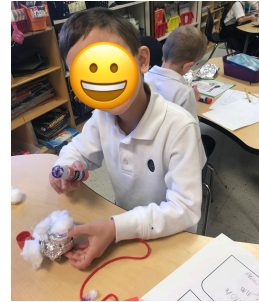
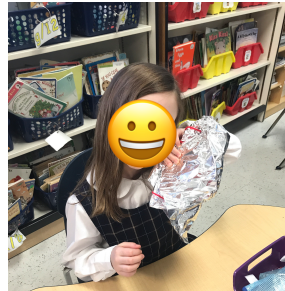


Design a Cooler

Objective:

Students will be able to use innovative thinking to create a cooler that keeps an ice cube cold.



Standards:

(OCS Standards)

I.II.08 Explain a simple design problem directly related to students' experiences (e.g., coat hooks, dirty shoes, storing books) and formulate ways to solve the problem.

I.II.09 Design a device that will be useful in solving the problem.

I.II.10 Build the device (individually or collaboratively) using the materials and tools provided (e.g., hammers, scissors, screwdrivers, rulers).

Pre-Planning/Lessons:

Materials:

- Paper and pencil to draw design
- Ice cubes (one for every child)
- Tin foil
- Tape
- Glue
- Paper towels
- Cotton Balls
- Any other materials you feel would work!

Before this lesson, we had many discussions about weather, specifically about temperature. This was an end of the weather unit STEM project.

Instruction:

Part 1: Whole Group (20 minutes)

1. Gather the students on the carpet and propose a problem to them. Problem: You are going to the beach with your family and you want to take some drinks and fruit. You looked around your house but can't find a cooler. You need to create a cooler that will keep your drinks and fruit cold.
2. Explain to students that they will test out their cooler by placing an ice cube in their cooler design. If the ice cube doesn't melt then their cooler works.
3. Show students all of the supplies that are available to them. Discuss some materials that might be beneficial to use. For example, why might we use foil?
4. Model how to create a plan for their design first. Use paper and pencil to draw out plan for design. Remind them to label their drawing so they know exactly what they want to do when they grab their supplies.
5. All students begin drawing design with paper and pencil keeping in mind the supplies they have available to use.

Part 2: Independent Work/Group Work (25 minutes)

1. Students begin drawing. When finished they will begin creating design. Don't forget to add ice cube into cooler. Teacher takes pictures of their designs and prompts students with questions. Why are you using specific material? What purpose does it serve? Where will you place your cooler? Why?
2. Students will then place the cooler somewhere around the room. Thinking about the place that might be the coldest.

Part 3: Reflection Whole Group (10 minutes)

1. Students gather back on the carpet. Project the teacher pictures of student designs on the screen. Each student will come up and explain their design and why they created it the way

they did. Each student will mention where they stored their cooler. Discuss why some students stored their cooler in the dark closet and where might we find something similar at the beach.

****Check back in with cooler 1-2 hours later to see if any ice cubes stayed frozen.**

Modifications:

- Early finishers were allowed to draw out another design and create it if time permitted.

Assessment:

I used this to assess the students' abilities to design a device that will be useful in solving a problem.

Home-School Connection:

Students took their design home to show their parents. We also mentioned it in our newsletter and suggested they have their kids try making a cooler at home. Pictures of the kids creating their cooler were posted to our class Instagram page. Parents loved the hands on, creative thinking project!

Pro-Tip: Don't wait too long to check on ice cubes or they will all be melted.

