Friction Exit Card (Teacher)

Friction Exit Card

1. Which of the following does not involve any friction?
   a) A bicycle rolling down a hill
   b) A baseball player sliding into 2nd base
   c) A diver falling through the air to a pool
   d) All of the above experience some friction.

2. Friction causes kinetic energy to be converted into
   a) potential energy.
   b) thermal energy.
   c) mechanical energy.
   d) electrical energy.

3. These two factors determine the strength of the force of friction:
   a) speed and light
   b) how fast the objects are going and on what planet
   c) how big the objects are and how hard you push them
   d) how hard the surfaces push together and the types of surfaces involved

4. A 5.0 kg steel block is resting on a table. The coefficient of static friction (μs) is 0.75 and the coefficient of kinetic friction (μk) is 0.57.
a) What minimum force is needed to start this block moving?

$$F_A = F_f \geq \mu_s F_N = \mu_s mg$$

$$F_A \geq (0.75)(5.0\ kg)\left(9.8\frac{N}{kg}\right) = 36.75\ N$$

The force must be greater than 37 N.
b) What is the frictional force on this object as it moves?

$$F_f = \mu_k F_N = \mu_k mg$$

$$F_f = (0.57)(5.0\ kg)\left(9.8\frac{N}{kg}\right)$$

$$F_f = 27.93\ N$$

The frictional force acting on the object as it moves is 28 N.