



Life of a Can

The Never-Ending Story

Family Activity

Novelis

Aluminum, CAN You Swim?

Activity Duration: 60–90 minutes

Background Information

Did you know that aluminum is the most abundant metal in Earth's crust? Aluminum is not only a plentiful resource, but also highly recyclable—over 75% of the aluminum that has been mined since 1825 is still being used today! It takes much less energy to recycle aluminum than it does to mine it from the ground.¹ Saving energy is good for the environment, and your family CAN make an impact by recycling the aluminum products you use every day.

Think of some of the aluminum products around your home. Are there beverage cans? Maybe aluminum foil? These are some common ways we use aluminum, but it is also used in many places you might not expect. Because aluminum is lightweight, flexible and strong, it is an ideal material to use in building cars, planes, and boats!

Put your family's knowledge of aluminum to the test in this fun game. Here are the rules—each player must gather aluminum materials that are ready to be recycled. They can use beverage cans, paint cans, foil, or other aluminum products. Then, each player will use these aluminum materials to construct a boat. The boat can be as small or large as you like, but it must be made from aluminum! Then, you'll see how durable each aluminum boat is by placing it in water. Does the boat float? See who made the strongest boat by filling each one with pennies. The aluminum boat that holds the most pennies wins!

You'll see how much fun you CAN have when you and your family learn how strong and flexible aluminum is AND recycle it at the same time!

Materials

You will need the following materials:

- Aluminum products around your house, and in your recycling bin!
 - Tape
 - Glue
 - Staples
 - Paper clips
 - Binder clips
 - String
 - Popsicle sticks
 - Toothpicks
 - Cling Wrap
 - Shears
 - Pliers
 - Scissors
 - A sink, bathtub or bucket that holds at least 6 inches of water
- Once your boats are constructed, you will need enough pennies so that each person in your aluminum boat contest can test the strength of their ship!
- Pennies (100)



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Get Started

1. Gather a variety of aluminum materials. Look in your recycling bin to see if there are any of the following materials made out of aluminum:
 - a. Foil
 - b. Beverage cans
 - c. Trays
 - d. Bags
 - e. Paint cans
 - f. Can tabs
 - g. Food cans
2. Place all of the recyclable materials and the boat-building supplies out on a table.
3. Tell your family members that they each have 30 minutes to construct a boat using only the materials on the table. The boat that holds the most pennies wins!

Safety note: Aluminum is very sharp! Use thick gloves and sharp household scissors to cut the beverage cans if you choose to repurpose this material for your challenge. Adults can help with this step, too!

4. Set a timer for 30 minutes and go to work building your boats!
5. Fill up a sink, bathtub, or bucket with at least 6 inches of water.
6. Place each boat in the water one at a time. Slowly add one penny, then another, then another until the boat sinks under the water.
7. Test each boat and record the number of pennies that each could hold.
8. Once each boat has been tested, look over your results to see whose boat performed the best! Use the reflection questions to lead a discussion with your family.

There are many reasons that aluminum is an ideal material for use in many different vehicles, including boats. Aluminum is abundant, strong, and highly renewable. It is also very lightweight and can be molded into many shapes, stretched very thin, and used to effectively conduct energy. Through this family activity, you and your family saw just how fun it CAN be to learn about aluminum!



Aluminum, CAN You Swim?

Data Collection

Family Member	Number of Pennies

Reflection Questions

1. Whose boat held the most pennies? Why do you think that is?
2. How did different aluminum materials perform in the water? Were some better at floating than others, and why?
3. What properties of aluminum did you explore in this activity?
4. Why do you think aluminum would be a good material to use in building boats, cars and airplanes?



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Works Cited

¹ The International Aluminum Institute. 2016. *Mining Process*.
<http://bauxite.world-aluminium.org/mining/process.html>