Forces Around Us

TopicReads

LEVEL B-9 • Written by Elfrieda H. Hiebert

Weights need force to move.

Push and Pull

Say you and a friend are playing with a sled. Your friend gets on the sled and asks you to move it. You can push or pull the sled. When you push or pull it, you're using force. It's the use of force that lets you move the sled from place to place.

To make the sled move faster, you'd need to use more force. If your friend doesn't weigh much, it won't take much force to make the sled go faster. However, if your friend weighs a lot, it'll take more force to make the sled move faster. No matter how fast something goes, it's force that makes it move.

Key Notes:

What does force do?

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Energy and force get work done.

Energy and Work

When a force is used to move an object, it is called work. When you lift an object, such as a trash bag, you are doing work. Even if you lift a book, you are doing work.

Work happens when you use force to make something happen. In order for the force to do the work, energy is used.

You must have energy to do work. If you do a lot of work, you use a lot of energy. If you do just a little work, you don't use very much energy. You get energy from food. Cars get energy from gas. It takes energy for work to be done.

Key Notes:

What two things are needed for work?

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Jumping takes force to go against gravity.

Up and Down

You may be able to jump, but you cannot jump 10 feet high. Gravity holds you down. Gravity is the force that pulls us back to Earth.

You can, however, throw a ball 10 feet high. It doesn't take much force to toss a ball that high because a ball doesn't have much mass. It takes less force to move things with less mass.

You have more mass than a ball. That's why it takes more force for you to jump 10 feet high than it takes to toss a ball 10 feet high. Moving something with a lot of mass against the force of gravity takes a lot of energy.

Key Notes:

What does gravity do?

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Ice is smooth so there is very little friction.

Smooth and Rough

If you have ever tried to move an object such as a heavy desk, you know about friction. A heavy desk is hard to drag over something that is rough, such as a rug. The desk does not move easily because it rubs against the rug. The force that makes it hard to drag one thing over another in called friction.

A heavy desk is easier to move over a slick floor. That is because there is less friction between objects and smooth surfaces. There is more friction between objects and rough surfaces, such as a rug. If there is less friction, it is easier to move something.

Key Notes:

What is friction?

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