HIGH SCHOOL CHEMISTRY/PHYSICS
INVESTIGATION 3
HOW DO YOU MEASURE RADON?

CCS 4.2   (Geometry and measurement) All students will develop spatial sense and the ability to use geometric properties, relationships, and measurement to model, describe and analyze phenomena.

D.6 Grade 8   Solve problems that involve compound measurement units, such as speed (miles per hour), air pressure (pounds per square inch), and population density (persons per square mile).

CCS 4.4   (Data analysis, probability, and discrete mathematics) All students will develop an understanding of the concepts and techniques of data analysis, probability, and discrete mathematics, and will use them to model situations, solve problems, and analyze and draw appropriate inferences from data.

A.2 Grade 12   Evaluate the use of data in real-world contexts.
· Accuracy and reasonableness of conclusions
  drawn
· Bias in conclusions drawn (e.g., influence of
  how data is displayed)
· Statistical claims based on sampling

CCS 4.5   (Mathematical processes) All students will use mathematical processes of problem solving, communication, connections, reasoning, representations, and technology to solve problems and communicate mathematical ideas.

A.1 Grade All   Learn mathematics through problem solving, inquiry, and discovery.

A.3 Grade All   Select and apply a variety of appropriate problem-solving strategies (e.g., "try a simpler problem" or "make a diagram") to solve problems.

B.1 Grade All   Use communication to organize and clarify their mathematical thinking.
· Reading and writing
· Discussion, listening, and questioning

B.2 Grade All   Communicate their mathematical thinking coherently and clearly to peers, teachers, and others, both orally and in writing.

D.5 Grade All   Make and investigate mathematical conjectures.
· Counter examples as a means of disproving
  conjectures
· Verifying conjectures using informal reasoning
  or proofs

F.1 Grade All   Use technology to gather, analyze, and communicate mathematical information.

F.2 Grade All   Use computer spreadsheets, software, and graphing utilities to organize and display quantitative information (cf. workplace readiness standard 8.4-D).

F.4 Grade All   Use calculators as problem-solving tools (e.g., to explore patterns, to validate solutions).

CCS 5.1   (Scientific Processes) All students will develop problem-solving, decision-making and inquiry skills, reflected by formulating usable questions and hypotheses, planning experiments, conducting systematic observations, interpreting and analyzing data, drawing conclusions, and communicating results.

A.1 Grade 12   When making decisions, evaluate conclusions, weigh evidence, and recognize that arguments may not have equal merit.

B.2 Grade 12   Show that experimental results can lead to new questions and further investigations.

CCS 5.3   (Mathematical applications) All students will integrate mathematics as a tool for problem-solving in science, and as a means of expressing and/or modeling scientific theories.

C.1 Grade 8   Express physical relationships in terms of mathematical equations derived from collected data.

C.1 Grade 12   Apply mathematical models that describe physical phenomena to predict real world events.

CCS 5.4   (Nature and process of technology) All students will understand the interrelationships between science and technology and develop a conceptual understanding of the nature and process of technology.

C.1 Grade 6   Select a technological problem and describe the constraints and criteria that are addressed in solving the problem.

C.1 Grade 12   Plan, develop, and implement a proposal to solve an authentic, technological problem.