



**CALIFORNIA STATE SCIENCE FAIR  
2011 PROJECT SUMMARY**

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<b>Project Title</b> <b>When Is the Grass Really Greener?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> I am interested in the growth of grass and how to make the color of grass look inviting. I noticed large brown spots on my lawn and decided to do some research. I found that ammonia and Epsom salts might do the job. I designed a test to compare the effects of ammonia and Epsom salts, ammonia alone, Epsom salts alone, or Miracle Gro. My hypothesis was that ammonia alone might have a negative effect on the grass and Epsom salts might help the grass grow greener. I first bought all of my supplies, then I planted the grass, weighed out the ammonia and Epsom salts, and began testing.</p> <p><b>Methods/Materials</b> I used household ammonia and Epsom salts in my test. I compared the ammonia and Epsom salts treated grass to grass watered with tap water, grass with Miracle Gro, grass with ammonia solution alone, or grass watered with Epsom salt solution alone. I grew 15 different samples. I had three replicates of ammonia, Epsom salts, Miracle Gro, tap water (the control), and ammonia and Epsom salts combined.</p> <p><b>Results</b> I tested 15 samples and learned that the samples receiving both ammonia and Epsom salts combined were the most successful. The samples with Miracle Gro took the longest to sprout, but every seed sprouted. The samples with plain tap water alone (the control) were also successful similar to the ammonia and Epsom salts combination. The Epsom salts alone had very few sprouts, but the grass had the greatest height. The ammonia pots had many sprouts, but the grass blades were very short and a yellowish color at the tips.</p> <p><b>Conclusions/Discussion</b> I recommend combining Epsom salts and ammonia for grass problems, such as a change of color. A problem that occurred while I was testing was rain. I had to move all of my samples under an overhang and keep them from getting wet with rain water. During my experiments I learned about the nutrients plants need to survive and flourish. I recommend using household ammonia and Epsom salts (magnesium sulfate) when trying to #green up# your grass.</p>	
<b>Summary Statement</b> I tested the effects of household products such as ammonia and Epsom salts on grass growth and grass color.	
<b>Help Received</b> Thanks to my teacher who provided equipment, and thanks to my parents for helping me correct and edit my report.	