



**CALIFORNIA STATE SCIENCE FAIR  
2011 PROJECT SUMMARY**

<b>Name(s)</b> Sara Thomas	<b>Project Number</b>  31827
<b>Project Title</b> Candle Burning	
<b>Objectives/Goals</b> 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. <b>Abstract</b> <b>Methods/Materials</b> 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 345 cubic 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. <b>Results</b> 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. <b>Conclusions/Discussion</b> 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.	
<b>Summary Statement</b> Increasing the volume of air makes a candle burn longer; adding carbon dioxide and oxygen makes a candle burn out faster.	
<b>Help Received</b> My tutor, Andy Green guided me.	