



# CALIFORNIA STATE SCIENCE FAIR 2014 PROJECT SUMMARY

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<b>Project Title</b> Dirty Money	
<div style="display: flex; justify-content: space-between;"> <div data-bbox="87 632 324 667"> <b>Objectives/Goals</b>            To test for Escherichia Coli on quarters from around the United States, and some foreign countries.         </div> <div data-bbox="711 611 837 642"> <b>Abstract</b> </div> </div> <div data-bbox="87 695 354 730"> <b>Methods/Materials</b>            Using the 3M petrifilm, pipette (10ml and 1ml), pipetter, incubator, gloves, sterile bag, quarter, vortex, test tube, stomacher 400 circulator, 3M presser, coin count sheet, buffered peptone water solution, and a sharpie, the testing can be done.         </div> <div data-bbox="126 825 1414 1178"> <ol style="list-style-type: none"> <li>1. Collect the quarters in a sterile bag</li> <li>2. Label all of the petrifilm with the quarter code</li> <li>3. Using the 10ml pipette and pipetter, take 10ml of the solution and place in each sterile bag</li> <li>4. Take the sterile bags and place in the stomacher for 30 seconds at 500 beats per minute</li> <li>5. Place 1ml of solution from sterile bag into the test tube, and another 1ml, from the same bag, onto petrifilm</li> <li>6. Spread the solution around the petrifilm with a 3M presser</li> <li>7. Put solution in the test tube onto the vortex for five seconds</li> <li>8. Plate onto the petrifilm using the pipette and pipetter</li> <li>9. Place in the incubator for 48 hours at 37 Celsius</li> <li>10. Read the samples and record results</li> </ol> </div> <div data-bbox="87 1178 194 1209"> <b>Results</b>            The results concluded that 0% of the quarters tested had traces of E. Coli. There was no trace of the bacterium, E. Coli on the quarters tested, which means that Americans do have relatively clean hands when exchanging quarters. There were a few exceptions where unidentifiable bacteria, or coliforms, were found on the petrifilm. Citizens can be reassured that the money is safe to handle. Americans do a great job on washing their hands, which is important when handling money.         </div> <div data-bbox="87 1367 412 1398"> <b>Conclusions/Discussion</b>            The results proved the experimenter's hypothesis wrong, due to the fact that there was no E. Coli on the quarters. However, some of the petrifilm contained coliforms, showing that there were some unidentified bacteria on the coins. This shows that people transfer bacteria onto quarters, and then go back into circulation to infect more people.         </div>	
<b>Summary Statement</b> To see if E. Coli can be transferred when handling quarters that are constantly exchanged.	
<b>Help Received</b> Used lab equipment and learned plating procedures at the Jack in the Box Innovation Center under the supervision of Reggie Benitz	