Balancing Act

Keywords: Class 1 lever, Mass, Distance, Fulcrum

Materials:
Meter stick
Yarn
Washers
Paper, pencil

Instructions
1. Tie a string around the middle of the meter stick. Tie washers into two bundles of three washers each, making sure that there is a loop at the top that will slide along the meter stick.
2. Suspend the meter stick by holding onto the string. Have your child add the weights.
3. Test to find a point on the meter stick at which there is balance. Jot down the number of washers and the distance each set of washers is from the center (fulcrum).
4. Add 2 washers to one of the existing bundles. Find the position on the meter stick that now balances the washer loads. Jot down the number of washers and the distance each washer is from the fulcrum.

5. Multiply the force (number of washers) by the distance from the fulcrum. For example, if one side had 4 washers and was 2 inches from the fulcrum, the result of the calculation would be 8. If the other side had 2 washers and was 4 inches from the fulcrum, the result would also equal eight. Try different distances and weights to see if that pattern holds.

It can be difficult to get a lever to balance exactly; close is generally close enough to make the point. Also levers should not swing too high from the desk top. A 30 cm wooden ruler balanced on a pencil is usually good. Be sure students read the measurement of the lever arm from the center of the weight.