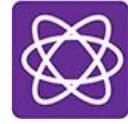


# Build a Boat Challenge



STEM • OUR OCEAN

Boats are a very important means of transportation for humans. They help us to get from one place to another, transport goods, and they are essential for scientists exploring the ocean. Have you ever wondered how boats float? There are so many different types, sizes, and shapes of boats - from a single person kayak all the way up to huge barges that can carry hundreds of people. What characteristics make for a good boat? The buoyancy of a boat is its ability to stay afloat. But what makes a boat buoyant? In this challenge, you will create your own boat, and test out how much weight it can hold.

## Materials:

Tinfoil

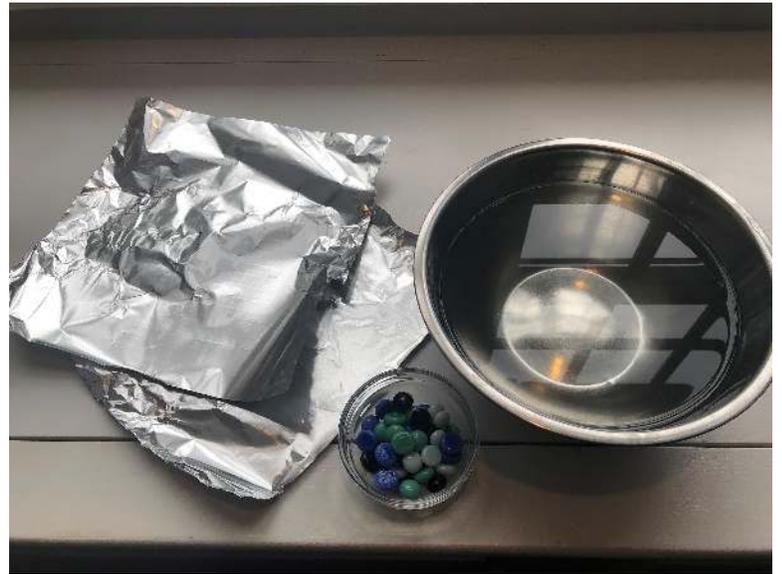
A large bowl or container filled with water  
(a sink, or bathtub also works)

Small Weights

(marbles, pebbles, dry rice or beans, etc)

Ruler or tape measurer (Optional)

Build a Boat Data Sheet (Optional)



## Directions:

1. Cut a square piece of tinfoil.
2. Using just the one piece of tinfoil, make a boat.
3. (Optional) Record measurements of your boat. What is the length, width, and height of the boat before you place it in the water?
4. Place your boat in the container of water.
5. Using marbles, pebbles, or other weights, count or measure how much weight your boat can hold until it sinks. Tip: add just a little bit of weight at a time, and count the weight as you add it.
6. What observations can you make about your boat? Did it float? Did it stand up straight? How much weight could it hold?
7. (Optional) Record your data by writing down your observations on the first page of the Build a Boat Data Sheet.
8. Repeat steps 1-7 and make a second boat with a different design. How does your second boat compare with your first? Was it able to hold more weight? What were the measurements?
9. What did you notice about the different shape and size of your two boats and how much weight they were able to hold?
10. (Optional) Repeat steps 1-7 and make one or two more boats, being sure to measure each time. Get creative with your designs! Then, after recording your data, use Page 2 of the Build a Boat Data Sheet to make a graph to see if you can find any patterns in your data. Did wider boats hold more weight than narrow boats? Did short boats hold more weight than tall boats?



