



Solar Ovens

Solar Ovens Lesson 7: Learato Cooks Up a Plan

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DESCRIPTION: The teacher will begin reading aloud the realistic fiction book, “Lerato Cooks Up a Plan”. In this book, a young girl from Botswana learns science ideas that help her design a solar oven for her family. Students will reflect on the story in their notebooks.

GRADE LEVEL(S): 4 and 5

SUBJECT AREA(S): Science, solar energy, passive solar, infrared radiation, solar applications

ACTIVITY LENGTH: 00 hours, 45 minutes

LEARNING GOAL(S): Students will identify a real world problem that can be solved using solar energy. Students determine how the sun can be harnessed without generating electricity from it.

STANDARDS MET:

Common Core:

4.RI.4. and 5.RI.4 Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a grade 4/5 topic or subject area.

4.RI.5 and 5.RI.5 Describe the overall structure (e.g. chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in a text or part of a text.

Next Generation Science Standards:

4-PS3-2. Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents.

4-PS3-4. Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.

3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.

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3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

3-5-ETS1-3. Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

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Student Background:

Use the background information cards on Botswana to help the students understand where the book takes place.

Educator Background:

A “graffiti read” is when a students draw “graffiti” on a sheet of paper as they listen to a read aloud, in order to better understand the book. It is called a graffiti read because it does not need to be formal or neat. A graffiti read could include words, quick sketches or symbols.

Materials List:

- Read Aloud Book: “Lerato Cooks Up a Plan”
- Background Information Cards on Botswana (Images are in the public domain and not subject to copy write.)
- Song from iTunes: Botswana
- iPod, iPhone and speakers

Vocabulary:

- Botswana: A county in Africa, just above South Africa.
 - Solar Oven: An oven, that instead of using electricity or gas, uses sunlight to cook.
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Lesson Details:

- STEP 1: Begin the lesson by playing the song Botswana and showing the Background Information Cards
- STEP 2: Use the picture cards to build background knowledge on Botswana.
- STEP 3: Begin reading aloud “Lerato Cooks Up a Plan.” If you are unable to finish the read aloud during the class period, find another time in the next couple of days. Have the students to a graffiti read on page 12, Lerato Cooks Up a Plan, in their Solar Energy Student Workbooks. (See note under teacher background on a Graffiti Read.)

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