My hopper movement goal:

- Flip several times while in the air, more than 3 times at least
- Jump at least 2 feet off the launch surface

My kangaroo-leg hopper prototype jumps approximately a foot and a half in the air, slightly off to the side at maybe an eighty-five degree angle. It spins quite a lot though, doing about five rotations per jump. It also rotates on two axes due to some slight asymmetry in my construction, although I think that I like it better that way. Its' jump is reminiscent of a springtail or of a gymnast doing a full twist.

Improving jump height:

- Change the initial length of the rubber tubing, increasing the energy storage for the same final length
    - Using the latex tubing energy storage graph/calculator tool that I created in desmos, using an initial length of 60 mm and an approximate deflection of 120 mm measured on my prototype, my total energy is calculated to be about 1.95 J. This is under the limit of 3 J, so I am going to try the initial effective length of rubber tubing and see how my hopper jumps differently
- Increase hole diameter on pivot hole slightly to reduce friction there, allowing it to contract the rubber tubing with less lost energy and also slightly more quickly, hopefully resulting in a better and higher jump

Work on my trigger:

- Rethink my suction cup trigger, either by completely changing it or changing its positioning, to make the delay more reliable and easier to setup. Ideas:
    - Use fishing line and rocket igniter to tie leg at 180 degrees then rapidly release. Cons: non-reusability and won't get many test-fires
    - Try using spring wire for a hook and loop that slips open, more like how I used a paperclip in my previous sketch model of this same design
    - Add plate underneath the hopper that suction cup can stick to reliably well
    - Take advantage of the way my hopper can slightly overextend past 180 degrees and use something to tie the ends together from underneath, such as rubber tubing placed on the edge of a dowel

Aesthetics:

- My original design goal was to be functional and simple, but after revising it to create a more expressive character to my design, I want to also make sure it's not too rectilinear. Since my hopper is inspired by a kangaroo leg and the jumping motion of the springtail, I'm going to try to come up with ideas to reshape my parts for the next iteration to make them more aesthetically reminiscent of my bioinspiration and nature in general. Ideas:
    - Shaping parts to look even more rounded and less blocky
    - Not using 90 degree angles
    - Possibly even making interesting shaped cutouts, if it doesn't compromise the parts' structural integrity
    - Surface-level decoration using sharpies