Unit 1 Title: Atoms and Atomic Theory

Content Area: **Template**
Course(s):
Time Period:
Length:
Status: **Published**

State Mandated Topics Addressed in this Unit

State Mandated Topics Addressed in this Unit	
N/A	N/A

Unit 1 Title: Atoms and Atomic Theory

Learning Objectives

- Atoms are the building blocks of all matter
- Electrons orbiting the nucleus explain chemical properties and contribute to chemical changes
- Forces within the nucleus explain atomic stability and nuclear change
- Observation and accurate measurement is vital to discovering knowledge in the laboratory
- Our understanding of atoms has evolved over time
- Quantities of small particles is best communicated and calculated through the mole concept
- Sub-atomic particle combinations in atoms creates the unique properties of elements

Standards

SCI.HS-PS1-6	Refine the design of a chemical system by specifying a change in conditions that would produce increased amounts of products at equilibrium.
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-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.

Instructional Tasks/Activities

- pHet Isotopes and Atomic Mass
- Avogadro’s Number and The Mole Concept
- Classifications of Matter

- Common assessment chapter test
- Common assessment quiz
- Constructed response
- Discovery of the Atom
- Do nows and/or exit slips
- Fission, Fusion and Nuclear Energy
- Future of Nuclear Power – Long Read
- Graphic organizers or models
- Guided practice
- Homework
- Individual, small, and large group work
- Isotopes Research Activity
- Isotopes vs. Ions
- LAB: “Isotopes of Veggium”
- LAB: “Measurement and Density”
- LAB: “Mole Identification”
- Laboratory investigations within small groups
- Measurement activity
- Molar Mass and Percent Composition
- Molar Mass of a Mineral
- Nuclear Stability and Half-Life
- pHet Alpha Decay
- pHet Beta Decay
- pHet Rutherford Scattering
- pHet Sims Activities - “Build an Atom”
- Properties and Changes
- Radioactivity and Nuclear Equations
- Review Activities
- Sub-Atomic Particles

Assessment Procedure

- Classroom Total Participation Technique
- Classwork
- DBQ
- Essay
- Exit Ticket/Entrance Ticket/Do Now
- Flashcards and/or drill and practice
- Inquiry based activities with reflective discussion

- Journal / Student Reflection
- Kahoot
- Laboratory groups
- Lecture with note taking or guided notes
- Online models and simulators
- Other named in lesson
- Peer Review
- Performance
- Power Point Presentations
- Problem Correction
- Project
- Quiz
- Rubric
- Teacher Collected Data
- Test
- Whole and small group discussions
- Worksheet

Recommended Technology Activities

- Appropriate Content Specific Online Resource
- Chromebook
- Copy/Paste Content Specific Link Here
- Copy/Paste Content Specific Link Here
- Copy/Paste Content Specific Link Here
- Gimkit
- GoGuardian
- Google Classroom
- Google Docs
- Google Forms
- Google Slides
- Kahoot
- MagicSchool AI
- Other- Specified in Lesson
- Quiziz
- Screencastify

Accommodations & Modifications & Differentiation

Accommodations and Modifications should be used to meet individual needs. Their IEP and 504 plans should

be used in addition to the following suggestions.

Gifted and Talented

- Compare & Contrast
- Conferencing
- Debates
- Jigsaw
- Peer Partner Learning
- Problem Solving
- Structured Controversy
- Think, Pair, Share
- Tutorial Groups

Instruction/Materials

- alter format of materials (type/highlight, etc.)
- color code materials
- eliminate answers
- extended time
- extended time
- large print
- modified quiz
- modified test
- Modify Assignments as Needed
- Modify/Repeat/Model directions
- necessary assignments only
- Other (specify in plans)
- other- named in lesson
- provide assistance and cues for transitions
- provide daily assignment list
- read class materials orally
- reduce work load
- shorten assignments
- study guide/outline
- utilize multi-sensory modes to reinforce instruction

Environment

- alter physical room environment
- assign peer tutors/work buddies/note takers
- assign preferential seating
- individualized instruction/small group
- modify student schedule (Describe)
- other- please specify in plans
- provide desktop list/formula

Honors Modifications

Resources

- Resource 1
- Resource 2
- Resource 3
- Resource 4
- Resource 5