

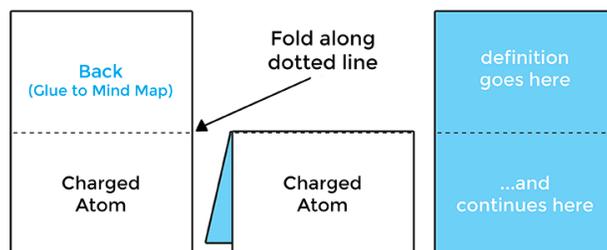


Potential and Kinetic Energy Lesson 1: “The Solve”

Student Handout

I. Vocabulary Warmup

1. Using the materials at your table, cut out your vocabulary cards along the **solid lines**. Note: Do not cut the cards at the dotted lines.



2. Fold the cards at the dotted lines.

3. Write the definition of the term on the inside of the card using the definitions below.

4. Use the clues from the Mind Map images, definitions, and vocabulary terms to place the cards in the correct location on the Mind Map, explaining your thinking to group members as you go.

5. When you're ready to glue or tape, raise your hand so you can check your Mind Map with your teacher.

6. Use glue or double-sided tape to connect the back of the vocabulary card to the correct place on the Mind Map.

7. Use your completed Mind Map to discuss these questions with your group:
- What effect do you think mass has on speed? Why? Think of some examples in your daily life?
 - How do you think speed changes as the car goes farther?
 - What do you think is the difference between speed and kinetic energy?

