



**Grade 6 Science**  
**Unit # 1- Physical Science**  
**Topic 1 Introduction to Matter – 15 Days**

**Unit Overview:** Students make sense of phenomena as they explore the disciplinary core ideas through the lens of crosscutting concepts, such as Systems and System Models, Cause and Effect, and Matter and Energy. Students begin their discovery of the physical world with models and observable phenomena and move to explore the concept of energy and how it is needed to change matter. This leads to the study of thermal energy and heat transfer.

**Topic Essential Question:** How can we observe, measure, and use matter?

**Lessons**

- Topic Launch/Quest Kickoff
- Lesson 1 Describing and Classify Matter
- Lesson 2 Measuring Matter
- Lesson 3 Changes in Matter
- Topic Close –Assessment, Quest Findings

**NYSSLS Performance Expectations**

**MS-PS1-1. Develop models to describe the atomic composition of simple molecules and extended structures.**

**[Clarification Statement: Emphasis is on developing models of molecules that vary in complexity. Examples of simple molecules could include ammonia and methanol. Examples of extended structures could include sodium chloride or diamonds. Examples of particulate-level models could include drawings, 3D ball and stick structures, or computer representations showing different substances with different types of atoms.] [Assessment Boundary: Assessment does not include valence electrons and bonding energy, discussing the individual ions composing complex structures, or a complete depiction of all individual atoms in a complex molecule or extended structure.]**

**MS-PS1-2. Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred. [Clarification Statement: Examples of chemical reactions could include burning of a wooden splint, souring of milk and decomposition of sodium bicarbonate. [Assessment Boundary: Assessment is limited to analysis of the following properties: density, melting point, boiling point, solubility, flammability, color change, gas production and odor.]**

**MS-PS1-7. Use evidence to illustrate that density is a property that can be used to identify samples of matter. [Clarification Statement: Emphasis should be on students measuring the masses and volumes of regular and irregular shaped objects, calculating their densities, and identifying the samples of matter.]**

**MS-PS1-8. Plan and conduct an investigation to demonstrate that mixtures are combinations of substances. [Clarification Statement: Emphasis should be on analyzing the physical changes that occur as mixtures are formed and/or separated. Examples of common mixtures could include salt water, oil and vinegar, and air.] [Assessment boundary: Assessment is limited to separation by evaporation, filtration and magnetism.]**

**MS-ETS1-1. Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.**

**MS-ETS1-3. Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.**

**MS-ETS1-4. Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.**

<p><b>Topic Opener</b>  <b>PE:</b> MS-PS1-2  <b>DCI:</b>  <b>PS1.A</b> - Structure and Properties of Matter</p> <ul style="list-style-type: none"> <li>(NYSESED) Each substance has characteristic physical and chemical properties (for any bulk quantity under given conditions) that can be used to identify it. (MS-PS1-2) (Note: This Disciplinary Core Idea is also addressed by MS-PS1-3.)</li> </ul> <p><b>PS1.B</b> – Chemical Reactions</p> <ul style="list-style-type: none"> <li>(NYSESED) Substances react chemically in characteristic ways. In a chemical process, the atoms that make up the original substances are regrouped into different particles and these new substances have different properties from those of the reactants. (MS-PS1- 2),(MS-PS1-5)(Note: This Disciplinary Core Idea is also addressed by MS-PS1-3.)</li> </ul> <p><b>CCC:</b> Patterns; Scale, Proportion, and Quantity</p>	<p><b>Savvas</b></p> <p><b>Highlighted labs are important to the understanding of the instructional concepts in this lesson and must be completed during Science instructional time.</b></p> <ul style="list-style-type: none"> <li>Topic Readiness Test</li> <li><b><i>u</i>Connect Lab – The Nuts and Bolts of Formulas</b></li> <li>Quest Kickoff Video – How can you use science to make special effects?</li> </ul>												
<p><b>Lesson 1 – Describing and Classifying Matter</b>  <b>PE:</b> MS-PS1-1; MS-PS1-8  <b>SEP:</b> Developing and Using Models  <b>DCI:</b>  <b>PS1.A</b> - Structure and Properties of Matter</p> <ul style="list-style-type: none"> <li>(NYSESED) Substances are made of one type of atom or combinations of different types of atoms. Individual atoms are particles and can combine to form larger particles that range in size from two to thousands of atoms. (MS-PS1-1)</li> <li>(NYSESED) Mixtures are physical combinations of one or more samples of matter and can be separated by physical means. (MS-PS1-8)</li> </ul> <p><b>CCC:</b> Scale, Proportion, and Quantity</p>	<p><b>Savvas</b></p> <p><b>Guiding Objectives:</b></p> <ul style="list-style-type: none"> <li>Students will construct and use models to explain and describe what makes up matter.</li> <li>Students will use visual examples to describe the properties of matter and examples of chemical and physical properties of matter.</li> <li>Students will cite evidence to classify different types of matter and homogeneous/heterogeneous mixtures.</li> </ul> <p><b>Literacy Connection</b></p> <ul style="list-style-type: none"> <li>Integrate with Visuals</li> </ul> <p><b>Vocabulary</b></p> <table border="0"> <tr> <td>● matter</td> <td>● element</td> <td>● atom</td> </tr> <tr> <td>● substance</td> <td>● molecule</td> <td></td> </tr> <tr> <td>● physical property</td> <td>● compound</td> <td></td> </tr> <tr> <td>● chemical property</td> <td>● mixture</td> <td></td> </tr> </table> <p><b>Academic Vocabulary</b></p> <ul style="list-style-type: none"> <li>distill</li> </ul> <p><b>Connect</b> - TE/SB p. 4</p> <ul style="list-style-type: none"> <li>Connect It!</li> <li>Class Discussion – How is matter like words?</li> </ul> <p><b>Investigate</b> - TE/SB pp. 5-11</p> <ul style="list-style-type: none"> <li><b><i>u</i>Investigate Lab – Modeling Atoms and Molecules?</b></li> <li>Video – Describing and Classifying Matter</li> <li>Interactivity – What Makes Up Matter</li> <li>Reading Checks (pp.7; 10; 11)</li> <li>Literacy Connection – Integrate with Visuals</li> <li>Model It!</li> </ul> <p><b>Synthesize</b> - TE/SB pp. 10 - 12</p> <ul style="list-style-type: none"> <li>Interactivity – Molecules and Extended Structures</li> <li>Quest Check-In – The Science of Special Effects</li> </ul> <p><b>Demonstrate</b> – TE/SB pp.12</p> <ul style="list-style-type: none"> <li>Lesson 1 Check</li> <li>Lesson Quiz 1</li> </ul>	● matter	● element	● atom	● substance	● molecule		● physical property	● compound		● chemical property	● mixture	
● matter	● element	● atom											
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**Lesson 2 – Measuring Matter**

