C2 W17

Experiment Title: Energy Change (#174)

The Scientific Method by Emoticons

Purpose

To demonstrate the *effect that height has on the energy* of a moving object.

Will rolling a marble from a higher starting place make it strike the cup harder?

Hypothesis

- I think the marble rolled from *pencil height* will strike the cup harder.
- I think the marble rolled from *book height* will strike the cup harder.

Materials

- scissors
- 8-ounce paper cup
- ruler with a center groove
- pencil
- marble
- book

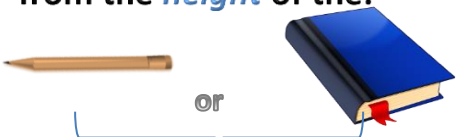
Procedure

1. Cut a 1 1/2 inch square section from the top of the paper cup.
2. Place the cup over the ruler. The end of the ruler should touch the back edge of the cup.
3. Raise the opposite end of the ruler & rest it on the pencil.
4. Place the marble in the center groove of the ruler at the ruler's highest end.
5. Release the marble & observe the cup.
6. Raise the end of the ruler & rest it on the edge of the book.
7. Again, position the marble in the groove at the ruler's highest end. Release & observe.

Results

The  *moved the most* when hit by the  that rolled

from the *height* of the:



or

Circle One

Conclusion

Objects at rest have *potential energy*.
The higher the object sits above the ground, the greater its potential energy.

When objects fall or roll down an incline, their *potential energy changes into kinetic energy*--energy of motion.

Increasing the height from which the marble rolled gave it more energy, causing it to strike the cup with more force.
Therefore, the cup moved further.

C2 W17

Experiment Title: Snap! (#177)

The Scientific Method
by Emoticons

Purpose

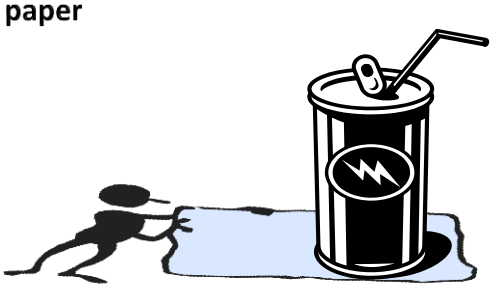
To demonstrate that an object remains *stationary* due to *inertia*

What will happen when I yank the paper out from underneath the can?

Hypothesis

When I quickly remove the piece of paper from under the can, it will:

- ○ **I think the can will explode!**
- ○ **I think the can will not move.**
- ○ **I think the can will fall over.**



Materials

- scissors
- ruler
- typing paper
- unopened can of soda

Procedure

1. Cut a 4 inch x 10 inch strip of paper
2. Lay the paper strip on a clean, dry table.
3. Place the soda can over one end of the paper.
   Be sure the bottom of the can is clean & dry.
4. Hold the other end of the paper & push it close to the can.
5. Quickly snap the paper away from the can in a straight line.

Results

- ○ The can *DID NOT* move when I pulled the paper out from underneath it.
- ○ The can *DID* move when I pulled the paper out from underneath it.

If the paper was pulled out quickly enough, the can should have remained upright & in the same place.

Conclusion

Inertia **is a resistance to any change in motion.**

An object that is stationary remains that way until some force causes it to move.

The can is not attached to the paper.
Because of the can's inertia, it remains stationary even though the paper moves forward.