

Newton's First Law Lab

(... or is it the second law ... the third law ... all three?)

~Honors Physics~

Lab objective: Study the relationship between mass, inertia and force.

Materials per group: cup index card four nickels

Students are to create and execute a lab that illustrates the relationship between mass, inertia and force. The lab write up is in the scientific method format. First develop the problem that always includes the independent variable and dependent variable.

This is an open-ended lab. Let the students experiment first to observe what they may come up with to test Newton's first law. Later provide tips to the objective of the lab.

Tips:

1. First trial is to place one nickel on the index card that is over the opening of the cup.
2. Flick the card from under the nickel.
3. This is similar to the magic trick of yanking the tablecloth from under a dinner place setting.
4. Repeat 1 and 2 but use two nickels, then three nickels.
5. Students create a data chart. The measurements are not quantitative but qualitative. Students use their sense of touch for their observations (Did it feel like it took more force or less force?)