

## Inertia demo using raw eggs (Liquid Chickens!)

This demonstration is similar to the parlor trick where a person pulls a tablecloth out from under some dishes. In this case the plan is to rapidly remove a piece of cardboard and some toilet paper rolls out from under three raw eggs. If done properly the eggs will fall safely into three glasses (or beakers) of water placed under each egg respectively.

- See diagram. Place the cardboard on the glasses of water. Probably put a paper towel into the water as well so that the eggs don't crack upon reaching the bottom of the glasses. Position the toilet paper rolls over the glasses with the eggs balanced on them.

- Place a broom on the floor and place your foot on the end of the broom to hold it down and provide some leverage for "snapping" the handle towards the cardboard. Align the broom so that when the broom strikes the cardboard, the handle is vertical at that point and the cardboard will go flying forward carrying the toilet paper rolls with it but not the eggs. There's a lot of commotion and the eggs fall directly into the glasses

- Variations: (1) This can be done with one egg. (2) You can tape two toilet paper towel rolls together to make a higher stand (3) If you videotape the experiment and view it in slow-motion or stop frame, the inertia of the eggs is clearly seen.

Cautions: 1. Lay the eggs sideways on the rolls, not stuck in them!

2. Be sure the cardboard sticks out an inch or two beyond the edge of the table.

3. Guide the handle of the broom with your hand so that it goes straight towards the cardboard and doesn't spin off to the side. Make sure the handle is vertical when it hits the cardboard.

**Physics Principle:** Newton's first law says an object at rest will stay at rest unless acted upon by an unbalanced force and the objects we wish to stay at rest are the eggs. By hitting the cardboard and not the eggs the eggs "stay at rest" until they drop into the water.

