

ATLANTA
SCIENCE
FESTIVAL







Lesson Title	A Windy Day
Grade Band	1 st
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Georgia Performance Standards:	
<p>S1E1. Students will observe, measure, and communicate weather data to see patterns in weather and climate.</p> <p>a. Identify different types of weather and the characteristics of each type.</p>	
Safety Considerations:	
<p>Safety goggles should be worn when the fan is blowing the structures or students should not be standing behind the structure in case objects blow off the structure.</p>	
Materials & Time Required:	
<p>Materials (or a similar list):</p> <p>Gumdrops Large marshmallows Toothpicks Large and small popsicle sticks Construction paper 8 unifix cubes Straws Tape Fan Timer</p>	
Lesson Logistics (for teacher):	
<p>Review types of weather with students prior to the lesson. Talk specifically about wind. Engineers play a role in designing structures (buildings, road signs, etc) that can withstand strong winds. Today, students will complete an engineering design challenge to build a structure that will withstand a strong wind (fan).</p>	

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<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Opening: ENGAGE</p>	<p>Engage: We are expecting a windy day! Let’s investigate building structures that can stand up during a wind storm!</p> <p>Criteria:</p> <ul style="list-style-type: none"> - You have a time limit of 30 minutes. - The building/tower must stand up for 10 seconds while the “wind” is blowing. - The building/tower must be at least 8 unifix cubes tall. <p>You must use only the supplies provided.</p> <p>Constraints: Your building/tower cannot be smaller than 8 unifix cubes. You have a time limit of 30 minutes.</p>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Work Session: EXPLORE/EXPLAIN</p>	<p>Provide students with time to build their structure. The structure should be at least 8 unifix cubes tall. Students can use whatever materials are available. You may want to consider adding a price to the objects and give students a limited amount of money. A suggestion would be \$1 per object and limit their spending to \$10. Engineers must Consider the cost of materials when designing structures.</p> <p>Test Designs – use a fan to blow on the structures</p> <p>Follow an engineering design process such as one from: https://www.teachengineering.org/engrdesignprocess.php http://www.eie.org/overview/engineering-design-process</p>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Closing: EXTEND/EVALUATE</p>	<p>Extend: Discuss the designs. What worked? What didn’t why?</p> <p>Redesign and test the structures.</p> <p>Evaluate: What do engineers do? How was your experience as an engineer?</p>
<p>Documentation of Resources:</p>	
<p>Inspired by a lesson developed by Brooks Elementary</p>	

A Windy Day Rubric

Name: _____

I worked well with my partners.	 
I made a building that stood for 10 seconds.	 
I made a boat using the materials provided by my teacher.	 
I had fun being an engineer.	