CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY

Name(s)
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Project Number
J0726

Project Title
Air Pressure and Elevation Effects on Boiling Point

Abstract

Objectives/Goals
I wanted to see whether it is the air pressure or the elevation that decreases the boiling point of water as elevation increases. My hypothesis was that it is the air pressure.

Methods/Materials
I conducted an experiment in two parts. In the first part of the experiment, I drove up the hill from about 2000ft to about 7000ft, boiled water, and recorded the elevation, air pressure, and boiling point at every elevation marker along the way. I repeated this part of the experiment about two weeks later to get multiple results. In the second part of the experiment, I stayed at home (where the elevation was constant), boiled water, and recorded the air pressure and boiling point for about two weeks. I hoped that as the weather changed, the air pressure would change also.

Results
The first part of the experiment showed that as the elevation increased, the boiling point decreased linearly; as the air pressure increased, the boiling point increased linearly; and as the elevation increased, the air pressure decreased linearly. During the second part of the experiment, however, although the weather varied, the air pressure changed very little, so the change in boiling points was too small to measure.

Conclusions/Discussion
I found that increased elevation and decreased air pressure decreased the boiling point. The second part of the experiment was inconclusive because of the small changes in barometric pressure.

Summary Statement
We boiled water at different elevations and air pressures to measure the effect of elevation and pressure on boiling point.

Help Received
Dad helped me structure the experiment, drove me around, taught me about Excel and statistics, and revised the writeup.