DIYs » Stem Activities » Engaging Engineering Building » Age 6 - 8 » Bottle Raft



This activity might save your life! If you're stranded on a desert island with some large empty containers, you could make a floating raft to escape! Let's learn how to build one!

Materials Needed

A bowl of stones (or other household weights) 23 ice lolly sticks Rubber bands Glue Pencil Two identical plastic bottles A large container that can hold water



Step-by-step tutorial

Step 1

Place 11 ice lolly sticks side by side and secure them by gluing two additional sticks along the edges. This forms your raft base.



Step 2

Create an "E" shape by placing three lolly sticks horizontally at equal distances, then glue two vertical sticks at their ends. Make a second identical "E" shape.



Step 3

Once the glue on the "E" shapes has dried, place two rubber bands at the ends of the outer sticks on each "E" shape. Check that each "E" shape has four rubber bands total.



Step 4 Apply glue to the unattached ends of the "E" shapes (as shown in the diagram).



Step 5

Turn over the glued "E" shapes and attach them to the raft base at opposite ends, on the side without the two securing sticks.



Step 6 Stretch the rubber bands and insert the bottles, ensuring even spacing between the bands. Your bottle raft is now complete!



Step 7

Find a large container filled with water and float your raft. You can also use a sink or bathtub.



Step 8

Test your raft by placing different weights of stones or objects on it to see how much weight it can support.



The Science Behind It:

Whether an object floats depends on a concept called "density". When you place an object in water, the water exerts an upward force called "buoyancy". If an object's density is greater than water's, the buoyant force isn't enough to support its weight, and it sinks. Low-density objects like air-filled plastic bottles have a density less than water, so the buoyant force can support their weight, allowing them to float.