

Name(s) \_\_\_\_\_ Period \_\_\_\_\_ Date \_\_\_\_\_



# Activity Guide - Aluminum Boats

## Goal

Build a boat that holds the most possible pennies, using a piece of aluminum foil. You will build two boats and will try to improve your design between the first and the second.

## Rules

- You may only use a single piece of foil to build your boat
- You may not touch or adjust your boat once it is in the water
- You must add pennies one at a time

## Develop a Plan

- What kind of boat does your group plan to make? Write a description or draw a picture below.

Our boat will be kind of flat on the bottom with round walls like a canoe. We will crumple the edges so that it holds together better.

- What are the strengths of this design? What possible weaknesses might this design have?

It will be easy to stack the coins on the flat bottom and it won't fall apart. Maybe it's not big enough to hold enough coins.

## Test Your Boat

- How many pennies did your boat hold?

12

- Why did your boat eventually sink? What needs to be improved?

The coins pushed out the side and it fell over into the water.

## Evaluate and Improve

- What are the most common kinds of problems you see among the boats tested?

The bottom sinks down and then water falls in.

- What ideas seem to be working well?

Making it a lot flatter

## Develop a Plan

- What kind of boat does your group plan on making? Write a description or draw a picture below.

The bottom will be a lot flatter with four sides instead of two sides, and the walls will be taller.

- What are the strengths of this design? What possible weaknesses might this design have?

The taller walls make it harder to topple over, but it has to have coins inside or it will still topple.

## Test Your Boat

- How many pennies did your group's new design hold? 15
- Why did your boat eventually sink? What needs to be improved?

The sides ripped open because we didn't crumple them together enough.

## Reflect

- What was your favorite part of this activity? What was the most challenging for you? Were they the same?

I liked how we got a lot of coins in the boat, but it was hard to put it together without tape. They were not the same.

- Why do you think we're doing this activity in a computer science class?

Because we make stuff in computer science, just on a computer.