



**CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY**

Name(s) Tammy N. Ziembra	Project Number S1621
Project Title How Different Plant Hormones Affect Stem Growth in Lima Beans During Germination and Early Stages of Development	
Objectives/Goals The purpose of the experiment was to measure how different plant hormones affect lima bean stem growth depending upon what stage the young plant is in.	
Abstract First I made the plant hormone solutions by following the instructions of a Flin handbook. Then I soaked 15 lima beans in water over night, and waited for them to germinate. Next I placed three seeds in each jar (I had 5 Jars. Each was for a different hormone, ABA, IAA GA3, Kinetin, and the controlled group.), and only gave them water. I repeated this step 2 more times until the third set of seed had been soaked. At the end of this process I had 3 stages, stage1 were the dormant seed, stage2 were the seeds with radicles, and stage3 were the seed with shoots and foliage leaves. Once all of the seeds had been placed in jars, I gave them .25ml of the hormonal solution each day for 14 days(the controlled group only received water.). I recorded the shoot height every day, and I got my average shoot growth per plant by subtracting the total height on day 14 by the height on day 1.	
Methods/Materials The stage 1 plants grew on average 5.6152cm. The stage 2 plants grew on average 2.6164. The stage 3 plants grew on average -0.0996cm. In stage 1 the plants to grow the most to the least tall are as follows: ABA, GA3, Kinetin, IAA, and the control. In stage 2 the plants to grow the most tall to the least tall are as follows: Kinetin, control, ABA, and the IAA tied with the GA3. The stage 3 plants to grow the most tall to the least tall are as follows: the IAA, Kinetin, control, ABA, and the GA3.	
Results My data supports the idea that the earlier the stage of development a lima bean is in when hormones are first applied to it, the taller it will grow. The data can not support the idea that certain hormones will cause a lima bean plant to grow taller than a different plant.	
Conclusions/Discussion	
Summary Statement The purpose of the experiment was to measure how different plant hormones affect lima bean stem growth depending upon what stage the young plant is in.	
Help Received My parents took me to the library so that I could do research.	