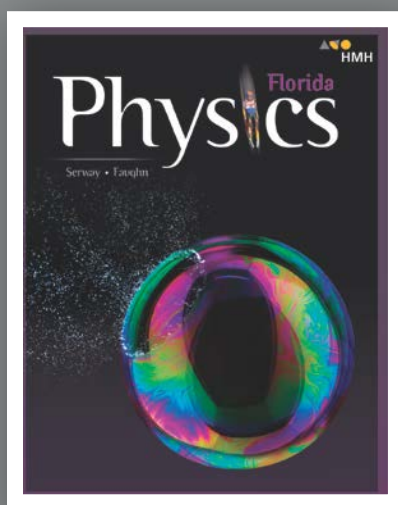


Correlation to the
Florida Course Description for
Physics 1
Course Code 2003380



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BID ID:	3265
SUBMISSION TITLE:	HMH Florida Physics ©2019
GRADE LEVEL:	9–12
COURSE TITLE:	Physics 1
COURSE CODE:	2003380
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BENCHMARK CODE	BENCHMARK	LESSONS WHERE STANDARD/BENCHMARK IS DIRECTLY ADDRESSED IN MAJOR TOOL (MOST IN-DEPTH COVERAGE LISTED FIRST) (Include the student edition and teacher edition with the page numbers of lesson, a link to lesson, or other identifier for easy lookup by reviewers.)
SC.912.E.5.2	Identify patterns in the organization and distribution of matter in the universe and the forces that determine them.	<p>SE: Section 7.2, pp. 233-234, 236-238 (Figure 2.5) Section 7.3, pp. 240-245 Chapter 7, Why It Matters, p. 235; Formative Assessment, p. 245 (#1) Chapter 12, p. 431 (Figure 3)</p> <p>TE: Section 7.2, Teach From Visuals, p. 233 Section 7.3, Problem Solving (Reality Check), p. 243; Differentiated Instruction: Pre-AP, p. 244 Section 22.4, Teach From Visuals, p. 799</p> <p>Science Standards Guide: SE: 1-2 TE: 1-4</p> <p>Animations & Simulations: PhET Simulations: Gravity Force Lab (7.2); Gravity and Orbits (7.3); My Solar System (7.3)</p> <p>Multimedia Labs & Activities: Visual Concepts: Law of Universal Gravitation (7.2)</p>

