UNIT: CATAPULT

BUILD YOUR CATAPULT

Your Mission:

You’re an inventor in the Catapult Lab! Your task is to design and build a working catapult that can launch soft objects using the power of stored energy. Think like an engineer, plan your design, and create a strong, stable launcher to use in future tests!

Focus: Forces, Levers & Stored Energy

Materials:

* Popsicle/craft sticks
* Rubber bands
* Plastic spoon or bottle cap
* Binder clips or clothespins
* Tape

STUDENT DIRECTIONS:

**STEP 1:. Plan Your Catapult**

* Think about how a lever works: the spoon will be the arm, and you’ll need a base to hold it steady.
* Decide how many sticks to use for the base and how to position the launch arm.

**STEP 2: Build the Frame**

* Stack and rubber-band at least 5–6 sticks together for your base.
* Use 2–3 sticks crossed or spaced out to make a base where the spoon can rest.
* Secure with rubber bands or tape so nothing wobbles or slides.

**STEP 3: Attach the Launch Arm**

* Tape or rubber-band the spoon or bottle cap to a stick that acts as the lever arm.
* Insert this lever through a small opening in the base so it can pivot (act like a seesaw).

**STEP 4: . Secure and Stabilize**

* Use binder clips or clothespins to hold the base firmly to the table if needed.
* Test how far the arm can pull back without snapping or breaking.
* Adjust as needed to make the launch smooth and consistent.

**✏️ Sketch Your Design Below:**

*(Label important parts like base, launch arm, and stabilizers)*  
📐 Use arrows to show where energy is stored and released!

**Helpful Tips:**

* The more the spoon bends back, the more potential energy you store!
* Stability = consistency → make sure your base doesn’t shift during launch.
* You’ll modify and test this design in other stations—this is just the start!

Standards Alignment

NGSS:MS-PS2-1, MS-PS3-1 STEL **STEL 1F**, **STEL 2E** , **STEL 3F**, **STEL 4F**, **STEL 5E** CCSS: CCSS.MATH.CONTENT. **6.SP.B.4**, CCSS.MATH.CONTENT. **6.EE.C.9,** CCSS.MATH.CONTENT. **7.G.B.6,** **CCSS.MATH.CONTENT. 7.EE.B.3, CCSS.MATH.CONTENT. 8.F.B.5**