



**CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY**

Name(s) Allyne Garcia	Project Number S1609
Project Title Macro Nutrient Effects on Plant Growth	
Objectives/Goals The objective is to learn how the presence of macro-nutrients affects the early stages of plant growth.	
Abstract Methods/Materials Segmented growing tray(5 segments), Cactus potting mix, 3 T of Bandini blood meal (N), 3 T Bandini bone meal (P), 3 T Potassium amino acid proteinate (K), water, ruler, paper, calculator, camera, film, seeds(sweet peas). (A)Place equal amount (8 pounds) of the growing medium in each compartment of the growing tray. (B) One nutrient was added to each of three compartments, (3T of Blood meal for N, 3 T. of Bone meal for Phosphorous, and a dilute solution of potassium for K), and three nutrients to the compartment labeled NPK, one compartment was used as a control, and did not have any added nutrients. (C) Twenty-five (25) seeds (sweet Peas) were planted in each compartment. (D) Regular counts were taken of the number of visible plants per square; Average height of the visible plants; Height of the tallest plant per square in cm.	
Results a. Phosphorous(P) is an important nutrient in the early stages of plant growth. b. The presence of nitrogen(N) without the other macronutrients may inhibit early lant growth. c. The presence of Pottassium (K) in the absence of Nitrogen (N) and Phosphorous(P) resulted in a yellow-green color in the plant.	
Conclusions/Discussion The presence, lack of, or imbalance of macronutrients has an effect upon the early growth of plants.	
Summary Statement My project is about the reaction of the macro nutrients when they are separate.	
Help Received Michael Rafferty-He provided the space(back yard)	