

# Solar Oven

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# Background Research

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Why does black paper become hotter than white paper when exposed to the sun? Dark colors such as, black, indigo and dark brown absorb the heat from the sun. Though light colors such as, pink, green, and yellow reflect off the heat. Causing less heat to be absorbed by light colors and more heat absorbed by dark colors.

# Purpose & Procedure

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## Purpose:

To learn how the sun's energy can become heat and how solar power works. This could be used as a cheaper alternative to use in the future.

## Procedure:

First, cut a square into the top of the box, leaving one side uncut. Fold the newly cut flap backwards so that there is an open hole in the middle of the box. Next, cover the inside of the box with black paper and cover the top flap with aluminum foil. Third, place a food item that can easily be melted into the box. Lastly, cover the opening with plastic wrap and place the box in a sunny area with the flap bent at an obtuse angle.

# Hypothesis

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That the sunlight will easily melt the food in the solar oven in about 15 minutes due to the plastic wrap which keeps in heat. And it will not become too hot because of the black paper that sucks in the sun's heat.

# Data from Experiment

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Observations- The cheese that was put inside the solar oven did not melt. Instead, it seemed to harden. The black paper inside of the oven also became a lighter shade of grey instead of staying black. The side of the solar oven facing the sun also turned lighter.

Analysis- It seems that since we used cheese instead of marshmallows (which are easily meltable) and the colored paper could have been replaced with another black material, like fabric. The reason the experiment did not work is because we had many sources of error and because of the weather.

Conclusion- There might be other materials more suitable to make a solar oven than the materials we used. The solar oven seemed to harden the cheese instead of melting it but this could be because the plastic wrap wasn't fully covering the opening, so the sunlight took the moisture of the cheese instead of melting it.

Application- Cheese and colored paper shouldn't be used for a solar oven but a solar oven used with cheaper materials is still a possibility.

# Sources of Error

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I believe that the project could have gone according to plan if the weather was consistent and the plastic wrap we had put over the opening was secure. There was also the problem of the colored paper turning lighter when exposed to sunlight.

# Bibliography

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- [UCSB Science Line](#)
- [Homesciencetools.com](#)