

### Friction

Read from **Lessons 2 and 3** of the Newton's Laws chapter at **The Physics Classroom**:

- <http://www.physicsclassroom.com/Class/newtlaws/u2l2b.html>
- <http://www.physicsclassroom.com/Class/newtlaws/u2l3c.html>
- <http://www.physicsclassroom.com/Class/newtlaws/u2l3d.html>

1. A classroom desk supported by long legs is stationary in the room. A teacher comes around and pushes upon the desk in an effort to start it into a state of motion. The desk does not *budge*. The desk remains at rest because \_\_\_\_\_.
  - a. there is a force of static friction opposing its motion
  - b. there is a force of kinetic or sliding friction opposing its motion
  - c. there is a force of rolling friction opposing its motion
  - d. there are small dust mites at the desk's feet that push back on the desk to keep it at rest
2. A classroom desk supported by long legs is stationary in the room. A teacher comes around and pushes upon the desk in an effort to start it into a state of motion. The desk is finally accelerated from rest and then moves at a constant speed of 0.5 m/s. The desk maintains this constant speed because \_\_\_\_\_.
  - a. there is a force of static friction balancing the teacher's forward push
  - b. there is a force of kinetic or sliding friction balancing the teacher's forward push
  - c. there is a force of rolling friction balancing the teacher's forward push
  - d. the teacher must have stopped pushing
3. The symbol  $\mu$  stands for the \_\_\_\_\_.
  - a. coefficient of friction
  - b. force of friction
  - c. normal force
4. The units on  $\mu$  are \_\_\_\_\_.
  - a. Newton
  - b. kg
  - c. m/s/s
  - d. ... nonsense! There are no units on  $\mu$ .
5. Use the friction equation and  $F_{net} = m \cdot a$  to fill in the blanks in the following situations.

