



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

Name(s) Joseph S. Stearns	Project Number S0521
Project Title Electrophoresis	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective is to determine what the relationship is between molecule size and pigment of food coloring dyes.</p> <p>Methods/Materials An electrophoresis chamber was constructed, and an agarose-based gel was used in the electrophoresis process. Five dye samples were placed in the chamber and separated through electrophoresis in order to determine the relationship between molecule size and pigment color.</p> <p>Results The orange dye was found to have the smallest molecules, followed by purple, red, and then blue. This dye order held true throughout the two hour electrophoresis process.</p> <p>Conclusions/Discussion The results of my experiment indicate that under certain conditions the dye pigment of lightest color has the smallest molecules. Further testing is needed to determine if this theory holds true under other circumstances.</p>	
Summary Statement It was shown, using electrophoresis, that dye samples of lighter color have smaller molecules than dye samples of darker color under certain conditions.	
Help Received My mother was the photographer for this project, who took and formatted all the pictures of the experiment.	