**PE:** MS-PS1-2

**SEP:** Analyzing and Interpreting Data

**DCI:**

**PS1.A - Structure and Properties of Matter**

- (NYSED) Each substance has characteristic physical and chemical properties (for any bulk quantity under given conditions) that can be used to identify it. (MS-PS1-2)

**CCC:** Patterns

**Savvas**

**Guiding Objectives:**

- Students will use evidence to identify and describe how matter can be measured and how mass compares to weight.
- Students will analyze data to identify and calculate properties of matter that can be determined through measurement; calculate density as a function of mass and volume.

**Literacy Connection**

- Cite Textual Evidence

**Vocabulary**

- mass
- volume
- weight
- density

**Academic Vocabulary**

- convert

**Connect - TE/SB p. 14-15**

- Connect It!
- Connect Activity Lab – Which Has More Mass?

**Investigate - TE/SB pp. 15-20**

- Video – Measuring Matter
- *u*nvestigate Lab – Observing Physical Properties
- Interactivity – Calculating Density
- Literacy Connection
- Model It!
- Reading Check – pp.16; 17
- Math Toolbox – pp.17; 19; 20

**Synthesize - TE/SB p. 20**

- Interactivity – Weight on the Moon

**Demonstrate – TE/SB p. 21**

- Lesson 2 Check
- Lesson 2 Quiz

<p><b>Lesson 3 – Changes in Matter</b></p> <p><b>PE:</b> MS-PS1-2</p> <p><b>SEP:</b> Analyzing and Interpreting Data</p> <p><b>DCI:</b></p> <p><b>PS1.A - Structure and Properties of Matter</b></p> <ul style="list-style-type: none"> <li>(NYSED) Each substance has characteristic physical and chemical properties (for any bulk quantity under given conditions) that can be used to identify it. (MS-PS1-2) (Note: This Disciplinary Core Idea is also addressed by MS-PS1-3.)</li> </ul> <p><b>PS1.B - Chemical Reactions</b></p> <ul style="list-style-type: none"> <li>(NYSED) Substances react chemically in characteristic ways. In a chemical process, the atoms that make up the original substances are regrouped into different particles and these new substances have different properties from those of the reactants. (MS-PS1- 2),(MS-PS1-5)(Note: This Disciplinary Core Idea is also addressed by MS-PS1-3.)</li> </ul> <p><b>CCC:</b> Patterns</p>	<p><b>Savvas</b></p> <p><b>Guiding Objectives:</b></p> <ul style="list-style-type: none"> <li>Students will use ratio reasoning and data to determine how matter is conserved during a physical and a chemical change and how thermal energy is transformed during a chemical change.</li> <li>Students will write to explain the differences between a physical and a chemical change and how changes in matter are related to changes in energy.</li> </ul> <p><b>Literacy Connection</b></p> <ul style="list-style-type: none"> <li>Write Explanatory Texts</li> </ul> <p><b>Vocabulary</b></p> <ul style="list-style-type: none"> <li>physical change</li> <li>chemical change</li> </ul> <p><b>Academic Vocabulary</b></p> <ul style="list-style-type: none"> <li>conservation</li> </ul> <p><b>Connect - TE/SB pp. 24-25</b></p> <ul style="list-style-type: none"> <li>Connect It!</li> <li>Inquiry Warm-Up Lab – Is a New Substance Formed?</li> </ul> <p><b>Investigate - TE/SB pp. 26 - 31</b></p> <ul style="list-style-type: none"> <li><b>Investigate Lab – Physical and Chemical Changes</b></li> <li>Video – Changes in Matter</li> <li>Virtual Lab – What’s the Matter with my Chocolate?</li> <li>Model It!</li> <li>Reading Check pp 26; 29</li> <li>Math Toolbox pp 29; 31</li> <li></li> </ul> <p><b>Synthesize - TE/SB pp. 31-32</b></p> <ul style="list-style-type: none"> <li>Interactivity – Properties of Matter</li> <li>Quest Check-In Interactivity – Mysterious Movie Fog</li> <li>Quest Check-In Lab – Cinematic Science</li> </ul> <p><b>Demonstrate – TE/SB p.32</b></p> <ul style="list-style-type: none"> <li>Lesson 3 Check</li> <li>Lesson 3 Quiz</li> </ul>
<p><b>Topic Close</b></p> <ul style="list-style-type: none"> <li>Topic 1 Assessment and Remediation TE/SB pp. 34-37</li> <li>Quest Finding and Reflection TE/SB p. 37</li> </ul>	<p><b>Topic 1 Enrichment</b></p> <p><b>Topic 1 - Lesson 1 Enrichment</b></p> <ul style="list-style-type: none"> <li>Enrichment Activity – What’s in the Air</li> <li>Career – Saving the World’s Art – TE/SB p.13</li> </ul> <p><b>Topic 1 - Lesson 2 Enrichment</b></p> <ul style="list-style-type: none"> <li>Enrichment Activity – Ocean Currents</li> <li>Case Study – An Epic Disaster pp. 22-23</li> </ul> <p><b>Topic 1 - Lesson 3 Enrichment</b></p> <ul style="list-style-type: none"> <li>Enrichment Activity – Chemical Changes in Plant and Animals</li> <li>Engineer It – Gathering Speed with Superconductors p. 33</li> </ul>

