

# 1<sup>st</sup> Grade

## What's Cooking?

### Eco-Energy for Schools



<b>Unit Overview</b>	
<b>Unit Title</b>	What's Cooking?
<b>Unit Summary</b>	The focus of this unit will be exploring how solar energy can be harnessed to meet our daily needs. The students will learn a different way to cook using solar energy. The unit will connect the following concepts through interdisciplinary activities and organization: Collecting, organizing, and analyzing data, Time, Measurement, Text details and features, Reading comprehension, Writing narratives with sequential order, Collaborating with peers, Using technology to produce writing, Informational recall, Creating visual and digital representations, Engineering design process, Scientific inquiry, Effects of the sun, Cost and benefits, How people interact with the environment, and Natural resources. The students will discover uses for solar energy through hands-on investigations. The culminating STEM event for this unit will be designing and creating solar ovens and potato clock style timers. The overall goal for this unit is to make students aware of natural resources and how they can be used to meet human needs.
<b>Subject Area Strands</b>	Science – Inquiry, Technology & Engineering, and Energy Math – Measurement and Data ELA – Reading Informational Text – Key Ideas and Details & Range of Reading and Level of Text Complexity Writing – Text Types and Purposes, Production and Distribution of Writing, & Research to Build Present Knowledge Speaking and Listening – Comprehension and Collaboration & Presentation of Knowledge and Ideas Social Studies – Economics
<b>Grade Level</b>	1 <sup>st</sup> Grade
<b>Appropriate Time</b>	10 days

## Lesson Foundation

Lesson Foundation	
Targeted Content Standards	<b>Common Core Standards</b>
	<b>Mathematics</b> <ul style="list-style-type: none"><li>• 1.MD.C.4 Organize, represent, and interpret data.</li><li>• 1.MD.B.3 Tell and write time in hours and half-hours using analog and digit clocks.</li><li>• 1.MD.A.2 Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps.</li></ul>
	<b>English / Language Arts</b> <p><u>Reading Strands for Informational Text</u></p> <ul style="list-style-type: none"><li>• RI.1.2 Ask and answer questions about key details in a text.</li><li>• RI.1.5 Know and use various text features (e.g., headings, tables of contents, glossaries, electronic menus, icons) to locate key facts or information in a text.</li><li>• RI.1.10 With prompting and support, read informational texts appropriately complex for grade 1.</li></ul> <p><u>Writing</u></p> <ul style="list-style-type: none"><li>• W.1.3 Write narratives in which they recount two or more appropriately sequenced events, include some details regarding what happened, use temporal words to signal event order, and provide some sense of closure.</li><li>• W.1.6 With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers.</li><li>• W.1.8 With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.</li></ul> <p><u>Speaking and Listening</u></p> <ul style="list-style-type: none"><li>• SL.1.1 Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups.</li><li>• SL.1.5 Add drawings or other visual displays to descriptions when appropriate to clarify ideas, thoughts, and feelings.</li></ul>

	<b>TN Standards</b>	
<b>Science</b>	<ul style="list-style-type: none"> <li>• GLE 0107.T/E.2 Apply engineering design and creative thinking to solve practical problems. Invent designs for simple products.</li> <li>• GLE 0107.T/E.3 Use tools to measure materials and construct simple products.</li> <li>• GLE 0107.Inq.1 Observe the world of familiar objects using the senses and tools. Use senses and simple tools to make observations.</li> <li>• GLE 0107.Inq.2 Ask questions, make logical predictions, plan investigations, and represent data.</li> <li>• GLE 0107.Inq.3 Explain the data from the investigation. Communicate understanding of simple data using age-appropriate vocabulary.</li> <li>• GLE 0107.Inq.4 Collect, discuss, and communicate findings from a variety of investigations.</li> <li>• GLE 0107.10.1 Investigate the effect of the sun on land, water, and air.</li> </ul>	
<b>Social Studies</b>	<ul style="list-style-type: none"> <li>• 1.2.01 Describe the potential costs and benefits of personal economic choices in a market economy.</li> <li>• 1.3.03 Demonstrate awareness of the interaction between human and physical systems around the world.</li> <li>• 1.3.03b Define natural resources and explain how people are dependent on them.</li> </ul>	
<b>Next Generation Science Standards</b>	<p><b>1-PS4 Waves and their Applications in Technologies for Information Transfer</b> Students who demonstrate understanding can:</p> <ul style="list-style-type: none"> <li>• 1-PS4-2. Make observations to construct an evidence-based account that objects can be seen only when illuminated.</li> <li>• 1-PS4-3. Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light.</li> </ul> <p><b>1-ESS1 Earth's Place in the Universe</b> Students who demonstrate understanding can:</p> <ul style="list-style-type: none"> <li>• 1-ESS1-2. Make observations at different times of year to relate the amount of daylight to the time of year.</li> </ul>	

## Lesson Foundation – Big Ideas & Cross-Curricular Connections

### Big Ideas:

Students will discover uses for solar energy.

