



THE 2018 SOUTH CAROLINA
**4-H ENGINEERING
CHALLENGE**

EnlightenSC Solar Oven Showcase Challenge

Challenge Description:

Teams will design, build, and cook with an efficient solar oven using the elements of STEAM: science, technology, engineering, art, and mathematics. At the event, each team will display their oven, show documentation of the building and cooking process, and give a presentation to a panel of judges. **THERE WILL BE NO BUILDING OR COOKING AT THE EVENT.**

Team Requirements:

- 2-4 students per team.
- Age Range: Junior (age 9-13) and Senior (age 14-19)

Materials Needed:

Teams will display their solar ovens, sketches of the design, pictures documenting the cooking process, a video of the cooking process, and their recipes. **THERE WILL BE NO BUILDING OR COOKING AT THE EVENT.**

Challenge Instructions:

Teams will display their solar oven, sketches of the design, pictures and videos documenting the cooking process, and recipe. Each team will make a presentation to explain their design and thinking to the judges.

Preparation Instructions:

- Design an aesthetically appealing solar oven.
- Sketch the oven as a means of brainstorming the design.
- Document the construction process with pictures.
- Create a solar-oven recipe.
- Test and document the cooking process with video.
- Reflect on the process.

Please cook with care! Consuming raw or undercooked foods can make you sick.

Judging:

Entries will be judged on three criteria for a total of 40 points: design, explanation of thinking, and documentation and reflection of process. Ovens are to be built off-site and brought to the competition for judging.

1. Ovens will be judged on their beauty, creative design using repurposed and recycled materials, and functionality. (10 points)
2. Be prepared to explain your thinking to the judges about the choices you made in designing your oven and your recipe. You may prepare talking points and/or create presentation materials. (10 points)
3. Did you thoroughly address the Questions to Consider? (10 points)
4. Provide a copy of your original sketch, your recipe, at least 4 pictures of the construction and cooking of your recipe, and a video of the cooking process. (10 points)



THE 2018 SOUTH CAROLINA
**4-H ENGINEERING
CHALLENGE**

You will display your sketch and solar oven, pictures/videos documenting the cooking process, and your recipe. You WILL NOT bring food or be cooking food at the event.

Questions to Consider:

- What is solar power?
- What is the best most efficient way to harness the sun's energy to cook food?
- How can you design your oven to be efficient yet appealing?
- How can you design an oven that does not use store-bought materials? What can you repurpose or recycle to build your oven?
- What name can you give to your solar oven design?
- How does a solar oven actually work?
- What changes can you make after testing your oven to make it cook more evenly or efficiently?
- What impact could solar ovens have on others?

Documentation:

- Students are to bring pictures of the student sketches of the design of the solar oven and at least 4 photographs of the oven being built.
- Students bring an original recipe that has been cooked in the oven.
- Students are to bring a video documenting the cooking and the time. Please bring a computer or tablet to play the video.
- Most creative ovens, videos, pictures, and recipes win! The finished food product will not be tasted or judged. The design of your oven and your recipe will be judged.