



Patch Program

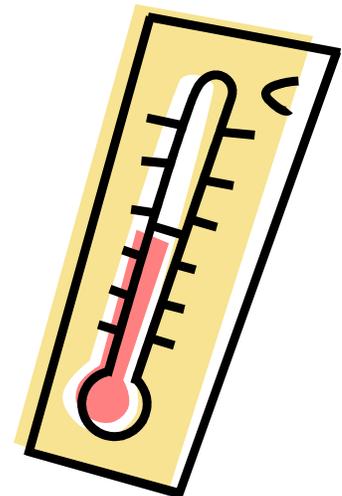


# Girl Scout Junior Patch Program

Accompanies Get Moving Junior Journey

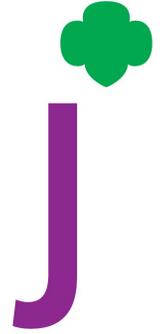
## Kit Contains

- ◇ **Patch Program Directions**
- ◇ **Solar Oven and Directions**
- ◇ **Urban Heat Island Effect**
- ◇ **Weather Station**
- ◇ **Food Powered Clock**
- ◇ **PSA Props**





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# Activities During the Tour

## Complete All Activities

- ◇ IF opting for the solar cooker activity—Before you begin the tour, locate the solar oven from the resource kit. Have the girls follow directions to heat the snack brought with you while taking the tour.
- ◇ Ask girls in your group what kind of signal they will make whenever they hear mention of energy.
- ◇ Tour stop 8 calls our solar panel a renewable energy source, ask
  - ◇ **What does this mean?**
    - ◇ Answers may vary: energy made from natural sources such as sunlight, wind, rain, tides, geothermal, etc. which are naturally replenished.
  - ◇ **How is the energy collected from the solar panel used?**
    - ◇ The solar panel heats water.
- ◇ At the end of the tour, ask girls to **identify as many ways as they can that our building conserves energy.** Answers may vary: good insulation, efficient outlets and lighting, minimum transportation of building materials during construction, occupancy sensors turn lights and air conditioning off when not in use, solar panel augments energy supply, efficient heating and cooling systems, encouragement of alternative transportation systems, light pollution reduction in the parking lot.

*Follow the iPod Tour*  
*Look for this symbol*



## Reflection Questions

**Q: Which parts of the Girl Scout Law are we living by when we conserve energy?**

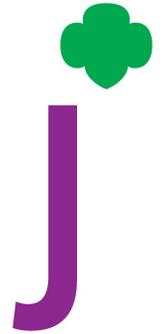
A: Use resources wisely, Make the world a better place, Responsible for what I say and do, Respect myself and others, Considerate and caring

**Q: Why is conserving energy an important part of a “green” building?**

A: Answers may vary



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## Activities After the Tour

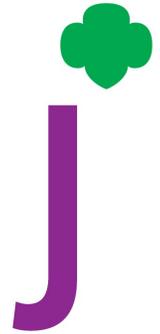
### Complete TWO Activities

- ◇ Explore the urban heat island effect.
- ◇ Enjoy a delicious treat from the solar oven! Ask the following thinking questions:
  - Q: What are the benefits of solar cooking?
  - A: Answers may vary: green energy source, available anywhere
  - Q: When might a person need to use a tool like this instead of their kitchen oven?
  - A: Answers may vary: natural disasters, countries with little or no infrastructure
  - Q: Why not just cook on a fire?
  - A: Answers may vary: limited resources for fuel-like wood, can be dangerous-asthma, potential for burns, may not have a suitable location
- ◇ Make your own solar cooker (bring supplies with you or complete at home). Use the directions in the kit.
- ◇ Operate the food powered clock. Read how it works in the instruction manual.
- ◇ Use the anemometer and wind gauge to explore wind speeds around the building. If the average wind generator begins producing power with wind speeds of 6-8 mph, is wind power a viable option for this site?
- ◇ Have the girls make a short, thirty to ninety second, public service announcement about energy conservation and why it is important to do and record it with an iPod. Please make sure you include your troop number, service unit name, and the first names and last initial of those involved in the video production.



