



ACTIVITY BOX - YOUTH MANUFACTURING CATAPULT

OVERVIEW

You work for Lyfdit Flingt & Tozz Manufacturing, a local manufacturer of catapults and trebuchets. As one of our skilled tradespersons, you are responsible for testing the quality of new products, ensuring that they meet government regulations and new and existing products meet the company's quality standards.

PROBLEM

As LF&T Mfg. expands and grows, they have developed a brand-new catapult design to add to their line of trebuchet and catapult products. It's your job to create and test the new catapult from the technical drawing/instructions.

The trebuchet you build needs to be able to launch a ball of a minimum of 3 meters as requested by our client.

MATERIALS

Included

- Popsicle sticks (7)
- Skewers (1)
- String
- Marble, nut, or other counterweight
- Objects to catapult (i.e. erasers)

Needed

- Scissors
- Masking Tape

DIRECTIONS

Step 1:

Cut the skewer into three equal pieces and put them off to one side.

Step 2:

Lay the two popsicle sticks without holes flat and tape them together.

Step 3:

Take two of the popsicle sticks with holes and attach them together at the ends, making an "L" shape. Do this twice.

Pro tip: Use some tape on the ends of them to make the fit secure and poke a hole in the tape with the end of the skewer or pencil. This should make two sides of an equilateral triangle.



Step 4:

Unbend half of your paperclip and tape it to the end of the last popsicle stick (with holes) making a slight hook upward. This will be used as your “swing arm.”

Step 5:

Cut the string in half. Using the half piece of string, tie the weight to the “swing arm” paperclip.

Step 6:

Take two pieces of the skewer and tape them to the bottom of the flat sticks without holes at the ends.

Step 7:

Place the last piece of skewer through the hole in the “swing arm” using the hole closer to the weight. Attach it to the top of the frame with a little more tape around the ends of the skewers to make the fit snug

Note: the “swing arm” should still move freely on its axis.

Step 8:

Place the ends of the skewers into the bottom ends of the “L” shaped pieces. Wrap a bit more masking tape around the ends of the stick to make it fit snug.

Step 9:

Cut the last piece of string in half. Tape the two ends to one of the erasers making a loop (about 3-4 cm long). Raise the weight.

Ready to use:

Lift the counterweight to the top of its arc.

Hook the loop in the string with the eraser to the paperclip.

Let the counterweight drop. Let it fly see how far it will go. Try making different objects to fly. How far will they go?