

STEM CHALLENGE

Tissue Box Catapult

Create a tissue box catapult that can be built in just a few minutes and shoot up to 8-10 feet!

Materials Needed:

- An empty tissue box
- 3 pencils - unsharpened is best
- Rubber bands
- Hole punch
- A plastic cap (from a milk jug or similar)
- A pipe cleaner
- Scissors
- Hot glue gun

Directions:

Step 1: Start by cutting the opening of your tissue box a little larger, like this.



Step 2: Use a rubber band to attach two pencils so that they make a cross. Then use a hole punch to make holes on either side of the box. Insert the pencils. You may need to use a sharpened pencil or a pen to make the holes a little larger.



Step 3: Attach a rubber band to the end of the pencil. Use a knot like you would do on a luggage tag. (You may need two rubber bands if they are short.)



Step 4: Make a little hole on the end of the box and pull the rubber band through.

Step 5: Stick the pipe cleaner through the loop of rubber band and then tape it to secure it to the box. Otherwise, the tension on the rubber band will pull it back through. Now the catapult has rubber band power!



Step 6: Use the hot glue (ask a parent for help) to attach a plastic cap to the pencil.

This is what the catapult looks like when it's just sitting there.



To shoot it, you need to pull the arm down like this:



Step 7: To help your catapult shoot farther, add another pencil behind the shooting arm to stop the shooting arm at a better angle. Secure it to the pencil in front of the shooting arm with duct tape as shown.



Your catapult is now ready to aim and fire!

Experiment:

- Test how far different projectiles travel: gather different objects to shoot, measure the results, and compare them with a graph.
- Experiment with the tension of the rubber band: what happens if the rubber band is tighter? Looser?
- Can you find a better position for the shooting arm?

Take a picture of your catapult and send the results of your experiment to Mrs. Darden at ldarden@dsdmail.net or Mrs. Bolinder at cbolinder@dsdmail.net.