



Download the simulation here:

els724.com > K7-8 Physics > 5 Mechanics > Sim: Force and Motion

1) Fill in the following blanks with your partner.

The **total force** is the _____ of all the forces.
An object's **acceleration** is an object's _____ in speed.
Friction is a force that _____ the motion of an object.

2) **Explore** the simulation for five minutes. Be prepared to share what you have discovered!
Make notes here:

3) a) Click on the friction tab. Set the friction to 1. Gravity = Earth
Explore how the "**Applied Force**" and "**Friction Force**" arrows change as you apply different amounts of force.

b) Use the table to **record** your observations.

How much force is applied?	Is the applied force larger, smaller or equal to the friction force?	The forces on the crate are... (circle one)	Observations – what evidence do you have for your selections?
		balanced unbalanced	
		balanced unbalanced	
		balanced unbalanced	

4) a) **Explore** how the "**Sum of Forces**" arrow depends on how the crate moves.

b) As the object moves, what happens to the sum of forces arrow?



5) a) **Explore** what happens when you **change the surface**.

b) **Fill in** the table with your observations.

Surface	Observations
Ice (= 0 friction)	
Friction	

c) The simulation assumes that ice is a frictionless surface. To have a truly frictionless environment what else would you need to consider?

6) a) **Explore** how the crate's speed changes as you apply **more and less** force to the crate.

b) **Fill in** the table with your observations.

Size of push	Amount of change in speed (circle one)
	<p>large change in speed</p> <p>small change in speed</p>
	<p>large change in speed</p> <p>small change in speed</p>

c) What can you say about how the amount of force applied affects an object's **acceleration**?