



Fairchild Challenge 2009-2010
How to Guide for Students
Option 8C: Solar Inventions

I. Overview

In a world surrounded by global climate change, concepts such as alternative and renewable energy become an important field of study. A common form of alternative energy is solar power (energy created by the light and heat of the sun). In this challenge option, students will research applications of solar power, design and construct a solar powered invention, and articulate how the solar power invention can be used in an emergency situation. The goal of this option is to interest students in alternative energy, specifically solar energy, and become actively engaged in the development of solar technology.

II. Approaching the Option

1. The Solar invention:
 - The solar invention cannot exceed 3' x 3' x 3' in size.
 - It must run completely on sunlight – no batteries or energy storage devices may be used.
 - If there are any mirrors or energy enhancing devices, they must be included in the dimensions.
 - Fairchild will loan one solar panel and one electric motor to schools by request, if they have not received one in the past.
 - If using the solar panel provided by Fairchild, the solar panel and motor must be used without dismantling.
2. The Presentation:
 - Research and type a narrative of no more than 450 words explaining the most important features of the invention.
 - Your presentation must include how it can be used in an emergency situation. Remember to describe the type of emergency situation.
 - Bring several copies of this narrative for the judges.
 - Prepare a 2 - minute explanation of the invention for the judges and be prepared for any questions that judges may ask.

CHECKLIST

- My solar invention is useful in an emergency situation
- My solar invention is within the designated dimensions of 3 ft. x 3 ft. x 3 ft.
- There are no batteries or energy storage devices incorporated into my invention
- The solar panel and electric motor are being used as is(i.e. do not dismantle the solar panel or motor to their parts)
- The narrative is no longer than 450 words
- There are several copies of my narrative
- I have prepared a 2 minute explanation of my solar invention and how to use it in an emergency situation (specifying what kind of emergency)
- The invention is run entirely by solar power
- If using a solar panel and/or motor that is not provided by the Fairchild Challenge, the solar panel is rated 3 volts at 3 watts and the motor must be appropriate for the panel