

JUNIOR HIGH SCIENCE
INVESTIGATION 2
HOW DOES PROBABILITY RELATE TO RADON?

- 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 6 Read, interpret, select, construct, analyze, generate questions about, and draw inferences from displays of data.
- Bar graph, line graph, circle graph, table, histogram
 - Range, median, and mean
 - Calculators and computers used to record and process information
- A.1 Grade 8 Select and use appropriate representations for sets of data, and measures of central tendency (mean, median, and mode).
- A.2 Grade 8 Make inferences and formulate and evaluate arguments based on displays and analysis of data.
- 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.2 Grade All Solve problems that arise in mathematics and in other contexts (cf. workplace readiness standard 8.3).
- Open-ended problems
 - Non-routine problems
 - Problems with multiple solutions
 - Problems that can be solved in several ways
- C.4 Grade All Apply mathematics in practical situations and in other disciplines.
- D.2 Grade All Use reasoning to support their mathematical conclusions and problem solutions.
- D.5 Grade All Make and investigate mathematical conjectures.
- Counter examples as a means of disproving conjectures
 - Verifying conjectures using informal reasoning or proofs
- D.6 Grade All Evaluate examples of mathematical reasoning and determine whether they are valid.

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.

D.1 Grade 8 Represent and describe mathematical relationships among variables using:

- graphs
- tables
- charts

D.2 Grade 8 Analyze experimental data sets using measures of central tendency:

- mean
- mode
- median

CCS 5.6 (Chemistry) All students will gain an understanding of the structure and behavior of matter.

A.1 Grade 8 Know that all matter is composed of atoms that may join together to form molecules.

A.2 Grade 8 Recognize that the phase of matter is determined by the arrangement and motion of atoms and molecules and that the motion of these particles is related to the energy of the system.

CCS 5.7 (Physics) All students will gain an understanding of natural laws as they apply to motion, forces, and energy transformations.

B.1 Grade 8 Describe the nature of various forms of energy, including heat, light, sound, chemical, mechanical, and electrical and trace energy transformations from one form to another.