

Performance Task Creator

<p>Main Benchmarks to Assess the Depth of Knowledge Required by the Performance Expectations (PEs), Disciplinary Core Ideas (DCIs) of the NGSS:</p> <p>ETS.1 Engineering Design PEs: ETS1.1 Ask questions, make observations and gather information ETS1.2 Develop a simple sketch, drawing, or physical model ETS1.3 Analyze data from tests of two objects designed to solve the same problem DCI: ETS1.A Define and Delimiting Engineering Problems ETS1.B: Developing Possible Solutions ETS1.C Optimizing the Design solution</p> <p>2-PS1 Matter and its Interactions PEs: 2-PS1-2 and 2-PS1-4 DCI: PS1.A: Structure and Properties of Matter</p>	<p>Real-World Problem / Challenge: (A problem that the community or world is currently facing that requires skills and content embedded in the benchmarks to solve.)</p> <p>People are living in areas without electricity and need to find a way to cook or heat their food.</p> <p>People want to find an alternative way to cook or heat their food.</p>	<p>Real-World Role: (Something that students might actually be or do.)</p> <p>Students will design a solar oven that may be a new design for the next generation of solar ovens.</p>	<p>What do students need to know or be able to do in order to accomplish this?</p> <p>Vocabulary Solid, liquid, gas, properties (color, texture, hardness, flexibility, mass, size), molecules, temperature, heat, melt, fahrenheit, degrees, cool, condensation, freeze (NGSS States of Matter 1-PS1)</p> <p>The EDP process- Ask questions and define problems, plan and carry out investigations, analyze and interpret data, and construct explanations and design solutions</p> <p>Bar graphs- Math MD.D.10 Draw a picture graph and a bar graph to represent a data</p> <p>Needs: Lamps (6) Thermometers (6)</p>
	<p>Real-World Product: (A product that is similar to what would be found in the real-world, e.g. Environmental impact statement, essay, public service announcement, a worksheet.)</p> <p>Students will design and build a solar oven to help those without electricity cook or heat their food or those who would like to conserve electricity.</p>	<p>Real-World Audience: (Ideally beyond the walls of the school, and for an audience that is authentically a part of the challenge.)</p> <p>Students will share their solar ovens with consumers, school principal, and admin, etc., and they will help students using the specification sheet to determine which solar oven they would purchase. (Integrating a survey of consumer wants to social studies-economics SS.2.8.4- Role and Function of Markets Compare the roles of buyers and sellers and explain how they depend upon each other)</p>	

Transfer Skills:

(How will the science and engineering practices (EDP) be used in real life?)

Power outages are real life situations in Hawaii and students may need to figure out how to cook or heat their food in an alternative way.

Students will apply engineering practices throughout their life by asking questions and defining problems. They will need to develop a simple sketch, drawing, or physical model. They will need to analyze and interpret data and construct explanations and design solutions.

Real-World Process/the Engineering Design Process:

(The process mirrors what would take place in the real world.)

Students will construct their design with materials they would find around the house based on the specifications. They will improve on their design to ensure consumers' needs are met.

Real-World Scenario/Problem Statement:

(Put it together and set up a scenario that is engaging for students.)

Grade 2 students need to design and build a solar oven to reach the highest temperature to show a change in matter or to melt the chocolate and marshmallow in the smores, because the electricity went out and they are hungry.