
RADON PROJECT AND STATE SCIENCE PROFICIENCIES**II. CONTENT ALIGNMENT**

BIOLOGYRadon Project

1. Lung anatomy and basic physiology
2. How alpha particles damage cells:
Cancer initiation
Interactions between radon
and cigarette smoking

Science Proficiencies

1. Identify the major systems of the human body and explain the major functions of each system.
2. Utilize the scientific method in solving biological problems and use mathematical operations where appropriate for solving these problems.

Evaluate information about current biological issues.

CHEMISTRYRadon Project

1. Atomic structure
2. Radon testing
3. Radioactivity
Types
Measurements
Radioactive decay series
Example decay series - uranium

Science Proficiencies

1. Identify the components of the atom, i.e., location, charge, mass, name.

Apply the knowledge of atomic structure to show its relationship to the chemical behavior of the elements.
2. Logically gather, order, and interpret data through an appropriate use of measurement and tools.
3. Describe the sources and effects of ultra-violet, gamma, alpha, beta, infra-red, and cosmic radiation.

PHYSICSRadon Project

1. Measurement variability and uncertainty

Science Proficiencies

1. Recognize the error in measurement in light of their knowledge of the limits of precision in a given instrument and identify reasonable outcomes and predictions based on measurements with the instrument.
2. Apply a problem-solving technique while conducting inquiries (e.g., formulating a problem, setting up experimental conditions, etc.).
3. Apply the tools of physics in conducting inquiries (e.g., simple statistics, graphical models).

EARTH SCIENCERadon Project

1. Geology
 - Igneous rocks
 - Metamorphism
 - Sedimentary rocks
2. General risk concepts and theory
 - Radon - example of risk
 - Statistics, probability
 - Risk evaluation of radon relative to other risks
 - Risk uncertainty
 - Living with risk

Science Proficiencies

1. Explain how rocks are formed, changed, and interrelated in terms of the rock cycle.
2. Identify the risks, together with the appropriate actions, involved in dealing with natural phenomena and environmental hazards, including weather, earthquakes, volcanic activity, and radon.

GENERAL ACADEMICRadon Project

1. Interpret charts and graphs that deal with:
 - Radon characteristics
 - Radioactive decay
 - Risk communication
2. Formulate action plans to:
 - Identify radon concentrations
 - Mitigate radon problems
 - Communicate risk

General Academic Proficiencies

1. Interpret observations, graphs, and other data; comprehend the meaning of this information.
2. Evaluate data and make decisions based on sound scientific information and principles.