<p><b>English Language Learners (ELL) Enhancements</b> To access <a href="#">hyperlinked</a> material, you must be logged into your BPS Google Drive</p>	<p><b><u>Listening</u></b></p> <ul style="list-style-type: none"> <li>● <b><u>Cross- Linguistic Practices</u></b>: Gives students opportunities to make connections between what they hear and their home language (For example, allow students to listen to a passage and identify cognates).</li> <li>● <b><u>Activating Prior Knowledge</u></b> Activating prior knowledge means both eliciting from students what they already know and building initial knowledge that they need in order to access upcoming content.</li> <li>● <b><u>Visuals</u></b> - GIFs, pictures- will assist students in understanding what they are listening to. Use <b><u>visual thinking strategies</u></b> to set the lens for learning.</li> <li>● Video to review or introduce a topic – use <b><u>closed captioning</u></b> to help students see the words and pronunciations while they listen to the content.</li> <li>● <b><u>Word stretching / Vowel stretching</u></b> when instructing allows students to listen closely to the pronunciation of the word.</li> <li>● <b><u>Performance Level Descriptors</u></b> this document provides teachers with a description of what output they can expect from students based on earned NYSESLAT levels in the modality of listening. Scroll for grade 6.</li> </ul>
	<p><b><u>Speaking</u></b></p> <ul style="list-style-type: none"> <li>● <b><u>Sentence Stems/Frames</u></b> - to begin a sentence - such as <i>Evolution is...</i> or <i>I think that evolution is...</i></li> <li>● <b><u>Academic Conversation Starters</u></b>: Have a visual of a list of academic sentence starters that students can refer to in a discussion.</li> <li>● <b><u>Choral Reading</u></b> - To build fluency, self-confidence and motivation with <a href="#">reading/speaking</a>.</li> <li>● Create <b><u>movement</u></b> to go with the word. Movement can be a motivating factor, as well as a kinesthetic tool for conceptualizing the rhythm and flow of fluent reading while triggering brain function for optimal learning.</li> <li>● <b><u>Performance Level Descriptors</u></b> This document provides teachers with a description of what output they can expect from students based on earned NYSESLAT levels in the modality of speaking. Scroll for grade 6.</li> </ul>
	<p><b><u>Reading</u></b></p> <ul style="list-style-type: none"> <li>● Supplementary Text to help reinforce concepts.</li> <li>● <b><u>Visual Aids</u></b> - Pictures or models to support vocabulary words and concepts</li> <li>● Video to review or introduce a topic - use <b><u>closed captioning</u></b> to help students read along while they listen to the content.</li> <li>● <b><u>4 Square / Frayer models</u></b> to help students gain a deeper understanding of vocabulary.</li> <li>● <b><u>Highlighting</u></b> important text to assist students in answering questions after the reading.</li> <li>● <b><u>Chunking</u></b>-Break reading of text into chunks or paragraphs</li> <li>● <b><u>Vocabulary Morphology</u></b>- Morphology relates to the segmenting of words into affixes (prefixes and suffixes) and roots or base words, and the origins of words. Understanding that words connected by meaning can be connected by spelling can be critical to expanding a student’s vocabulary.</li> <li>● <b><u>Performance Level Descriptors</u></b> this document provides teachers with a description of what output they can expect from students based on earned NYSESLAT levels in the modality of reading. Scroll for grade 6.</li> </ul>
	<p><b><u>Instructional Accommodations (depending on the student’s needs)</u></b></p> <ul style="list-style-type: none"> <li>● <b><u>Extended time</u></b> for tests in class, projects and assignments</li> <li>● <b><u>Directions read</u></b>. Broken down as necessary</li> <li>● <b><u>Model</u></b> how to complete the activity in the lesson</li> <li>● <b><u>Oral simplification</u></b> of directions or questions</li> <li>● <b><u>Translated version</u></b> of test when available. Student may have both version English and native language version</li> <li>● Use of <b><u>approved bilingual glossaries</u></b> from NYS in each subject</li> </ul>

