2019 7th Grade Science Unit 3

Content Area: **Science**
Course(s): **Science**
Time Period: **January**
Length: **40**
Status: **Published**

Enduring Understandings:

- Determine the signs that a chemical reaction has occurred.
- Determine the structure, properties and characteristics of atoms.
- Relate the processes at the atomic level to the changes observed at the macroscopic level.

Essential Questions:

- How are atoms related to chemical bonding?
- How is chemical bonding related to chemical reactions?
- What are the characteristics of the atom?
- What are the subatomic particles that make up an atom?
- What is an atom?

Lesson Titles:

- Chemical Bonding
- Chemical Reactions
- Covalent Bonding
- Endothermic and Exothermic Reactions
- Intro to Atoms
- Ionic Bonding
- Lewis Dot Diagram
- Periodic Table of the Elements
- Structure of Atoms

Career Readiness, Life Literacies & Key Skills

WRK.K-12.P.1	Act as a responsible and contributing community members and employee.
WRK.K-12.P.4	Demonstrate creativity and innovation.
WRK.K-12.P.5	Utilize critical thinking to make sense of problems and persevere in solving them.
WRK.K-12.P.8	Use technology to enhance productivity increase collaboration and communicate effectively.
WRK.K-12.P.9	Work productively in teams while using cultural/global competence.

Inter-Disciplinary Connections:

LA.RH.6-8.1	Cite specific textual evidence to support analysis of primary and secondary sources.
LA.RH.6-8.2	Determine the central ideas or information of a primary or secondary source; provide an accurate summary of the source distinct from prior knowledge or opinions.
LA.RH.6-8.3	Identify key steps in a text's description of a process related to history/social studies (e.g., how a bill becomes law, how interest rates are raised or lowered).
LA.RH.6-8.4	Determine the meaning of words and phrases as they are used in a text, including vocabulary specific to domains related to history/social studies.
LA.RH.6-8.5	Describe how a text presents information (e.g., sequentially, comparatively, causally).
LA.RH.6-8.7	Integrate visual information (e.g., in charts, graphs, photographs, videos, or maps) with other information in print and digital texts.
LA.RH.6-8.8	Distinguish among fact, opinion, and reasoned judgment in a text.
LA.RH.6-8.9	Analyze the relationship between a primary and secondary source on the same topic.
LA.RST.6-8.1	Cite specific textual evidence to support analysis of science and technical texts.
LA.RST.6-8.2	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.
LA.RST.6-8.3	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.
LA.RST.6-8.4	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6-8 texts and topics.
LA.RST.6-8.6	Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text.
LA.RST.6-8.7	Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).
LA.RST.6-8.8	Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.
LA.RST.6-8.9	Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
LA.WHST.6-8.1.B	Support claim(s) with logical reasoning and relevant, accurate data and evidence that demonstrate an understanding of the topic or text, using credible sources.
LA.WHST.6-8.1.C	Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence.
LA.WHST.6-8.1.D	Establish and maintain a formal/academic style, approach, and form.
LA.WHST.6-8.1.E	Provide a concluding statement or section that follows from and supports the argument presented.
LA.WHST.6-8.2.A	Introduce a topic and organize ideas, concepts, and information using text structures (e.g., definition, classification, comparison/contrast, cause/effect, etc.) and text features (e.g., headings, graphics, and multimedia) when useful to aiding comprehension.
LA.WHST.6-8.2.B	Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.
LA.WHST.6-8.2.C	Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts.

LA.WHST.6-8.2.D	Use precise language and domain-specific vocabulary to inform about or explain the topic.
LA.WHST.6-8.2.F	Provide a concluding statement or section that follows from and supports the information or explanation presented.
LA.WHST.6-8.7	Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.
LA.WHST.6-8.8	Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.
LA.WHST.6-8.9	Draw evidence from informational texts to support analysis, reflection, and research.
LA.WHST.6-8.10	Write routinely over extended time frames (time for research, reflection, metacognition/self correction, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Instructional Strategies, Learning Activities, and Levels of Blooms/DOK:

- Analyze data collected from lab experiments and informational texts.
- Apply knowledge of atoms and its properties to conduct lab experiments.
- Build an atom: From Loop activity
- Chemical Reactions Demonstrations
- Chemical Reactions lab
- Chemistry online scavenger hunt
- Classifying candy activity
- Create Quizlet of unit vocabulary terms.
- Current Event Essays
- Determine whether results apply to all similar scenarios.
- Educational Game: Legends of Learning
- Element Project
- Guided Notes
- Gummy Bear bonding lab
- Imploding Can
- Introduce vocabulary used to describe atoms
- Law of conservation of mass lab
- PHET building an atom
- Post lab questions
- Predict misconceptions regarding related and advanced concepts
- Tutoring during Academic Enrichment
- Use learned knowledge to predict the outcome of similar scenarios.
- Video Clips
- Worksheets

Modifications

- Tutoring during Academic Enrichment

Formative Assessment:

- Anticipatory Set
- Atoms / Chemical reactions EdPuzzle
- Atoms and bonding Quiz
- Closure
- Froot Loop building an atom worksheet
- Graded HW assignments
- Graded worksheets: Atomic Structure
- Legends of Learning
- Lewis Dot diagram worksheet
- MPA review game (Jeopardy / GimKit)
- Quizlet Live
- Surveys
- Warm-Up
- Whiteboard Bohr model activity

Summative Assessment:

- Alternate Assessment
- Atoms / Chemical reactions Unit test
- Benchmark
- Chemical bonds with gummy bears lab
- Chemical reactions post lab questions
- Element Presentation
- Element Project
- Marking Period Assessment
- Monthly Current event

Benchmark Assessments

- Lab Practical
- Reading response
- Skills-based assessment
- Writing Prompt

Alternative Assessments

- Case-based scenarios
- Concept Maps
- Performance tasks
- Portfolios
- Presentations
- Problem-based assignments
- Project-based assignments
- Reflective pieces

Resources & Materials:

- Assorted candies / cereal
- Chemical reactions demo kit
- Chemicals for Chemical reaction lab.
- Glassware for chemical reactions lab.
- Household ingredients for chemical reactions lab
- Lab safety equipment
- Middle School Chemistry, Chapter 4: Periodic Table and Bonding
- Middle School Chemistry, Chapter 5: Atoms and bonding
- Middle School Chemistry, Chapter 6: Chemical Reactions
- NewsELA
- PHET simulations: Structure of an atom
- Structure of an atom: Informational Text