

Put the Coin in the Cup

The Action “Flick” a paper card out from under a coin suspended over a glass, and the coin should end up in the cup!

Grade Level Grade 7 – Force & Motion
Physics 30 – Kinematics & Dynamics
Physics 30 – Mechanical Energy
Physics 30 – Applications of Kinematics & Dynamics

Materials A paper card (recipe card)
A coin
A drinking cup (preferably glass)

Instructions Cover the cup with the paper card, and put the coin on top of the card. Flick the card with your forefinger in a horizontal direction and the coin should drop in the cup.

Safety

Hints It takes a little practice to master this skill, but once you do it a few times you should be able to get the coin in the cup every time.

Science Principle This event is based on the common characteristic that all objects have inertia. The coin lies inert on the card and by pushing the card suddenly away, the coin slides over the card and drops in the cup. The slower the card is pushed away, the more tendency the coin will have to move with the card.

We find this event in our daily life when we stand in a city or school bus, which suddenly starts to move. The bus moves forward with an abrupt motion and the standing person falls backward, because he/she had the inertia, which is also explained as the tendency to stay at rest. The larger the mass of the object, the greater it's inertia. The inertia of an object is directly proportional to its mass.