



**CALIFORNIA STATE SCIENCE FAIR
2017 PROJECT SUMMARY**

Name(s) Kim T. Johnson	Project Number S1907
Project Title The Response of Pea Plants to Different Photoperiods	
Abstract Objectives/Goals The objective of this study is to see the responses of Pea Plants' when altering their photoperiods by measuring their height in centimeters and their flowering rates. Methods/Materials Dried up seeds of Pisum Sativum, water, twelve cups/pots (four for each of the three groups), potting soil, three low-watt Fluorescent Light Bulbs with low color temperature, Plant Chamber which I crafted myself using cardboard, three trays for the three different groups of plants, a ruler that measures centimeters to measure plants everyday. Results The plants with a shorter photoperiod did, indeed, grow significantly faster in height, as well as flowering at a significantly faster rate. The control group came in with the second highest growth rate, and the plants with the longer photoperiods grew at the slowest rate. For the flowering rates, the plants with the shorter photoperiod had the highest flowering rates. The plants with the longest photoperiod had the lowest flowering rate (they also had a larger biomass, which was observed, not measured), and the control group was roughly in the middle. Conclusions/Discussion Altering the photoperiods of Pea plants has definitely affected their growth in height and flowering rates when comparing them to the control group, which had a normal spring season photoperiod (14 hours of light 10 hours of dark). This expands our knowledge of circadian rhythms and their entrainment to different environments, and how it may affect agricultural businesses.	
Summary Statement When altering Pea Plants' photoperiods, I discovered that shorter photoperiods accelerate plant's growth in height and flowering.	
Help Received None. I designed, built, and performed the experiments myself.	