Science 7 - Priority Standards Learning Progression

This document serves as a reference to VUSD course priority standards and the learning progression of standards that support them from previous grade levels. With the increase in learning gaps due to the pandemic, this document will aid teachers in identifying the gaps in their students learning from previous math courses. To create a new table, simply copy and paste the table below and add/delete the necessary rows. Highlighted standards have been identified as "Priority Standards" for other content levels.

Unit 0: Introduction to Science/Scientific Inquiry and Engineering
- Measurement and Tools:
- Interpreting Scientific Data:
- Scientific Inquiry and Engineering Design Process:

Time Frame: 4 - 5 weeks

Previous Learning →	Science 7: Priority Standard → MS-SEP7-4: Produce data using a range of tools that must be analyzed in order to derive meaning	Progression
- Measuring and observations 2 weeks	- Introduction to Science - Observation & Inference - Mass, Length, Volume, metric conversions - Interpreting Scientific Data - Scientific Tools Scientific Inquiry and Engineering	- I can describe units of measurement and use scientific tools correctly - I can do unit conversions using the metric system.
Supporting Standards https://www.cde.ca.gov/pd/ca/sc/ngssstandards.asp	**MS-SEP7-1:** Ask and refine questions that lead to descriptions and explanations on how the natural and design world works which can be empirically tested. **MS-SEP7-5**: Use math and computations as tools for representing physical variables and their relationships	- I can read and interpret scientific data. - I can annotate and begin to understand scientific articles.
Previous Learning →	Science 7: Priority Standard → MS-ETS1-2: Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.	Progression

Supporting Standards	● **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.	- I can describe the Scientific Inquiry Process. - I can describe the Engineering Process - I can create a structure that meets specific requirements and constraints.

Unit 1: Understanding Matter
- Module 1: Classification and States of Matter
- Module 2: Matter: Properties and Changes

TIme Frame: 6-8 Weeks

Previous Learning →	Science 7: Priority Standard→	Progression
	==**MS-PS1-4:** Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed.==	

● MS-PS3-3. Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer.
 	
● MS-PS3-4. Plan an investigation to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the
	● Inspire Science - Module 1: Classification and States of Matter
	    ■ Energy and States of Matter
	    ■ Changes in Temperature
	    ■ Changes in Pressure
	    ■ Molecular Structure
	● Inspire Science - Module 2: Matter: Properties and Changes
	    ■ Properties of Matter
	    ■ Property Changes in Chemical Reactions
	    ■ Energy Changes in Chemical Reactions
		● Learning Intentions
		
		- I can identify a solid, liquid, gas and draw a model of each state of matter.
		
		- I can explain kinetic and potential energy and its effects on matter.
		
		- I can rank and explain which states of matter have the most and least thermal energy
		.
		- I can describe and

sample. ● MS-PS3–5: Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object.		create a model of an atom. - I can read and interpret the Periodic Table of Elements. - I can read and create models of compounds using a chemical formula.
Supporting Standard	● **MS-SEP7-3**: Plan and carry out investigations in the field or the laboratory, working collaboratively as well as individually. ● **MS-PS1-1:** Develop models to describe the atomic composition of simple molecules and extended structures. ● **MS-SEP-2**: Use and construct models as helpful tools for representing ideas and explanations ● **MS-SEP7-6:** Use science to provide explanations, and engineering to design solutions.	- I can explain the relationship between temperature, volume and pressure. - I can describe how thermal energy transfers from one object to another. - I can describe the motion of particles during the phase changes of the three states of matter.

Unit 2: The Changing Earth
- Module 1: Dynamic Earth
- Module 2: Natural Hazards

Time Frame: 2- 4 Weeks

Previous Learning →	Science 7: Priority Standard → **MS-ESS2-1:** Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.	Progression
● MS-ESS2-5. Collect data	● Inspire Science - Module 1: Dynamic Earth	● Learning Intentions

to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions	■ Moving Continents
	■ Development of a Theory
	■ Shaping Earth's Surface
	■ Changing Earth's Surface
	■ The Cycling of Earth's Materials
	● Inspire Science - Module 2: Natural Hazards
	  ■ Earthquakes
	  ■ Volcanoes
	  ■ Severe Weather
		- I can identify the evidence in support of the theory of continental drift and plate tectonics
		
		- I can describe how the movement of tectonic plates form mountains, volcanoes, and cause earthquakes.
		
		- I can identify how geological processes affect the Earth's surface.
		
		- I can describe the effects of severe weather and how to mitigate the effects of severe weather.

Supporting Standards	● **MS-ESS2-2:** Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales. ● **MS-ESS2-3:** Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions. ● **MS-ESS3-2:** Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.	

Unit 3: Earth Resources		
Time Frame: 3 - 4 Weeks		
Previous Learning →	**Science 7: Priority Standard →** **MS-ESS3-1:** Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and present geoscience processes. **MS-PS1-3:** Gather and make sense of information to describe that synthetic materials come from natural resources and impact society.	**Progression**

● MS-ESS2-4. Develop a model to describe the cycling of water through	● Inspire Science - Module 1: Distribution of Earth's Resources
	  ○ Natural Resources
	  ○ Distribution of Resources
		● Learning Intentions

Earth's systems driven by energy from the sun and the force of gravity.	○ 1.3 Depletion of Resources
	● Inspire Science - Module 2: Materials science
	   ○ Synthetic Technology
	   ○ Impacts of Synthetic Materials
		- I can identify renewable and nonrenewable resources.
		- I can differentiate between natural and synthetic resources
		
		- I can describe where Earth's resources are commonly found, and the causes for resources to concentrate in certain areas
		
		- I can explain how humans take Earth's resources to create synthetic materials

Supporting Standards	● **MS-SEP-2**: Use and construct models as helpful tools for representing ideas and explanations ● **MS-SEP7-7:** Providing explanations and reaching solutions through the use of argumentation. ● **MS-SEP7-8:** Critique and communicate ideas and methods clearly and persuasively to individuals and groups.	●

Unit 4: Interactions within Ecosystems

Time Frame: 6 - 8 Weeks

Previous Learning →	Science 7: Priority Standard → **MS-LS1-7:** Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and/or release	Progression

● MS-LS1-4. Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal	● Inspire Science - Module 1: Matter and Energy In Ecosystems
	   ■ Photosynthesis and Cellular Respiration
	   ■ Flow of Energy
	   ■ Cycling of Matter
	● Inspire Science - Module 2: Dynamic Ecosystems
	   ■ Resources in Ecosystems
		● Learning Intentions
		
		- I can describe the process of photosynthesis and cellular respiration.

behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively.	■ Interactions Within Ecosystems ■ Changing Ecosystems ● Inspire Science - Module 3: Biodiversity in Ecosystems ■ Benefits of Biodiversity ■ Maintaining Biodiversity	- I can describe the relationship between photosynthesis and cellular respiration. - I can describe how energy flows through organisms. - I can describe how matter cycles through the environment.
Supporting Standards	● **MS-ESS2-1:** Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process. ● **MS-LS1-6:** Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms. ● **MS-SEP-2**: Use and construct models as helpful tools for representing ideas and explanations ● **MS-SEP7-8:** Critique and communicate ideas and methods clearly and persuasively to individuals and groups. ● **MS-LS2-2:** Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems ● **MS-LS2-4:** Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations. ● **MS-SEP7-7:** Providing explanations and reaching solutions through the use of argumentation. ● **MS-LS2-4:** Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.	

[Unit Title]		
Previous Learning →	**[Course Title]: Priority Standard →**	**Progression**
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