



STEAM STARZ

# STEAM @ Home

*Build a Mini Football Launcher*



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# Football Launcher

**STEAM Explanation:** Catapults use the principles of force, energy, and motion to launch objects: potential energy is stored in a lever and converted into kinetic energy when released. By adjusting the angle, tension, or weight of the projectile, your child can explore how physics affects distance, speed, and trajectory.

## **Materials:**

5-6 Popsicle sticks  
2-3 Rubber bands  
Plastic spoon or small cups  
Mini football or small pom-poms  
Tape

## **Directions:**

### **Step 1: Build the Base**

- Stack 3–4 Popsicle sticks together and secure both ends with rubber bands to create a sturdy base.

### **Step 2: Add the Lever Arm**

- Take 1–2 Popsicle sticks and attach the spoon or cup to one end using tape.
- Place the other end of the stick(s) under the base stack so it can act like a lever.

### **Step 3: Secure the Launcher**

- Use a rubber band to attach the lever arm to the base so it pivots up and down when pressed.

### **Step 4: Load the Football**

- Place the mini football or pom-pom in the spoon or cup.

### **Step 5: Launch the Football**

- Press down on the lever arm and release quickly to launch the football.
- Experiment with pressing harder or softer, or adjusting the angle of the lever.

### **Step 6: Measure and Test**

- Optional: Use a ruler to measure how far the football travels.
- Record results and try small changes to improve distance or accuracy.

### **Step 7: Improve**

- Add more Popsicle sticks for strength.
- Change the cup or spoon size.
- Adjust the rubber band tension.