Lab Name : Solar Cooker

Subject Area: Mathematics [How to find distance ...](https://www.instructables.com/id/Distance-measurement-with-radio-waves/)

Grade: 11 or 12

Course: Pre-Caluclus

Topic: Trigonometry

Experiment Title: How to harness the sun rays?

Hardware:

Software:

Number of Sessions to teach the topics: 1 month

Educational standards to be addressed:

Cosmos concepts to be used for the lab:

K12 Educational Goals (How the educational goals are achieved through teaching using the experiment, how the topic is connected to the COSMOS concepts used)

Short Description and Walk-through of the experiment

Testbed mapping of the experiment

Students go through 3 phases.

Phase 1:

Task: You’ve decided to become an engineer who specializes in thermodynamic properties.

Your job is to design your own apparatus using conic sections to use the sun’s rays. Your task is

to create a mathematical model (conic section) of apparatus that will be tested outside of the

classroom at the end of May.

Mathematical Model of your apparatus:

An apparatus that is sturdy and portable which will harness the rays of the sun to melt something

in a short amount of time.

The design must utilize mathematics at the Pre-calculus level including conic sections.

Phase 2:

To complete this task, follow these steps:

● The apparatus will be designed and built by you. Be creative and not copy an exact

design that you find on the internet. This can be researched.

● The apparatus must be functional. This is your goal.

**Phase 3:**

You will test your apparatus with a light sensor probe. Students will analyze the data and make conclusions on where there focal point will be based upon their predictions.

Part 4: Test Analysis/Conclusion: