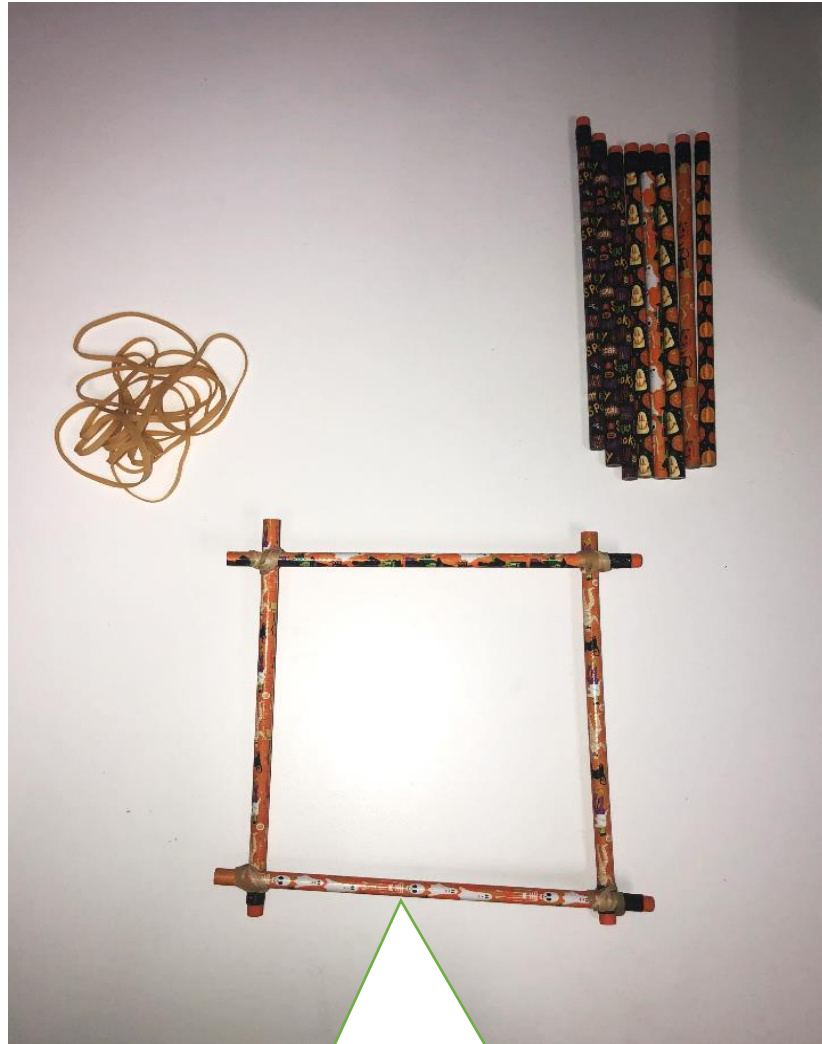


Catapult Design

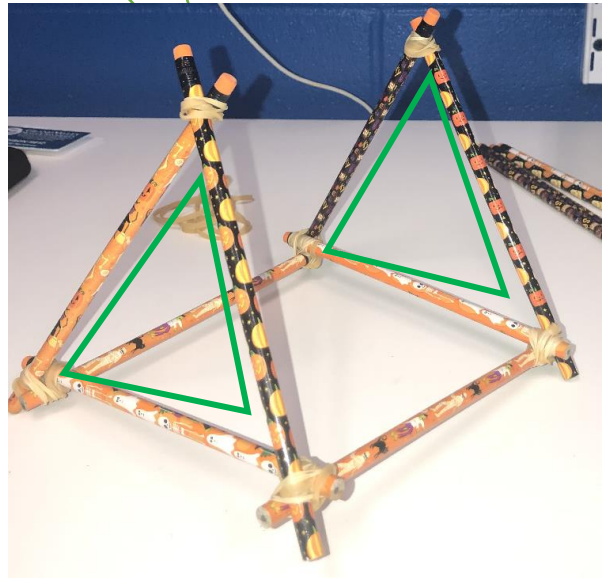
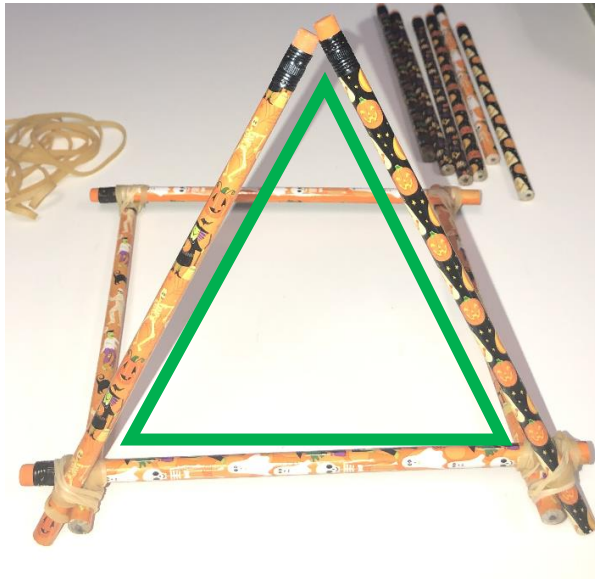
Supplies:

