



**CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY**

Name(s) Meghna Soni	Project Number S1619
Project Title Does the Type of Soil Affect the Growth Rate of Plants?	
Abstract Objectives/Goals The objective was to investigate how different soils affect plant growth. It was hypothesized that when radish seeds are placed in potting soil, local soil, sand, and gravel, the potting soil will produce the most growth, followed by local soil; minimal growth will be seen in sand and gravel. Methods/Materials The four different soils were tested for their pH level and macronutrients: Nitrogen, phosphorous and potassium using soil testing kits. The texture and permeability of the four different soils was also recorded. Three radish seeds were placed in 10 cups each of potting soil, local soil, sand, and gravel. Half a cup of room temperature tap water was added to each cup to saturate the soil. The 40 cups were placed outside on the sunny southern side. Every two days each cup received half a cup of room temperature water. The first observation was made after 7 days and thereafter an observation was made every 5 days for a total of 4 observations. At each observation the number of germinating plants, the height of the plants, and the surface area of the leaves (L X W) were recorded for each plant. Results Potting soil had optimal pH level and adequate amounts of nitrogen, potassium, and phosphorous compared to other soils. Results for the final observation for plant growth were: Average rate of germination: Potting soil (3 plants), gravel, (3 plants), local soil (2.23 plants) and sand (1 plant). Average height of plants: Potting soil (33.2mm), local soil (14.1mm), gravel (9.5mm), and sand (5.9mm). Average surface area of leaves was: potting soil (331.2mm ²), local soil (164.7mm ²), gravel (129.2mm ²), and sand (58.5mm ²). The results indicate that plants grown in potting soil had the highest rate of germination, the most height, and largest surface area of leaves as compared to plants grown in local soil, sand, and gravel. Conclusions/Discussion Potting soil had the best plant growth because it had the right amount of sand, silt, and clay, as well as an optimum pH level. It also contained adequate macronutrients like nitrogen, potassium and phosphorous thus promoting better plant growth. Local soil performed better than gravel and sand. Sand was the poorest medium for plant growth. This information is useful to farmers and gardeners because it helps identify which soil is best for growing healthy plants.	
Summary Statement This experiment helped understand what type of soil and its attributes are best for healthy plant growth.	
Help Received Mother helped with purchasing materials; science teacher Mrs. Olivares helped answer questions.	