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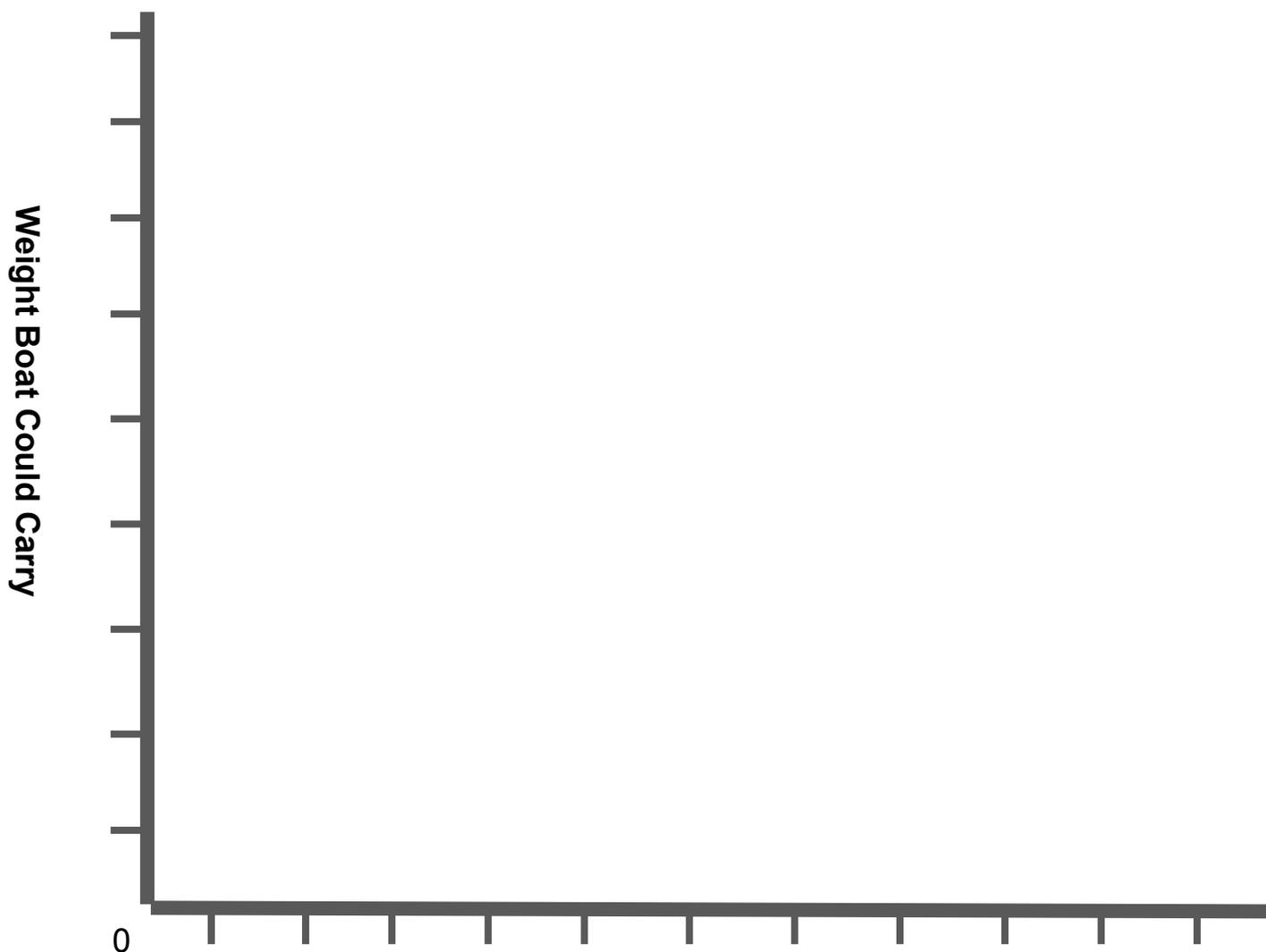
## Collecting Data

Boat #	Boat Length (inches)	Boat Width (inches)	Boat Height (inches)	Weight (# of marbles, cups of rice, etc.)
1				
2				
3				
4				
5				





### Graphing Data



Circle your choice:

Boat Length

Boat Width

Boat Height

Boat Surface Area = Boat Length x Boat Width

