2019 7th Grade Science Unit 2

Content Area: **Science**
Course(s): **Science**
Time Period: **November**
Length: **24**
Status: **Published**

Enduring Understandings:

- Determine the structure, properties and characteristics of matter.
- Relate the processes at the atomic level to the changes observed at the macroscopic level.

Essential Questions:

- How does matter change?
- What is chemistry?
- What is matter and its properties?

Lesson Titles:

- Classifying Matter
- Density
- Describing Matter
- Gas Behavior
- Intro to Matter
- Mixtures and solutions
- Phase Changes
- Physical and Chemical Properties and Changes
- States of Matter

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 matter and its properties to conduct lab experiments.
- Classifying matter flowchart
- Classifying matter Powerpoint activity
- Create Quizlet of unit vocabulary terms.
- Current Event Essays
- Density column lab
- Determine whether results apply to all similar scenarios.
- Educational Game: Legends of Learning
- Guided Notes
- Imploding Can
- Introduce vocabulary used to describe matter
- Phase change demos
- Physical / Chemical changes lab
- Post lab questions
- Practice density calculations
- Predict misconceptions regarding related and advanced concepts
- Pressure demonstrations
- Separating mixtures lab: Water Filtration lab
- 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
- Chemical / Physical changes worksheet
- Classifying Matter flowchart
- Classifying Matter Quiz
- Closure
- Density Calculations worksheet
- Graded HW assignments
- Legends of Learning
- MPA review game (Jeopardy / GimKit)
- Physical vs Chemical Properties worksheet
- Quizlet Live
- Separating Mixtures Worksheet
- States of matter EdPuzzle
- Surveys
- Warm-Up

Summative Assessment:

- Alternate Assessment
- Benchmark
- Classifying matter post lab questions
- Density lab post lab questions
- Marking Period Assessment
- Matter Unit test
- Monthly Current event
- Physical and chemical changes post lab questions

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:

- Chemicals for Physical and Chemical changes lab.
- Empty water bottles for separating mixtures lab
- Filtration materials for separating mixtures lab
- Glassware for chemical and physical changes lab / density lab.
- Household ingredients for density lab.
- Lab safety equipment
- materials for Gas laws: demo kit
- Middle school chemistry section 3: Gas Behavior informational text.
- Middle school Chemistry, Chapter 1: Solids, Liquids, and Gases Students are introduced to the idea that matter is composed of atoms and molecules that are attracted to each other and in constant motion. Students explore the attractions and motion of atoms and molecules as they experiment with and observe the heating and cooling of a solid, liquid, and gas.
- Middle school Chemistry, Chapter 2: Changes of State Students help design experiments to test whether the temperature of water affects the rate of evaporation and whether the temperature of water vapor affects the rate of condensation. Students also look in more detail at the water molecule to help explain the state changes of water. (all activities/lessons)
- NewsELA
- Process to separate a mixture informational text