

Popsicle Catapult

Pre-Kindergarten – Kindergarten



Activity By: Little Bins for Little Hands
Website: <https://littlebinsforlittlehands.com/popsicle-stick-catapult-kids-stem-activity/>

**Materials Required:**

1. Popsicle Sticks (Approximately 10)
2. Rubber Bands
3. Projectiles (Examples: Pom-poms, marshmallows or pencil top erasers)
4. Bottle Cap
5. Sticky Dots or Glue

Activity Preparation:Pre-Kindergarten:

1. The adult should gather all of the required materials and place them in a pile in front of the child.
2. At this age children are learning to count up to 20. Have the child count the popsicle sticks, projectiles, and rubber bands until they have 20 objects in a separate pile.
3. Have the child group materials based on certain characteristics and have the child explain the reasoning behind their groups. Some examples may include color, size or shape. Remember there are no wrong answers, this activity is for the child to decide the sorting on their own and explain their reasoning.
4. The adult should place the circular rubber band in front of the child, create a square using the popsicle sticks, and a triangle using the materials for the projectiles. The adult should then ask the child to identify and point to which object is the circle, square and triangle.

Kindergarten:

1. The adult should gather all of the materials and place them in a pile in front of the child.
2. At this age children are learning to count up to 100. Have the child count all of the materials and see if they can continue to count them over again until they reach 100.
3. Have the child group the materials in groups of 10. The objective of this step is for children to learn how to group in tens. It does not matter if they are sorted by characteristics. That'll be covered in the next step.
4. Have the child group materials based on certain characteristics and have the child explain the reasoning behind their groups. Some examples may include color, size or shape. Remember there are no wrong answers, it is important for the child to decide the sorting on their own and explain their reasoning.



5. Adult can place the circular rubber band in front of the child, create a square using the popsicle sticks, and a triangle using the materials for the projectiles. The adult then asks the child to identify and point to which object is the circle, square and triangle.
6. When doing the activity below, discuss with the child how the catapult works. Discuss what happens when you pull or push the catapult down with different strengths and the effects it has on the distance of the object.
7. After completing the activity, analyze the catapult and determine if the design works as intended to change the speed or direction of an object.

Standards taught in this activity:

Mathematics

Pre-Kindergarten:

Number & Operations: Count aloud forward in sequence by 1s to 20.

Algebraic Reasoning & Algebra: Sort and group into sets based upon characteristics such as color, size, and shape and explain verbally what the objects have in common.

Geometry & Measurement: Identify circles, squares, rectangles, and triangles by pointing to the shape when given the name. Identify measurable attributes of objects.

Kindergarten:

Number & Operations: Count aloud forward in sequence to 100 by 1's and 10's.

Algebraic Reasoning & Algebra: Sort and group up to 10 objects into a set based upon characteristics such as color, size, and shape. Explain verbally what the objects have in common.

Geometry & Measurement: Recognize squares, circles, triangles, and rectangles. Use basic shapes and spatial reasoning to represent objects in the real world.

Science and Engineering Practices

Kindergarten:

Motion and Stability: Forces and Interactions: Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.



You will want to use a pair of scissors to make two v-notches on either side of two jumbo craft or Popsicle sticks (in the same place on both sticks). Use the photo below as a guide for where to make your notches.

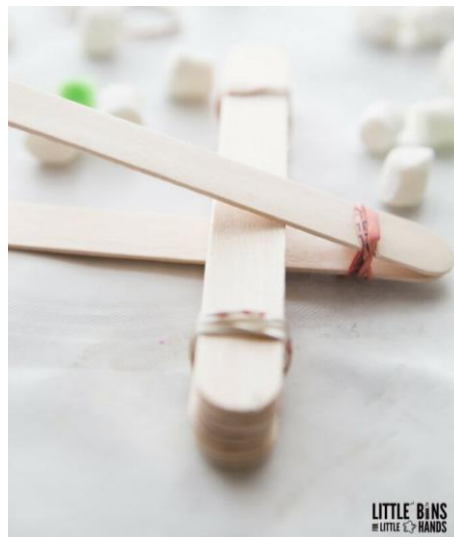


Once you have made your notches in two of the sticks, set them aside!
Take the remaining 8 craft sticks and stack them one on top of the other.
Wind a rubber band tightly around each end of the stack. Go ahead and
push one of the notched sticks through the stack under the top stick of the
stack.



At this point flip your partially made popsicle stick catapult over so that the
stick you just pushed in is on the bottom of the stack.

Lay the second notched stick on top of the stack and secure the two
popsicle sticks together with a rubber band as shown below. The V notches
that you cut help to keep the rubber band in place.





Create more leverage with your catapult by pushing the stack of popsicle sticks towards the notched ends connected by the rubber band.

