURATION : 1½ hr

SECTION – A

Questions 1 to 6 carry 1 mark each.

1. In fig. a boy is shown pushing the box from right to left. The force of friction will act on the box:



- (a) from right to left (\leftarrow) (b) from left to right (\rightarrow)
(c) vertically downwards (\downarrow) (d) vertically upwards (\uparrow)
2. Whenever the surfaces in contact tend to move or move with respect to each other, the force of friction comes into play
(a) Only if the objects are solid.
(b) Only if one of the two objects is liquid.
(c) Only if one of the two objects is gaseous.
(d) Irrespective of whether the objects are solid, liquid or gaseous.
3. Which of the following statement is incorrect?
(a) Friction acts on a ball rolling along the ground.
(b) Friction acts on a boat moving on water.
(c) Friction acts on a bicycle moving on a smooth road.
(d) Friction does not act on a ball moving through air.
4. The picture shows four types of shoe soles. Which shoe sole provides the best grip and friction while walking?



- (a) Sole1 (b) Sole 2 (c) Sole 3 (d) Sole 4
5. A boy rolls a rubber ball on a wooden surface. The ball travels a short distance before coming to rest. To make the same ball travel longer distance before coming to rest, he may :
(a) spread a carpet on the wooden surface
(b) cover the ball with a piece of cloth.
(c) sprinkle talcum powder on the wooden surface.
(d) sprinkle sand on the wooden surface.

6. In the below question, a statement of Assertion (A) is followed by a statement of Reason (R). Mark the correct choice as
Assertion (A): It is easier to walk on dry marble floor as compared to wet marble floor.
Reason (R): Friction helps us to walk.
(a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
(b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A)
(c) Assertion (A) is true but reason (R) is false.
(d) Assertion (A) is false but reason (R) is true.

SECTION – B

Questions 7 to 9 carry 2 marks each.

7. Explain why sliding friction is less than static friction.
8. Imagine that an object is falling through a long straight glass tube held vertical; air has been removed completely from the tube. The object does not touch the walls of the tube. Will the object experience any force of friction? Justify your answer.
9. You might have noticed that when used for a long time, slippers with rubber soles become slippery. Explain the reason.

SECTION – C

Questions 10 to 13 carry 3 marks each.

10. While playing tug of war Preeti felt that the rope was slipping through her hands. Suggest a way out for her to prevent this.



11. What is fluid friction? Write the factors on which fluid friction depends.
12. What happens, if the floor we walk on is frictionless?
13. We observe that in some cases we want to increase friction. Explain why.

SECTION – D

Questions 14 to 16 carry 4 marks each.

14. Give examples to show that friction is both a friend and a foe.

15. Given below are some situations that we come across in day to day life. Give reason for their occurrence and means of how they can be rectified?
- (i) Mixer grinder making lot of noise when in use.
 - (ii) Boy slipped on a wet floor.
 - (iii) Air cooler turned hot and stop working.
 - (iv) Balloon slipping from a silk curtain
16. (a) When the cutting edge of a knife, is put against a fast rotating stone to sharpen it, sparks are seen to fly. Explain the reason.
- (b) We have two identical metal sheets. One of them is rubbed with sand paper and the other with ordinary paper. The one rubbed with sand paper shines more than the other. Give reason.

SECTION – E (Case Study Based Question)

Question 17 carry 4 mark

17. The Bicycle Race

Ananya and her friend Rohit were excited to participate in the annual school bicycle race. The racecourse was divided into two sections: the first half had a smooth, paved road, and the second half was a rough, gravelly path. At the beginning of the race, they both cycled easily over the smooth road, but when they reached the gravel path, they found it much harder to pedal.



After the race, their coach explained that the friction between the bicycle tires and the road was different in both sections. On the smooth road, there was less friction, making it easier to cycle. However, on the rough gravel path, friction increased, which made it harder to pedal. The coach also mentioned how friction helps them stop their bicycles by applying brakes and keeps them stable while riding.

- (a) Why was it easier for Ananya and Rohit to ride on the smooth road compared to the gravel path? (2)
- (b) What would happen if there was no friction between the bicycle tires and the road? (2)

OR

- (b) How can friction be reduced in machines, and why is it important to do so? (2)