



# Motion and Forces

## What is a force?

A **force** is a push or a pull. In *Sheep in a Jeep*, the sheep push the jeep. The push is a force. The sheep also tug, or pull, on the jeep. The pull is a force.

## What is motion?

We consider an object to be in **motion** when it is not standing still. For an object to move or to stop moving, a **force** must be applied to it. The sheep apply a force as they push the jeep and the force causes motion. When the jeep hits the tree, the tree applies a force to the jeep and the jeep stops moving.

## What is inertia?

**Inertia** is a resistance to change in motion. For example, when the jeep gets stuck, its inertia keeps it from moving easily. It is at rest and tends to stay at rest. When the jeep full of sheep hits the tree, the inertia of the sheep keeps them in motion. Because the sheep are not wearing seat belts to stop them, they tend to stay in motion.

## What is gravity?

**Gravity** is a force that we encounter all the time. It is the force that pulls all things toward Earth. When the sheep push the jeep to the top of the hill, gravity pulls the jeep down the hill. Gravity also pulls the sheep down the hill after the jeep.

## What is friction?

The jeep's tires rub against the road as it rolls. The rubbing is called **friction**. Friction is a force that slows things down as a result of the rubbing. Friction between the road and the jeep's tires slows the jeep. A rough road causes more friction than a smooth road.

