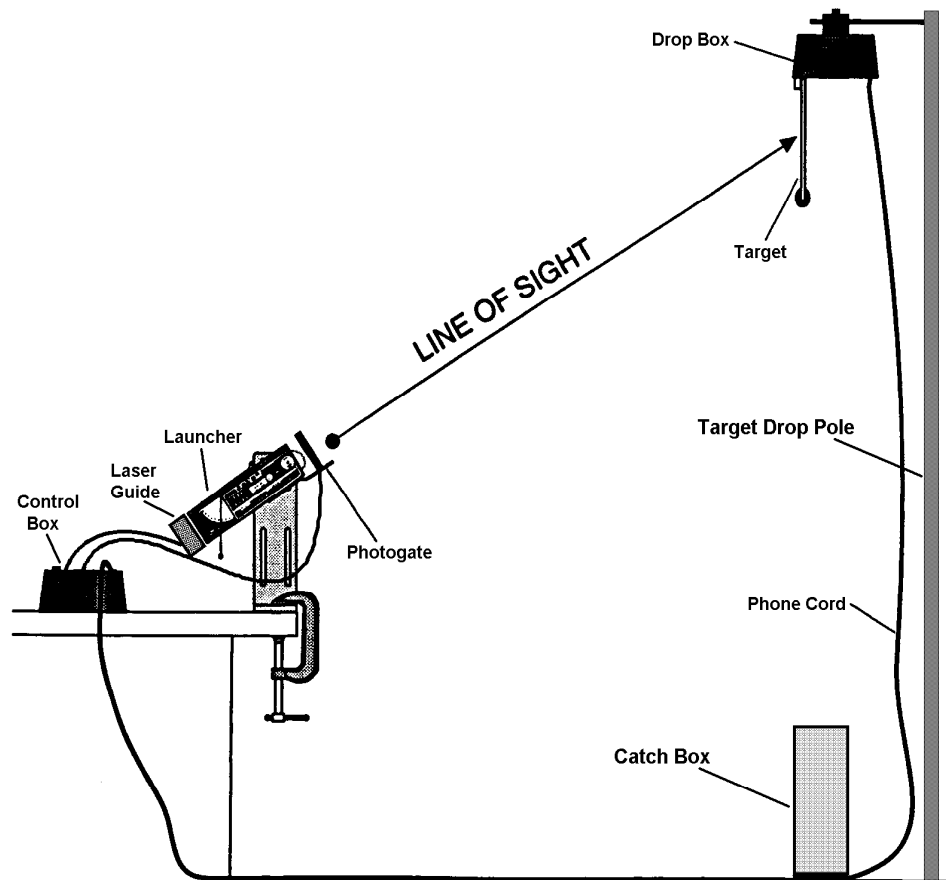


Shooting the Monkey Out of the Tree Demonstration

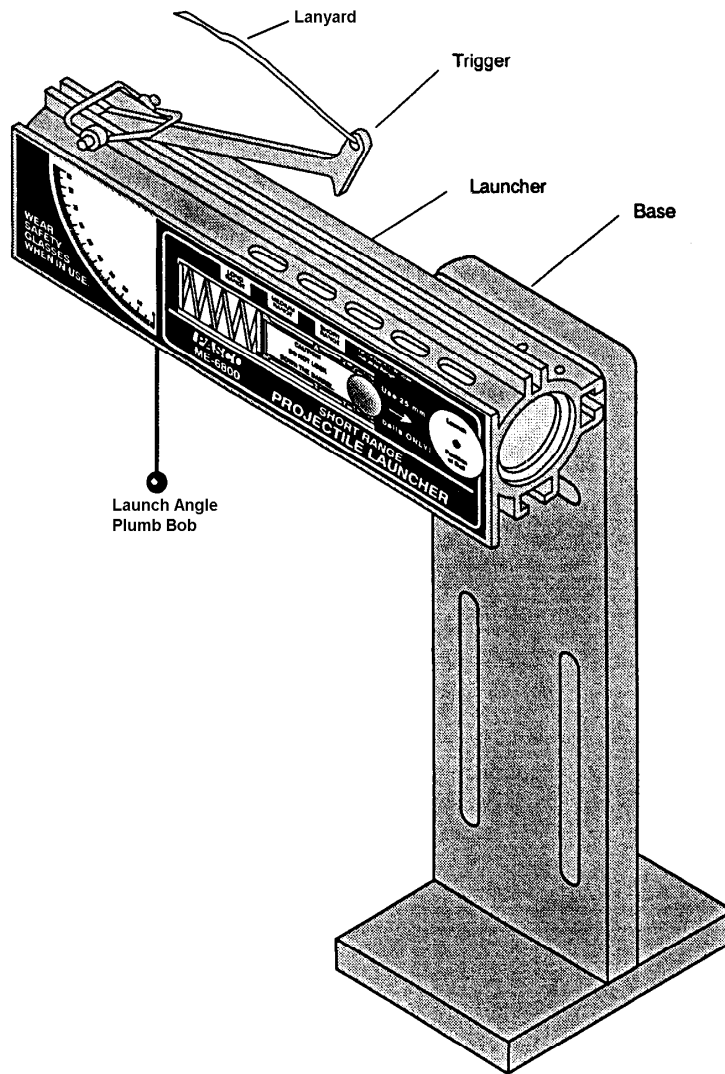
EQUIPMENT: The demonstration consists of three pieces of equipment: 1) The launcher with attached laser guide, 2) the control box, and 3) the target drop pole. The launcher is C-clamped to the lecture table, and the attached photogate is connected to the control box. The target pole is placed about 3 meters away and connected to the control box.



SET-UP:

- 1) C-clamp the launcher to the edge of the lecture bench, angling toward the corner so that the students are not completely facing the edge of the target and can see the bull's eye.
- 2) Loosen the two thumb screws on the side of the launcher and adjust to the desired launch angle using the launch angle plumb bob.
- 3) Plug the control box transformer into an outlet, plug the transformer cable into one of the control box "POWER" sockets, and connect the photogate cable to the control box "PHOTOGATE" socket and the laser guide power cable to the other control box "POWER" socket.
- 4) Set the control box switch to the **DISARM** position.

- 5) Set the target pole about 3 meters from the launcher, plug the phone cord from the target pole into the control box "SIGNAL" socket, and hang the target from the drop box.



AIM:

- 1) Turn on the power to the laser guide and adjust the launcher angle and position and the target pole position and drop box height until the laser beam hits the center of the target.
- 2) Tighten the C-clamp and the launcher thumb screws and check the aim once more.
- 3) Turn off the laser.

LOAD:

- 1) Insert the yellow ball into the launch tube and use the ramrod to cock the piston to one of its three catch positions.

FIRE:

- 1) Set the switch on the control box to the **ARM** position.
- 2) Slowly pull perpendicularly to the launch tube on the lanyard. The target is released as the ball passes through the photogate, the ball hits the center of the bull's eye, and the target falls into the catch box.

DISTANCES:

- 1) 0° -- The maximum distance from launcher to target pole is about 2.5m with the spring fully compressed. If less spring tension is used, the pole must be closer to the launcher if the ball is to hit the target before the target hits the catch box.
- 2) 30° -- The maximum distance from the launcher to the target pole is about 2.8m with the drop box fixed near the top of the target pole . With the spring fully compressed, the ball hits the bull's eye after it has fallen about half way down the pole. With the spring compressed to the middle notch, the ball hits the target at about two-thirds of the way down.
- 3) 45° -- The maximum distance from the launcher to the target pole is about 3m with the drop box located near the top of the target pole. Any of the three spring compressions can be used.