

HIGH SCHOOL CHEMISTRY/PHYSICS  
INVESTIGATION 4  
CAN YOU SEE RADIATION?

- 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.
- A.6 Grade 6 Identify, describe, and draw the faces or shadows (projections) of three-dimensional geometric objects from different perspectives.
- A.7 Grade 6 Identify a three-dimensional shape with given projections (top, front and side views).
- A.8 Grade 6 Identify a three-dimensional shape with a given net (i.e., a flat pattern that folds into a 3D shape).
- A.4 Grade 8 Understand and apply the concept of similarity.
- Using proportions to find missing measures
  - Scale drawings
  - Models of 3D objects
- 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 8 Make inferences and formulate and evaluate arguments based on displays and analysis of data.
- B.5 Grade 8 Estimate probabilities and make predictions based on experimental and theoretical probabilities.
- 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.1 Grade 12 Select and use appropriate instrumentation to design and conduct investigations.

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

B.1 Grade 4 Combine two or more materials and show that the new material may have properties that are different from the original material.

A.5 Grade 12 Explain how the Periodic Table of Elements reflects the relationship between the properties of elements and their atomic structure.

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

A.4 Grade 12 Recognize that electrically charged bodies can attract or repel each other with a force that depends upon the size and nature of the charges and the distance between them and know that electric forces play an important role in explaining the structure and properties of matter.

A.5 Grade 12 Know that there are strong forces that hold the nucleus of an atom together and that significant amounts of energy can be released in nuclear reactions (fission, fusion, and nuclear decay) when these binding forces are disrupted.

B.3 Grade 12 Recognize that whenever mechanical energy is transformed, some heat is dissipated and is therefore unavailable for use.

B.4 Grade 12 Explain the nature of electromagnetic radiation and compare the components of the electromagnetic spectrum from radio waves to gamma rays.