

# Forces and Motion using [PhET's Force and Motion Basics HTML5](#)

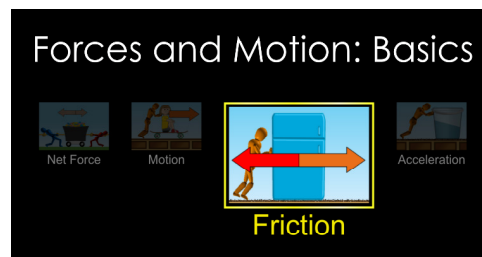
## Part 2 – Friction

Name \_\_\_\_\_

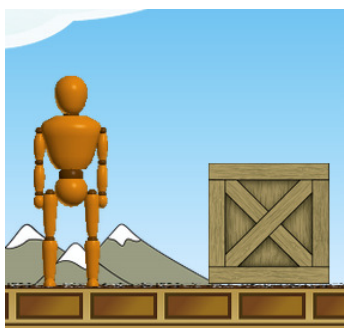
### Learning Objectives: Students will be able to

- Predict how forces can change motion.
- Provide reasoning and evidence to explain motion changing or not.

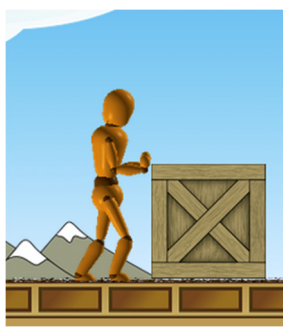
1. Open the [Forces and Motion Basics](#) simulation and play with the Friction screen for a few minutes.



- a. How does the Friction screen differ from the Net Force and Motion screens?
  - b. Also, what is something new you discovered?
2. Imagine that your friend, Sam, is trying to move a box.
    - a. Using what you learned by exploring, try drawing arrows to predict what might happen in the pictures below. (Try this part without using the simulation.)



Sam not pushing



Sam pushing but box not moving



Sam pushing and box moving

- b. Check your sketches using the sim and make corrections if needed. List any new ideas you discovered.
  - c. What do you notice about the similarities and differences between the Applied Force arrow and the Friction Force arrows in each situation?
3. How can you make the Friction Force more? What shows you that the force is more?



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7. Can you find different ways to make the **Sum of Forces** arrow change?
  - a. List at least three:
  
  
  
  
  
  
  
  
  
  
  - b. In your own words, what is **Net Force**?
  
8. What are some ways you can change the speed?
  
  
  
  
  
  
  
  
  
  
9. Using your answers to Question #8, what general statement can you make about the **relationship between net force and how fast an object changes its speed.**