



**CALIFORNIA SCIENCE & ENGINEERING FAIR
2019 PROJECT SUMMARY**

Name(s) Brooklynn Filstrup	Project Number J1810
Project Title Will The Direction of Gravity Affect the Way Plants Roots Grow?	
<p style="text-align: center;">Abstract</p> <p>Objectives The goal of my project was to see the direction that the plants roots will grow if i changed the direction of gravity . I wondered what went on underneath the surface. I wanted to know why the roots of a plant sometimes grew in different direction other than down. I wanted to research and discover if gravity truly does affect the way that a plants roots grow. In the end, if I change the center of gravity, then the roots of the plant will grow in that direction because the statocytes can sense which way gravity is pulling.</p> <p>Methods My materials included, CD cases, radish seeds, paper, a pipette, thread, a ruler and water. I acomplished my project by putting the paper in the Cd cases and marking it damp enough so that the radish seeds could stick to it. I let the seeds germinate and grow for about two days, I then turned the CD case on its side and then let that grow for about two days. Every day I would measure the length of the root using the thread and ruler. I also used some online. Websites to study plants roots more closely. I was able to hold the CD cases in the upright position in a tuplewear container.</p> <p>Results After letting the plants grow for a few days, I concluded that the direction that gravity is pulling does affect the way that a plants roots grow. This result was concluded after I compared the pictures from the first to the last day. Once I turned the Cd case on its side the statocytes were able to sense that the direction of gravity had changed. Then growing in that direction. Therefore proving that gravity does affect the way that a plants roots grow in</p> <p>Conclusions My project concluded that gravity does affect the way that a plants roots grow. This project showed an understanding of statocytes and what they do. They show that there is so much more going on with plants than what meets the eye. Many people do not know about why plants roots grow the way they do, many people don t even think about it. I know that I didn t even know why the grew the way that they did. With this project, I hoped to give people a greater understanding of why plants roots grow the way that they do.</p>	
Summary Statement My project shows how plants roots grow if the direction of gravity is changed.	
Help Received Corrie Filstrup, John Filstrup, David Olvera	