CALIFORNIA STATE SCIENCE FAIR
2010 PROJECT SUMMARY

Name(s)
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Project Number
J0706

Project Title
Stalactites and Stalagmites: Mother Nature's Teeth

Abstract

Objectives/Goals
After seeing pictures and articles referring to stalactites and stalagmites, I wondered how they formed. Because stalactites and stalagmites usually grow in hard to reach caves, I thought it would be an interesting subject to explore. The objective of my experiment was to examine a variety of mineral solutions and see which would grow the longest, single formation.

Methods/Materials
To begin my experiment, I compared the composition of my minerals with calcite that is commonly found in caves. I predicted the Washing Soda solution would grow longer growths than the Baking Soda and Epsom Salt solutions. I tested this by placing six jars (two jars per solution) on a windowsill with solutions inside them. Each set of jars represented one of the three solutions at saturation point. The sets were connected by a yarn measuring 60 centimeters. I observed these jars for two weeks, collecting my data measurements and photos at approximately 6 p.m. at night. A control group was also observed. I repeated this three times.

Results
After placing my daily data in charts and tables, I found that my Washing Soda solution grew the longest stalagmite and had the greatest total growth. It even formed columns. Washing Soda's composition most likely resulted in its massive growth success. In two out of the three trials I performed, its formations were the longest.

Conclusions/Discussion
The Washing Soda solution's mineral composition grew longer stalagmites and had greater total growth than the two other solutions. By finding minerals more commonly found in caves, that have a similar composition to Washing Soda, scientists can collect data and further understand cave formation growth. Laboratory experiments can also be done using the minerals I have researched.

Summary Statement
My project focused on discovering which of three solutions would grow speleothems the fastest and largest.

Help Received
None