



# CALIFORNIA STATE SCIENCE FAIR 2015 PROJECT SUMMARY

<b>Name(s)</b> <b>Dharma A. Patel</b>	<b>Project Number</b> <b>J2026</b>
<b>Project Title</b> <b>Air Filters: Are You Getting What You Paid For?</b>	
<b>Objectives/Goals</b> For my science project, I investigated how well cheap air filters and more expensive filters improved indoor air quality. I measured the air quality in my home using a range of filters of the same brand. I used an air quality monitor that counts the amount of small particles (<2.5 microns) and large particles (<10 microns) in the air per every ten seconds that the air is drawn through it. My goal was to see whether the more expensive air filters performed better than the less expensive filters in a home setting.	
<b>Abstract</b> <b>Methods/Materials</b> I used an air quality monitor (Dylos DC1100 Air Quality Monitor) to measure the amount of small and large particles that were present in the air. I monitored the air with a range of air filters installed in my home (Filtrete 300, Filtrete 800, Filtrete 1200 and Filtrete 1900). The higher the quality of filter, the higher its cost.	
<b>Results</b> I ran five tests per filter and for no filter, and each of the them ran for twelve hours a day for five days. Because each of the five variables had five days of testing, there were twenty-five tests. After I took down the data, I made averages for each variable. I found out that as the quality of the filters increased, the amount of small and large particles in the air significantly decreased.	
<b>Conclusions/Discussion</b> My results showed that the less expensive filters improve the air through mainly decreasing the amount of large particles in the air, while the more expensive filters improve the air by decreasing the amount of small particles in the air. Large particles include household dust, lint, dust mite debris, mold spores, and pollen. Small particles include smog, pet dander, smoke, bacteria, and viruses.	
<b>Summary Statement</b> My project is about finding whether or not more expensive air filters clean the air more effectively than filters of a lower cost.	
<b>Help Received</b> My father helped with expenses and construction of the experiment; science teacher made helpful adjustments to my project.	