

Summer at the Library 2022

MAKE WAVES



Grades K-2

Penny Cargo

All aboard! This activity invites you to create your own cargo ship/boat. While sailing the seas, we ask you to add some goods (pennies) to the ship to see how much it can take to its final destination.

What will you learn?

- How to create a boat out of tin foil
- The concept of gravity, which is the force that holds us down on Earth
- The concept of buoyancy, which is the ability to float in liquid
- How can you improve buoyancy by shaping and reshaping your boat

Materials:

- Square piece of aluminum foil
- Bowl or tray of water
- Pennies or other coins
- A paper towel

Instructions:

- Time to design your boat! Using the square of tin foil, design your boat. Make sure to think about boats you have seen in pictures, videos, or maybe even real life!
- Fill up a bowl about halfway with water and gently place your boat in there.
- One by one start to place the pennies anywhere on your boat.
- If you notice that there are too many pennies on one side, maybe try to put some on the other!
- When your boat can no longer hold any more pennies and starts to sink (oh no!) take it out of the water, making sure to dry the pennies and the boat. Believe it or not, water has weight!



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- You can continue this experiment as long as the tin foil holds up. Try making a different design!

Reflection Questions:

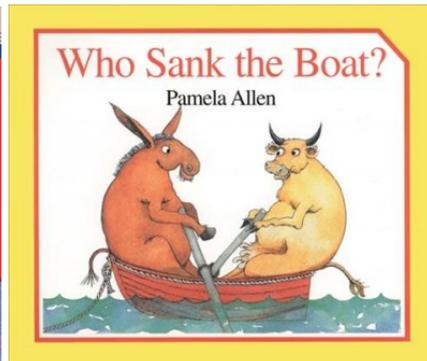
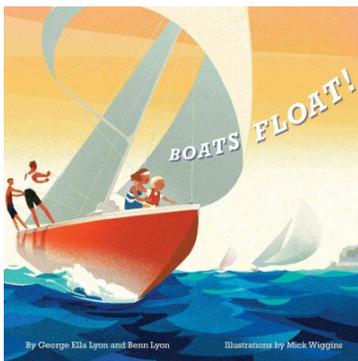
- How many pennies did your boat carry?
- If you changed how your boat looked, did the second (or third... or fourth) try have any difference?
- If this was a real body of water (ocean, lake), what do you think you would see at the bottom of it?

Explanation:

Why does the boat sink when there are too many pennies? This is called the force of gravity! Gravity is what keeps us from floating away in our everyday life. Then what keeps it up in the water? That is called buoyancy; or the ability of objects to float. When the object becomes too heavy, gravity takes over and sinks the boat. That's when the precious penny cargo goes to the bottom of your bowl.

More to Explore at the Library:

There are plenty of boat related books at your local library! Here's a small selection to encourage further reading and help let your imagination soar next time you create a tin foil boat!



Guide created by Anthony Murisco.