

# 08: Radioactivity

Content Area: **Special Education**

Course(s):

Time Period: **Full Year**

Length: **4 weeks**

Status: **Published**

## **General Overview, Course Description or Course Philosophy**

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Physical Science establishes a basic approach to the fundamentals of chemistry and physics. The following concepts will be explored: atomic structure, chemical bonding, chemical reactions, the periodic table, kinetic theory, and kinematics. The use of technology to gather and analyze data will be incorporated. This course is concept-oriented with a focus on Chemistry and Physics in the real world. Laboratory work and special projects will facilitate active learning and accommodate different learning styles.

## **OBJECTIVES, ESSENTIAL QUESTIONS, ENDURING UNDERSTANDINGS**

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Students will understand:

- the features and sources of alpha, beta and gamma radiation, and the differences between nuclear fusion and fission.
- Nuclear chemistry deals with radioactivity, nuclear processes, and nuclear properties.
- Nuclear reactions produce tremendous amounts of energy and lead to the formation of elements.

## **CONTENT AREA STANDARDS**

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SCI.HS-PS1-8

Develop models to illustrate the changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion, and radioactive decay.

SCI.HS-ESS1-1

Develop a model based on evidence to illustrate the life span of the sun and the role of nuclear fusion in the sun's core to release energy that eventually reaches Earth in the form of radiation.

## **RELATED STANDARDS (Technology, 21st Century Life & Careers, ELA Companion Standards are Required)**

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CRP 2 Apply appropriate academic and technical skills.

CRP 4 Communicate clearly and effectively and with reason.

CRP 5 Consider the environmental, social and economic impacts of decisions.

CRP 6 Demonstrate creativity and innovation.

CRP 8 Utilize critical thinking to make sense of problems and persevere in solving them.

CRP 11 Use technology to enhance productivity.

## **EVIDENCE OF LEARNING**

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Refer to the 'Formative Assessments' and 'Summative Assessments' sections.

### **Formative Assessments**

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Observation, do now, homework

### **Summative Assessments**

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- Benchmarks – departmental benchmark given at the end of MP1, MP2, and MP3
- Alternative Assessments
  - Lab inquiries and investigations
  - Lab Practicals
  - Exploratory activities based on phenomenon
  - Gallery walks of student work
  - Creative Extension Projects
  - Build a model of a proposed solution
  - Let students design their own flashcards to test each other
  - Keynote presentations made by students on a topic
  - Portfolio

### **RESOURCES (Instructional, Supplemental, Intervention Materials)**

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[Vernier.com/experiments](http://Vernier.com/experiments)

Khan Academy, Crash Course Physics, and Bozeman Science

American Chemical Society ([acs.org/content/acs/en/education/resources/highschool.html](http://acs.org/content/acs/en/education/resources/highschool.html))

### **INTERDISCIPLINARY CONNECTIONS**

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Astronomy, English, Physics

## **ACCOMMODATIONS & MODIFICATIONS FOR SUBGROUPS**

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See link to Accommodations & Modifications document in course folder.