

STEM Program



Newton's Cradle

Astrophysics and Gravity Waves

Newton's Laws of Motion - In this activity we are going to make our own Newton's cradle to demonstrate the laws of conservation of energy and momentum - otherwise known as Newton's third law of motion.

Suited to Section



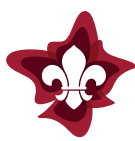
Joey Scouts



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



Newton's Cradle

Plan

Materials needed:

1. 16 paddle pop sticks
2. 6 marbles
3. Hot glue or alternative glue
4. 6 ~ 15cm long pieces of string

Do

1. Glue (4) craft sticks together at the corners to make a square.
2. Repeat with (4) more crafts sticks. Let the glue dry. These will be the sides of your frame.
3. Cut string into (6) equal pieces each approximately 15cm long
4. Hot glue a marble to the centre of one of the pieces of string.
5. Repeat to end up with (6) different marbles, each glued to the centre of the piece of string.

6. Make (6) marks along two craft sticks approximately every 1.3cm. Make sure the marks are centred on the sticks.
7. Tape one end of the strings with marbles attached at each of the marks
8. Test your Newton's cradle by swinging and releasing one of the end marbles.

Review

The Newton's cradle is a device that demonstrates the conservation of momentum and the conservation of energy with swinging spheres. When one sphere at the end is lifted and released, it strikes the stationary spheres, transmitting a force through the stationary spheres that push the last sphere upward. The further you pull back the marble, the more potential energy you will give it.



Want To Learn More?

How to make a simple Newton's Cradle:
<https://bit.ly/DIYNewtonsCradle>

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.

