

Physical Science Subject Group Overview

Unit Name		Atomic Structure	Periodic Table and Chemical Reactions	Atomic and Molecular Motion	Energy	Forces & Motion	Waves	Electricity & Magnetism
Time Frame		4 Weeks	4 weeks	5 weeks	4 Weeks	5 Weeks	4 Weeks	5 Weeks
PHYSICAL SCIENCE:	Standards	SPS1.a.,b.,c.	SPS1.a.,b.,c. SPS2.a.,b.,c. SPS3.a.,b.	SPS5.a.,b. SPS6.a.,b.,c.,d.,e.	SPS4.a.,b.,c. SPS7.a.,b.,c.,d	SPS8.a.,b.,c.,d.	SPS7.a. SPS9.a.,b.,c.,d.,e.	SPS10.a.,b.,c.
	Approaches To Learning Instructional Strategies	SEP: <ul style="list-style-type: none"> Analyze and interpret data Use the Periodic Table as a model Construct arguments and explanations ATL: <ul style="list-style-type: none"> Make inferences and draw conclusions Organize and depict information logically 	SEP: <ul style="list-style-type: none"> Develop and use models Analyze and interpret data Use the Periodic Table as a model Use the International Union of Pure and Applied Chemistry (IUPAC) Plan and Carry out Investigations ATL: <ul style="list-style-type: none"> Structure information in summaries, essays, and reports 	SEP: <ul style="list-style-type: none"> Ask Questions Plan and carry out investigations Develop and Use Models Analyze and Interpret Data Obtain and Communicate Information ATL: <ul style="list-style-type: none"> Make inferences and draw conclusions Collect, record, and verify data Practice analyzing and attributing causes for failure 	SEP: <ul style="list-style-type: none"> Develop and use models Use mathematics and computational thinking Construct explanations Plan and carry out investigations Analyze and interpret data ATL: <ul style="list-style-type: none"> Make inferences and draw conclusions Collect, record, and verify data 	SEP: <ul style="list-style-type: none"> Construct explanations Plan and carry out investigations Analyze and interpret data Use mathematics and computational thinking NOS Connection: Science models, Laws, and Mechanisms, and Theories Explain Natural Phenomena ATL: <ul style="list-style-type: none"> Organize and depict information logically Make inferences and draw conclusions Collect, record, and verify data Practice analyzing and attributing causes for failure Critical Thinking 	SEP: <ul style="list-style-type: none"> Analyze and interpret data Ask questions Develop and use models ATL: <ul style="list-style-type: none"> Use models and simulations to explore complex systems and issues Collect, record, and verify data 	SEP: <ul style="list-style-type: none"> Construct explanations Use mathematical and computational thinking Develop and use models Plan and carry out investigations ATL: <ul style="list-style-type: none"> Use models and simulations to explore complex systems and issues Analyze complex concepts and synthesize to create new understanding
	Statement of Inquiry	Scientific and technical advancements have enabled scientists to identify, model, and discover interactions, patterns, and relationships that exist between the natural world and human societies. Phenomenon: How can you use carbon dating to	Scientific and technical advancements have enabled scientists to identify, model, and discover interactions, patterns, and relationships that exist between the natural world and human societies. Phenomenon: Changes to the chemistry of Flint	Scientific and technological modeling allow for identification of changes to systems to identify relationships. Phenomena: How can you explain the implosion of the gas tanker using gas laws?	Scientific and technical innovations allow us to observe, investigate, and analyze the movement and transfer of energy between systems in order to design products with desired features. Phenomena: Candles can be used to power a toy car.	Scientific and technological modeling allow for identification of consequences and effects of movement to identify relationships. Phenomena: The swirling motion continues even after you	Modeling allows us to examine patterns and changes in wave behavior in order to identify relationships between energy, frequency, wavelength, and amplitude.	Advances in science and technology have allowed humans to design systems that harness the energy and identify the relationship between electricity and magnetism. Phenomena: Gravity, magnetism, electricity, and electromagnetism are used in designed systems.

