



Colorado Science and Engineering Fair

2025 Individual Project Abstract Form

Please print 2 copies of the completed form. Sign both copies, keep 1 for your notebook and submit 1 copy to your Regional Fair Director with your other paperwork.

Title of Project: Radon Detector- Where does radon gas typically accumulate in buildings?

Finalist's Name: Sierra Winslow

School and City: Eagleview Middle School

Sponsor's Name: Jenine Winslow

Category: Chemistry

Division: Junior (grades 6 - 8)

Abstract (250 words or less):

My project uses a home-built radon detector to collect data to determine where radon accumulates in a house. According to the Colorado Department of Public Health and Environment, "In Colorado, about half of homes have radon levels higher than the U.S. Environmental Protection Agency recommended." Radon is one of the leading causes of lung cancer in the U.S., second only to smoking. My Radon detector uses a fan to pull the surrounding air through a breathable piece of fabric to trap radon daughters. Then the collected radon is transferred to an ionization chamber so I can use a digital multimeter to test the Radon levels inside the can using voltage measurements.

When tested at my home, no signs of change were shown. This is the same for the 2nd house we tested as well, which has multiple professional detectors throughout the house which showed high radon levels of 3.02 pCi/L. When I tested the levels, I did not see an increase in voltage when using my tester as I should have.

This shows that my detector is not sensitive enough to detect the small amount of radon I was trying to collect. It is believed that up to 4.0 pCi/l in a home is safe. If I had a location where Radon was much higher, at 6 or 7 pCi/l then my detector might be able to detect radon.

I hereby certify that the above statements are correct and the information provided in the Abstract is the result of one year's research. I also attest that the above properly reflects my own work.

Finalist's Signature:

Date:

In addition, all students must complete the ISEF Student Checklist (1A), Research Plan, Approval Form (1B), and Checklist for Adult Sponsor (1), and any other ISEF forms required for this type of project. See the International Rules and Guidelines for form requirements. Return COPIES of all of these forms to your Regional Fair Director with you Finalist Verification/Permission Form. **A signed copy of this form must be included in your notebook.**