

Q What is the difference between speed and velocity?

A Speed is the distance traveled by an object in a particular time. Velocity is speed in a particular direction. Suppose you sat in a train that was moving eastward at 60 kilometers per hour (37 miles per hour). You would say that the speed of the train was 60 kilometers per hour (37 miles per hour), while its velocity was 60 kilometers per hour (37 miles per hour) east.

Q What is friction?

A Friction is a force that opposes the movement of an object by acting on it in the opposite direction. The force of friction comes into effect when two surfaces are in contact, and force is applied to make one or both of the surfaces move. Suppose you roll a ball on the floor. The ball will come to a halt after traveling a certain distance, even if it has hit nothing or no one has stopped it. The ball stops because the friction exerted by the floor acts against the motion of the ball. The soles of your new shoes probably have cuts in them to make an uneven surface.

Torque

The force that causes rotation is called torque. Torque can be measured in opening or closing a door, and it is applied when you turn a racquet from side to side. An archer applies torque to move the bow to one side when aiming an arrow. Ideally, the archer should hold the bow loose enough so that when the arrow is released, it shoots straight ahead. If the archer applies unnecessary pressure, the bow will twist upon release, the arrow will not fly straight, and the shot will miss the bull's eye.



When you run, the uneven surfaces of the shoes and the road rub against each other. This friction makes sure you do not slip while you are running. Lack of friction also causes us to slip on a wet floor since the water makes the floor smooth, which means friction is reduced. Friction produces heat. That is why when you rub a matchstick against a matchbox, sparks fly.

Try these too...

Matter (10–11), Light (12–13), Sound (14–15), Heat (16–17), Electricity (18–19), Magnets (20–21), Land Transport (24–25), Water Transport (26–27), Air Transport (28–29)

▼ Sitting pretty

We stay on the merry-go-round instead of flying off in one direction because of the centripetal force that holds us to its center.

The force that wants to make us fly off is called the centrifugal force.