Students will use Math to record time and take measurements and will graph findings.

Students will use ELA to read about solar energy and journal about their findings.

Students will use Social Studies to identify natural resource.

Students will use Science to investigate.

### Cross-Curricular Connections

Students will learn about utilizing the sun's energy. The students will learn through informational text, data collection, measurement, along with design and construction of solar ovens and potato clocks. The students will be engaged in hands-on learning that enables them to experiment and test the content being taught in class.

## Lesson Foundation – Essential Questions

- Why would it be important to find different ways to cook?
- What is solar energy?
- How can we use solar energy to meet our needs?
- What are natural resources?
- How can we investigate natural resources and energy using data collected from our experiments?

## Lesson Foundation – Student Objectives

<b>Going Beyond</b>	<p>Students will discover uses for solar energy. Students will use ELA to read about solar energy and journal about their findings. Students will use Social Studies to identify natural resource.</p> <ul style="list-style-type: none"><li>• I can explain why the sun is the primary source of the earth's energy.</li><li>• I can identify and explain how the sun affects objects on the surface of the earth.</li><li>• I can investigate how the sun affects various objects and materials.</li></ul> <p>Students will use Math to record time and take measurements and will graph findings. Students will use Science to investigate.</p> <ul style="list-style-type: none"><li>• I can explore different scientific phenomena by asking questions, making logical predictions, planning investigations, and recording data.</li><li>• I can organize data into appropriate tables, graphs, drawings, or diagrams.</li><li>• I can identify and interpret simple patterns of evidence to communicate the findings of multiple investigations.</li><li>• I can describe how tools, technology, and inventions help to answer questions and solve problems.</li><li>• I can apply a creative design strategy to solve a particular problem generated by societal needs and wants.</li></ul>
<b>Mastery</b>	<p>Students will discover uses for solar energy. Students will use ELA to read about solar energy and journal about their findings. Students will use Social Studies to identify natural resource.</p> <ul style="list-style-type: none"><li>• I can investigate the effect of the sun on land, water, and air.</li><li>• I can explain how the sun changes items.</li><li>• I can explain that the sun produces heat.</li></ul> <p>Students will use Math to record time and take measurements and will graph findings.</p>

	<p>Students will use Science to investigate.</p> <ul style="list-style-type: none"> <li>• I can use senses and simple tools to make observations.</li> <li>• I can explain the data from an investigation.</li> <li>• I can apply engineering design and creative thinking to solve practical problems.</li> <li>• I can explain how simple tools are used to extend the senses, make life easier, and solve everyday problems.</li> <li>• I can invent designs for simple products.</li> <li>• I can use tools to measure materials and construct simple products.</li> </ul>
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<b>Building the Basics</b>	<p>Students will discover uses for solar energy.          Students will use ELA to read about solar energy and journal about their findings.          Students will use Social Studies to identify natural resource.</p> <ul style="list-style-type: none"> <li>• I can identify the sun as the source of heat and light.</li> <li>• I can identify when items are hot.</li> <li>• I can investigate the effect of the sun on a variety of materials.</li> <li>• I can use adjectives to describe the sun’s effects.</li> </ul> <p>Students will use Math to record time and take measurements and will graph findings.          Students will use Science to investigate.</p> <ul style="list-style-type: none"> <li>• I can describe data.</li> <li>• I know my five senses.</li> <li>• I can use my senses to make observations.</li> <li>• I can identify a tool.</li> </ul>
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**Lesson Foundations – Prerequisite Content & Skills**

<b>Content Knowledge</b>	<p>The sun is the earth’s source of light.          The sun is the earth’s main source of heat.          An observation is information learned using the five senses.          Tools are used to make observations, to repair items, and to do work.</p>
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<b>Skills</b>	<p>Use scissors, crayons, markers, and glue.          Writing numbers.          Writing and forming the components of a sentence.</p>
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**Unit Anchor Text**

