CALIFORNIA STATE SCIENCE FAIR
2011 PROJECT SUMMARY

Name(s)
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Project Number
31271

Project Title
Rooftop Gardens: Cool Idea?

Abstract

Objectives/Goals
My objective was to find the function of rooftop gardens, if they are insulators or coolers, and how they insulate and/or cool the internal temperature of a structure.

Methods/Materials
I got two equally sized boxes and put typical roofing on top of one, roofing and sod on another, a thermometer within each one, and an external thermometer on the outside. I then measured and recorded all the temperatures after 30 minutes inside, after one hour outside (varying conditions), and after two sets of 15 minutes back inside.

Results
My results were remarkable. My data supported the statement that rooftop gardens insulate the structure which they are on, therefore, under about 65 degrees the internal temperature of the rooftop garden box house rose somewhat substantially above both the external temperature and the internal temperature of the traditional box house. On the contrary, when circumstances were 65 degrees and above, the internal temperature of the rooftop garden box house dropped below the other thermometers acting as a cooler in this case and not as a heater. Again, the sod was an insulator.

Conclusions/Discussion
I did 20 trials and 4 tests within each trial, a total of 80 tests. I found, as previously stated that the sod upon the rooftop garden box model acted as an insulator, in both heated and cooled. Now the question is: is there a scientific explanation for how this happened? How can I more accurately harvest this insulating ability in further experiments? For in depth answers and discussions, I will see you at judging.

Summary Statement
I tested to find the function of rooftop gardens, and I found that they function as insulators.

Help Received
Father helped cut grass; close friend helped to analyze data

Preliminary