

Physics Subject Group Overview 2022-2023

Unit Name	1D Motion	2D Motion	Newton's Laws	Momentum	Energy	Waves	Electricity & Magnetism	Nuclear
Time Frame	6 weeks	6 weeks	6 weeks	3 weeks	5 weeks	3 weeks	4 weeks	3 weeks
Standards	SP1.a, SP1., SP1.c	SP1.d, SP2.d	SP2.a, SP2.b, SP2.c, SP2.d, SP2.e	SP3.d	SP3.a , SP3.b , SP3.c	SP4.a, SP4.b, SP4.c, SP4.d, SP4.e, SP4.f, SP4.g	SP5.a, SP5.b, SP5.c, SP5.d, SP5.e	SP6.a, SP6.b, SP6.c
Approaches To Learning Instructional Strategies	<p>SEP</p> <ul style="list-style-type: none"> Using Mathematics and Computational Thinking, Engaging in Arguments from Evidence <p>ATL</p> <p>Research Skills Thinking Skills Collaboration Skills Communication Skills</p>	<p>SEP</p> <ul style="list-style-type: none"> Using Mathematics and Computational Thinking, Analyzing and Interpreting Data Planning and Carrying out Investigations <p>ATL</p> <p>Research Skills Thinking Skills Collaboration Skills Communication Skills</p>	<p>SEP</p> <ul style="list-style-type: none"> Using Mathematics and Computational Thinking, Analyzing and Interpreting Data Make inferences and draw conclusions, Give and receive meaningful feedback, Process data and record results <p>ATL</p> <p>Research Skills Thinking Skills Collaboration Skills Communication Skills</p>	<p>SEP</p> <ul style="list-style-type: none"> Using Mathematics and Computational Thinking, Analyzing and Interpreting Data Make inferences and draw conclusions, Give and receive meaningful feedback, Process data and record results <p>ATL</p> <p>Research Skills Thinking Skills Collaboration Skills Communication Skills</p>	<p>SEP</p> <ul style="list-style-type: none"> Using Mathematics and Computational Thinking, Planning and Carrying out Investigations Collect, record, and analyze data <p>ATL</p> <p>Research Skills Thinking Skills Collaboration Skills Communication Skills</p>	<p>SEP</p> <ul style="list-style-type: none"> Developing and Using Models Make guesses, ask “what if” questions and generate testable hypothesis <p>ATL</p> <p>Research Skills Thinking Skills Collaboration Skills Communication Skills</p>	<p>SEP</p> <ul style="list-style-type: none"> Asking Questions and Defining Problems Give and receive meaningful feedback <p>ATL</p> <p>Research Skills Thinking Skills Collaboration Skills Communication Skills</p>	<p>SEP</p> <ul style="list-style-type: none"> Obtaining, Evaluation, and Communication Information Make inferences and draw conclusions <p>ATL</p> <p>Research Skills Thinking Skills Collaboration Skills Communication Skills</p>
Statement of Inquiry	Modeling changes in motion graphically and mathematically predicts future movement.	Modeling changes in motion graphically and mathematically predicts future movement.	The relationships between interacting objects cause changes in their motion that can be used to discover	Modeling transfers of momentum to predict the outcome of car crashes.	Energy changing from one form to another can be captured for useful means.	The nature of waves can be discovered by examining their interactions with matter.	The movement of electrons can be modeled by examining specific relationships, allowing for	The transformations of atoms follow predictable patterns that can be used for the production of power.

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	Phenomenon: All motion is composed of just a few components acting together creating a variety of different motion.	Phenomenon: All motion is composed of just a few components acting together creating a variety of different motion.	their intrinsic properties. Phenomenon: Acceleration only occurs if an unequal force is also present.	Phenomenon: Momentum is conserved in every interaction between two bodies, regardless of how they interact.	Phenomenon: Energy is always conserved, even when the motion is not uniform or friction is involved.	Phenomenon: Vibrations propagate in the form of waves. Waves transfer energy without transferring mass.	transmission of information. Phenomenon: Electrical power is one of the most efficient methods for transporting energy.	Phenomenon: Atomic nuclei are unstable (radioactive) if you do not have the right number of protons and neutrons..
Global Context	Scientific and Technical Innovation	Scientific and Technical Innovation	Scientific and Technical Innovation	Scientific and Technical Innovation	Scientific and Technical Innovation	Scientific and Technical Innovation	Scientific and Technical Innovation	Scientific and Technical Innovation
Key Concepts	Cause & Effect (CCC) Stability & Change (CCC) Systems & System (MYP) Models (CCC) Patterns (CCC)	Cause & Effect (CCC) Stability & Change (CCC) Systems & System (MYP) Models (CCC) Patterns (CCC)	Patterns (CCC) Matter & Energy (MYP/CCC) Structure & Function (CCC)	Cause & Effect (CCC) Stability & Change (CCC) Systems & System Models (MYP/CCC) Patterns (CCC)	Stability & Change (CCC) Matter & Energy (MYP/CCC) Patterns (CCC)	Matter & Energy (MYP/CCC) Stability & Change (CCC) Scale, Proportion & Quantity (CCC)	Scale, Proportion & Quantity (CCC) Matter & Energy (MYP/CCC) Stability & Change (CCC)	Matter & Energy (MYP/CCC) Stability & Change (CCC) Scale, Proportion & Quantity (CCC)
Related Concepts	Movement & Energy	Movement & Energy	Movement & Evidence	Movement and Momentum	Energy & Transformation	Energy & Form	Energy & Interactions	Energy & Form
Design Cycle Transdisciplinary	CORE IDEAS ● Kinematics ● Scalars ● Vectors ● Displacement	CORE IDEAS ● Projectile Motion ● Vector Diagrams	CORE IDEAS ● Laws of Motion ● Free Body Diagrams ● Acceleration ● Friction ● Universal Gravitation	CORE IDEAS ● Momentum ● Impulse ● Conservation of momentum ● Transfer of momentum	CORE IDEAS ● Potential energy ● Kinetic energy ● Work ● Power ● Conservation of Mechanical energy ● Work Energy Theorem	CORE IDEAS ● Electromagnetic radiation ● Transverse Waves ● Properties of Waves ● Wave Patterns ● Boundary Behavior	CORE IDEAS ● Electricity ● Circuits ● Magnetism ● Static Electricity ● Voltage ● Resistance	CORE IDEAS ● Atomic structure ● Nuclear Notation ● Ions & Isotopes ● Nuclear Decay ● Nuclear Decay and Half Life ● Energy Released in nuclear reactions
Differentiation For Tiered Learners	Marietta City Schools teachers provide specific differentiation of learning experiences for all students. Details for differentiation for learning experiences are included on the district unit planners.							

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Course Levels	
	Marietta City Schools offers Enhanced, Honors, Accelerated, and AP classes to provide differentiated learning experiences for students.