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SC.912.E.5.6	Develop logical connections through physical principles, including Kepler’s and Newton’s Laws about the relationships and the effects of Earth, Moon, and Sun on each other	<p>SE: Section 7.2, pp. 233-234 Section 7.3, pp. 240-245 Chapter 7 Review, p. 266 (#40) R29 [Student Resources, Appendix D: Equations]</p> <p>TE: Section 7.2, Classroom Practice, p. 234 Section 7.3, Teaching Tip, p. 242</p> <p>Science Standards Guide: SE 3-4, TE 5-8</p> <p>Online Labs: Kepler’s Third Law (7.3)</p> <p>Animations & Simulations: PhET Simulation: Gravity and Orbits (7.3); My Solar System (7.3)</p>
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SC.912.N.1.1	<p>Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:</p> <p>1. Pose questions about the natural world , (Articulate the purpose of the investigation and identify the relevant scientific concepts).</p> <p>2. Conduct systematic observations, (Write procedures that are clear and replicable. Identify observables and examine relationships between test (independent) variable and outcome (dependent) variable. Employ appropriate methods for accurate and consistent observations; conduct and record measurements at appropriate levels of precision. Follow safety guidelines).</p> <p>3. Examine books and other sources of information to see what is already known,</p> <p>4. Review what is known in light of empirical evidence, (Examine whether available empirical evidence can be interpreted in terms of existing knowledge and models, and if not, modify or develop new models).</p> <p>5. Plan investigations, (Design and evaluate a scientific investigation).</p> <p>6. Use tools to gather, analyze, and interpret data (this includes the use of measurement in metric and other systems, and also the generation and interpretation of graphical representations of data, including data tables and graphs), (Collect data or evidence in an organized way. Properly use instruments, equipment, and materials (e.g., scales, probeware, meter sticks, microscopes, computers) including set-up, calibration, technique, maintenance, and storage).</p> <p>7. Pose answers, explanations, or descriptions of events,</p> <p>8. Generate explanations that explicate or describe natural phenomena (inferences),</p> <p>9. Use appropriate evidence and reasoning to justify these explanations to others,</p> <p>10. Communicate results of scientific investigations, and</p> <p>11. Evaluate the merits of the explanations produced by others.</p>	<p>This Benchmark is covered throughout the program. The following are some of the many examples:</p> <p>SE: Section 1.1, pp. 6-9 Chapter 10, Think Science, p. 357 Chapter 2, Think Science, p. 71 Section 4.2, Quick Lab, p. 126 Chapter 11: Think Science, p. 395 Chapter 14, Think Science, p. 509 Chapter 15, Think Science, p. 541 <i>Chapter 19, Think Science, p. 682</i> Chapter 20, Think Science, p. 724</p> <p>TE: Section 1.1, pp. 6-9 Chapter 10, Think Science, p. 357 Chapter 2, Think Science, p. 71 Section 4.2, Quick Lab, p. 126 Chapter 11: Think Science, p. 395 Chapter 14, Think Science, p. 509 Chapter 15, Think Science, p. 541 Chapter 19, Think Science, p. 682 Chapter 20, Think Science, p. 724</p> <p>Science Standards Guide: SE: 8-9, 16-17, 18-19, 20-21, 22-24, 45-46 TE: 14-17, 30-33, 34-37, 38-42, 43-47, 90-93</p> <p>Online Labs: The Benchmark is addressed throughout the lab program. <i>See, for example, the following :</i> Black Box (1.1); Work (5.1); Collisions (6.3); Relationship Between Heat and Work (10.1); Pendulum Trials (11.1); Electric Force (16.2); Magnetism From Electricity (19.2); Force and Acceleration (4.3); Pendulum Trials (11.1); Standing Waves (12.3); Electric Force (16.2); Exploring Circuit Elements (18.1); Graph Matching (1.3); Bubble Solutions (1.3); Brightness of Light (13.1)</p>
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SC.912.N.1.2	Describe and explain what characterizes science and its methods.	<p>SE: Section 1.1, pp. 4-9; Chapter 1, Think Science, p. 28; Review, p. 30 (#2) Chapter 2 Review, Alternative Assessment, p. 78 (#2) Chapter 9 Review, Alternative Assessment, p. 328 (#2) Chapter 20 Review, Alternative Assessment, p. 730 (#3) R17-R19 [Appendix B, The Scientific Process] Think Science features on the following pages address the scientific method and characterize science: pp. 71, 109, 144, 181, 262, 289, 323, 357, 395, 433, 473, 509, 541, 617,, 655, 682, 724, 764, 805</p> <p>TE: Demonstration, p. 8</p> <p>Online Labs: <i>All Labs present opportunities for students to experience characteristics of science through the scientific method. These are some representative examples:</i> Physics and Measurement (1.2); Bubble Solutions (1.3); Free Fall (2.3); Collisions (6.3); Specific Heat Capacity (9.3); Motors (20.2)</p> <p>Animations & Simulations: Animated Physics: Scientific Models (1.1)</p>
SC.912.N.1.5	Describe and provide examples of how similar investigations conducted in many parts of the world result in the same outcome.	<p>SE: Chapter 7 Review, Alternative Assessment, p. 268 (#1) Chapter 21 Review, Alternative Assessment, p. 768 (#3, 4) Physics and Its World (Timelines), pp. 152, 296, 402, 732, 770, 814 R18 [Student Resources, Appendix B: The Scientific Process] TE: R18 [Student Resources, Appendix B: The Scientific Process]</p>
SC.912.N.1.6	Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied.	<p>SE: Chapter 5, Think Science, p. 181 Section 7.2, Conceptual Challenge, p. 238 Chapter 17, Think Science, p. 617 Chapter 21 Review, Alternative Assessment, p. 768 (#1)</p> <p>Online Labs: (Representative examples of the many labs that address this standard) Black Box (1.1); Power Programming (5.4); Gravitational Field Strength (7.2); Sound Waves and Beats (12.3); Electrical Energy (17.4)</p>

