Unit #1

Content Area: **Science**
Course(s): **Science 5**
Time Period: **December**
Length: **Trimester 1**
Status: **Published**

Unit Overview

In this unit, students investigate the properties of matter by dissolving everyday chemicals to make solutions and by exploring simple yet surprising chemical reactions. Through these investigations, students begin to build conceptual models for the particulate nature of matter.

Priority Standards

- 5-PS1-1: Develop a model to describe that matter is made of particles too small to be seen.
- 5-PS1-2: Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved.
- 5-PS1-3: Make observations and measurements to identify materials based on their properties.
- 5-PS1-4: Conduct an investigation to determine whether the mixing of two or more substances results in new substances.

SCI.5-PS1-1	Develop a model to describe that matter is made of particles too small to be seen.
SCI.5-PS1-2	Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved.
SCI.5-PS1-3	Make observations and measurements to identify materials based on their properties.
SCI.5-PS1-4	Conduct an investigation to determine whether the mixing of two or more substances results in new substances.
3-5-ETS1-3	Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

Learning Targets

- I can demonstrate an understanding of the Scientific Method & Engineering Design Process.
- I can measure and graph quantities to provide evidence that regardless of the type of change, the total weight of matter is conserved.
- I can develop a model to describe that matter is made of particles too small to be seen.
- I can make observations and measurements to identify materials based on their properties.
- I can conduct an investigation to determine whether the mixing of two or more substances results in new substances.

Essential Questions

Lesson 1

Are Magic potions real?

Lesson 2

Could you transform something worthless into gold?

Lesson 3

What would happen if you drank a glass of acid?

Lesson 4

What do fireworks, rubber, and Silly Putty have in common?

Lesson 5

Why do some things explode?

Materials and Resources

Mystery Science Lab Sheets & Assessments

Readworks readings

Student Readers (English & Spanish Carolina Science Kits)

generationgenius.com

Atom's Family Packet (Google Drive)

Periodic Table of Elements

chrome-extension://bpmcpldpdmajfigpchkicefoigmkfalc/views/app.html (powerpoint)

http://sciencespot.net/Media/atomsfam.pdf (worksheets)

Teachers Pay Teachers:

Supplemental mystery science papers

https://www.teacherspayteachers.com/Product/Molecule-Learning-Stations-Intro-to-Modeling-Molecules-with-QR-code-fun-850361

https://www.teacherspayteachers.com/Product/NGSS-Matter-and-Its-Interactions-Bundle-241935 (Separating Mixtures Lab, Oil Spills Lab, Apples and Oranges Lab, Talk about Dense Lab,)

https://www.teacherspayteachers.com/Product/NGSS-Aligned-Chemical-Reactions-Lab-5-PS1-4-and-MS-PS1-2-2314975

Lego Atom Building Activity: http://periodictable.com/; https://ed.ted.com/lessons/the-genius-of-mendeleev-s-periodic-table-lou-serico

Readworks article: Talk about Dense

Better Lessons Online Plans & Activities

Unit Assessments

Mystery Science Assessment for each lesson

Mystery Science Unit Assessment

Learning Plan

Trimester 1

Time	Lesson	Priority Standard	Learning Targets	Lessons/Activities
Week 1	Science and Engineering Practice	3-5 ETS 1-2.6.1, 3-5 ETS1	Students will demonstrate an	1. Use the Promethean to display Google Slides to review the Scientific Method & Engineering Design Process https://docs.google.com/presentation/d/1rOTKmO7Jf18Pp_Gl_xhrCtizodLggj8pk4ylLtsqTwo/edit?usp=sharing

