



**CALIFORNIA STATE SCIENCE FAIR  
2002 PROJECT SUMMARY**

<b>Name(s)</b> Erin M. Wessel	<b>Project Number</b>  22125
<b>Project Title</b> Ion Exchange vs. Filtering	
<b>Abstract</b> <b>Objectives/Goals</b> My objective is to learn if a cation exchange column purifies water more efficiently than a micron filter. <b>Methods/Materials</b> To conduct my experiment I used pond water, a micron filter, a cation exchange column, beakers and x hot plate. My method was to compare pond water processed through a cation exchanger vs a micron filter. The raw pond water was used to show what unprocessed water looked like compared to processedx water. After the water was processed it was evaporated and the residue was visually compared. <b>Results</b> After testing my hypothesis 5 times I came to the conclusion that my hypothesis was correct 100% of the time. The results showed that the cation exchange column filters water more efficiently than a micron filter. <b>Conclusions/Discussion</b> The main ingredient in a cation exchange column is a cation resin. Each bead of resin has millions of exchange sites on it. The exchange sites are filled with sodium. In the process of purification the sodium is exchanged with the impurities in the water. This removes both dissolved and solid impurities. The micron filter only removed the solid impurities.	
<b>Summary Statement</b> A cation exchange column purifies more efficiently than a micron filter.	
<b>Help Received</b> My father provided me with the necessary supplies.he's in	