<b>Unit Anchor Text</b>	<ul style="list-style-type: none"> <li>• A Clean Planet: The Solar Energy Story by Robyn C. Friend</li> <li>• Why Should I Save Energy? By Jen Green</li> </ul>
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**Unit Companion Texts**

<b>Informational Text(s)</b>	<ul style="list-style-type: none"> <li>• Experiment with Solar Energy by C. Taylor- Butler</li> <li>• You Use Energy by Katy Pike</li> <li>• All About the Light by Lisa Trumbauer</li> <li>• Save Energy Every Day by Tammy Gagne</li> <li>• Let’s Save Energy by Sara Nelson</li> <li>• We Can Help the Environment by Rebecca Rissman</li> <li>• Power of Energy by Rebecca Weber</li> <li>• Energy From the Sun by Allan Fowler</li> </ul>
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	<ul style="list-style-type: none"> <li>• Green Power: Solar and Wind Power by Peter Lerangis</li> <li>• Solar Power (Energy for Today) by Tea Benduhn</li> <li>• Solar Power (True Books: Environment) by Christine Petersen</li> <li>• Green Dan Says! Renewable Energy is Cool by Dan Marsh</li> <li>• Cherry Red Charlie and The Treasure Hunt by Tina Gunnett</li> <li>• Potato Clocks and Solar Cars: Renewable and Nonrenewable Energy by Elizabeth Raum</li> </ul>
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## Assessments

Informal Assessment(s)		Formal Assessment(s)	
<ul style="list-style-type: none"> <li>• Teacher observation</li> <li>• Student involvement in activities</li> </ul>		<ul style="list-style-type: none"> <li>• Student will present narrative writing that follow a given rubric.</li> <li>• Students will complete the K-W-L chart with what they have learned.</li> </ul>	
<b>Formative Assessments</b>	<ul style="list-style-type: none"> <li>• Monitor student performance.</li> <li>• Create list of types of energy.</li> <li>• Daily reflection journal.</li> <li>• Water lab activity graphs</li> <li>• Water lab activity reflection</li> </ul>		
<b>Summative Assessments</b>	<ul style="list-style-type: none"> <li>• End of unit test.</li> <li>• Final paper.</li> <li>• Final journal evaluation.</li> </ul>		
<b>Writing Assessments</b>	<ul style="list-style-type: none"> <li>• KWL writing activity</li> <li>• Text Comprehension activity</li> <li>• Writing reflections</li> <li>• Informative paper naming the topic and reasons for using solar energy.</li> <li>• Informative paper using the data gathered during the experiments.</li> <li>• Narrative paper detailing the creation of the solar oven and potato clock.</li> <li>• Sun and You – Think, Write, Draw writing activity</li> <li>• Water Temperature Lab writing activity</li> <li>• Energy Lab data writing activity</li> </ul>		

## Unit Vocabulary

Term	Definition
Solar	Having to do with the sun.
Energy	Power from coal, electricity, or other sources that makes machines work and produce heat.
Solar energy	Energy from the sun that can be used for heating and generating electricity.
Renewable	Power from sources that can be never used up.
Electricity	A form of energy caused by the motions of electrons and protons.

Radiation	The giving off of energy in the form of light or heat.
Nonrenewable	Power from sources that can be used up.
Pollution	Harmful materials that damage or contaminate the air, water, and the soil.
Conserve	To save something from loss, decay, or waste; to preserve.
Natural resources	Resources that are found in or made by nature instead of people.
Insulation	Material used to cover something in order to stop heat, electricity, or sound from escaping.

