

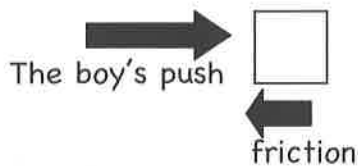
### Motion and Forces Worksheet # 2.1: Forces

A force is a push or a pull that can change an object's motion. We can use symbols to represent forces and the objects (masses) they act upon. For this worksheet, use arrows to represent forces, and squares to represent the objects they act upon. Longer arrows indicate greater force. Larger squares represent larger masses.



Use the symbols above to show the forces in operation in the situations described. Label the type of force shown by the arrow (friction, gravity, contact force). The first one has been done for you as an example.

1. A boy pushes a box along the floor.



Note: While gravity is a downward pull on the box, its arrow is not drawn because a supporting force of the floor pushes up on the box with a force equal to gravity. These forces cancel each other.

2. A car moves up a hill.

3. A book sits on a table.

4. A girl kicks a soccer ball.

5. A marble rolls down a ramp.

6. An ant carries an M&M to its anthill.

7. Two teams in a tug of war competition.

8. Describe a situation of your own creation and illustrate.