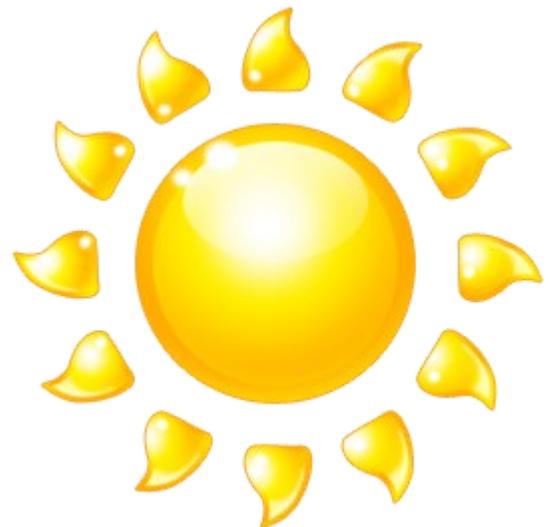


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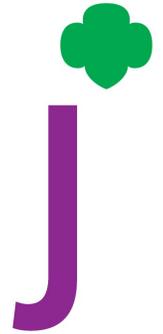
## Urban Heat Island Effect

- ◇ An urban heat island is an area with lots of paving (streets, sidewalk, parking lots) and buildings. They absorb and hold the sun's heat and cool off very slowly. A large rock outcrop or a rocky mountain without many trees or bushes can be a heat island as well. This can feel good in the winter, but not so good in the summer!
- ◇ Darker colors, such as an asphalt parking lot, absorb and retain (keep) more heat than light colors such as paving stones. It takes energy to cool down a heat island and keep it cool. Energy is a natural resource we want to conserve, or use wisely.
- ◇ Try this: Stand in an open, sunny area of the asphalt parking lot, one not shaded by trees. Next move to an area in or next to the parking lot that is shaded by trees. Then stand in an area like the garden between the buildings. (Or stand on the deck at the back of the service center; then walk downstairs and stand in the covered patio area under the deck; finally, stand in an area shaded by trees.) Which of these areas are most comfortable now? Which would be most comfortable in the other three seasons? Why? Talk it over: Does the amount of sun or shade outside a building affect the temperature inside the building? If you use "nature" to help heat or cool your building, will it use as much energy such as electricity or gas?
- ◇ A green building like ours reduces the heat island effect through a combination of shading (trees) and light-colored paving materials for 50% of the project site's hardscape, the paved areas where the sun doesn't touch the soil. Our roofing material is a light, reflective color that minimizes heat gain from the sun (absorbs less heat from the sun.) This is called a "synergy" credit. It helps with the Energy & Atmosphere LEED category by using energy wisely. When there is less heat gain, the heating and cooling system can be smaller, and it doesn't have to work as hard to keep the space cool. This saves energy. Having light-colored roof is good plan in Georgia, where we have long, hot summers. *If you lived in Alaska, would it be a better to have a light-colored roof or a dark-colored roof? Which one would save more energy?*





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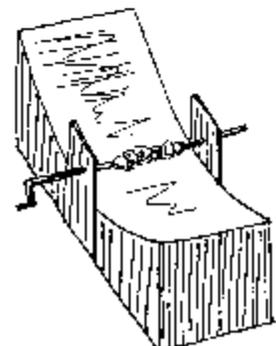
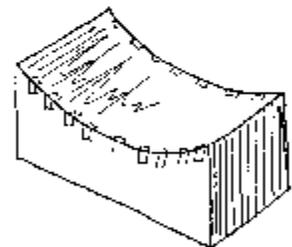
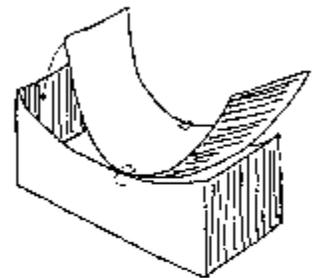
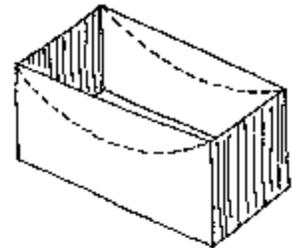
## Make Your Own Solar Hot Dog Cooker

