



CALIFORNIA SCIENCE & ENGINEERING FAIR 2019 PROJECT SUMMARY

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Project Title The Effect of Age on Lung Capacity	
<p style="text-align: center;">Abstract</p> <p>Objectives The objective of this project is to determine how age affects lung capacity.</p> <p>Methods 1 liter soda bottle, 1 camera, 1 balloon, chemical- Bromothymol blue, Straws- 3 for each person, 75 cotton balls , Digital Timer, Test Subjects-People with different age ranges: 25 people in all, pH strips 75- Brand: lab supplies, 1 Ruler, Gloves- 4 pairs, Goggles-3 pairs, Distilled water Temperature: 90.7 F, mL measuring cup, 1 pair of adult scissors, 1 toothpick</p> <p>Results We found that people who were younger took a shorter amount of time than those who were older. However, those in the age range of 17-25 years took the shortest amount of time to change the color of the solution, they also got the best and most consistent pH. We also found that the people that were really young and really old were taking multiple breaths in between. But those in the middle of those two age ranges didn't take many breaths, meaning that they could hold their breath for a longer period of time. Overall, we found that the age range 17-25 years took the least amount of time while still getting very good results for their pH that were consistent.</p> <p>Conclusions Our hypothesis was that as people age their lung capacity decreases. Our independent variable was the people's age. Our dependent variable is the amount of time taken to change the color of the chemical solution. Our controlled variable was the amount of the chemical and water in each trial. Our hypothesis was proven correct because the amount of time it took for older people to get the perfect pH took longer than someone who is younger. This proves that it becomes harder for older people to exercise and move around. Therefore, as you age your breathing pace lessens but it still produces good air quality.</p>	
Summary Statement After testing the time and pH of different people we found that as you grow older it takes longer for you to produce good quality air.	
Help Received We built the testing device on our own, however we got information from the website sciencebuddies.org to do the experiment	