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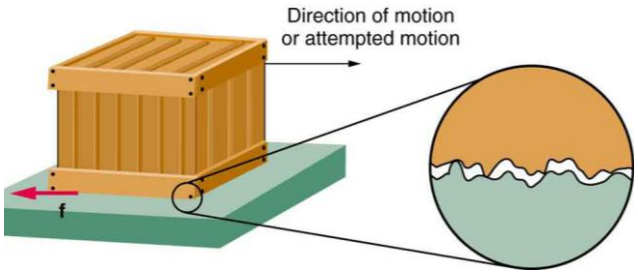
Friction

Have you seen someone slip and fall off a chair? Did it make you laugh? Imagine if we were constantly slipping of chairs and beds and stair, life wouldn't be very fun, would it?

Thanks to friction this does not happen. Everything would just keep slipping and falling all over the place if it wasn't for friction. Friction is a **force** that is created when two surfaces move or try to move across each other. For example, when you try to push a book along the floor friction makes this difficult. The amount of friction produced during this process depends on the texture of both the surfaces and the amount of contact force is pushing the two surfaces together.

Friction always opposes the motion or attempted motion of one surface across another surface. As the two surfaces slide against each other, their contact is anything but smooth. They both grind and drag against each other producing friction. You will find friction everywhere that objects come into contact with each other.

The force acts in the opposite direction to the way an object wants to slide. When you want to stop your bicycle, you press the brake and your bicycle slows down because of the friction between the brakes and the wheels. If you are running on a playground and hear your friend call you and suddenly want to stop, you can because of the friction between your shoes and the ground. Friction also produces **heat**. If you rub your hands together quickly, you will feel them get warmer.



Different solid objects experience different amounts of friction. The amount of friction depends on the materials from which the two surfaces are made. The rougher the surface, the more friction is produced. For example, you would have to push a book harder to get it moving on a carpet than you would on a wooden floor. This is because there is more friction between the carpet and the book than there is between the wood and the book.

The boy on the grass is having difficulty sliding, because the grass is not smooth and his shoes are getting stuck in the grass. There is more friction between the shoes and the grass than the snow and the snowblades.

Why do you think you find it difficult to walk in the house after the floor has just been mopped? Your mother cautions you, saying “Don’t walk around now. The floor is wet, you might slip and fall.” This is because liquid creates a barrier between the ground and your shoes and makes the friction a lot less.

Less friction means it is harder to stop. It is because of this reason that you hear of many accidents during monsoons. Even though the friction of the brakes is still there, the brakes may be wet, and the wheels are not in as much contact with the ground because of the water. Although liquids offer resistance to objects moving through them, they also smooth surfaces and reduce friction.

Useful friction

Friction can be a useful force because it prevents our shoes slipping on the pavement when we walk and stops car tyres skidding on the road. When you walk, friction is caused between the tread on shoes and the ground. This friction acts to grip the ground and prevent sliding.

Reducing friction

Sometimes we want to reduce friction. For example, we use oil to reduce the friction between the moving parts inside a car engine. The oil holds the surfaces apart, and can flow between them. The reduced friction means there is less wear on the car's moving parts, and less heat produced.