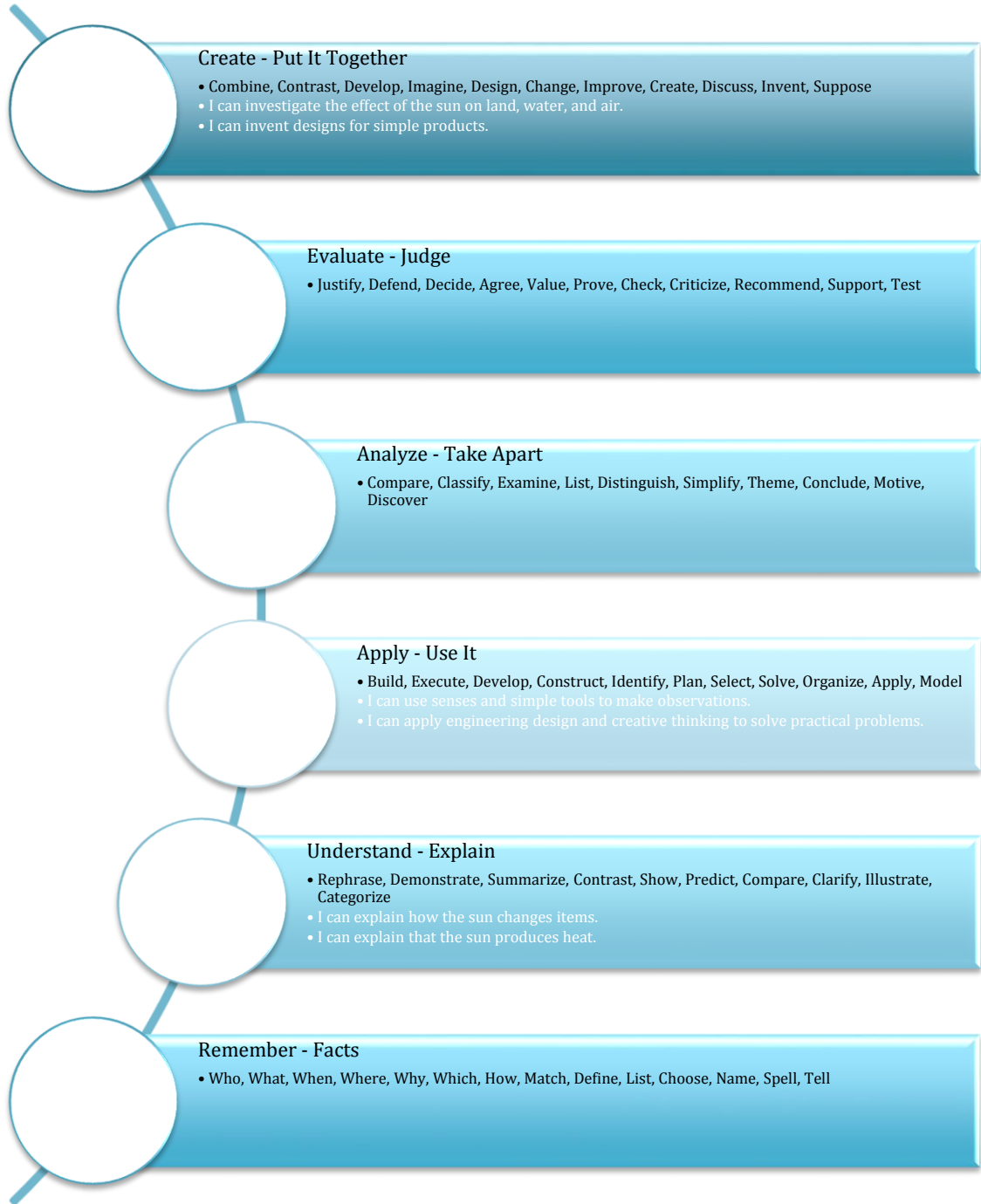
## Teaching the Unit

<b>Initial Strategies</b>	<ul style="list-style-type: none"> <li>• Teacher will pose the following question: How do you feel when you are in the sun? - Students will: <ul style="list-style-type: none"> <li>○ Provide four adjectives that describe how they feel in the sun (the teacher may need to explain what adjectives are and give examples)</li> <li>○ Draw a picture of yourself in the sun feeling this way.</li> <li>○ Share with your table groups or desk neighbors.</li> </ul> </li> <li>- Teacher will: <ul style="list-style-type: none"> <li>○ Then ask students “Why does the sun make us feel this way?”</li> </ul> </li> <li>- Students will: <ul style="list-style-type: none"> <li>○ Think-pair-share</li> </ul> </li> <li>- Teacher will: <ul style="list-style-type: none"> <li>○ Show a model, diagram, or picture of how the sun is related to energy and its effect on land, air, water, earth, and people.</li> </ul> </li> <li>• Teacher will show a brief video on the Sun’s Power and Energy. The class will discuss the following questions: <ul style="list-style-type: none"> <li>○ What makes up the sun?</li> <li>○ How does the sun affect the land, water, and you?</li> </ul> </li> <li>• Water Lab Activity The students will work as a whole class to complete this investigation led by the teacher. You will need 4 small paper cups, water, 4 thermometers, and 4 different locations for data collection – dark (no sun), outdoors (full sun), in the classroom (no direct sun), and the refrigerator. The teacher will read the lab information and review the steps. Students will be selected as helpers to aid in the different steps of the lab. Each student will need a lab paper to record the lab data and drawings. The class will use the following steps: <ol style="list-style-type: none"> <li>1. Fill each paper cup with the same amount of water.</li> <li>2. Place a thermometer in each cup.</li> <li>3. Record the initial readings for each cup’s water temperature.</li> <li>4. Place one cup of water with the thermometer in each of the following locations: <ul style="list-style-type: none"> <li>- Outside the classroom (or in a window) in full sun</li> <li>- In the classroom away from any windows</li> <li>- In the refrigerator</li> <li>- In a dark place with no sunlight</li> </ul> </li> </ol> </li> </ul>
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	<ol style="list-style-type: none"><li>5. Students will record the temperature of each cup every half hour in their data chart on the lab paper.</li><li>6. Students will make graphs as a class at the end of the data collection period (at least four hours).</li><li>7. Discuss graphs, lab findings, and the effect of the sun's energy on water.</li></ol> <ul style="list-style-type: none"><li>• Teacher will then begin unit by showing the students a BrainpopJr. Video as an introduction.</li><li>• Teacher will also preview the activities that will be done within the unit.</li></ul>
