

3D DESIGN LEARN TO MAKE IN ALL 3 DIMENSIONS!



Activity

Build a Boat that can hold as many washers as possible

Materials

Aluminum Foil, Popsicle Sticks, Index Cards, Tape, Plastic Straws, Small Cups, Pennies

1



Scan me

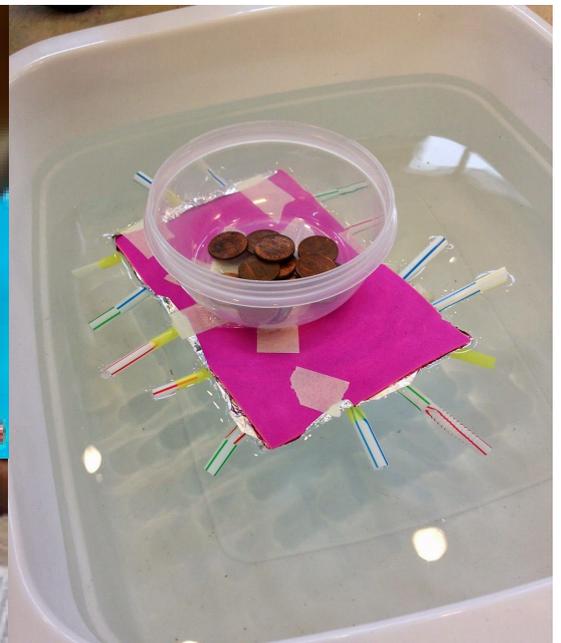
Your virtual bag has a ton of great videos and websites to help you learn!

Use your phone camera to scan the QR Code. This will open your virtual bag!

OR visit www.insideoutpvd.org, click on Activities, Open Your Bag and find your bag!

2

CHECK OUT SOME DIFFERENT BOAT DESIGNS THAT PEOPLE HAVE MADE IN THE PAST!



THE CHALLENGE

Using the materials provided to you in the bag, design & make a boat that will be able to hold as many washers as possible without sinking!

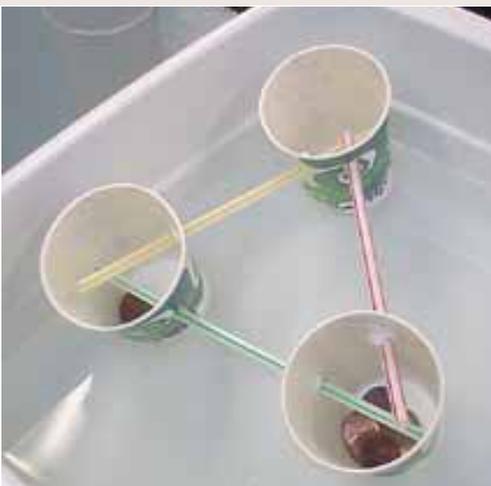
PREPARATION:

To test your boat design(s) & complete this challenge, you will need a small container of water to float your boat in. Here are some ideas for creating your test body of water(Should be at least 10" x 12" & deep enough for boat to float):

- Fill a large Mixing bowl with water
- Fill a large glass baking dish with water
- Fill a plastic storage container or large Tupperware with water
- Plug the drain and fill your Sink or Bathtub with water

START BY MAKING & TESTING A SIMPLE TIN FOIL BOAT DESIGN:

1. Cut a piece of tin foil (maybe 5 x 6 inches).
2. Fold up the sides of the boat so it will not sink and can hold a cargo of washers.
3. Make finishing touches to the boat hull. Make sure there are no leaks. If needed, use a little tape to make it stronger. Flatten the bottom of the hull. Try to make sure the rim is the same height going all around the edge of the hull.
4. Place the boat in the bowl of water.
5. Begin adding pennies for the boat's cargo.
6. See how many pennies your boat can carry before it sinks.
7. Try different ways to distribute the weight of the pennies on your boat so you can carry the maximum number.
8. See if you can improve on your design. Make different shaped versions and see which design works the best.



FURTHER EXPERIMENTATION:

Once you have experimented with some simple tin foil boat designs, see if you can make an even better boat by using some of the other materials given to you in the bag. How could you use the other materials to make a stronger, more stable, and more buoyant boat than with tin foil alone? Will this new boat be able to carry more pennies?