### ◇ What do you need?

A cardboard box, tin foil, posterboard, wire coat hanger or skewer, tape, glue, hole punch, utility knife or scissors

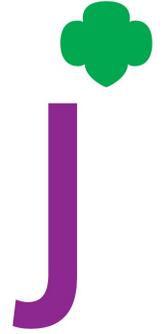
### ◇ What to do?

1. Select a long narrow box; the longer the box the more heat collection is possible. Choose a focal length between 5" and 10" and design a parabolic curve as seen in the picture. One template could be used for all the cookers. Trace the curve on the open end of the box so that is centered and straight.
2. Cut out the curve with a utility knife. Stress the importance of being exact. Measure and cut a piece of posterboard that will fit flush against the opening of the box. Attach this with tape beginning at the center and working toward the edges.
3. Cover the curve with glue and apply aluminum foil shiny side out. Start in the middle and smooth toward the edges. Try not to wrinkle or fold the foil; you want it as smooth as possible.
4. Use two scraps of cardboard taped to each side as supports. Using the sun or a projector light, test the focal point. There should be a bright spot where light is concentrated; mark this spot and punch a hole for the skewer. Use a section of a coat hanger from which the paint has been removed for a skewer.
5. Cook and enjoy your hot dog!





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## Solar Cooker Directions

### ◇ Safety First

Always ensure that your food is properly cooked. Solar cooking is slower than conventional oven cooking. Since the cooking temperatures are usually lower, some foods will appear different when done than they would if cooked in a conventional oven.

### ◇ Take Care of Our Cooker

Never put food directly onto the surfaces of the All Season Solar Cooker. Moisture and fats from the food will quickly destroy the reflective finish. The reflective tape used in this cooker was not designed for food contact. **Always cook in a covered container!**

### ◇ Cooking

Successful solar cooking is as simple as A, B, C.

A– capture the incoming sun

B– turn the sunlight into heat

C– retain the heat

A– The All Season Solar Cooker captures the incoming sunlight. Thanks to its moveable reflector array, the ASSC will capture sunlight from sunrise to sundown.

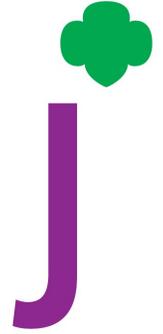
B– This sunlight will turn into usable heat when you use a dark colored cooking pot-- the darker and duller the better. The incoming sunlight is transformed into heat when it is absorbed and transformed into heat.

C– Retain your captured heat. Use the larger pot to keep ambient air away from your cookpot.

**\*\*Note\*\*** If the weather does not permit use of the solar cooker, you may opt to use the heat lamp instead.



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## Optional Extension Activities

For girls who just can't do enough...

- ◇ Explore the following fun resources:

<http://www.eia.doe.gov/kids/energy.cfm?page=quiz>

<http://www.eia.doe.gov/kids/>

<http://www.earthhour.org/kids/Game.aspx>

<http://www.energysavers.gov/>

<http://kids.nationalgeographic.com/kids/stories/spacescience/green-tips-power/>

<http://kids.nationalgeographic.com/kids/stories/spacescience/cow-power/>

<http://www.scienceeducation.gov/>

<http://kids.nationalgeographic.com/kids/stories/spacescience/lightpollution/>

- ◇ Sign up to participate in the High Performance Healthy Green Schools program

<https://usgbcga.wufoo.com/forms/girl-scout-green-team-sign-up/>

- ◇ Sign the Forever Green Pledge

<http://www.girlscouts.org/gforevergreen/>

