



**CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY**

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Project Title Which Vegetable Will Create the Best Dye?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals Hypothesis: I think that the beet will create the best dye because it has a very dark color. I also noticed that when I cut the beets the juice immediately stained my hands. That is why I think that the beet will create the best dye.</p> <p>Methods/Materials Vegetables (0.5 kilograms of each): Acorn squash, Beets, Carrots, Red onion, Spinach 1 for ea. vegetable type: 1 pot, 1L of water, 50ml of vinegar, gauze, sieve, 1 potato masher, 1 bowl To test colorfastness: 20-8#x8# 100% muslin cotton squares, 1 tblsp of Tide detergent, 3L of hot water Procedure: Create the Dye: 1. Cut 0.5 kg of vegetables into chunks 2. put vegetables into a large pot and cover with 1L of water 3. boil for one hour 4. let cool for 1/2 hour 6. crush vegetables 7. strain through gauze lined sieve into bowl. Dying the Cotton; 1. place two muslin cotton squares into each bowl of dye and let soak for 12 hours 2. remove muslin squares from dye bath and squeeze out all of the excess dye 3. let muslin squares dry for 12 hours 4. label muslin with permanent marker with first letter of vegetable name 1-4. Comparing: 1. Wash one of the two dyed cloths of the same vegetable 3 times in 3 liters of hot water with 1 Tblsp of Tide. 2. Let dry. 3. Compare the washed cloth to the unwashed cloth. 4. Repeat experiment this time adding 50ml of vinegar to each dye bath. 5. Determine which of the vegetable dyes was the hardest to wash out.</p> <p>Results On scale of darkest to no color: Scale: Darkest, darker, dark, light, lighter, lightest. no color * Red onion- dark * Beet-lighter * Spinach- in between lighter and lightest * Carrot- no color * Acorn squash- almost no color. Adding vinegar to the dye bath did not change the results.</p> <p>Conclusions/Discussion The red onion created the best dye which disapproved my hypothesis. The muslin dyed with the beet came out very dark. But, when it was washed, almost all of the color came out. When the muslin was dyed with the red onion it was a decently dark color, and when it was washed, the color not only stayed, it changed to green. Therefore the red onion created the best dye.</p>	
Summary Statement I tested 5 vegetables to see which would make the best dye and be hardest to wash out the color after being used as a dye.	
Help Received Mom helped with pasting picture on board	