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SC.912.N.1.7	Recognize the role of creativity in constructing scientific questions, methods and explanations.	SE: Section 3.1, Formative Assessment, p. 85 (#5) Section 7.1, Formative Assessment, p. 231 (#7) Section 9.1, Formative Assessment, p. 306 (#6) Section 10.1, Formative Assessment, p. 339 (#4) Section 16.1, Formative Assessment, p. 555 (#5, 6) S.T.E.M. Engineering and Technology, p. 813 Online Labs: (Representative examples of the many labs that address this standard) Parabolic Path (3.3); Thermal Expansion (9.1); Brightness of Light (13.1); Converging Lenses (14.2); Levitating Toys (16.3); Motors (20.2)
SC.912.N.2.2	Identify which questions can be answered through science and which questions are outside the boundaries of scientific investigation, such as questions addressed by other ways of knowing, such as art, philosophy, and religion.	SE: R17 [Student Resources, Appendix B: The Scientific Process] TE: R17 [Student Resources, Appendix B: The Scientific Process]
SC.912.N.2.4	Explain that scientific knowledge is both durable and robust and open to change. Scientific knowledge can change because it is often examined and re-examined by new investigations and scientific argumentation. Because of these frequent examinations, scientific knowledge becomes stronger, leading to its durability.	SE: Chapter 2, Think Science, p. 71 Chapter 3, Think Science, p. 109 Chapter 7, Think Science, p. 262 Chapter 20, Think Science, p. 724 Chapter 21, Think Science, p. 764 R17-R19 [Appendix B, The Scientific Process]
SC.912.N.2.5	Describe instances in which scientists’ varied backgrounds, talents, interests, and goals influence the inferences and thus the explanations that they make about observations of natural phenomena and describe that competing interpretations (explanations) of scientists are a strength of science as they are a source of new, testable ideas that have the potential to add new evidence to support one or another of the explanations.	SE: Section 21.2, pp. 746-754 Chapter 21 Review, Alternative Assessment, p. 768 (#3, #4, #5) Chapter 22, Careers in Physics, p. 804
SC.912.N.3.2	Describe the role consensus plays in the historical development of a theory in any one of the disciplines of science.	SE: Chapter 2, Think Science, p. 71 Chapter 11, Think Science, p. 395 Chapter 14, Think Science, p. 509 Chapter 16 Review, Alternative Assessment, p. 578 (#6) Chapter 21, Think Science, p. 764; Chapter 21 Review, Alternative Assessment, p. 768 (#3)
SC.912.N.3.3	Explain that scientific laws are descriptions of specific relationships under given conditions in nature, but do not offer explanations for those relationships.	SE: Section 1.1, pp. 6-9 R19 [Student Resources, Appendix B: The Scientific Process] TE: R19 [Student Resources, Appendix B: The Scientific Process]

