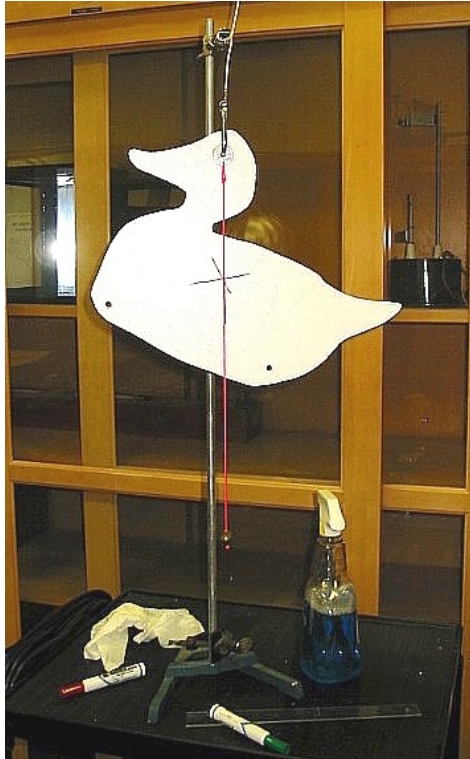


Finding the Center of Mass

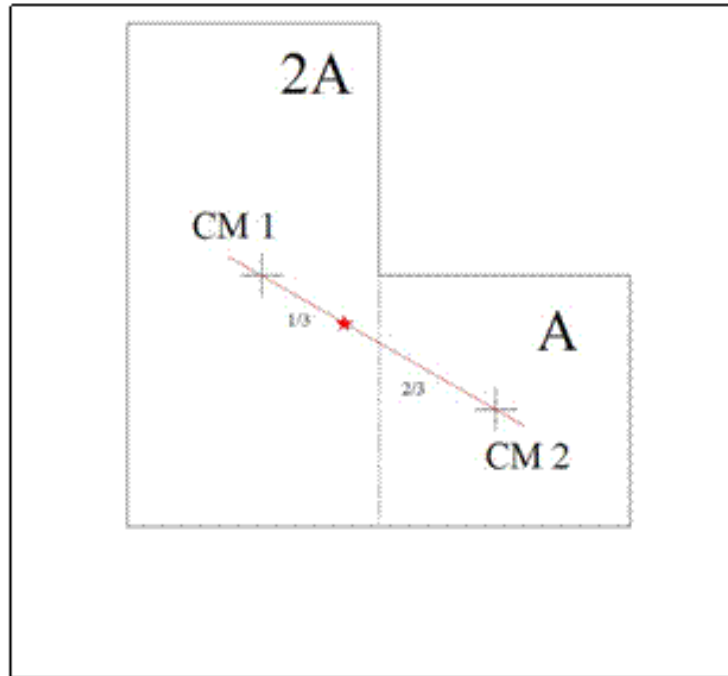
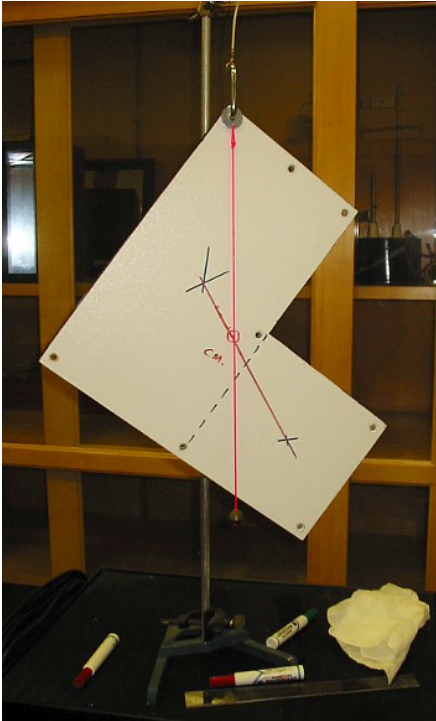


Purpose: Demonstrates the concept of center of mass and how to determine it experimentally.

The center of mass of a suspended object must fall somewhere on a vertical line below the suspension point. Hence, by suspending the object from several different points you can find the C.M. as the point where these verticals intersect. This demo consists of a number of 2D objects, a suspension hook and plumb bob. The objects are made of plastic-coated wood, so that they can be marked on with whiteboard pens (and erased!).

Note: The duck is for fun. Perhaps the most instructive object is the L_{shaped} piece: one can show (with colored markers!) that it is comprised of two rectangles. The C.M. of each of these is located

at their respective centers. The C.M. of the complete object should lie on a line joining these two points. Since the smaller rectangle is half the area of the larger, the total C.M. will be displaced along this line from the center of the big rectangle, by $1/3$ of the separation. One can go through this argument drawing on the object, then hook on the plumb bob and see that it works!



Hanger detail

Extra Equipment: Ring stand with (short) cross bar and ruler.

Location: Shelf B2.