<b>Direct Instruction</b>	<ul style="list-style-type: none"><li>• Teacher will create a list with students of different types of energy.</li><li>• Teacher will read aloud books on subject.</li><li>• Teacher will model how to make a flow chart.</li><li>• Teacher will supervise the making of the clock and oven.</li><li>• Teacher will supervise the cooking.</li><li>• Teacher will model writing.</li><li>• Teacher will present a power point (keynote, Prezi, etc.) on the sun's energy.</li><li>• Teacher will present a power point (keynote, Prezi, etc.) on natural resources.</li></ul>



## Higher-Level Cognitive Function Strategies



## Activity Timeline

Day 1	Brainpop Jr. video entitled “Energy Sources” Make a list of different kinds of energy Energy and P.E. Lab Activity
Day 2	Teacher will read a book about solar energy
Day 3	Bricks 4 Kidz in school field trip - Alternate Option would be for students to create Solar Panel Models using construction paper, Popsicle sticks, and glue.
Day 4	How to Make a Potato Clock video – Constructing Models How to Make a Solar Oven video – Constructing Models Make a flow chart in journals
Day 5	Build potato clocks and solar ovens
Day 6	Cook s’mores in solar ovens Use potato clocks to time
Day 7	Cook English muffin pizzas in solar oven Use potato clocks to time
Day 8	Make solar tea in the solar oven Use potato clocks to time
Day 9	Graph the data Write a narrative in journal
Day 10	Watch videos Writing Closure

## Details of Activities

Prior to Day 1 activities begin:

- The teacher will make a schedule of which students will be videoing each day.
- The teacher will also group the students.
- Students should have time each day to explore the different books presented to the class about solar energy and related subjects.

Prior to Day 4 activities begin:

- The teacher will cut copper wire in about 6” pieces, 2 per group.

Day 1	<ul style="list-style-type: none"> <li>○ Teacher will make a K-W-L chart with the students.</li> <li>○ Teacher will introduce vocabulary to students.</li> <li>○ Students will participate in an Energy and P.E. lab activity.               <ul style="list-style-type: none"> <li>- Students will participate in an Energy lab to illustrate how their bodies require energy.</li> <li>- Students will complete a self-survey about their energy level and health. You may have your school nurse or P.E. teacher come in and complete this portion of the activity with your students. This would be a great opportunity of the school nurse or P.E. teacher to provide the students with health information and explaining how to answer the checklist style self-survey.</li> <li>- The teacher will guide the students in collecting their baseline data in a provided chart – students will fill in</li> </ul> </li> </ul>
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## Guided Practice & Activities