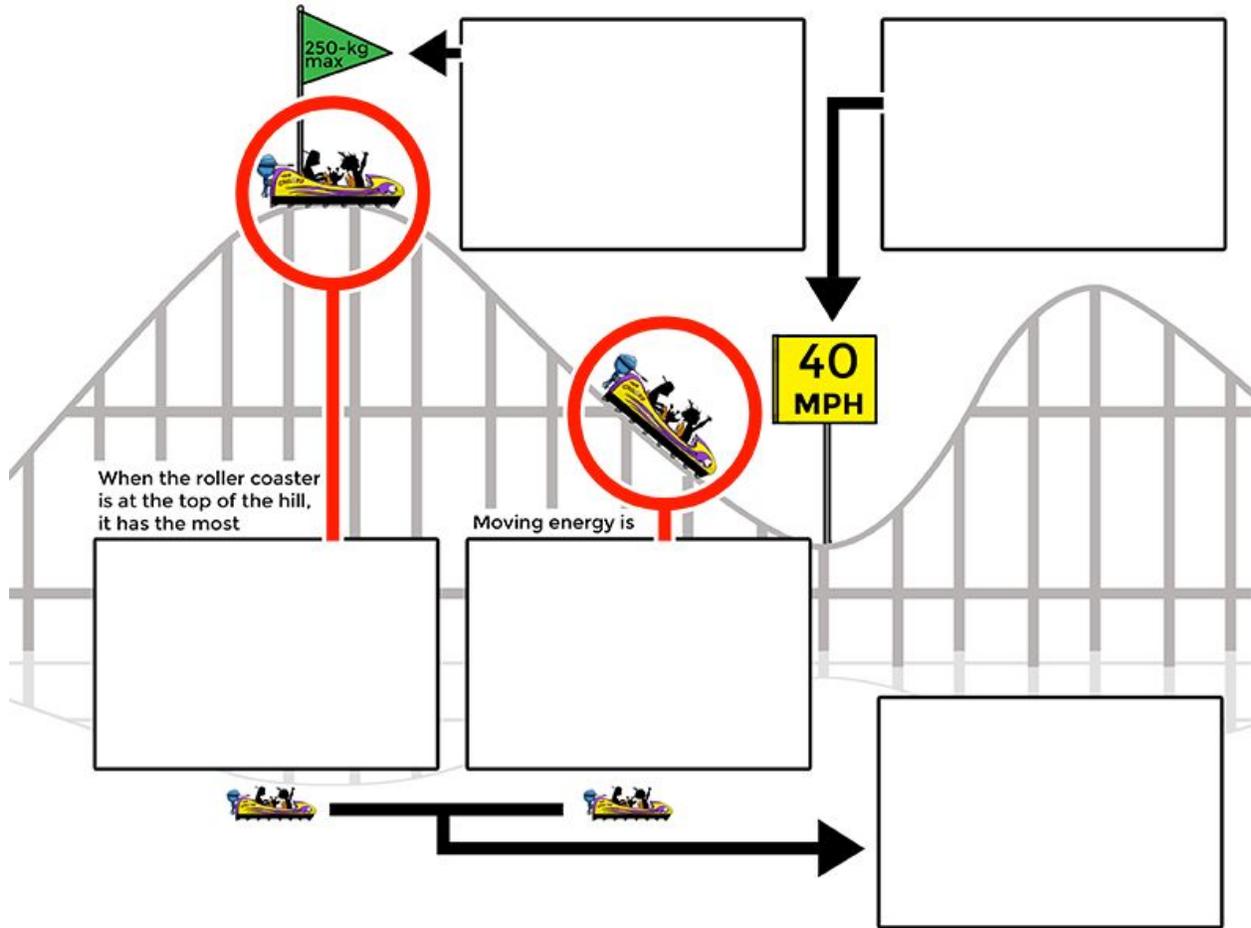




MOSA MACK SCIENCE

STUDENT GUIDE

Mind Map





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Potential
Energy

Kinetic
Energy

Distance

Speed

Mass

Potential Energy: Stored energy

Kinetic Energy: The energy of motion

Speed: The rate at which something moves

Mass: The quantity of matter in a body

Distance: The amount of space between two things



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II. Watch Mosa Mack.

Either on your own, in a small group or as a class (your teacher will let you know), watch Mosa Mack's episode on Potential and Kinetic Energy. Then, fill out the questions below. Include a time code in your answer as evidence of where you found your answer.

Name: _____

Date: _____

Episode Questions

1. What is unique about the Cyclops Coaster?
2. What is the problem with the rollercoaster?
3. How does the energy box describe kinetic energy? When is kinetic energy highest?
4. How can more kinetic energy be added in order to get the car over the hill?
5. Besides mass, what else do Mosa and her team need to add to the Cyclops Coaster?
6. After observing the Caterpillar Rollercoaster, Mosa decides kinetic energy is coming from what?
7. When Billy holds his cone higher, what does that do?
8. What did Mosa figure out? How can they fix the Cyclops? (Answer Video)



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III. Exit Ticket: Check for Understanding

Complete the exit ticket below or you can take the quiz online!

Name: _____

Date: _____

1. What is potential energy?
 - a. The amount of energy an object could have if it tried hard enough.
 - b. Moving Energy
 - c. Active Energy
 - d. Stored Energy
2. What is kinetic energy?
 - a. Stored energy
 - b. Moving energy
 - c. Potential Energy
 - d. All of the above
3. A(n) _____ in mass results in a(n) _____ in kinetic energy.
 - a. increase, increase
 - b. increase, decrease
 - c. decrease, increase
4. When a ball rolls down hill, its potential energy _____ and its kinetic energy _____.
 - a. increases, increases
 - b. increases, decreases
 - c. decreases, decreases
 - d. decreases, increases
5. There is a roller coaster car at the top of the hill, one at the middle of the hill, and one at the bottom of the hill. Which has the most potential energy?
 - a. The car at the bottom of the hill
 - b. The car in the middle of the hill
 - c. The car at the top of the hill
 - d. All of the cars have zero potential energy
6. Blaine and her sister are identical twins riding roller coasters at Kinetic Kars. They each ride the roller coaster on their own once. Next time, they ride the roller coaster together. On which ride do they have the most kinetic energy?
 - a. The first ride
 - b. The second ride
 - c. It is the same on both rides
 - d. There is no kinetic energy on either ride