

Make a paper boat

Test the principles of floatation with just one piece of A4 paper.

What you need

- A4 paper
- Sticky tape
- Household objects of different weights (for example, pom poms, Lego and coins)



1 Take an A4 sheet of paper and lay it on a flat surface with the shorter side at the top. It should be portrait (vertical), not landscape (horizontal). Then, fold it in half from the top to the bottom, so that it looks like the photo above.



2 Now, fold the page in half from left to right and unfold – there should be a vertical crease down the centre. Bring the top two corners together in the middle, so that their edges meet along the crease line, and make a pointed shape.



3 You'll notice that there are two flaps at the bottom. Fold the top flap up. Turn the paper over and do the same on the other side. Fold the corners of each rectangular flap down, so that the whole thing becomes a large triangle.

FOLDING FRENZY

in 2014, a school in Greece broke the world record for the largest origami display by using 230,000 paper boats.

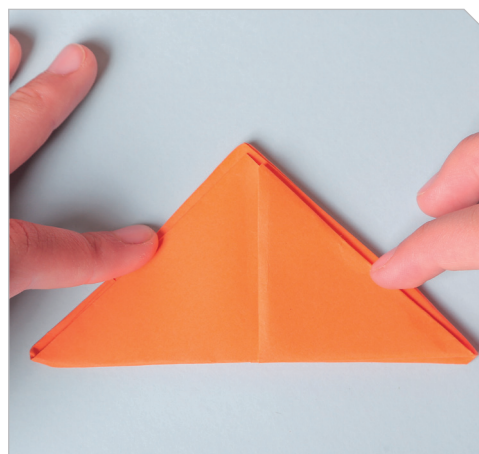


How does it work?

Things that float are buoyant. When an object is not moving in the water it has two forces acting on it: its weight, which pushes it down into the water, and the force of the water pushing upwards. For an object to float, the buoyant force (upward push) from the water must be equal to its weight. The size of the buoyant force is equal to the weight of the water that the object displaces (moves out of the way). This is how huge cruise and cargo ships float on the ocean. Although they are very heavy, they are also hollow. The weight of water that the hull pushes out of the way is equal to the boat's total weight. As cargo is added to a ship, it settles deeper in the water. You can test this principle with your paper boat. Start filling it up with light objects, such as pom poms. Then, add heavier objects like coins or Lego. Note when your boat floats and when it starts to sink.



4 Push your thumbs into your triangular pocket to open it up. Gently tug the middle apart until the two opposite corners meet (pointing downward). Then, flatten the paper. You should now have a square or a diamond shape.



5 With the opening at the bottom, fold the top side of the opening up. You can fold it all of the way, or just part of the way. Flip the paper over and do the same on the other side. You should now have a smaller triangle shape.



6 Put your thumbs in the opening at the bottom and pull apart the points at the top. Use your fingers to shape your boat. You can also reinforce the edges and bottom with sticky tape, so that your boat is more water resistant.

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