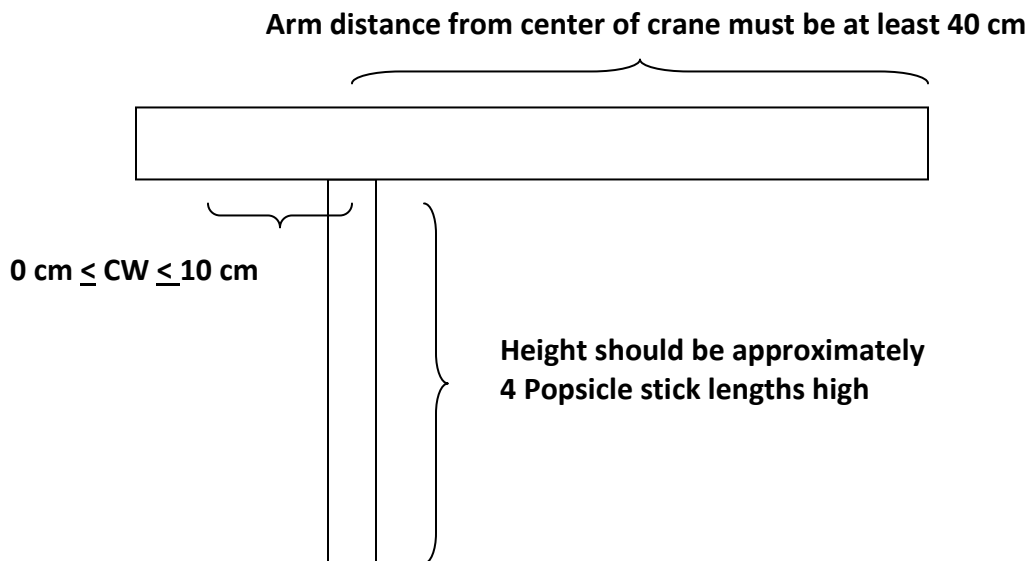# Competition Requirements

Competition Requirements

You are required to design and build a crane that remains in balance at all times (under loading as well as standing on its own). This means your crane must be structurally sound and theoretically sound (in terms of the static equilibrium equations).

Given a certain load for your counterweight, your design will be judged in two categories:

1. The maximum load applied at the greatest distance from the center of the crane.
    (*Scoring:* 5 points to the group in first place, 4 for second, 3 for third, etc.)

2. The deflection of your crane arm (to be measured 40 cm from the center of the crane) with a load of 96 grams (about six washers). This category will be judged by the lowest deflection product (product of deflection and weight). For example, if the deflection is 3 cm with a weight of 10 Newtons, the deflection product is 30 cm * N.
    (*Scoring:* 5 points to the group in first place, 4 for second, 3 for third, etc.)

Design Requirements

Arm distance from center of crane must be at least 40 cm

0 cm $\leq$ CW $\leq$ 10 cm

Height should be approximately 4 Popsicle stick lengths high

Assumptions
- Measure all weights from the object's center.
- Ignore the weight of the crane arm in your equilibrium calculations.