<p><b>Special Education Modifications</b></p> <p>Special Education students must have accommodations as per Individual Educational Plan (IEP)</p>	<p><b><u>Instructional</u></b></p> <ul style="list-style-type: none"> <li>● <b>Pre-teach</b> vocabulary</li> <li>● Use <b>picture vocabulary</b></li> <li>● Scaffold <b>Depth of Knowledge</b> questions</li> <li>● Provide copy of notes/<b>notes in “cloze”</b> form</li> <li>● Use of <b>Think, Pair, and Share</b> strategy to help process information</li> <li>● <b>Scaffold</b> written assignments with the use of <b>graphic organizers</b></li> <li>● Allow for <b>multiple ways to respond</b> (verbal, written, response board)</li> <li>● Provide <b>model of performance task</b></li> <li>● <b>Modify informational text</b> to fit the needs of the students</li> <li>● Provide a digital or paper <b>interactive notebook</b></li> <li>● Present complex <b>tasks in multiple ways</b></li> <li>● Provide <b>mnemonic strategies</b> for scientific concepts</li> </ul> <hr/> <p><b><u>Technology:</u></b></p> <ul style="list-style-type: none"> <li>● <b>Audio</b> reading of text</li> <li>● <b>Text to type</b> functions</li> <li>● <b>Videos</b> to clarify/visualize science concepts</li> <li>● <b>Record class lecture/discussions</b> and make accessible to student</li> <li>● <b>Nearpod-</b> interactive presentations of notes</li> </ul> <hr/> <p><b><u>In Class Assessments</u></b></p> <ul style="list-style-type: none"> <li>● Provide <b>multiple options</b> for projects</li> <li>● <b>Use of timer</b> in class</li> <li>● Break all complex tasks into chunks</li> </ul>
<p><b>Step Up to Writing</b></p> <p>Step Up to Writing Materials can be found in BPS Science K-12 Schoology Folder Grade 6 Resources Grade 6 SUTW materials</p>	<ul style="list-style-type: none"> <li>● Easy Two-Column Notes</li> <li>● Breaking Down Definitions</li> <li>● Paragraph Frame- What I Learned</li> <li>● <a href="#">Performance Level Descriptors</a> this document provides teachers with a description of what output they can expect from students based on earned NYSESLAT levels in the modality of writing. Scroll for grade 6.</li> </ul>
<p><b>Culturally and Linguistically Responsive Teaching (CLRT) in the Science Classroom</b></p>	<ul style="list-style-type: none"> <li>● Materials, resources, and/or discussions address diverse cultural backgrounds and real-world applications</li> <li>● Artifacts (posters, charts, etc.) in the science classroom are representative of the cultures of the student population</li> <li>● All students are given an opportunity to engage in science discourse</li> <li>● Teacher demonstrates high expectations for all students</li> </ul>