Name_____

Purpose: To demonstrate the First Law of Motion

Background Information: A **force** is a push or a pull. When you drop something it falls to the floor or ground. The force of **gravity** pulls objects toward the center of the earth. When objects are not moving they are said to be at **rest**. A book on the table, cars in the parking lot or a chair on the floor are at rest if they are not moving.
People have understood these phenomena for a long time but Isaac Newton was able to understand the mathematics behind them and so he developed the three basic laws of motion in the late 1600's. We are studying the first law. Part of the first law of motion says:

Objects at rest stay at rest unless pushed or pulled by a force and objects that are moving stay moving unless stopped by a force.

Part 1 -
Materials: 2-liter soda bottle filled with water, piece of wax paper

Procedure:
1. Examine the picture to the right.
2. Predict what you think will happen.

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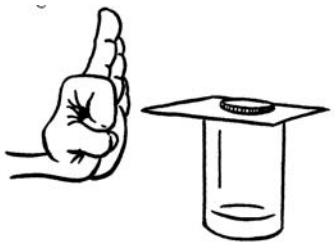
3. Set your bottle on the wax paper. Quickly pull the paper from under the bottle using a steady, straight motion.

Questions to Ponder:
1. What force acted on the paper? _____
2. What force acted on the bottle? _____
3. In this investigation what was at rest? _____
4. In this investigation what was in motion? _____

Part 2 -

Materials: Beaker, penny and index card



Procedure:

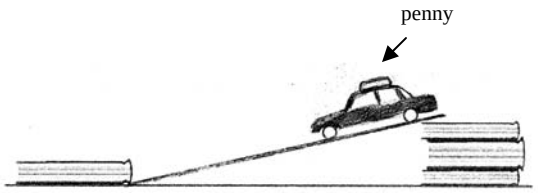
1. Lay an index card on the top of the beaker.
2. Place a penny on the card, centered over the beaker.
3. With a flick of your finger, give the card a quick thump.

Questions to Ponder:

1. What force acted on the card? _____
2. What force acted on the penny? _____
3. In this investigation what was at rest? _____
4. In this investigation what was in motion? _____

Activity 3 -

Materials: 3 books, penny, toy car, ramp



Procedure:

1. Place two books on top of each other and place the ramp on the books.
2. Place the other book at the end of the ramp.
3. Place the penny on top of the car and place it at the top of the ramp.
4. Let the car go down the ramp and observe the car and the penny.

Questions to Ponder:

1. What force acted on the car? _____
2. What force kept the penny on top of the car? _____
3. After the car stopped what happened to the penny? _____
4. Why did the car stop? _____
5. Why did the penny keep going after the car stopped?

_____

RERUN (Check your Science Handbook):

Recall –

_____

_____

_____

Explain –

_____

_____

_____

Results –

_____

_____

_____

Uncertainties –

_____

_____

_____

New –

_____

_____

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