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

Challenge Area

COMMUNITY
PERSONAL GROWTH
OUTDOORS
CREATIVE

Key SPICES Growth

SOCIAL
PHYSICAL
INTELLECTUAL
CHARACTER
EMOTIONAL
SPIRITUAL

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.

SciScouts PHYSICS

Fizzics Education Since 2004 Innovative Science Shows & Workshops!

national science week 2022

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