

Go Go Go!

Overview: This experiment focuses on the energy transfer of rolling cars. You'll be placing objects and moving them about to gather information about the potential and kinetic energy.

What to Learn: This will help us get in touch with the fundamentals of energy transfer, specifically how kinetic and potential energy are related to one another.

Materials

- a few toy cars (or anything that rolls like a skate)
- a board, book or car track
- measuring tape

Lab Time

1. Set up the track (board or book so that there's a nice slant to the floor).
2. Put a car on the track.
3. Let the car go.
4. Mark or measure how far it went.
5. Experiment with different track configurations. Does this make a difference? Record your results on the data worksheet below.

Go Go Go! Data Table

Configuration:	Description:	Distance Traveled:
1		
2		
3		
4		

Reading

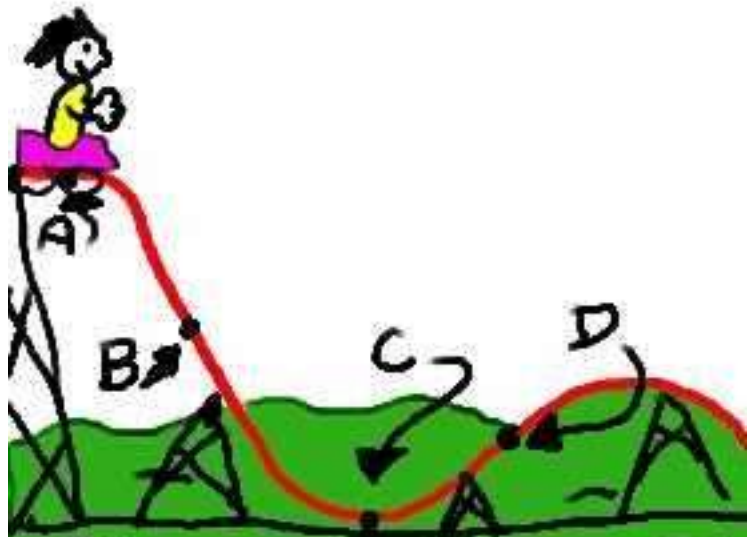
As you lifted the car onto the track in today's lab, you gave the car potential energy. As the car went down the track and reached the floor, it lost potential energy and gained kinetic energy. When the car hit the floor it no longer had any potential energy, only kinetic.

If the car was 100% energy efficient, the car would keep going forever. It would never have any energy transferred to useless energy. Your cars didn't go forever, did they? Nope, they stopped and some stopped before others. The ones that went farther were more energy efficient. Less of their energy was transferred to useless energy than the cars that went less far.

Where did the energy go? It went to heat energy, created by the friction of the wheels, and to sound energy. Was energy lost? No, it was only changed. If you could capture the heat energy and the sound energy and add it to the kinetic energy, the sum would be equal to the original amount of energy the car had when it was sitting on top of the ramp.

Exercises Answer the questions below:

1. Where is the potential energy greatest?
2. Where is the kinetic energy greatest?
3. Where is potential energy lowest?
4. Where is kinetic energy lowest?
5. Where is KE increasing, and PE is decreasing?
6. Where is PE increasing and KE decreasing?



Answers to Exercises: Go Go Go!

1. Where is the potential energy greatest? (A)
2. Where is the kinetic energy greatest? (C)
3. Where is potential energy lowest? (C)
4. Where is kinetic energy lowest? (A)
5. Where is KE increasing, and PE is decreasing? (B)
6. Where is PE increasing and KE decreasing? (D)