RADON PROJECT AND STATE SCIENCE PROFICIENCIES

II. CONTENT ALIGNMENT

CHEMISTRY

Radon Project

Science Proficiencies

1.   Atomic structure

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.   Radon testing

2.   Logically gather, order, and interpret data through an appropriate use of measurement and tools.

3.   Radioactivity
        Types
        Measurements
        Radioactive decay series
        Example decay series - uranium

3.   Describe the sources and effects of ultra-violet, gamma, alpha, beta, infra-red, and cosmic radiation.

PHYSICS

Radon Project

Science Proficiencies

1.   Measurement variability and uncertainty

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 SCIENCE

Radon 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 ACADEMIC

Radon Project

1. Interpret charts and graphs that deal with:
   Radon characteristics
   Radioactive decay
   Riskcommunication

2. Formulate action plans to:
   Identify radon concentrations
   Mitigate radon problems
   Communicaterisk

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.

BIOLOGY

Radon 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.