

**Physical Science 9 Curriculum**  
**9<sup>th</sup> Grade**  
**1<sup>st</sup> Nine Weeks**

<b>Essential Objectives</b>	<b>Obj. Number</b>	<b>DOK</b>	<b>Notes</b>
<b>Implement safe procedures and practices when manipulating equipment, materials, organisms, and models</b>	SC.O.PS.1.1	1	
<b>Apply dimensional analysis and scientific notation in making metric calculations</b>	SC.O.PS.2.1	2	Also metric conversions
<b>Predict chemical and physical properties of an element using its position in the periodic table</b>	SC.O.PS.2.2	1	
<b>Collect data to infer the relationship among density, mass and volume and apply to earth models: plate tectonics, weather systems, ocean currents</b>	SC.O.PS.2.3	3	
<b>Determine the coefficients and classify the reaction types of a chemical equation: synthesis, decomposition, single and double replacement, and combustion</b>	SC.O.PS.2.7	2	
<b>Cite evidence for the occurrence of a chemical reaction from students generated experimental data: production of color; light; heat; sound; smell; gas or precipitate</b>	SC.O.PS.2.8	2	
<b>Qualitatively and quantitatively describe the law of conservation of mass/energy: mechanical, thermal, chemical, electrical, nuclear.</b>	SC.O.PS.2.9	2	

<b>Objectives to Review</b>	<b>Obj. Num</b>	<b>Objectives to Introduce</b>	<b>Obj. Num</b>
Formulate scientific explanations based on historical observations and experimental evidence, accounting for variability in experimental results	SC.O.PS.1.2	Write formulas and name compounds given oxidation numbers of monatomic and polyatomic ions.	SC.O.PS.2.6

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**2<sup>nd</sup> Nine Weeks**

<b>Essential Objectives</b>	<b>Obj. Number</b>	<b>DOK</b>	<b>Notes</b>
<b>Relate molecular motion and the amount of kinetic energy to the temperature of a system</b>	<b>SC.O.PS.2.4</b>	<b>1</b>	
<b>Characterize compounds as ionic, nonpolar covalent or polar covalent and distinguish the difference between molecular and ionic structures</b>	<b>SC.O.PS.2.5</b>	<b>1</b>	
<b>Write formulas and name compounds given oxidation numbers of monatomic and polyatomic ions</b>	<b>SC.O.PS.2.6</b>	<b>1</b>	

<b>Objectives to Review</b>	<b>Obj. Num</b>	<b>Objectives to Introduce</b>	<b>Obj. Num</b>
Investigate, compare and design scientific and technological solutions to address personal and societal problems	SC.O.PS.1.6	Compare the type of particles liberated to nuclear decay and interpret half-life graphs: radiometric dating, nuclear medicine, nuclear waste disposal	SC.O.PS.2.10
Given current science-technology-societal issues, construct and defend potential solutions	SC.O.PS.1.7	Predict, experimentally determine and diagram magnetic fields of magnets	SC.O.PS.2.12
Relate societal, cultural and economic issues to key scientific innovations	SC.O.PS.1.8	Construct and diagram DC circuits and solve for unknown variables using Ohm's Law and power equations	SC.O.PS.2.13

**Physical Science 9 Curriculum**  
**9<sup>th</sup> Grade**  
**3<sup>rd</sup> Nine Weeks**

<b>Essential Objectives</b>	<b>Obj. Number</b>	<b>DOK</b>	<b>Notes</b>
Conduct and /or design investigations that incorporate the skills and attitudes and/or values of scientific inquiry (e.g., established research protocol, accurate record keeping, replication of results and peer review, objectivity, openness, skepticism, fairness, or creativity and logic)	SC.O.PS.1.3	2	
Design, conduct, evaluate and revise experiments (e.g., compose a question to be investigated, design a controlled investigation that produces numeric data, evaluate the data in the context of scientific laws and principles, construct a conclusion based on findings, propose revisions to investigations based on manipulation of variables and/or analysis or error, or communicate and defend the results and conclusions).	SC.O.PS1.4	3	
Draw conclusions from a variety of data sources to analyze and interpret systems and models (e.g., use graphs and equations to measure and apply variables such as rate and scale, evaluate changes in trends and cycles, or predict the influence of external variances such as potential sources or error, or interpret maps).	SC.O.PS.1.5	3	
Compare the type of particles liberated to nuclear decay and interpret half-life graphs: radiometric dating, nuclear medicine, nuclear waste disposal	SC.O.PS.2.10	2	
Predict, experimentally determine and diagram magnetic fields of magnets.	SC.O.PS.2.12	1	
Construct and diagram DC circuits and solve for unknown variables using Ohm's Law and power equations.	SC.O.PS.2.13	2	
Qualitatively explain the relationship between electricity and magnetism	SC.O.PS.2.14	2	
Conduct experiments to verify the inverse square relationship between gravity, distance and intensity of light and sound	SC.O.PS.2.15	2	

<b>Objectives to Review</b>	<b>Obj. Num</b>	<b>Objectives to Introduce</b>	<b>Obj. Num</b>
Synthesize concepts across various science disciplines to better understand the natural world (e.g., form and function, systems, or change over time).	SC.O.PS.1.9	Experimentally demonstrate the relationship between heat and temperature: specific heat, melting point, latent heat	SC.O.PS.2.11
		Apply fusion, heat transfer, gravity and electromagnetism to the sun's evolution and its impact of the solar system	SC.O.PS.2.24

**Physical Science 9 Curriculum**  
**9<sup>th</sup> Grade**  
**4<sup>th</sup> Nine Weeks**

<b>Essential Objectives</b>	<b>Obj. Number</b>	<b>DOK</b>	<b>Notes</b>
Experimentally demonstrate the relationship between heat and temperature; specific heat, melting point, latent heat	SC.O.PS.2.11	2	
Experimentally obtain data and apply graphs, vectors and mathematical models to quantify Newton's Laws of motion: velocity, acceleration, force, momentum, time	SC.O.PS.2.16	2	To include the concepts of work and power
Conduct an experiment to calculate the mechanical advantage, work in/out and efficiencies of simple machine.	SC.O.PS.2.17	1	
Design, conduct and analyze experiments to determine variables affecting the period of pendulums	SC.O.PS.2.18	3	
Differentiate between transverse and longitudinal waves and model examples of each type and relate to water, light and sound waves	SC.O.PS.2.19	1	
Apply fusion, heat transfer, gravity and electromagnetism to the sun's evolution and its impact of the solar system	SC.O.PS.2.24	2	

<b>Objectives to Review</b>	<b>Obj. Num</b>	<b>Objectives to Introduce</b>	<b>Obj. Num</b>
Exam seismographic and geologic evidence to determine structure, composition and age of the Earth	SC.O.PS.2.20	Investigate theories for the origin and configuration of the solar system: nebular theory, Earth-moon formation, heliocentric models, geocentric models	SC.O.PS.2.25
Predict and present a weather forecast using a weather map and meteorological data	SC.O.PS.2.21		
Analyze latitude, altitude and surface features to predict climatic conditions	SC.O.PS.2.22		
Research and organize evidence to support the theory and effects of plate tectonics including: density, force, mountain building, fossil, magnetic evidence	SC.O.PS.2.23		