SCLAR OVEN

This simple experiment is meant to get students thinking and using the engineering and design process to create a melted S'MORE.

Want to learn all about CAMP WEEK in my classroom? Read here.

Ask students if they have ever eaten a S'MORE. Have them explain the ways they have created them. Has anyone roasted marshmallows over a fire or cooked it in a microwave or oven? Ask students what they would do here at school to create a melted S'MORE when there are none of those ways available to them.

Tell students that they will be creating and eating their own S'MORE. They must design some sort of oven or cooking device given the items available. Have students start brainstorming ideas with the help of these questions. Should the oven be open or closed? Should there be a lot of space inside the oven or should the S'MORE be tightly wrapped? Should it be tapped? Should the foil be layered? Should it be placed in direct sunlight, indirect sunlight, or shadow? Does the color of the oven matter? What colors absorb heat? What time of day should the oven be taken outside?

Now decide if you want your students to create their ovens based on their own designs or if you want to guide them through the process.

<u>Unscaffolded Student Designs</u>

Once students have brainstormed, have them design their oven using the materials provided and complete the Science Journal. Take students outside to place the S'MORES ovens in the location you have chosen but allow them to choose the area with the amount of sunlight they desire.

Depending of the temperature of the day, you may want to have students check their ovens in 15-30 minute intervals. We usually make ours before lunch and then check on them after lunch and recess.

Have students complete their observations of their ovens and then dig in!

<u>Scaffolded Student Designs</u>

Watch the <u>video about solar ovens</u>. You can pause the video at the beginning of each design challenge to brainstorm or you can play the video without stopping. The video will take students through a step by step process of creating a solar oven and discuss the reasoning behind each part of the design.

SCIAR OVEN

Possible Materials

<u>S'MORES Materials</u>

small boxes pizza boxes black, white construction paper paper bowls or plates aluminum foil plastic wrap or zip locked bags tape scissors pencil

chocolate bars graham crackers large marshmallows













Identify the Problem

How can I create an oven using the sun's heat to melt a S'MORE?



Brainstorm

Gather your ideas and write them below. List the materials you will use.



Design

Create a sketch of your design. Label the parts.



Build and Test

Build your Design. List and explain anything you had to redesign while you were building.



Evaluate

Collect your Solar Oven and observe what happened. Did anything melt? Would you say your design was a success? What elements would you change?



Share

What information would you share with others about your design?



Thank you!



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