		<p>their numerical data. The chart will include heart rate, number of words spoken in one minute, breathing count, sweat amounts (under arms and at the base of the neck – qualitative only (some, none, more, etc.).</p> <ul style="list-style-type: none"> <li>- The class will then go outside or in the gym for the activity. Students will complete the following tasks. Recording their data (The chart will include heart rate, number of words spoken in one minute, breathing count, sweat amounts (under arms and at the base of the neck – qualitative only (some, none, more, etc.)) after each activity in their provided chart. <ul style="list-style-type: none"> <li>- Running for 1 minute</li> <li>- Running for 2 minutes</li> <li>- Running for 3 minutes</li> <li>- Running for 4 minutes</li> <li>- Running for 5 minutes</li> </ul> </li> <li>- After all data is collected and each student’s chart is completed. The class will return to the classroom.</li> <li>- Discuss the following questions with the students: <ul style="list-style-type: none"> <li>- What is happening to their energy the more that they run? Is it going up or down, why?</li> <li>- What gives us energy to do these activities?</li> <li>- You may want to give the students a cup of water and fruit (such as a banana) to illustrate how organisms obtain energy.</li> <li>- What other things need energy to work? Make a list on the board as students give their ideas.</li> </ul> </li> <li>- The teacher will then so a presentation on Energy Sources. <ul style="list-style-type: none"> <li>○ Students will watch a BrainpopJr. Video entitled “Energy Sources”.</li> <li>○ Students will make a list of different kinds of energy in journals with the help of the teacher.</li> <li>○ The teacher will introduce the use of iPads.</li> <li>○ The teacher will video the students making flow charts.</li> <li>○ Students will reflect in journal.</li> </ul> </li> </ul>
	Day 2	<ul style="list-style-type: none"> <li>○ Students will listen to a teacher-selected book about solar energy.</li> <li>○ Students will ask and answer questions about the text.</li> <li>○ The teacher will show the students the video from the previous lesson.</li> <li>○ The teacher will show the students how to video using an iPad.</li> <li>○ Students will reflect in journal.</li> </ul>
	Day 3	<ul style="list-style-type: none"> <li>○ Students will participate in an in-school field trip with Bricks 4 Kidz.</li> <li>○ The topic of the field trip would be Energy is Everywhere where the main focus would be on solar panels.</li> </ul>

		<p>- Alternate Option would be for students to create Solar Panel Models using construction paper, Popsicle sticks, and glue. This would be a great lesson to have a guest speaker who works in renewable energy, particularly solar energy or someone in the community who has a solar panel for their home. The students would then watch a video on how solar panel collect energy. They would create their models and present to the class.</p> <ul style="list-style-type: none"> <li>○ The teacher will allow the students to practice using the iPad to make videos.</li> <li>○ Students will reflect in journal.</li> </ul>
	Day 4	<ul style="list-style-type: none"> <li>○ Students will watch videos on how to make a potato clock and a pizza box solar oven.</li> <li>○ Students will make a flow chart in journals with directions on how to make items with the help of the teachers.</li> <li>○ The teacher will allow the students to practice using the iPad to make videos while making the flow charts.</li> <li>○ Students will work in groups to create models of the Solar Oven that they will be building. The model will be made of cardstock, glue, tape, and construction paper.</li> <li>○ Students will work in groups to create models of the Potato Clock that they will be building. The model will be made of cardstock, glue, tape, and construction paper.</li> <li>○ Students will reflect in journal.</li> </ul>
	Day 5	<ul style="list-style-type: none"> <li>○ The teacher will divide the students into partners or small groups (depending upon numbers).</li> <li>○ Students will build potato clocks and solar ovens in teams using flow charts created in journals.</li> <li>○ Students will video on the iPad during the construction of the clock and oven.</li> <li>○ Students will reflect in journal.</li> </ul>
	Day 6	<ul style="list-style-type: none"> <li>○ Students will predict how long they think it will take to cook the s'mores and record it in their journal.</li> <li>○ Students will cook s'mores in solar ovens and use potato clocks to time how long it takes to cook the s'mores.</li> <li>○ Students will record data in journal.</li> <li>○ Students will video using the iPad during the making and cooking of the s'mores.</li> <li>○ Students will reflect in journal.</li> </ul>
	Day 7	<ul style="list-style-type: none"> <li>○ Students will predict how long they think it will take to cook the pizzas and record it in their journal.</li> <li>○ Students will cook English muffin pizzas in solar oven and use potato clocks to time how long it takes to cook the pizzas.</li> <li>○ Students will record data in journal. Students will video using the iPad during the making and cooking of the pizzas.</li> <li>○ Students will reflect in journal.</li> </ul>
	Day 8	<ul style="list-style-type: none"> <li>○ Students will predict how long they think it will take to make the</li> </ul>

