



**CALIFORNIA STATE SCIENCE FAIR  
2004 PROJECT SUMMARY**

<b>Name(s)</b> <b>Kellie E. Henderson</b>	<b>Project Number</b> <b>J1611</b>
<b>Project Title</b> <b>Jack and the Frozen Beanstalk</b>	
<b>Abstract</b> <b>Objectives/Goals</b> My project was to determine if cold or freezing temperatures would negatively affect lima bean and radish seed germination. <b>Methods/Materials</b> Using lima bean seeds from the same lot number and radish seeds from the same lot number, 3 seeds from each category were placed in zip-lock bags, labled and placed in the freezer and refridgerator for a maxium of 10 days and a minimum of 1 day. The control seeds were not chilled or frozen. The seeds were then placed in individual peat pots, labled, observed and measured daily and documented every 4th day for sprouting and growth. The experiment was done twice for comparison purposes. <b>Results</b> The lima bean and radish seeds were not affected by the cold or freezing temperatures. All of the seeds sprouted and grew normally in comparison to the control seeds. They had no signs of damage in the sprouting and growth stage. <b>Conclusions/Discussion</b> My experiment showed that the seeds were not affected by the cold temperatures and in fact may have helped the seeds become healthier, due to the destroying of fungal or bacterial imperfections within the seeds.	
<b>Summary Statement</b> Whether or not cold or freezing temperatures affects seed germination.	
<b>Help Received</b> David Dougherty background; Mom helped type, cut and glue board pieces; Dad showed me how to do power point bar graphs	