

Name: _____ Date: _____

Lesson 5, Ramp and Review Activity – Ramp and Review Worksheet

Data

1. Measure the mass of your ball and the cup you are using.
2. Measure the height of your ramp and, therefore, the starting height of your ball.
3. Measure the distance traveled by the cup of three different trials, and find the average distance traveled.

Mass of Ball (kg)	Mass of the Cup (kg)	Initial Height of the Ball (m)	Distance Traveled by the Cup (m)
			Avg:

Calculations and Results

4. Calculate the potential energy of the ball before it is released and the kinetic energy right before it hits the cup. What assumption do you have to make to find the kinetic energy?

5. Calculate the velocity and momentum of the ball right before it hits the cup.

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6. Calculate the work done by friction to stop the ball.

7. Calculate the frictional force on the cup and the coefficient of friction between the cup and the surface. What assumption is being made?

8. Fill in the table below with your results.

Potential Energy (Joules)	
Kinetic Energy (Joules)	
Velocity (m/s)	
Work (Joules)	
Momentum (kg*m/s)	
Frictional Force (Newton)	
Coefficient of Friction	

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Further Learning

9. By what factor would the velocity of the ball right before it hits the cup increase if the height of the starting position of the ball was doubled? Quadrupled?

10. How could you decrease the distance the cup travels? How could you increase it?

11. As an engineer, how would the knowledge of how to find the coefficient of friction between two materials be helpful when designing a roller coaster?