		<p>tea and record it in their journal.</p> <ul style="list-style-type: none"> <li>○ Students will make tea in the solar oven and use potato clocks to time how long it takes to make the tea.</li> <li>○ Students will record data in journal.</li> <li>○ Students will video using the iPad during the making the tea.</li> <li>○ Students will reflect in journal.</li> </ul>
	Day 9	<ul style="list-style-type: none"> <li>○ Students will graph the data taken from the cooking.</li> <li>○ Students will write a narrative in journal about something they did during experiments.</li> <li>○ Students will use a rubric to self edit their writing.</li> <li>○ The teacher will discuss the findings of the data and ask questions.</li> <li>○ Students will reflect in journal.</li> </ul>
	Day 10	<ul style="list-style-type: none"> <li>○ Teacher will complete the K-W-L chart to see what the students have learned.</li> <li>○ Students will watch videos taken during all the experiments.</li> <li>○ Students will complete a unit writing closure activity.</li> </ul>
<p><b>STEM Projects</b></p>	<ul style="list-style-type: none"> <li>● Water Lab Activity</li> <li>● Bricks for Kids <ul style="list-style-type: none"> <li>○ Alternate Option would be for students to create Solar Panel Models using construction paper, Popsicle sticks, and glue. This would be a great lesson to have a guest speaker who works in renewable energy, particularly solar energy or someone in the community who has a solar panel for their home. The students would then watch a video on how solar panel collect energy. They would create their models and present to the class.</li> </ul> </li> <li>● Energy and P.E. Lab</li> <li>● Solar Oven Model</li> <li>● Potato Clock Model</li> </ul>	
<p><b>STEM Culminating Event</b></p>	<p><u>Procedure for making Solar Oven:</u></p> <ol style="list-style-type: none"> <li>1. Place 2 linking cubes together and use them to make marks around the pizza box from the edge, 3 per side. Use the ruler to draw straight lines, drawing 3 lines on the sides and bottom and a dotted line on the top.</li> <li>2. Let an adult cut the 3 solid lines with an exacto knife.</li> <li>3. Make a crease along the dotted line at the top of the lid.</li> <li>4. Cut a piece of plastic wrap. Tape window inside the lid.</li> <li>5. Place the extra cardboard piece inside the bottom of the box.</li> <li>6. Place a piece of black construction paper in the bottom of the box.</li> <li>7. Roll newspaper into a long tube. Tape the newspaper, so it won't come unrolled.</li> <li>8. Place inside the lid for insulation. Make sure the lid closes tightly.</li> <li>9. Tape the corners and any holes.</li> <li>10. Cut a piece of aluminum foil. Place inside flap and tape on the outside. Make sure there are minimal wrinkles.</li> <li>11. Poke holes for dowel rod.</li> </ol> <p><u>Procedures for making Potato Clock:</u> Before starting, cut 2 short pieces (about 6 inches) of copper wire.</p>	

1. Remove any batteries from the clock. Identify the positive and negative side.
2. Number the potatoes 1 and 2.
3. Insert 1 nail in each potato.
4. Insert a piece of copper in each potato, far away from the nails.
5. Use 1 alligator clip to connect a copper wire to the positive side of the clock.
6. Use 1 alligator clip to connect the nail in potato 2 to the negative side of the clock.
7. Use 1 alligator clip from the nail in potato 1 to copper in potato 2.
8. Set the clock.

Recipes:

S'Mores

- 2 square graham crackers per student
- 1 small chocolate bar per student
- 1 marshmallow per student

Place the graham cracker squares in the solar oven, layered with the chocolate and the marshmallow. Place the second graham cracker on top. Bake until heated and chocolate begins to melt. Serve immediately.

English Muffin Pizza

- 1 English muffin per student
- Pizza Sauce
- Pepperoni
- Cheese

Have each student prepare an English muffin pizza. Put 1 spoonful of pizza sauce on top of English muffin. Place pepperoni (if desired) on top of sauce. Place cheese on top. Place in solar oven. Heat until cheese melts. Serve immediately.

Solar Tea

Place water in a jars. Place 2 tea bags in each jar. Place the jars in the solar oven. When the tea is a good color, take out of the oven. Let cool and drink.

Students will present data and information orally and show videos taken during the project.