	Slideshow	-2, and ETS1.B.2	understanding of the Scientific Method & Engineering Design Process.	2. Review and discuss the slides together as a class.
Week 2	Lesson 1: Are Magic Potions real?	5-PS1-1 5-PS1-2	I can measure and graph quantities to provide evidence that regardless of the type of change, the total weight of matter is conserved.	Day 1: Introduction Video & Discussion Day 2: Lab & Lab Paper Day 3 & 4: End of Video, Discussion & Teacher pay teacher worksheet to go along with lesson Day 5: Test: https://docs.google.com/presentation/d/1tVNVK-R8qL7AsqhJ2CZWhc01UmieuJ4w3oaJsG5rdrw/edit?usp=sharing Key: https://docs.google.com/presentation/d/1nT7uBgD0uEfOuLy1v3U4V3PRLv91gDurYRPdynaUmws/edit?usp=sharing
Week 3	Lesson 2: Could you transform something worthless into gold?	5-PS1-1 5-PS1-2	I can develop a model to describe that matter is made of particles too small to be seen.	Day 1: Introduction Video & Discussion Day 2: Lab & Lab Paper Day 3 & 4: End of Video, Discussion & Teacher pay teacher worksheet to go along with lesson Day 5 Test: https://docs.google.com/presentation/d/1tVNVK-R8qL7AsqhJ2CZWhc01UmieuJ4w3oaJsG5rdrw/edit?usp=sharing Key: https://docs.google.com/presentation/d/1nT7uBgD0uEfOuLy1v3U4V3PRLv91gDurYRPdynaUmws/edit?usp=sharing

Week 4	Lesson 3: What would happen if you drank a glass of acid?	5-PS1-3	I can make observations and measurements to identify materials based on their properties.	Day 1: Introduction Video & Discussion Day 2: Lab & Lab Paper Day 3 & 4: End of Video, Discussion & Teacher pay teacher worksheet to go along with lesson Day 5 **Test: https://docs.google.com/presentation/d/1tVNVK-R8qL7AsqhJ2CZWhc01UmieuJ4w3oaJsG5rdrw/edit?usp=sharing** **Key: https://docs.google.com/presentation/d/1nT7uBgD0uEfOuLy1v3U4V3PRLv91gDurYRPdynaUmws/edit?usp=sharing**
Week 5 & 6	Lesson 4: What do fireworks, rubber and Silly Putty have in common?	5-PS1-4	I can conduct an investigation to determine whether the mixing of two or more substances results in new substances.	Day #1- Play the first three slides (2 videos & a discussion) Day #2 - Lab Day Slides 4 (Stop at Step 11 of 17 which is testing all substances, writing it down & clean up) Day #3 - Mystery Goo (Slides 12 through 17.) Day #4- Property of Matter Worksheet: https://drive.google.com/drive/u/0/my-drive Day 5: Physical and Chemical Change: Video: https://www.youtube.com/watch?v=x49BtB5dOwg Physical and Chemical Cut and Paste Day #6-Lab #4 Assessment Day 7- Genius Generation: Properties of Matter Day 8- Genius Generation Quiz Day 9 TPT Worksheet

				Day 10 Atoms Family Packet Day 6 Test: https://docs.google.com/presentation/d/1tVNVK-R8qL7AsqhJ2CZWhc01UmieuJ4w3oaJsG5rdrw/edit?usp=sharing Key: https://docs.google.com/presentation/d/1nT7uBgD0uEfOuLy1v3U4V3PRLv91gDurYRPdynaUmws/edit?usp=sharing
Week 7 & 8	Lesson 5: Why do some things explode?	5-PS-1-1	I can develop a model to describe that matter is made of particles too small to be seen.	Day 1: Solid, Liquid and Gas Discussion & worksheet about how the particles look Day 2: Mystery Science Intro Day 3 Lab Day 1 Day 4 Lab Day 2 Day 5 Discussion of the results Day 6 Review of the gas particle https://www.youtube.com/watch?v=wclY8F-UoTE TPT worksheet Day 7 Assessment

			*I can develop a model to describe that matter is made of particles too small to be seen.	Review concepts:
Week 9	Review & Unit Test	PS1-1 PS1-2 PS1-3 PS1-4	*I can conduct an investigation to determine whether the mixing of two or more substances results in new substances.	Genius Generation Videos: 1. Conservation of Matter 5-PS1-2 2. Particle Nature of Matter 5-PS1-1 3. Properties of Matter 5-PS1-3 4. Properties of Matter: Chemical vs. Physical 5-PS1-4 Unit Test Test: https://docs.google.com/presentation/d/1tVNVK-R8qL7AsqhJ2CZWhc01UmieuJ4w3oaJsG5rdrw/edit?usp=sharing Key: https://docs.google.com/presentation/d/1nT7uBgD0uEfOuLy1v3U4V3PRLv91gDurYRPdynaUmws/edit?usp=sharing
			*I can make observations and measurements to identify materials based on their properties.	

