# Potential and Kinetic Energy

*Engage*

**Materials:** various types of toys, such as pull back cars, poppers, chattering teeth, and small toys like bobble heads

**What To Do:**
1. Observe the toys at your table.
2. In the space below predict what you would have to do to have the toys move.
3. After making your predictions try out your thinking by making the toys move.
4. Were you correct in your predictions?

**Prediction for Toy 1**

**Prediction for Toy 2**

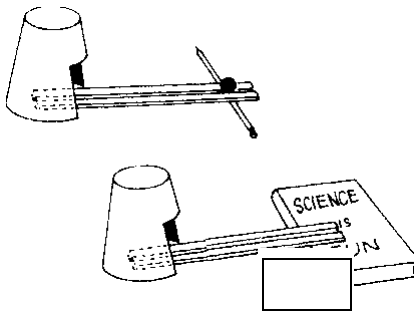
**Prediction for Toy 3**

**Prediction for Toy 4**

*Explore*

**Materials:** marble, ruler with center groove, Styrofoam cup with 1" square cut out, pencil, book, meter stick or tape measure

**What To Do:**
1. Set up the ruler and pencil as shown in the picture.
2. Place the cup over the ruler.
3. The end of the ruler should **touch the back of the cup.**
4. Place the marble in the center groove of the ruler at the highest point.
5. Release the marble and observe what happens to the cup.
6. Measure how far the cup travels on your table with the meter stick.
7. Record in the table below.
8. Repeat 2 more times.
9. Place the ruler on the edge of the book.
10. Place the cup over the ruler again.
11. Place the marble on the ruler and release it.
12. Measure how far the cup travels on your table.
13. Record in the table below.
14. Repeat 2 more times.
15. Find the average of each set of trials.




| Trials | How far the cup traveled when started on the pencil (cm) | How far the cup traveled when started on the book. (cm) |
|---|---|---|
| 1 | | |
| 2 | | |
| 3 | | |
| AVG. | | |

**Questions:**
1. Did the cup move farther when started on the pencil or started on the book? _____
2. Why do think this is true? _____

Kinds of Energy

Place glue on back of this anchor tab

*Explain*

KINETIC ENERGY

POTENTIAL ENERGY

# Watching a Science Video Protocol

**What To Do:**

1. Read through the statements with the blanks below.

2. Your teacher will show you a video about energy **TWO** times.

3. The first time just watch the video for the visuals. Your teacher may stop the video at 2:54 because the rest of it is really material for high school.

4. The second time your teacher plays the video listen and fill in the blanks with the words from the Word Bank

"Potential and kinetic energy"
https://www.youtube.com/watch?v=t0ShHdtB8jA

| **WORD BANK** | | | |
|---|---|---|---|
| Position | speed | energy | kinetic energy |
| Potential energy | | mass | motion |

1. The ability to do any work is called _____.

2. The energy that is stored in an object due to its position is called _____

3. The energy that a moving object has due to its motion is _____.

4. Potential energy depends on the height, distance and _____ of the object.

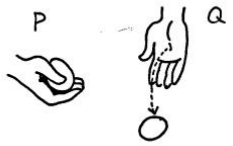
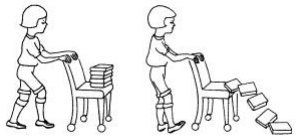
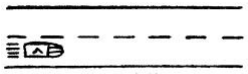
5. Kinetic energy is dependent on an object's _____ and mass.

6. Potential energy is _____ relative.

7. Kinetic energy is _____ relative.

*Elaborate*

Always ask yourself – is it moving? If moving – it's kinetic!

| | |
|---|---|
| 1. What type of energy is found at P?<br>*Potential* *Kinetic*<br>2. What type of energy is found at Q?<br>*Potential* *Kinetic* |  |
| 3. What type of energy is found in this picture?<br>*Potential* *Kinetic*<br>4. What would have to happen to change the type of energy?<br>_____ |  |
| 5. What type of energy is found is found in the books on the chair?<br>*Potential* *Kinetic*<br>6. What type of energy is found in the books falling from the chair?<br>*Potential* *Kinetic* |  |
| 7. The car is speeding down the highway. What type of energy is found in the speeding car?<br>*Potential* *Kinetic*<br>8. Why is it considered this type of energy? _____ |  |
| 9. The airplane is waiting to take off on the runway. What type of energy is found in the plane at this time?<br>*Potential* *Kinetic*<br>10. Why is it considered this type of energy? _____ |  |

Name _____ period ___

# EXIT TICKET

Potential and Kinetic Energy

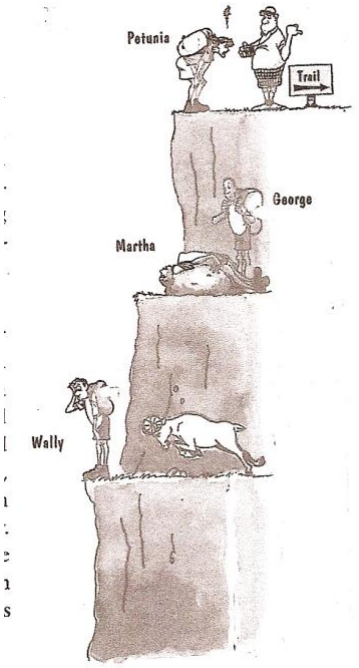
1. Circle the book in the pictures below that has the most potential energy.

2. Which person on the cliff has the most potential energy?

_____

3. Which person on the cliff has the least potential energy?

_____




**Conclusion:** (stored, potential, surface, kinetic, height, motion)

The two kinds of energy are _____ and _____.

Energy that is _____or held in readiness is potential energy.

The scientific name for the energy of _____ is kinetic energy. The potential energy of an object is influenced by its _____ from the earth's _____.