

Ch-9 - Friction

Short Answer Question:

1. Does friction always oppose the motion? Which offers more friction on a body - a glass surface or a wooden surface?

Ans: Yes, friction always oppose the motion. A wooden surface offers more friction on a body. Since, a wooden surface has more roughness compared to a glass surface, the body will experience greater frictional force on the wooden surface.

2. When you apply the brakes, a bicycle stops and rims of its wheels become hot. Explain the reason.

Ans: On applying brakes, the brake pads come in contact with the rim of the bicycle and force of friction acts between them due to which the bicycle slows down and after sometime it stops. The rim of the wheel becomes hot due to the friction between the rim and the brake pads.

3. Why is it more difficult to pull a boat on the beach than on the sea?

Ans: When a boat is on the sea, its surface is in contact with sea water while on the beach, its surface is in contact with the sand there. There is more friction between the boat and the sand than that between the boat and seawater. As a result, it is more difficult to pull a boat on

the beach than on the sea.

II. Higher Order Thinking Skills:

1. How does the streamlined body of the fish help it in swimming?

Ans: A streamlined shape allows the fish to experience less friction while swimming in the water. This shape also helps fish to lose less energy in overcoming friction.

2. Why can't you write properly with a chalk, on a glass sheet?

Ans: We can't write properly on a glass sheet because of less friction between chalk and glass sheet. Due to smooth surface friction is not produced. Chalk creates a granular layer in which the small smooth particles roll on each other therefore reducing the friction.

3. When you are running on a road, you are acted upon by frictional force of the road. Is there another force of friction acting on you? Name and explain.

Ans: While walking or running on the road, we exert a force on the road. This force pushes the road below backwards. The road exerts an equal and opposite force on our feet to make us move forward. Thus, the force of reaction acts on us along with the frictional force.

4. If there is no friction, what would happen to the moving objects?

Ans: If there is no friction, moving objects would keep on moving. It would be nearly impossible to keep things still as there would be no external force to oppose an object's motion beyond that which is actively applied. A hit baseball, for example, would still fall to the Earth due to gravity but would lose no speed as it bounced through the grass of the outfield until it hit the wall. Practically, it is not possible to attain a frictionless plane or medium.