Unit 2: *What's The Matter?* Unit Goals and Resources

An Introduction to Matter & Properties

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*If you find a good resource not included here, email Mr. Scanga. It might be be added to this unit goals resource list.

UNIT GOAL 1 - Modeling Matter

Develop a model to **DESCRIBE** that matter is made of particles too small to be seen (both atoms and molecules). (NGSS MS-PS 1-1)

Essential Questions:

a. What kinds of particles make up matter?
b. How does a chemical bond effect properties of matter?

READING: Classifying Matter - Textbook explanation of elements, compounds, and mixtures.
PRESENTATION: What's The Matter?: Part 1 - Presentation on atoms & elements
PRESENTATION: What's The Matter?: Part 2 - Presentation on molecules & compounds
VIDEO: Understanding Atoms, elements, and molecules - Explains the slideshows (What's the Matter Part 1 & 2) above a little better than just trying to read them on your own
BRAINPOP: Atoms (un: aisbudpest/pw: brainpop) - The first 2 minutes of this video gives the basics
INTERACTIVE: Atoms, Element & Properties BBC - The first part of this should help you better understand the ideas for this goal
INTERACTIVE: Compounds and Mixtures BBC - The beginning of this interactive video gives some examples of atoms and molecules in mixtures
ARTICLE (short): Atoms - Chem4Kids - Basic explanation of what atoms are
ARTICLE: Matter - The first paragraph of this gives a great short sweet understanding of matter. Feel free to read, but we will talk about the "states of matter" later in the year.
VIDEO: Atoms, Molecules, Elements - Quick overview of these things
VIDEO: Sulfur Bonding with Iron filings Making Iron Sulfide - Short video showing the difference between a mixture and a pure substance (compound). Pay attention to the change in properties after the substance (atoms) chemically combine.
INTERACTIVE: Atoms, Element & Properties BBC - The second part of this interactive explains different properties of metals and nonmetals on the periodic table. This is a good example of how we can use properties to tell one substance from another.
VIDEO: Bill Nye: Atoms - Bill's take on the basics of matter (remember, it's not required that you understand the parts of an atom. Just get an understanding for what an atom is.)
VIDEO: How Small is an atom? - "Jaw-dropping" cartoon that gives a new meaning to the word small

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UNIT GOAL 2: Physical Properties of Matter

ANALYZE and **INTERPRET** data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred. (MS-PS 1-2)

Please note: This unit will focus on physical properties of matter. Chemical reactions will be covered in greater detail in a future unit.

a. How can measuring and collecting data on properties help us to better understand our world?
b. How might we might measure or observe physical properties?

READING: Physical Properties of Matter - Textbook
VIDEO: Study Jams Solid Liquid and Gas
Difference between mass and volume - Thanks Daniel!
BrainPop "Measuring Matter" un: aisbudapest pw: brainpop
BrainPop - Mass (Grams and Kilograms) un: aisbudapest pw: brainpop
BiteSize - Measures (mass & length - both metric and imperial)
Study Jams - Mass, weight, volume, density
Mass, Volume & Density - This one is a little advanced, but has some good examples that might help you understand density
Measuring Matter Presentation Part 1 - Mass, Volume & Weight
Measuring Matter Presentation Part 2 - Density
Density - Bouyancy - Thanks Olivia!
READING: Article on density Good explanation of this idea
PRESENTATION: Density Jing - Mr. Scanga Jing

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UNIT GOAL 3: Impact of Synthetic Materials on Society

Gather and make sense of information to **DESCRIBE** that synthetic materials come from natural resources and impact society. (NGSS MS-PS 1-3)

Periodic Tables:
Web Elements
Dynamic Periodic Table
Periodic Table in Pictures - A periodic table with picture examples
Other Periodic Table Videos:
VIDEO: Periodic Table of the Element Song - Some examples of different elements in this song
VIDEO: New Periodic Table Song
VIDEO: Hunting the Elements - Full Video
VIDEO: Hunting the Elements - Intro
VIDEO: Hunting the Elements - Whole thing
VIDEO: Hunting the Elements - Gorilla Glass
VIDEO: Hunting the Elements - 6 Rare Earth Elements
VSauce Periodic Table - What is the world's most rare element?