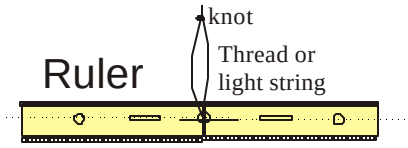
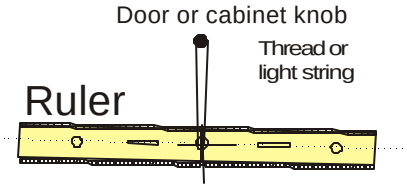
DOIT 5 Ruler Balance Scale - example of rotational equilibrium

MATERIALS : A cheap diet scale
a plastic or wood ruler with a center hole and mm, cm scale.
Thread or ve
Weights - nail polish bottles, whiteout bottles, bottles of seasonings, nial clippers, pens, pencils and similar items.

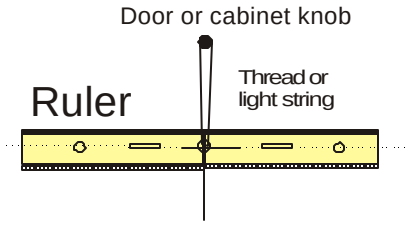
INSTRUCTIONS:



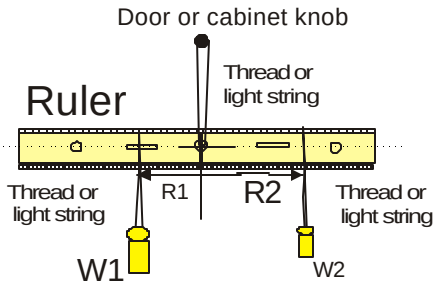
Take a ruler, plastic or wood with a hole cut in its center. Loop a thread through the hole and tie a knot as shown.



Hang the ruler from door or cabinet knob, as shown.



If it does not hang exactly horizontally, then adjust the ruler-string until it does.



Take objects of different weights,

1. W_1 and W_2, weigh them on a cheap diet scale.
2. Tie thread loops on them so they will hang on the ruler as shown.
3. Hand one weight, say W_1, at R_1 from the string hole. Record these values.
4. Hang weight W_2 on the ruler and adjusts its distance, R_2, from the center string until the ruler balances - stays horizontal by itself. Record these values.

SAMPLE DATA SHEET (first two trials)

Trial number	w_1 (kg)	R_1 (m)	$\tau_1 = w_1 * R_1$	w_2 (kg)	x_2 (m)	$\tau_2 = w_2 * R_2$	comments