



**CALIFORNIA STATE SCIENCE FAIR  
2017 PROJECT SUMMARY**

<b>Name(s)</b> <b>Chamidu Sagara</b>	<b>Project Number</b> <b>J2218</b>
<b>Project Title</b> <b>The Study of How Microwave Radiation Impacts the Growth of a Plant</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The objective of this study is to find the effect of microwave radiation on seeds and how it affects plant growth. <b>Methods/Materials</b> 35 pinto beans are soaked overnight. Five seeds are designated to either the control, five second (5sec), ten second (10sec), fifteen second (15sec), twenty second (20sec), twenty-five second (25sec), or thirty second (30sec) group. Each seed is taken at a time and put in the microwave for its designated amount of time. Following this, the seeds are planted in the cups. The cups are labeled with the time of the designated seeds. All the heights are measured and recorded daily. During this period, each cup is watered with 15 milliliters of water. This process is continued for 22 days, after which the data is plotted in a graph. <b>Results</b> After 22 days, the seeds microwaved for 5 seconds showed the most growth, at an average of 12.3 centimeters. The next tallest ones were the 10 second seeds, which were 10.1 centimeters on average. Control seeds at 10 centimeters. It was observed that the 5 second group had an average height over 2 centimeters taller than the next tallest group. It was also seen that the 10 second and control group had nearly identical averages at 10.1 and 10 centimeters. After the top three tallest growing plants, the next four group of plants experience a significant drop-off. The 15, 20, 25 and 30 second seeds come next at 4, 3, 1.5 and 1 centimeters respectively. <b>Conclusions/Discussion</b> It was hypothesized that the plants would slowly decrease in height as the time exposed to microwave radiation increased. Ultimately, the hypothesis was proven to be false, as the results show that the seeds that microwaved for 5 and 10 seconds grew taller than the control. This can be explained by research that shows that seeds remain dormant until they feel the warmth of spring. The seeds microwaved for 5 seconds may have been somehow "activated" by the heat. This might have been just the right temperature. Also, the 10 second seeds grew almost identically as the control seeds, possibly showing a time when the radiation does not benefit or harm an organism. Only a few seeds that were microwaved 25 or 30 seconds started grew. However, their heights were much shorter than 5 or 10 second seeds. This kind of experiment could be used in other seeds such as wheat, corn or soy beans that are planted in a large scale in the U.S.	
<b>Summary Statement</b> I analyzed the effect of microwave radiation on plant growth	
<b>Help Received</b> My dad helped me finding a project that interested me. At the end, he showed how to layout each category in the poster. My mom reminded me to water the plant and take measurements every day.	