I can measure and graph quantities to provide evidence that regardless of the type of change, the total weight of matter is conserved.

Strategies for Multilingual Learners

- Continue practicing vocabulary
- Choice of test format (multiple-choice, essay, true-false)
- Vary test formats
- Read directions to student
- Provide study guides prior to tests

- Clarify test directions, read test questions
- Read test passages aloud (for comprehension assessment)

Strategies for Students in Need of Intervention

- Additional time on assignments
- Review of directions
- Review sessions
- Provide notes
- Support auditory presentation with visuals
- Work in progress check
- Tiered assessment
- Choice of test format (multiple-choice, essay, true-false)
- Read directions to student
- Highlight directions and key words
- Provide opportunities for cooperative partner work

Strategies for Enrichment

- Higher-level cooperative learning activities
- Provide higher-order questioning and discussion opportunities
- Tiered assessments
- Provide texts at higher reading level
- Extension activities

Technology Integration

Google Classroom Science

Mystery Science

Genius Generation

Nearpod

Crash Course Kids: https://www.youtube.com/user/crashcoursekids

Interdisciplinary Connections

ELA.L.WF.5.2 Demonstrate command of the convention of writing, including those listed under grade four foundation skills.

ELA.L.VL.5.2 Determine or clarify the meaning of unknown and multiple-meaning academic and domain-specific words and phases based on grade 5 reading and content, choosing flexibly from a range of strategies.

ELA.RI.CR.5.1 Quote accurately from an informational text when explaining what the text says explicitly and make relevant connections when drawing inferences from the text.

ELA.IW.5.2 Write informative/explanatory texts to examine a topic and convey ideas and information clearly.

ELA.SL.PE.5.1 Engage effectively in a range of collaborative discussions with diverse partners on grade 5 topics and texts, building on others´ ideas and expressing their own clearly.

5.DL.A.1 Understand how different visualizations can highlight different aspects of data. Ask questions and interpret data visualizations to describe and analyze patterns.

5.DL.A.2 Develop strategies to collect, organize and represent data of various types and from various sources. Communicate results digitally through a data visual (e.g. chart, storyboard, video representation).

5.DL.A.3 Collect and clean data to be analyzable (e.g., make sure each entry is formatted correctly, deal with missing or incomplete data).

5.DL.A.4 Using appropriate visualizations (i.e. double line plot, double bar graph), analyze data across samples.

5.G.A.2 Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.

5.M.A.1 Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.

	four foundational skills.
ELA.L.VL.5.2	Determine or clarify the meaning of unknown and multiple-meaning academic and domain-specific words and phrases based on grade 5 reading and content, choosing flexibly from a range of strategies.
ELA.RI.CR.5.1	Quote accurately from an informational text when explaining what the text says explicitly and make relevant connections when drawing inferences from the text.
MATH.5.M.A	Convert like measurement units within a given measurement system
ELA.W.IW.5.2	Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
MATH.5.DL.A.1	Understand how different visualizations can highlight different aspects of data. Ask questions and interpret data visualizations to describe and analyze patterns.
MATH.5.DL.A.2	Develop strategies to collect, organize and represent data of various types and from various sources. Communicate results digitally through a data visual (e.g., chart, storyboard, video presentation).
MATH.5.DL.A.3	Collect and clean data to be analyzable (e.g., make sure each entry is formatted correctly, deal with missing or incomplete data).
MATH.5.DL.A.4	Using appropriate visualizations (i.e., double line plot, double bar graph), analyze data across samples.
MATH.5.G.A.2	Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.
ELA.SL.PE.5.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 5 topics and texts, building on others' ideas and expressing their own clearly.

21st Century Life & Career Ready Practices

- CRP7. Employ valid and reliable research strategies.
- CRP1. Act as a responsible and contributing citizen and employee.
- CRP11. Use technology to enhance productivity.
- CRP12. Work productively in teams while using cultural global competence.
- CRP2. Apply appropriate academic and technical skills.
- CRP4. Communicate clearly and effectively and with reason.
- CRP6. Demonstrate creativity and innovation.
- CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.