<b>Differentiated Instruction</b>	<ul style="list-style-type: none"> <li>• Teacher will work with students within the groups</li> <li>• Teacher will provide extra books for the students to explore.</li> </ul>
<b>Re-teaching Strategies</b>	<ul style="list-style-type: none"> <li>• Teacher will provide additional modeling as needed.</li> </ul>
<b>Enrichment Strategies</b>	<ul style="list-style-type: none"> <li>• Students may type their narrative writing on a computer.</li> <li>• Students brainstorm about different things they can cook in the solar oven and how long they think it will take to cook.</li> <li>• Students will create their own energy saving machine and draw it in their journal.</li> </ul>
<b>Independent Practice</b>	<ul style="list-style-type: none"> <li>• Students will time, measure and graph independently.</li> <li>• Students will write about their findings independently.</li> </ul>

<b>Activities</b>	<ul style="list-style-type: none"> <li>Students will read books independently.</li> </ul>																																																								
<b>Materials &amp; Resources</b>	<b>Materials</b>																																																								
	<table border="0"> <tr> <td>IPads</td> <td>spoons</td> </tr> <tr> <td>Notebooks</td> <td>cups</td> </tr> <tr> <td>Pizza Boxes</td> <td>2 galvanized nails</td> </tr> <tr> <td>Plastic Wrap</td> <td>copper wire</td> </tr> <tr> <td>Linking Cubes/Unifix Cubes</td> <td>3 alligator clip wire units</td> </tr> <tr> <td>Scissors</td> <td>1 low voltage clock</td> </tr> <tr> <td>Exacto Knife (for adult use)</td> <td>graham crackers</td> </tr> <tr> <td>Tape</td> <td>large marshmallows</td> </tr> <tr> <td>Aluminum Foil</td> <td>small chocolate bars</td> </tr> <tr> <td>Black Construction Paper</td> <td>English muffins</td> </tr> <tr> <td>Newspaper</td> <td>pizza sauce</td> </tr> <tr> <td>Oven Thermometer</td> <td>mozzarella cheese</td> </tr> <tr> <td>Small Dowel Rod</td> <td>pepperoni</td> </tr> <tr> <td>Oven Mitt</td> <td>jars</td> </tr> <tr> <td>Small dark metal pans</td> <td>tea bags</td> </tr> <tr> <td>Water</td> <td>ruler</td> </tr> <tr> <td>Sugar packets</td> <td></td> </tr> <tr> <td>2 large baking potatoes (extra, just in case)</td> <td></td> </tr> <tr> <td>Water</td> <td></td> </tr> <tr> <td>4 Small Paper Cups</td> <td></td> </tr> <tr> <td>4 Thermometers (that can be placed in water)</td> <td></td> </tr> <tr> <td>Timer (Stop Watch)</td> <td></td> </tr> <tr> <td>Heart Rate App</td> <td></td> </tr> <tr> <td>Cardstock</td> <td></td> </tr> <tr> <td>Glue</td> <td></td> </tr> <tr> <td>Tape</td> <td></td> </tr> <tr> <td>Construction Paper</td> <td></td> </tr> <tr> <td>Popsicle Sticks</td> <td></td> </tr> </table>	IPads	spoons	Notebooks	cups	Pizza Boxes	2 galvanized nails	Plastic Wrap	copper wire	Linking Cubes/Unifix Cubes	3 alligator clip wire units	Scissors	1 low voltage clock	Exacto Knife (for adult use)	graham crackers	Tape	large marshmallows	Aluminum Foil	small chocolate bars	Black Construction Paper	English muffins	Newspaper	pizza sauce	Oven Thermometer	mozzarella cheese	Small Dowel Rod	pepperoni	Oven Mitt	jars	Small dark metal pans	tea bags	Water	ruler	Sugar packets		2 large baking potatoes (extra, just in case)		Water		4 Small Paper Cups		4 Thermometers (that can be placed in water)		Timer (Stop Watch)		Heart Rate App		Cardstock		Glue		Tape		Construction Paper		Popsicle Sticks	
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<b>Comments</b>	<p>If you have an questions you may contact:  Kristin Hale at <a href="mailto:Kristin.hale@sullivank12.net">Kristin.hale@sullivank12.net</a>  Jessica Carr at <a href="mailto:jessicawcarr@hotmail.com">jessicawcarr@hotmail.com</a></p>																																																								