# CALIFORNIA STATE SCIENCE FAIR
## 2011 PROJECT SUMMARY

**Name(s)**
Sara Thomas

**Project Number**
**J1825**

**Project Title**
## Candle Burning

**Abstract**

**Objectives/Goals**
If I increase the volume of air, then a candle would burn out more slowly. Adding carbon dioxide and oxygen will cause a candle to burn longer.

**Methods/Materials**
My first experiment was to put a glowing splint in a jar with hydrogen peroxide and activated charcoal and I found that the glowing splint relit. Then I selected 4 jars of increasing volume from 345cubic cm-1,750 cubic cm. I put a jar over the lit candle and recorded the burn time until the candle went out. I repeated this 5 times and calculated the average for the results. I did the same again with carbon dioxide added by mixing baking soda and vinegar.I repeated the procedure again with oxygen added by mixing hydrogen peroxide and activated charcoal.

**Results**
As I increased the size of the glass# volume of air, the candle burned for a longer time and provided more "fuel" for the candle to burn. When I added carbon dioxide I got the shortest burn times with some glasses burning out in less than 50% of the time with regular air. When I added oxygen I got the second shortest burn time. The oxygen results were surprising because I thought the candle would burn longer than regular air when oxygen was added.

**Conclusions/Discussion**
When I increased the volume of regular air, the candle had a longer burn time. Adding carbon dioxide caused the candle to have the shortest burn time. Surprisingly, adding oxygen caused the candle to have the second shortest burn time.

**Summary Statement**
Increasing the volume of air makes a candle burn longer; adding carbon dioxide and oxygen makes a candle burn out faster.

**Help Received**
My tutor, Andy Green guided me.