

GYSTC Activity



Title: Life Vest Challenge

<p>Purpose:</p>	<p>The "Life Vest Challenge" explores how engineers work to solve the challenges of a society, such as creating and improving devices that can help prevent loss of life in water. Students work in teams to devise a system using everyday materials that can keep an unopened can of soup or vegetables afloat for at least a minute in a bucket of water or sink. Student teams sketch their plans, build their system, test it, reflect on the challenge, and present their findings to their class.</p>
<p>Standard:</p>	<p>SKP1. Obtain, evaluate, and communicate information to describe objects in terms of the materials they are made of and their physical attributes. a. Ask questions to compare and sort objects made of different materials. (Common materials include clay, cloth, plastic, wood, paper, and metal.) b. Use senses and science tools to classify common objects, such as buttons or swatches of cloth, according to their physical attributes (color, size, shape, weight, and texture). c. Plan and carry out an investigation to predict and observe whether objects, based on their physical attributes, will sink or float.</p>
<p>Materials:</p>	<ul style="list-style-type: none"> ● Plastic Cups and Plastic Spoons ● Corks ● Balloons ● Glue Sticks ● Yarn ● Long Straws/ Short Straws ● Popsicle Sticks ● Toothpicks ● Zip Ties ● Clothespins ● Rubber Bands ● Wooden Pegs

	<ul style="list-style-type: none"> ● Paper Clips ● Tin Cans ● Foil ● Tape
<p>Procedures:</p>	<ol style="list-style-type: none"> 1. Show the students reference sheets. They may be read in class or provided as homework. 2. The device must be in one attached piece and be able to be affixed to the can within a 20 second period.(so that students cannot just add foam or balloons to it for 1 hour). However, they can assemble their flotation device and then put their can in it or attach the can to it. Some parts can touch the water and get wet. 3. To introduce the lesson, consider asking the students if they have ever worn a life vest and if they know of a person that was saved by using a life vest. 4. Teams of 3-4 students will explore the challenge by planning what kind of life vest design they will use. 5. Teams will then look at the available materials and create a detailed drawing showing their life vest including a list of materials they will need to build their team life vest. 6. Students will then build their soup can life vest or PDF (Personal Floation Device) and test it and also observe the life vest created by other teams. 7. Teams may now reflect on the challenge and present their experiences while completing the Life Vest Challenge.
<p>Science Behind It:</p>	<p>The materials inside of a life jacket, traps air when the jacket is submerged. The trapped air weighs much less than the weight of the water it displaces, so the water pushes up harder than the life jacket pushes down, allowing the life jacket to remain buoyant and float.</p>
<p>Questions to Ask:</p>	<ol style="list-style-type: none"> 1. What is the function of a life vest? 2. How does life jacket save your life? 3. Why are life jackets so important?

