



**CALIFORNIA STATE SCIENCE FAIR  
2009 PROJECT SUMMARY**

<b>Name(s)</b> <b>Seth McFarland</b>	<b>Project Number</b> <b>S1814</b>
<b>Project Title</b> <b>Effectiveness of Varying Homeopathic Dilutions</b>	
<b>Abstract</b> <b>Objectives/Goals</b> To find if homeopathic solutions are too dilute to potentially be effective remedies. <b>Methods/Materials</b> Q-tips were used to streak petri dishes with Staphylococcus aureus and Escherichia coli. Paper disks were placed in the autoclave, then soaked in varying dilutions of penicillin and ampicillin and placed on the petri dishes. Graduated cylinders were used to measure the dilutions of antibiotics to be tested. <b>Results</b> The penicillin effectively inhibited the staphylococcus aureus culture at the six most concentrated dilutions (stock, 1/2, 1/4, 1/8 and 1/16 dilutions of the stock solution and the 1C dilution). The higher concentrations of the antibiotics inhibited the bacteria more than the more dilute concentrations, while the 1/32 dilution of the stock solution and the 3C and 6C dilutions were too dilute to have any affect on the bacterial cultures. This pattern was also true with the ampicillin on Escherichia coli. The main difference between the two antibiotics and the two bacteria, was that the ampicillin inhibited the growth of Staphylococcus aureus almost four times more than the penicillin inhibited the growth of Escherichia coli. The ampicillin was so effective on E. coli the 6C dilution (the most dilute concentration tested) inhibited bacterial growth in one replicate of the experiment. <b>Conclusions/Discussion</b> Some more concentrated homeopathic remedies have the potential to be effective. The 1C dilution inhibited bacterial growth in both bacteria types, proving itOs potential effectiveness. The 3C dilution was effective only in one of the tests, this showed it could be effective depending on the pathogen. It was found that the effectiveness greatly varies depending on the antibiotic or remedy used and disease that is being treated.	
<b>Summary Statement</b> To explore the feasibility of homeopathic remedies.	
<b>Help Received</b> Used lab equipment at Arcata High under Mrs. Condit's supervision.	