STEM Program

Balloon Hovercrafts

Mechanical and Physical Waves

Bernoulli Principle – DIY Balloon Hovercraft: Let's make a simple hovercraft out of an old CD, a balloon and a pop-top lid. Then watch it glide over the floor on a cushion of air. Why not make some with your fellow Scouts and have a race? Why not make some predictions about what is happening and why?

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

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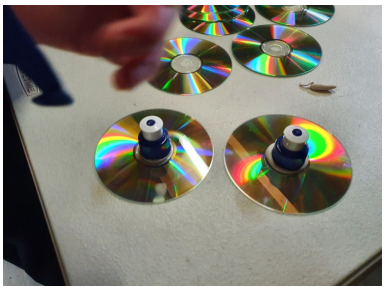
Plan

Materials needed:

1. Balloon
2. CD
3. Blue tack (or hot glue gun with leader assistance)
4. Pop-top lid

Do

1. Begin working on a smooth surface.
2. Roll the blue tack into a blue tack snake. Make it long enough to wrap around the base of the pop-top lid.
3. Stick the pop-top lid to the CD. Try to keep it as centred as possible.
4. Close the pop-top lid.
5. Blow up the balloon and stretch it over the lid. If the lid is closed, there should be no air rushing out of it.
6. Place the hovercraft onto a smooth surface. Open the lid (this is easier to do with 2 hands) and give the hovercraft a push. It should glide across any smooth surface.



Review

Now let's explain what is happening. Air is coming out of the balloon and is pushing the CD upwards. When we push the CD it "floats" across the table. The air pressure makes a thin cushion of air between the surface and the CD. However, if the surface has a lot of friction the hovercraft cannot float.

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Want To Learn More?

- Balloon Hovercraft | Mad About Science: https://bit.ly/BalloonHovercraft
- Make a balloon hovercraft : Fizzics Education: https://bit.ly/FizzicsHovercraft
- Scoutadelic video: https://youtu.be/ijfvqTqRNUA

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.