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SC.912.N.3.4	Recognize that theories do not become laws, nor do laws become theories; theories are well supported explanations and laws are well supported descriptions.	<p>SE: Chapter 2 Think Science, p. 71 Chapter 3 Think Science, p. 109 Chapter 7 Think Science, p. 262 Chapter 20 Think Science, p. 724 R19 [Student Resources, Appendix B: The Scientific Process]</p> <p>TE: Chapter 2 Think Science, p. 71 Chapter 3 Think Science, p. 109 Chapter 7 Think Science, p. 262 Chapter 20 Think Science, p. 724 R19 [Student Resources, Appendix B: The Scientific Process]</p>
SC.912.N.3.5	Describe the function of models in science, and identify the wide range of models used in science.	<p>SE: Section 1.1, pp. 6-9; Think Science, p. 28 Section 5.3 Physics on the Edge, pp. 178-179 Section 16.2, pp. 556-563 Section 22.3, p. 791, 792 (fig. 3.2), 793-794</p> <p>TE: Section 16.2, Classroom Practice, p. 557 Section 22.3, Differentiated Instruction p. 791</p> <p>Online Labs: (Representative examples of the many labs that address this Benchmark) Parabolic Path (3.3); Parachute (4.4); Work (5.1); Torque and Center of Mass (7.1); Buoyant Vehicle (8.1); Simple Harmonic Motion of a Pendulum (11.2); Fiber Optics (14.3); Electric Force (16.2); A Chain Reaction (22.3)</p> <p>Animations & Simulations: Animated Physics: Scientific Models (1.1)</p>
SC.912.N.4.1	Explain how scientific knowledge and reasoning provide an empirically-based perspective to inform society’s decision making.	<p>SE: Chapter 1, Think Science, p. 28 Chapter 4, Think Science, p. 144 Chapter 5, Think Science, p. 181 Chapter 10, Think Science, p. 357 Chapter 10 Review, Alternative Assessment, p. 362 (#1) R19 [Student Resources, Appendix B: The Scientific Process]</p> <p>TE: R19 [Student Resources, Appendix B: The Scientific Process]</p>
SC.912.P.8.1	Differentiate among the four states of matter.	<p>SE: Section 8.1, p. 272 Section 9.3, pp. 315-320; Take It Further, p. 319 Chapter 16, Why It Matters, p. 580</p> <p>TE: Section 9.3, Teach From Visuals (Figure 3.4)</p> <p>Science Standards Guide: SE: 5-7 TE: 9-13</p>

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SC.912.P.8.3	Explore the scientific theory of atoms (also known as atomic theory) by describing changes in the atomic model over time and why those changes were necessitated by experimental evidence.	<p>SE: Section 21.2, pp. 746-754; Formative Assessment, p. 754 (#1-3) Chapter 21, Think Science, p. 764 Chapter 21 Review, p. 766 (#15-20)</p> <p>TE: Section 21.2, Demonstration, p. 747; Differentiated Instruction, pp. 747, 749, 753</p> <p>Science Standards Guide: SE: 8-9 TE: 14-17</p> <p>Animations & Simulations: PhET Simulations: Build an Atom (21.2); Models of the Hydrogen Atom (21.2); Rutherford Scattering (21.2)</p>
SC.912.P.10.1	Differentiate among the various forms of energy and recognize that they can be transformed from one form to others.	<p>SE: Section 5.2, pp. 160-168; Formative Assessment, p. 168 (#4, #5) Section 5.3, pp. 169-174; Formative Assessment, p. 174 (#4) Section 5.4, pp. 175-177 Chapter 5 Review, Alternative Assessment, p. 188 (#4)</p> <p>TE: Section 5.2, Differentiated Instruction, p. 162 Section 5.3, Differentiated Instruction, pp. 169, 170 Science Standards Guide: SE 9-10, TE 17-20</p> <p>Science Standards Guide: SE: 10-11 TE: 18-21</p> <p>Online Labs: Bungee Jumping: Energy (5.2); Conservation of Mechanical Energy (5.3); Mechanical Energy (5.3); Ball Toss (5.4); Power Programming (5.4)</p> <p>Animations & Simulations: Animated Physics: Kinetic Energy (5.2); Conservation of Energy (5.4)</p> <p>Multimedia Labs & Activities: Virtual Lab: Conservation of Energy (Chapter 5)</p>

