

MSET – LEVERS

Purpose

Study the benefits of levers, and how they are used to provide a mechanical advantage .

Levers

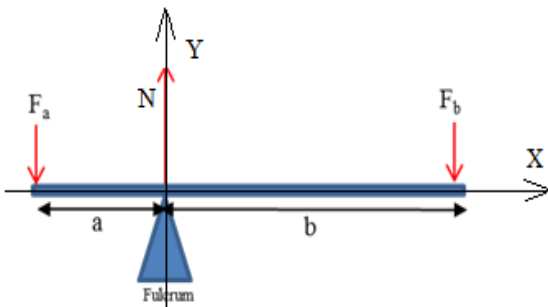
A lever is a mechanical tool used to magnify the amount of force to move or lift heavy materials. Engineering and technical trades use levers for a wide variety of applications. One example is moving a large mass, such as a rock, with a pole and pivot point to amplify the applied force.



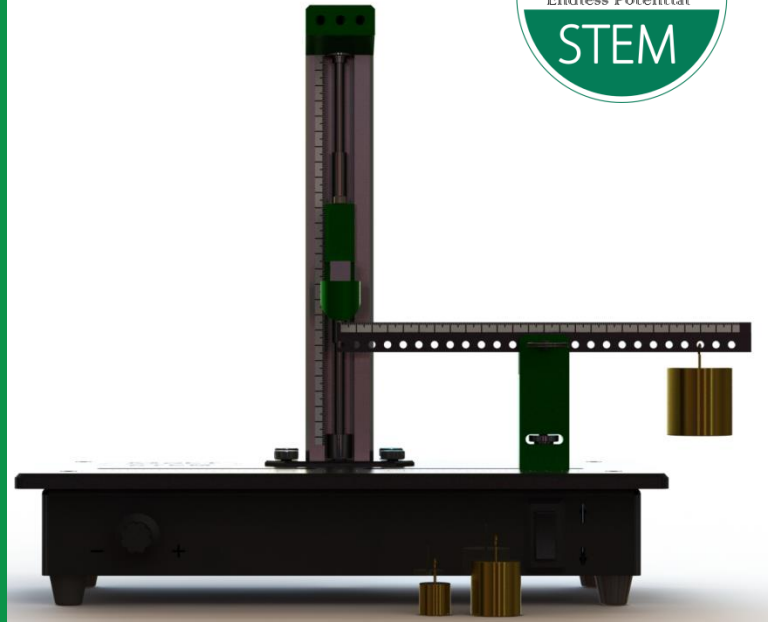
Theory

The force amplification generated using a lever is equal to the ratio of the length of leverage arms "a" and "b". Reaction forces can be calculated as follows:

$$F_a = \frac{b}{a} F_b \quad F_b = \frac{a}{b} F_a$$



Setup



Results

Variables of an applied weight and the length of two moment arms will be used to predict and compare the reaction force generated and measured with a stationary load cell.

Force generated as B/A is increased

