

Stop in the Name of Energy!

Purpose

To understand the difference between kinetic and potential energy
To understand friction

Procedure

1. In your science journal, write definitions for potential energy, kinetic energy, and friction.
2. Discuss your definitions with your group and reach a consensus for each term.
3. Measure and cut five strips of waxed paper 30 cm x 4 cm.
4. Tape the top of each strip of waxed paper onto the cardboard, leaving space between each strip. Label each strip A, B, C, D, and E. See diagram 1.
5. Stack several books and place a large piece of waxed paper on the table in front of the books. This piece will be used for any drips that might occur.
6. Lean the cardboard against the stack so that the cardboard is slanted away from the books and the bottom edge is on the waxed paper. See diagram 2.

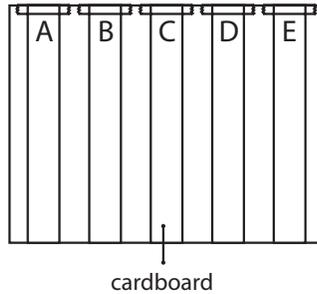


Diagram 1

Materials

small amounts of vegetable oil, water, salt, and butter
2 small eyedroppers
waxed paper
cardboard (40 cm x 30 cm)
5 checkers
tape
scissors
books
metric ruler
paper towel
science journal

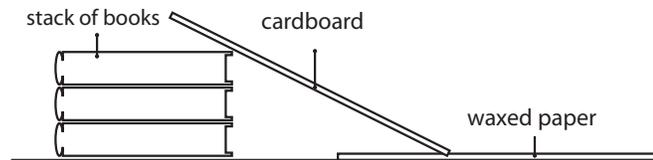


Diagram 2

7. Strip A will be the control strip.
8. Using an eyedropper, place five drops of water on strip B.
9. On strip C, place five drops of water and then sprinkle a pinch of salt on top of the water.
10. Using a paper towel or napkin, smear a small amount of butter on strip D.
11. Using the other eyedropper, place five drops of vegetable oil on strip E.
12. Place a checker on the top of strip A. What type of energy does the checker have?
13. Let go of the checker and observe the distance that the checker moved down the waxed paper. What type of energy did the checker have as it moved?
14. Measure the distance and record in the data table below.
15. Repeat steps 11-13 for two more trials.
16. Repeat steps 11-14 for each additional strip.
17. Calculate the average distance each checker moved for each strip.
18. Discuss your findings and compare strips 2-5 to the first strip (control).
19. Discuss your definition of potential energy and kinetic energy and decide whether your definitions were correct.
20. Discuss friction and how it differed for each strip.



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Data Table

Strip	Trial 1	Trial 2	Trial 3	Average
A				
B				
C				
D				
E				

Questions

1. Describe how the checker received its potential energy. _____

2. What happened as the checker moved down the strips? _____

3. Why did the checker move farther on some strips in relation to others? _____

4. Why do we strive to overcome friction? _____

5. How can you apply today's learning to another part of your life? _____

Extension

Use a penny as a weight for each checker. Predict whether the outcomes will be different. Repeat trials and compare. Continue to add more pennies to vary the weight and compare results.

