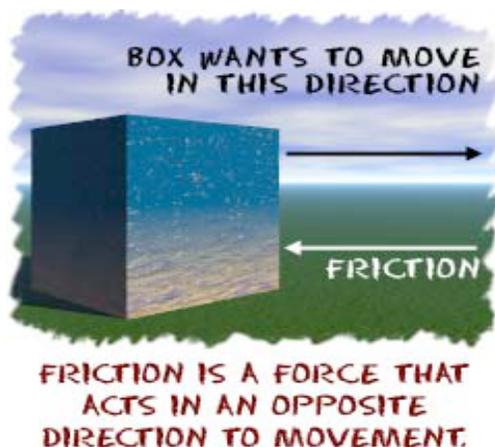


Friction

"And he said, 'Who are You, Lord?' Then the Lord said, 'I am Jesus, whom you are persecuting. It is hard for you to kick against the goads.'" Acts 9:5

Friction Basics

- Friction is a **force** that holds back the movement of a sliding object.
- Friction is everywhere that objects come in contact with each other.
- The force acts in the opposite direction to the way an object wants to move.



- Examples: If car needs to stop at a stop sign, it slows because of the friction between the brakes and the wheels. If you run down the sidewalk and stop quickly, you can stop because of the friction between your shoes and the cement.
- Less friction means it is harder to stop. Trying to stop on wet ground means less friction.

Friction and Gases

- It is possible to get **resistance** to motion in both liquids and gases.
- It's a colliding situation, not a sliding one. If the gas is air, this is referred to as **air resistance**.
- Example: If you were in the space shuttle and re-entering the atmosphere, the bottom of the shuttle would be getting very hot. The collisions that occur between the molecules of the air being compressed by the shuttle heat up the air AND the shuttle itself. The temperature on the top of the shuttle is also warm, but the temperature on the bottom of the shuttle is extremely high.

Measuring Friction

- Measures of friction are based on the type of materials that are in contact.
- The coefficient of friction measures how easily one object moves in relationship to another. When you have a high coefficient of friction, you have a lot of friction between the materials.
- Coefficient of a dry tire = 1.0 Coefficient of wet tire = 0.2
Coefficient of rubber = 1.16 Coefficient of ice = .02 - .09

