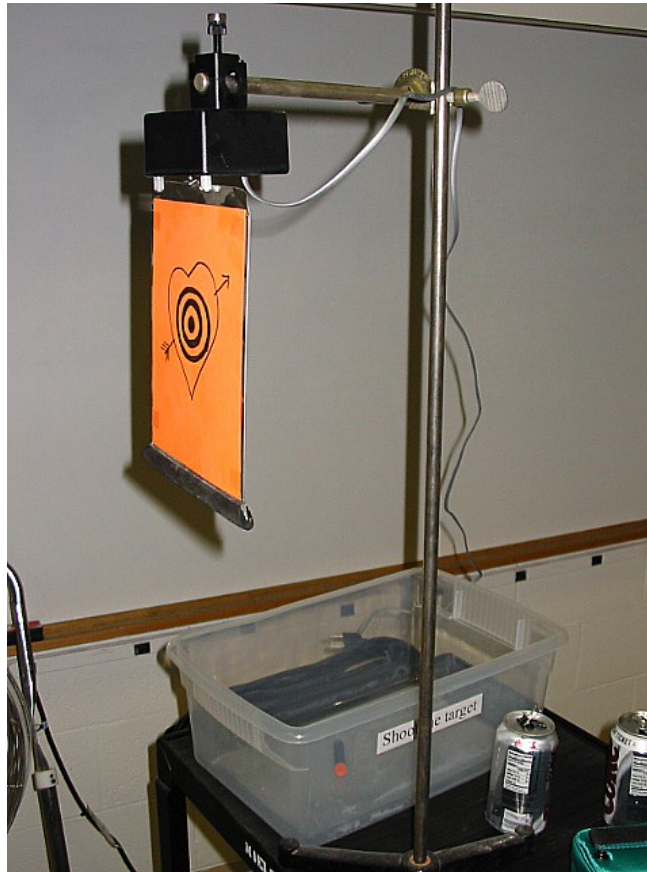


## Shoot the Target



**Purpose:** Demonstrates, in a roundabout way, the separation of horizontal and vertical motion.

This is a politically-correct version of the traditional 'shoot the monkey' demo. A Pasco drop box releases the target when triggered by a photogate signal. The target can be either a flat bull's-eye target (easy to hit) or a pop can (more fun to hit). The projectile is a foam dart fired from a modified Nerf gun.

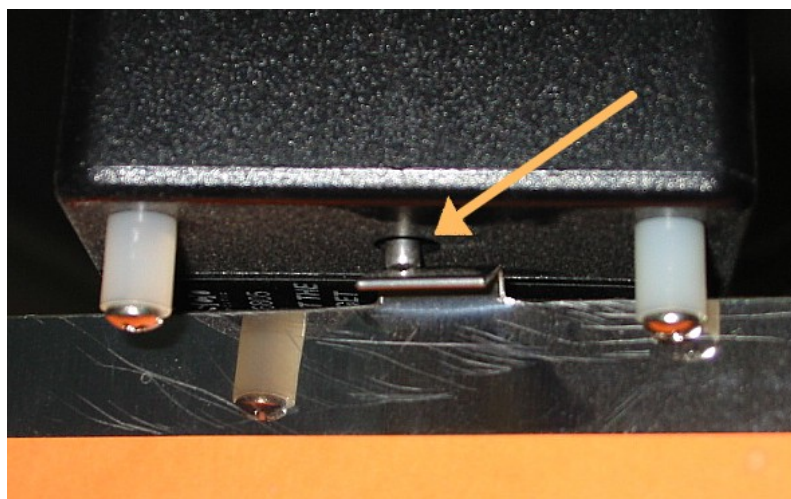
The demo is fun, but not consistent. Do not expect to hit the can every time. The problem with the can is that it is skinny, so you can miss to the side. I suspect the students take more interest if the outcome is uncertain anyway.

**Note:** Set up the drop box on the ring stand as shown above, so that the target will drop over the edge of the cart or table. Put a padded garbage can or box below to catch the target. (The target is held by a permanent magnet, whose field is neutralized by an electromagnet when triggered. If you are using a pop can, you need to use a steel clip for the magnet and tape a weight to the can's bottom to make sure it will release.)

Connect the drop box to the control box using the long telephone cord. The photogate/gun is also plugged into the sensor box. (For power, the sensor box is plugged into the house supply using its transformer)

Hang a target by the magnet, stand back 15 or 20 feet and aim the (cocked and loaded) Nerf gun. The laser sight is activated when the trigger is slightly depressed. Take aim and fire. Because the Nerf gun is not a competition piece, remember your firearms basics: Let out your breath, aim, and *squeeze* the trigger.

Oh, by the way, the point is you hit the target by aiming from any position, *i.e.* standing or sitting on the floor.



Detail of Magnetic Stud



Control Box



**Extra Equipment:** Ring stand

**Location:** Shelf A2

[Dropbox Manual](#)

[Photogate Manual](#)