

Newton's First Law: Inertia

Name: _____ **Date:** _____

LEARNING OBJECTIVE

The student will demonstrate and explain inertia -- an object's tendency to resist a change in motion -- through hands-on experiments.

MATERIALS NEEDED

- An index card
- a coin
- a cup
- a small toy car or ball
- a table or smooth floor

HANDS-ON ACTIVITY

1. Balance an index card on top of a cup with a coin resting on top of the card, directly over the cup's opening.
2. Quickly flick the index card horizontally out from under the coin and observe what happens to the coin.
3. Repeat the trick two more times, adjusting your flick speed, and record which speed worked best.
4. Roll a toy car or ball across a smooth floor and place a small obstacle (like a book) at the end to stop it suddenly; observe what happens to any loose object riding on top of it (e.g., a small block placed on the car).
5. Write down your observations connecting both experiments to the idea that objects resist changes to their motion.

QUESTIONS

1. **What happened to the coin when you flicked the card out quickly? Explain why using the concept of inertia.**
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2. **Which flicking speed worked best for the coin trick, and why do you think that speed matters?**
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3. What happened to the loose object on the car/ball when it stopped suddenly at the obstacle?

4. State Newton's First Law of Motion in your own words, using one of your experiments as an example.