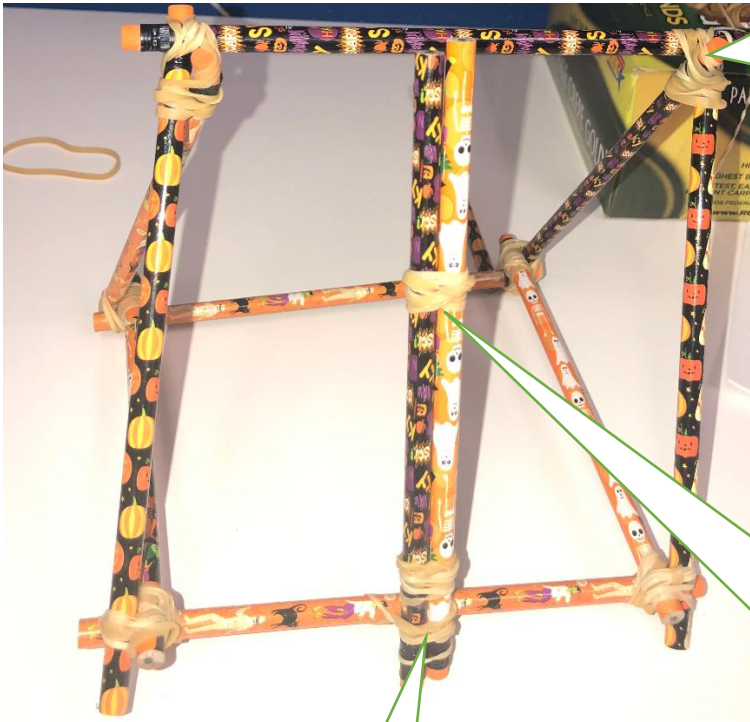
12 pencils
20-30 rubber bands
Water bottle cap
Hot glue/tape



Step 1: Build your base. You will need 4 pencils and 4 rubber bands. Make a square out of the pencils and rubber band the end of the pencils together on each corner. (The two pencils opposite of each other, should be on the same level as each other so that your catapult is stable on a table.)

Step 2: Once your base is built, you will create two triangles on opposite sides of the square base. Start by tying one pencil upright to a corner. Repeat on the other side to create a triangle. Rubber band the top of the pencils together to form the triangle. Repeat on opposite side.

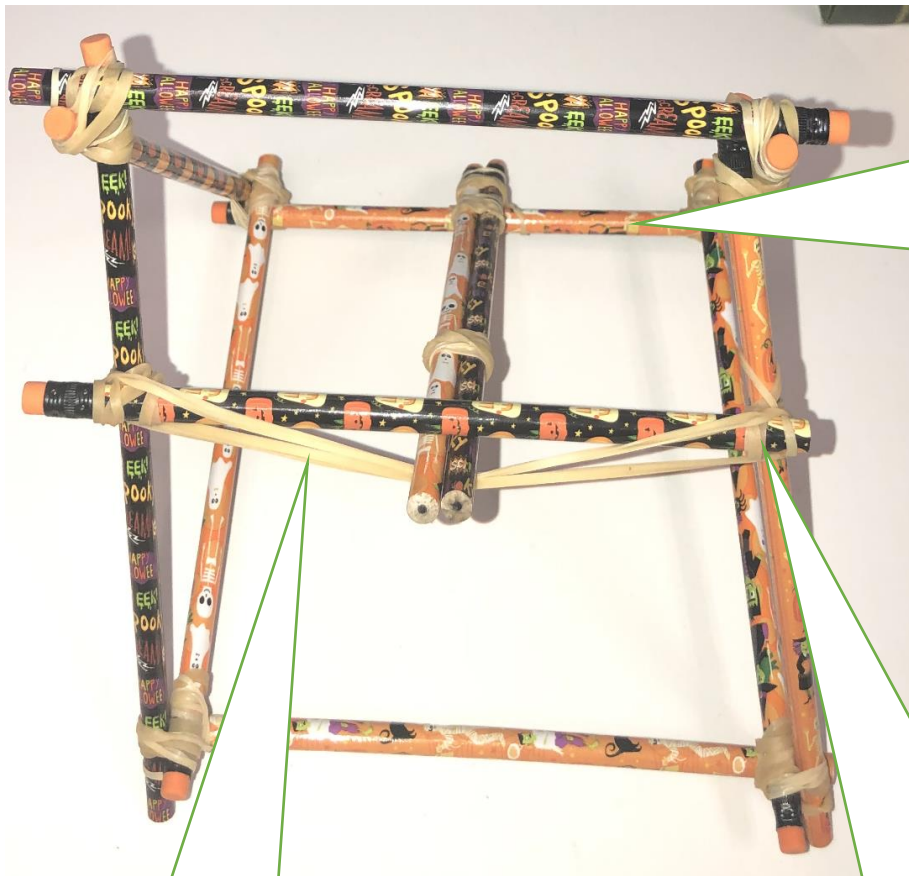




Step 3: Place one pencil at the top of the triangles. Rubber band into place in two places.

Step 4: Take two new pencils and rubber band them together at the center and at the end near the erasers.

Step 5: Attach your banded-together pencils to the lower crossbar with a couple of rubber bands. This is your catapult arm and where it attaches at the bottom is the fulcrum.



Step 6: Next, turn your catapult so the pencils you just secured on the base are facing the opposite way.

Step 7: Add a single pencil parallel to the square base halfway up and secure with rubber bands on both sides. This is your catapult crossbar.

Step 8: Take one or two rubber bands and stretch them around the pencil that you just installed. You can double this rubber band up to make it twice as strong.

Step 9: Hot glue an empty water bottle cap to the end of the arm to create a payload bucket.



Congratulations! You have created your very own catapult. Grab a projectile and start launching.

Try modifying your catapult design to see if you can send the projectile higher?

Try modifying your catapult design to see if you can send the projectile a longer distance?