



**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> <b>Kelsey J. Krobert</b>	<b>Project Number</b> <b>J1415</b>
<b>Project Title</b> <b>A Smokey Situation</b>	
<b>Abstract</b>	
<b>Objectives/Goals</b> What is the effect of cigarette smoke on the growth of tomato plants? If I put five tomato plants in an enclosed area every other day and burn one cigarette-then I think it will improve the growth rate of the tomato plants.	
<b>Methods/Materials</b> Ten plants of the same variety: Twenty tomato seeds. Soil system to support five plants: 15.2 cm diameter pots with drain holes; Soil to fill each pot; Filtered (reverse osmosis) water. One plastic cubic meter chamber to support five plants: Clear plastic sheet; Power drill ; Glue; Cigarettes. System to monitor and measure growth: Paper; Pen ; Pencil; Permanent marker; Graph paper; Computer; Bates National Rule. Lighting system to support ten plants equally: Fluorescent light fixture (four each 122 cm cool white bulbs); Ten peat pots; Ziploc container.	
<b>Results</b> I planted both groups of tomato plants and set them under the lighting system that I had set up in my garage. The second night of my project, my father helped me construct my smoking chamber for the experimental group. The main body of it was made from a cardboard box with tape that worked surprisingly well. Every other night I would take a cigarette, coil a thin wire around the brown bottom of it, light it, and place it in the hole that I had made in the bottom of the box. It would take approximately fifteen minutes to burn the whole cigarette. I would then measure and recorded the current growth of each of the five tomato plants. Lastly water both groups and place the back under the lights. I would be careful of how much light they had; always turning off the lights when the sun went down and on when I woke up. The only deformity that I found among the experimental plants was that the tips of their leaves would grow yellow over time. The average of the experimental group was 24.64 centimeters. The average for the control group was 22.76 centimeters. The outcome was that the experimental group grew 1.88 centimeters taller than the control group. The results of my experimentation has proved my hypothesis valid.	
<b>Conclusions/Discussion</b> The experimental group average was 24.64 centimeters. The control group average was 22.76 centimeters. The outcome was that the experimental group grew 1.88 centimeters taller than the control group, making my hypothesis valid.	
<b>Summary Statement</b> The effects of cigarette smoke on the growth rate of tomato plants	
<b>Help Received</b> Father helped build smoking chamber and glue papers on board	