



**CALIFORNIA SCIENCE & ENGINEERING FAIR
2018 PROJECT SUMMARY**

Name(s) Nikko K. Baird	Project Number 38490
Project Title What Is the Effect of Different Conifer Type Sap Wood in Filtering Bacteria Sized Dye from Water?	
Objectives/Goals The purpose of this experiment is to compare White Pine, Redwood and Ginkgo Biloba sapwood to see how effective they are at filtering bacteria sized dye from water. Abstract The purpose of this experiment is to compare White Pine, Redwood and Ginkgo Biloba sapwood to see how effective they are at filtering bacteria sized dye from water. Methods/Materials 1) I made the wood filters from the branches of 3 types of conifer which are Ginkgo Bilboa, Redwood, and White Pine. 2) I made unfiltered water using 1 or 10 micron florescent dye. The reason I will be used this type of dye is because I don't know the particles sizes of food dye compared to bacteria. 3) I added unfiltered water to each wood filter, and waited. 4) I measured each wood filter, the rate of water from each branch, the penetration of dye in each branch, and the presence of the dye in the filter water to the unfiltered water. 3) I made a measurement for the presence of the dye in the filter water of each experiment. I made jars of dye in water at less dilution than the unfiltered water that was used in the experiment. Results The presence of the dye in the filter water was compared after passing through wood filters from the branches of Ginkgo Bilboa, Redwood, and White Pine. The Redwood was the best at filtering the 1 micron dye from the water, measured by rate, presence of the dye in the filter water and penetration. Conclusions/Discussion I am very surprised at how all of the conifer wood types did at filtering the one micron dye. This means that many types of gymnosperm sapwood tissues can be useful for removing disease causing agents from unfiltered water.	
Summary Statement I demonstrated that different conifer type sap wood tissues are effective at removing bacteria sized dye from water	
Help Received I designed my experiment based on a MIT experiment where they filtered water with dye through the sapwood in a branch of a White Pine.	