

# STEM Program



## Projectile Motion

### Mechanical and Physical Waves

In this activity we will be making our own paddle pop catapults. This is a great activity for Joeys and Cubs. Catapults are a great way of learning about energy, gravity and Newton's Laws of Motion.

#### Suited to Section



Joey Scouts



Cub Scouts



Scouts



Venturer Scouts



Rover Scouts

#### Key SPICES Growth



SOCIAL



PHYSICAL



INTELLECTUAL



CHARACTER



EMOTIONAL



SPIRITUAL

#### Challenge Area



COMMUNITY



PERSONAL GROWTH



OUTDOORS



CREATIVE

#### Likely Scout Method Elements



COMMUNITY INVOLVEMENT



LEARNING BY DOING



NATURE AND THE OUTDOORS



PATROL SYSTEM



PERSONAL PROGRESSION



PROMISE AND LAW



SYMBOLIC FRAMEWORK



YOUTH LEADING, ADULTS SUPPORTING

# STEM Program

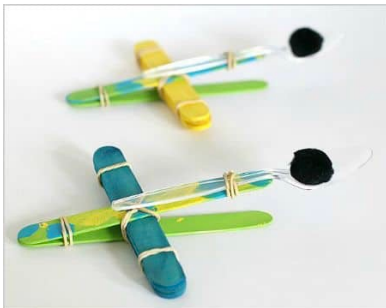
## Projectile Motion



### Plan

Materials needed:

1. Sticks
2. Rubber bands
3. Plastic or wooden spoon
4. Pom poms or marshmallows
5. Tape measure (optional to measure how far your projectile goes!)



### Do

1. Make a stack of paddlepop sticks (we suggest a stack of 4 or 5) and join them together at each using rubber bands.
2. Take two additional sticks and stack them together. Rubberband them together on just one end.
3. Pull the two paddle pop sticks slightly apart and place the larger stack of paddlepop sticks in between them.
4. Place a rubber band around the stack of sticks to just the upper paddle pop stick.
5. Secure the two stacks together with another rubber band.
6. Wrap a rubber band or maybe 2 around the spoon to connect it to the upper paddle pop stick.
7. Place a pom pom or marshmallow onto the spoon.
8. Hold the catapult with one hand, and use the other hand to pull the spoon down. Release the spoon and watch your pom pom or marshmallow fly!
9. And if you're feeling competitive enough, you can try to catch the marshmallows in your mouth or try to see how far you can make your pom pom go!!!

### Review

1. When you pull back the paddle pop stick, the potential energy, or "resting" energy gets stored up. And when you release the stick, the potential energy turns into kinetic energy or "moving" energy! Then gravity pulls the launched object back down to the ground.
2. What kind of theories and predictions can you make when using the catapults?
3. Does using different types of surfaces make a difference?

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## Projectile Motion

### Want To Learn More?

- STEM Activity for Kids: Stick Catapults - Buggy and Buddy: <https://bit.ly/PaddlepopCatapult>
- Stick Catapult - STEM Challenges for Kids ([www.science-sparks.com](http://www.science-sparks.com)): <https://bit.ly/StickCatapult>
- Simple catapults: <https://bit.ly/SimpleCatapults>

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### SciScouts Physics of Waves

The SciScouts Physics of Waves is a National Science Week project, undertaken in collaboration with Fizzics Education. These instructions were prepared by Scouts for Scouts. This National Science Week project is supported by the Australian Government.

Scouting has always been strong on STEM skills. Maths to calculate catering quantities and navigate, the science of water purification, the physics of abseiling, and the engineering of pioneering structures – they all have their place. In the current program for our youth members, STEM and Innovation forms one of six Special Interest Areas that enable Scouts to set goals and pursue their own ideas.

