SNBP INTERNATIONAL& Sr. SECONDARY SCHOOL, CHIKHALI, PUNE (2024-25)

Affiliation No. 1130703

Class Notes

CLASS: VIII DIVISION: _____ **SUBJECT: SCIENCE**

PREPARED BY: Prathibha Hebbar **LESSON: 9 – FRICTION**

I. KEY WORDS:

1.Ball bearing

2.Drag

3.Fluid friction

4. Friction

5. Interlocking

6.Lubricants

7. Rolling friction

8. Sliding friction

9. Static friction

PRE ACTIVITY – list some activities in your daily life which involve friction.

I. ANSWER THE FOLLOWING:

Q1. Suppose your writing desk is tilted a little. A book kept on it starts sliding down. Show the direction of frictional force acting on it.
Ans: Friction force acts opposite to the motion of the book.

Q2. Explain why sportsmen use shoes with spikes.
Ans: Spikes increase friction and give better grip with the ground. It avoids slipping of sportsmen while playing or running.

Q3. You spill a bucket of soapy water on a marble floor accidently. Would it make it easier or more difficult for you to walk on the floor? Why?
Ans: It would be difficult to walk on the floor. Soapy water fills the floor irregularities, thus reduces the friction considerably. Feet do not make necessary grip with the floor surface, thus increasing the chances of falling.

Q4. Iqbal has to push a lighter box and Seema has to push a similar heavier box on the same floor. Who will have to apply a larger force and why?
Ans: Friction force is directly proportional to mass. Heavier box will put more force on the floor surface as compared to lighter box and therefore will experience more opposite force (friction). Seema will have to apply larger force.

Q5. Explain why the sliding friction is less than the static friction.
Ans: When the objects are at rest, the interlocking of irregularities in the two surfaces of the objects is higher than that of when objects are moving. When objects are moving, there is less interaction between their surfaces. That's why sliding friction is less than static friction.

Q6.Explain why objects moving in fluids must have special shape.
Ans: The frictional force exerted by fluids is also called drag or fluid friction. To overcome or minimize air fluid friction, the bodies of objects minimize its surface i.e, sometime spherical shapes or other streamlined shape with smooth surface . Aero planes, jets, rain drops have streamlined curve surface to reduce air drag.

Q7. Give examples to show that friction is both a friend and a foe.
Ans: Friction is both a friend and a foe due to following reasons:

Friction acts as friend:
1. We are able to walk because of frictional forces between ground and our feet.
2. We are able to write because of friction between ball point and the paper surface.
3. Nails and screws stick to wall surfaces because of friction.
4. Lighting a matchstick is because of friction between match stick and the side surface of match box.

Friction acts as foe:
1. Wear and tear of soles of our shoes is due to friction.
2. When a tyre deflates, it is difficult to move the vehicle because of increased friction between the tyre and road surface.
3. Machines gets heated up because of friction
4. Due to friction, machines and vehicles consumes more fuel and increase maintenance cost.

Q8.Give reasons for the following:
a. The bodies of birds are streamlined.
b. When we strike matchstick against the rough surface, it catches fire.
c. Grooves are made in tyres.
d. A lubricant reduces friction

Ans:
a. The bodies of birds are streamlined such that they experience least amount of friction due to air.
b. When we strike a matchstick against a rough surface, it catches fire because the force of friction raises the temperature of the matchstick head to such an extent that the chemicals stored in it catch fire to produce flame.
c. Grooves are made in tyres to increase friction due to which the tyres get a better grip on the road. This prevents skidding of the vehicles.
d. A lubricant reduces friction by forming a thin layer between the moving surfaces so that they do not directly rub each other.

Post activity: Mind map showing types of friction with an example.

Subject Tr **HOD** **Co Ordinator** **Principal**