



**CALIFORNIA STATE SCIENCE FAIR  
2004 PROJECT SUMMARY**

<b>Name(s)</b> <b>Danny J. Lee</b>	<b>Project Number</b> <b>J0508</b>
<b>Project Title</b> <b>Counterfeit Attack!</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The objective of this experiment is to explore jadeite and antique jade counterfeit methods. My hypothesis is that one can create a copy of an authentic jadeite or antique jade using heat, acid, and a variety of colors. <b>Methods/Materials</b> I obtained a required number of low-grade white jade with similar size, shape, approximate weight, and quality to run two tests. In both tests, the white jade pieces were baked in an oven at 400 degrees Fahrenheit for an hour and immediately were dipped in ice water until cracks formed on them to enable color seepage. Next, I prepared an array of beakers and allowed the white jade pieces to remain in dark soy sauce, iodine, red ink, base solution, and acid solution for a period of time for the first test. In the second test, the white jade pieces were immersed in solutions combined with different percentages of acid and red, green, and brown inks for four weeks. <b>Results</b> My first test showed that acid mixed with colored ink was the best solution to dye white jade because acid deepened the cracks on the white jade, and allowed the color to easily seep into them. Also, red ink turned white jade to pink. My second test indicated that 25% acid and 75% green ink was the best combination. Too much acid could result in over-etching, causing the white jade pieces to corrode away and reducing their color retaining power. <b>Conclusions/Discussion</b> After low-grade white jade pieces are heat-treated and acid-corroded, a colored solution can be used to induce a color change through the deep cracks formed on the white jade. From this experiment, jade aficionados and consumers can identify their collectibles more accurately, so that they will not be deceived by dishonest artifact dealers.	
<b>Summary Statement</b> The color of low-grade white jade can be enhanced to resemble genuine jadeite and antique jade through the use of heat, acid, and color treatments.	
<b>Help Received</b> Mr. Kaleikau, my science teacher, offered instructions and guidance. My father assisted in giving me essential advice. My mother helped in gathering all the necessary materials.	