



**CALIFORNIA STATE SCIENCE FAIR  
2006 PROJECT SUMMARY**

<b>Name(s)</b> Genevieve M. Johnson; Mary E. Smith	<b>Project Number</b> <b>J0808</b>
<b>Project Title</b> <b>Alternative Paper Sources</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b></p> <ol style="list-style-type: none"><li>1. To reduce the number of trees being cut down to supply people with craft and writing paper.</li><li>2. To identify other sources of paper pulp that would not use up any more natural resources than are already being used.</li><li>3. To test the papers made from using these alternative paper sources for strength, flexibility, and smoothness.</li></ol> <p><b>Methods/Materials</b></p> <ol style="list-style-type: none"><li>1. First we created four types of paper, using recycled items from the household: grass clippings, old newspapers, a used pizza box, and paper dinner napkins, with leaves mixed in. A fifth type of paper was attempted using citrus peels and pulp, but it failed and could not be used for testing.</li><li>2. Next we tested the strength of each paper by placing the sheets across a pre-measured open space and placing pennies on top, one by one, until the paper fell. We then weighed the pennies in ounces and recorded the results. We repeated the test three times for each paper type.</li><li>3. Next, the paper types were tested for flexibility using a protractor, and measuring the angle that we could fold each one before breaking or cracking occurred. Again, the test was conducted three times for each.</li><li>4. Finally, the papers were tested for smoothness by rolling an ink roller over the surface to observe for any dips or bumps causing uneven inking, and by using a pen and pencil to write on them.</li></ol> <p><b>Results</b></p> <ol style="list-style-type: none"><li>1. The strongest paper was the one made from the recycled pizza box. The grass clippings and dinner napkins made equally the weakest papers.</li><li>2. All of the papers were equally flexible, and could be folded completely in half without breaking.</li><li>3. Smoothness was not determined because the ink absorbed into the papers too completely to tell if dips or bumps were present on the surface.</li></ol> <p><b>Conclusions/Discussion</b></p> <ol style="list-style-type: none"><li>1. The papers made from grass clippings, old newspapers, used pizza boxes, and used dinner napkins with leaves were all usable papers for crafts or writing.</li><li>2. More research should be done to compare the strength, flexibility, and smoothness of these paper sources to the current source, trees.</li></ol>	
<b>Summary Statement</b> The purpose of this project was to create usable paper from household items that are usually thrown away.	
<b>Help Received</b> Mother helped type part of the report, Father taught safe use of blender and printed out photographs for board.	