



**CALIFORNIA STATE SCIENCE FAIR  
2009 PROJECT SUMMARY**

<b>Name(s)</b> <b>Grant T. Margerum</b>	<b>Project Number</b> <b>J2020</b>
<b>Project Title</b> <b>Algae: Fuel of the Future or Fungus in Your Pond?</b>	
<b>Abstract</b> <b>Objectives/Goals</b> My project is on algae, and it has to do with the growth of algae and how it grows when other factors are added to it. I was interested in algae growth because I believe algae can be used as a biofuel for cars if we can figure out how to grow enough of it that it makes sense economically to use it in cars.  I tested which of my algae samples grew the most under various conditions. My manipulated variables were the temperature, the presence of protein (fish food) or not, and the presence of an aerator or not. In my hypothesis I hypothesized that warm water with an aerator and fish food would result in the most algae growing. <b>Methods/Materials</b> In my project I tested growth in different conditions to determine what environment is the best. I set up 4 different algae samples in my garage where they had a 60 degree temperature and 4 other samples I had inside my house where they had a 70 degree temperature. In each of the different temperatures I tested a sample of pond water, adding protein, adding an aerator, and combining an aerator and protein. My control was plain pond water, but I also had pond water that I kept inside my house so that it would reach 70 degrees to test the difference the water temperature makes. <b>Results</b> My results showed that the warm water samples did the best and adding protein improved algae growth even more. My results showed that the warm water with protein had the most algae growth according to the transmittance test. Overall, in my experiment I saw how the protein was the most important part in growing algae, and that the algae with fish food added did a lot better and turned green because of it. The protein mixed with warm water produced the best sample and showed the most algae growth. <b>Conclusions/Discussion</b> We need to find a renewable source of energy, because we are running out of fossil fuels, and we need a renewable fuel resource. Algae is easy to grow and renewable, so by finding the most efficient way to produce the most algae, I think I can help companies who are producing algae to be used as biofuel.	
<b>Summary Statement</b> I tested methods to determine the fastest way to grow algae so it can be harvested and converted into biofuel for use in cars.	
<b>Help Received</b> Mother helped type report and create board; father helped contacting algae companies; school provided guidance and test equipment	