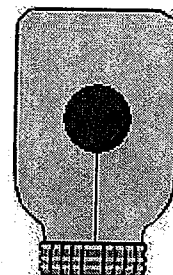


A Collection of Physics Demonstrations

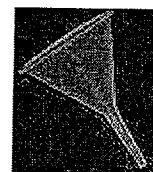
Poor Man's Accelerometer

Attach a string to the lid of a large canning, or similar, jar, and a fishing floater to the other end of the string. Fill the jar with water, screw on the cap, and invert, such that the floater is visible inside the jar. Accelerate the jar. Which way does the floater go? Extension: hold the jar at arm's length while spinning in a circle. Note that the floater moves in the direction of the acceleration.



Puff the Magic Ping Pong Ball

Obtain a ping pong ball and a funnel. Put the ball in the funnel, and challenge someone to blow it out. Repeat with a smaller funnel that the ball will not actually fit into. Extension: use a drinking straw instead of a funnel. You can suspend the ball in the stream of air from the straw.



Collision with a Moving Wall

Drop a ping-pong ball so that it bounces off a desk. Repeat with a golf ball. Then, place the ping pong ball on top of the golf ball, and drop the two together. Extension: do this outdoors using a small superball on top of a large superball.



Egg Energy Levels

Obtain a large plastic egg, of the kind used to package hosiery. Spin it on a desk. If you spin it fast enough, it will transition to spinning on one end. If you are really good, you can make it spin on the other end.

Spiral of Doom

Make a spiral about 20-30 cm in diameter. You can find patterns on the Internet, at http://clahr.com/science/illusions/just_spiral.html for example. Paste it onto something firm, like the lid from a large coffee can. Attach a bolt and nut in the middle, and spin it with an electric drill. Ask the subject to stare at it for about a minute, and then look at your face. Reverse the direction of the spin, and repeat the demonstration. Do not spin the spiral too fast: 2 or 3 revolutions per second works nicely.



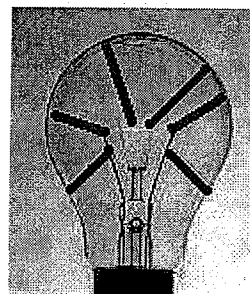
Tower of Hanoi

A popular toy for small children consists of coloured rings on a pole. Hang one in your classroom as you work through a unit on light, and draw parallels between the toy and the optical theory. An obvious one is the colours of the spectrum. If you find one with a white base, another is the mixing of the colours to form white.



Tempest in a Light Bulb

A poor man's storm can be made with any clear light bulb, and a Tesla coil. The argon in the light will form discharges from the filament to the glass. Students can touch the glass to "attract" lightning like a lightning rod. Since the Tesla coil operate on AC at around 25 kHz, students will not receive a shock, although they may feel a tingle. Ensure that students are not well grounded. Use a large, spherical bulb for a better effect.



To
Tesla
Coil

Hanging Spoons

Try to hang a teaspoon from your nose. Do not "cheat" by angling your face upwards. Most people find this impossible. However, water in a thin layer acts as an adhesive, rather than a lubricant. Ensure that your nose is clean (wipe it with rubbing alcohol or a wet wipe), and let it dry. Breathe on the spoon to fog it, and press it gently to the bridge of your nose. If you do it right, the spoon will adhere to your nose. You can even walk around with it. When you get really good, repeat with a ladle.

