



**CALIFORNIA STATE SCIENCE FAIR
2017 PROJECT SUMMARY**

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Project Title Is It Hot in Here?	
Abstract Objectives/Goals The purpose of this project was to discover how high up smoke detectors can detect smoke. The hypothesis for this experiment, was that the ionization smoke detector will detect a burning towel faster than a photoelectric or dual sensor smoke detector, since ionization smoke detectors can detect smaller fires, faster than the photoelectric and dual sensor smoke detectors. Methods/Materials The controlled variables in this experiment were the towels used to create smoke, the blow torch used to light the towels on fire, and vaseline put on the towels. The dependent variable in this experiment was the amount of time the smoke detectors to go off. The independent variables in this experiment were the ionization, photoelectric, and dual sensor smoke detectors used. Results The first ionization smoke detector, called Fire X, from the company, Kidde, took 37.15 seconds from 1.82 meters, and 44.8 seconds from 3.04 meters. The second ionization smoke detector used was called, Code One, from Kidde, and took 12.03 seconds from 1.82 meters, and 53.29 seconds from 3.04 meters. The third smoke detector was the photoelectric, from Kidde. It took 9.14 seconds from 1.82 meters, and 50.59 seconds from 3.04 meters. The last smoke detector tested, was from USI Electric, and took 23.81 seconds from 1.82 meters, and 35.41 seconds from 3.04 meters. In short description, the results were that our hypothesis was wrong and the fastest smoke detector from 1.82 up was the photoelectric detector, while the fastest smoke detector from 3.04 meters was the dual sensor smoke detector. Conclusions/Discussion In a not short description, the results were that our hypothesis was wrong, and the fastest smoke detector from 1.82 meters up, is the photoelectric detector from Kidde, with 9.14 seconds and the fastest detector from 3.04 meters, was the dual sensor detector, from USI Electric, with 35.41 seconds.	
Summary Statement My project is about testing 3 different smoke detectors from 6 and 10 feet, vertically.	
Help Received I would like to thank my parents, fellow classmates, science teacher and the fire department firefighters. Each one of them helped with the project for example, they helped with transportation, buying supplies, proof-reading my writing, and testing.	