

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-PS1-1

Use the periodic table as a model to predict the relative properties of elements based on the patterns of electrons in the outermost energy level of atoms.

SCI.HS-PS1-2

Construct and revise an explanation for the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and knowledge of 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.

CRP 11 Use technology to enhance productivity.

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.