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Statement of Inquiry and Phenomenon	estimate the age of organisms?	Michigan’s water supply created dangerous levels of lead in the drinking level. Students will explore the chemistry behind the removal of lead from homes and drinking water. This Old House Video: Removal of Lead Paint		Nuclear Fission & Fusion - Nuclear Applications There is a great deal of energy stored in the nucleus of an atom that can be harnessed for electrical power production but the use of nuclear power does come with risks. Chernobyl Video	have stopped stirring your coffee or tea. How do seatbelts and airbags make use of Newton’s Laws to prevent serious injury? Changes in limb posture affect muscle forces by altering the mechanical advantage of the ground reaction force	Phenomena: The pitch of a siren appears to change as it moves toward or away from the observer.	
Global Context	Scientific and technical innovation	Scientific and technical innovation	Scientific and technical innovation	Scientific and technical innovation	Scientific and technical innovation	Identities and relationships	Scientific and technical innovation
Key Concepts	Relationships (MYP) Change (MYP/CC)	Change (CC) Relationships (MYP) Systems (CC)	Change (CC) Relationships (MYP) Systems (CC)	Systems (MYP/CC)	Patterns (CC) Relationships (MYP) Systems (CC)	Change (MYP)	Systems (CC) Relationships (MYP)
Related Concepts	Energy (MYP/CC) Interactions (MYP) Patterns (MYP/CC) Models (MYP/CC) Structure and Function (MYP/CC) Transformation (MYP) Balance (MYP)	Energy (MYP/CC) Interactions (MYP) Patterns (MYP/CC) Models (MYP/CC) Transformation (MYP) Balance (MYP)	Energy (MYP/CC) Interactions (MYP) Movement (MYP/CC) Models (MYP/CC)	Energy (MYP/CC) Movement (MYP/CC)	Consequences/Cause and Effect (MYP/CC) Movement (MYP)	Energy (MYP/CC) Patterns (MYP/CC)	Energy (MYP/CC)
MYP Assessments Performance Tasks	Common Assessments (formative and summative) Title and Criterion: Properties of Matter Unit Assessment (A)	Common Assessments (formative and summative) Title and Criterion: Properties of Ionic and Covalent Compounds Lab (B,C) Chemical Reactions Unit Assessment (A, D)	Common Assessments (formative and summative) Title and Criterion: Thermal Energy Lab - SOM (B,C) Gas Laws Lab (B,C) Solutions Lab (B,C) Acids/Bases Lab (B,C)	Common Assessments (formative and summative) Title and Criterion: Energy Unit Assessment (A,D) Nuclear Assessment (A, D) Thermal Energy Lab - CCR (B,C) Specific Heat Lab (B,C)	Common Assessments (formative and summative) Title and Criterion: Forces & Motion Unit Assessment (A,D) Motion Lab (B,C)	Common Assessments (formative and summative) Title and Criterion: Waves Unit Assessment (A) Slinky Lab (B, C)	Common Assessments (formative and summative) Title and Criterion: Electricity & Magnetism Unit Assessment (A,D) Circuits Lab (B,C) Electricity and Magnetism Lab (B,C)

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	Differentiation For Tiered Learners	SWD/504 – Accommodations Provided ELL – Reading & Vocabulary Support Gifted – Extensions/Enrichment Tasks/Projects	SWD/504 – Accommodations Provided ELL – Reading & Vocabulary Support Gifted-Extensions/Enrichment/Tasks/Projects	SWD/504- Accommodations Provided ELL - Reading and Vocabulary Support Gifted-Extensions/Enrichment/Tasks/Projects	SWD/504 – Accommodations Provided ELL – Reading and Vocabulary Support Gifted – Extensions/Enrichment Tasks/Projects	SWD/504 – Accommodations Provided ELL – Reading & Vocabulary Support Gifted - Extensions/Enrichment Tasks/Projects	SWD/504 – Accommodations Provided ELL – Reading & Vocabulary Support Gifted - Extensions/Enrichment Tasks/Projects	SWD/504 – Accommodations Provided ELL – Reading and Vocabulary Support Gifted – Extensions/Enrichment Tasks/Projects
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