

Fulcrum Fever

Materials

- A meter stick or similar long, flat stick
- 2 small paper or plastic cups
- A small piece of cardboard, approximately 4 x 6 inches
- A chunk of modeling clay
- Marbles
- Tape



Procedure

1. Make the cardboard into a triangle by folding into thirds and taping.
2. Tape one small cup to each end of the flat stick by running a strip of tape under the bottom side of the stick and up onto each side of the cup. Set the stick on top of the cardboard triangle, like a seesaw. Put the triangle as near to the exact center of the stick as possible.
3. Roll the clay into a ball that will fit snugly into one of the cups. Put the clay ball into the cup that is on the side of the stick that is resting on the table.
4. Add one marble at a time to the cup on the opposite end of the stick, stopping when the clay ball cup lifts up. Count how many marbles it took to accomplish this, removing them from the cup.
5. Move the fulcrum (the cardboard triangle) closer to the clay ball cup. Again add marbles one at a time to the other cup. Does it take more or fewer marbles to lift the other side when the fulcrum is closer to it?
6. Repeat the steps as many times as you like, moving the fulcrum to a different position each time. Try to form a hypothesis to explain the relationship between location of the fulcrum and force needed to lift a weight.

A fulcrum is the resting point of any lever, from the simplest of lifting tools to the most complex machinery. On a pair of scissors or a pliers, the fulcrum is the screw that holds the two levers (such as the blades on scissors) together.

