### 11: Ionic & Covalent Bonding

Content Area:	Special Education
Course(s):	
Time Period:	Full Year
Length:	4 weeks
Status:	Published

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

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**

Students will understand that:

• The world is generally not composed of isolated atoms; rather, atoms bond to one another to form molecules and hence chemical

compounds.

• Not all chemical bonds are created equal: some are weak and some very strong, a difference that depends primarily on the

interactions of electrons between atoms.

New Jersey Student Learning Standards-S

#### **CONTENT AREA STANDARDS**

SCI.HS-PS1-1Use the periodic table as a model to predict the relative properties of elements based on<br/>the patterns of electrons in the outermost energy level of atoms.SCI.HS-PS1-2Construct and revise an explanation for the outcome of a simple chemical reaction based<br/>on the outermost electron states of atoms, trends in the periodic table, and knowledge of<br/>the patterns of chemical properties.

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

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.

#### **EVIDENCE OF LEARNING**

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

#### **Formative Assessments**

Observation, do now, homework

#### **Summative Assessments**

- 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)**

Vernier.com/experiments Khan Academy, Crash Course Physics, and Bozeman Science American Chemical Society (acs.org/content/acs/en/education/resources/highschool.html)

# **INTERDISCIPLINARY CONNECTIONS** English, Geometry, Physics

# ACCOMMODATIONS & MODIFICATIONS FOR SUBGROUPS See link to Accommodations & Modifications document in course folder.