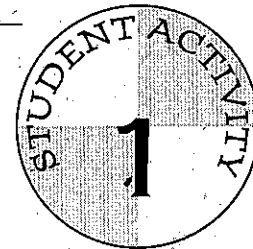


# Penny for Your Thoughts on Inertia



### Crash test question

- How is a magician's tablecloth trick related to a crash dummy falling off the tailgate of a pickup truck as the truck accelerates?

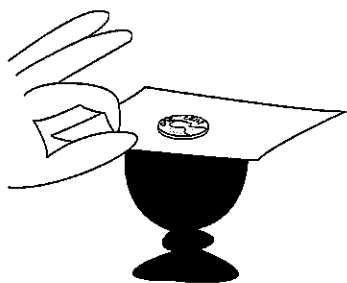
### Purpose

To explore the concept of inertia.

### Materials needed

For each group:

- 3" x 5" index card
- plastic cup or beaker
- 1-10 pennies
- (optional) mix of dimes, nickels, quarters, half dollars



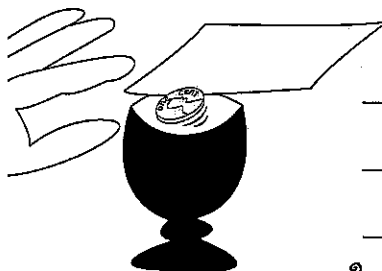
### Discussion

Whether you are attempting the magician's tablecloth trick or slamming on your car brakes to avoid an accident, the laws of nature apply. Understanding nature's basic rules or PHYSICS can help improve your chances of success in either situation.

### Procedure

1. Cover the cup with the index card and put the penny on top of the card.
2. The challenge is to get the penny into the cup without lifting the card and only touching the card with one finger.
3. After you have succeeded with one penny, try it with multiple pennies and other coins.

### Analysis



1. Describe a successful technique.

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2. Why does the penny drop in the cup when the card is "flicked" away?

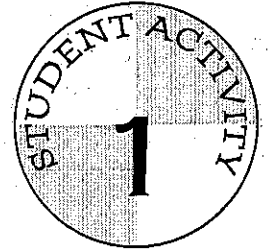
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# Penny for Your Thoughts on Inertia



3. How did the total mass of the coins affect your success?

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4. How is a magician's tablecloth trick related to a crash dummy falling off the tailgate of a pickup truck as the truck accelerates?

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### Crash question

How are the magician's tablecloth trick and vehicle seat belts related?

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