



**CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY**

Name(s) Matthew John Giebler	Project Number 23489
Project Title The Effect of Electromagnetic Radiation on Plant Growth and Development	
Objectives/Goals The purpose of my experiment is to find out how plants are affected by electromagnetic radiation. Abstract Methods/Materials 3 13 cm clay pots, 60 radish seeds, 6 aloe vera plants, 6 8-cm high clay pots, 6 chlorophytum plants (spider plants), 6 10-cm high clay pots, Broken pot pieces, 1200 cm ³ potting soil, Water, 1 measuring cup, 2 grow lights, 1 gauss meter, 1 camera, 2 60 cm wrought iron rods, 27 meters of 16 gauge insulated electrical wire, duct tape, 1 AC plug, 1 100 Watt light bulb, 1 light bulb holder, Electrical tape, 2 2.4 m long x 9 cm wide x 5 cm high douglas fir, 1 1.8 m long x 6 cm wide x 2 cm high douglas fir, Wood blocks, 1 Phillips screwdriver, 1 flathead screwdriver, 1 metric ruler, 1 tape measure, 8 10 cm bolts, 8 6mm nuts, 10 4cm wood screws, 16 1.5 cm metal washers, 2 45 cm pieces of steel chain, 2 pairs of needlenose pliers, 1 saw horse, 1 table saw, 1 pencil, 1 electric drill, 2 screw hooks, Scissors, Wire cutter Procedure 1. Gather all materials. 2. Assemble the artificial transmission line. 3. Connect the artificial transmission line's wires to the bulb holder to make a complete circuit. 4. Test the artificial transmission line. 5. Assemble the two grow frames. 6. Attach the artificial transmission line to one of the frames with the steel chain. 6. Plant and label all the aloe vera, Chlorophytum, and radish plants. 7. Set up the plants in the correct positions in both frames. 8. Water the aloe vera once a week, the Chlorophytum every other day and the radishes every three days. 9. Measure every three days from the measuring line and record results. Results All the plants grown under electromagnetic fields grew faster than the plants not under electromagnetic fields. Although, some of the plants not under electromagnetic fields grew more stems than the plants grown under electromagnetic fields. Conclusions/Discussion My hypothesis was correct. Plants grown under electromagnetic fields or EMF grow faster than those without EMF. To improve my experiment I could use more plants and frames for more accurate results. I could also find a different way to set up the artificial transmission line as the radish plants were attracted to the heat of the incandescent light bulb in the bulb holder.	
Summary Statement My project proves whether electromagnetic radiation has a positive or a negative effect on plants.	
Help Received Parents helped design and build frame; Mrs. Bodony (teacher) proofread some information	