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SC.912.P.10.2	Explore the Law of Conservation of Energy by differentiating among open, closed, and isolated systems and explain that the total energy in an isolated system is a conserved quantity.	<p>SE: Section 5.3, pp. 169-174; Formative Assessment, p. 174 (#4) Section 9.3, pp. 316-318; Review, p. 326 (#26) Section 10.2, pp. 340-344; Formative Assessment, p. 347 (#1, #2) R31 [Student Resources, Appendix D: Equations]</p> <p>TE: Section 5.3, Differentiated Instruction, p. 169; Demonstration, p. 171; Classroom Practice, p. 172, Problem Solving, p. 172 Section 9.3, Problem Solving, p. 317</p> <p>Science Standards Guide: SE: 12-13 TE: 22-25</p> <p>Online Labs: Conservation of Mechanical Energy (5.3); Mechanical Energy (5.3)</p> <p>Multimedia Labs & Activities: Virtual Lab: Conservation of Energy (Chapter 5)</p> <p>Animations & Simulations: Animated Physics: Conservation of Energy (5.4); First Law of Thermodynamics (10.2)</p>
SC.912.P.10.3	SC.912.P.10.3 Compare and contrast work and power qualitatively and quantitatively.	<p>SE: Section 5.1, pp. 156-159 Section 5.4, pp. 174-177; Formative Assessment, p. 177 (#1, #2)</p> <p>Science Standards Guide: SE: 14-15 TE: 26-29</p> <p>Online Labs: Exploring Work and Energy (5.1); Work (5.1)</p>

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SC.912.P.10.4	Describe heat as the energy transferred by convection, conduction, and radiation, and explain the connection of heat to change in temperature or states of matter.	<p>SE: Section 9.1, pp. 301-306, Quick Lab, p. 300 Section 9.2, pp. 307-313; Formative Assessment, p. 313 (#1, #2)</p> <p>TE: Section 9.1, Demonstration, p. 301; Differentiated Instruction, p. 302 Section 9.2, Demonstration, pp. 310, 311</p> <p>Science Standards Guide: SE: 16-17 TE: 30-33</p> <p>Online Labs: Temperature and Internal Energy (9.1); Thermal Expansion (9.1)</p> <p>Animations & Simulations: Animated Physics: Heat (9.2)</p> <p>Multimedia Labs & Activities: Virtual Lab: Specific Heat of a Metal (Chapter 9)</p>
SC.912.P.10.5	Relate temperature to the average molecular kinetic energy.	<p>SE: Section 9.1, pp. 300-306; Formative Assessment, p. 306 (#4) Section 9.2, pp. 307-313; Formative Assessment, p. 313 (#1, #2) Chapter 9, Think Science, p. 323; Review, p. 325 (#1)</p> <p>TE: Section 9.2, Demonstration, p. 311</p> <p>Science Standards Guide: SE: 18-19 TE: 34-37</p> <p>Online Labs: Temperature and Internal Energy (9.1); Thermal Expansion (9.1)</p> <p>Animations & Simulations: Animated Physics: Heat (9.2)</p> <p>Multimedia Labs & Activities: Virtual Lab: Specific Heat of a Metal (Chapter 9)</p>

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SC.912.P.10.10	Compare the magnitude and range of the four fundamental forces (gravitational, electromagnetic, weak nuclear, strong nuclear).	<p>SE: Section 4.1, p. 121 Section 4.4, p. 143; Formative Assessment, p. 143 (#3) Section 20.4, pp. 718-719 Section 22.4, pp. 795-797; Formative Assessment, p. 801 (#1, #4)</p> <p>Science Standards Guide: SE: 20-21 TE: 38-42</p> <p>Online Labs: Air Resistance (4.4); Friction: Testing Materials (4.4)</p> <p>Animations & Simulations: Animated Physics: Friction (4.4); The Standard Model of Particle Physics (22.4) PhET Simulation: Friction (4.4)</p> <p>Multimedia Labs & Activities: Virtual Lab: Friction (4.4)</p>
SC.912.P.10.13	Relate the configuration of static charges to the electric field, electric force, electric potential, and electric potential energy.	<p>SE: Section 16.1, pp. 550-552 Section 16.2, pp. 556-563; Formative Assessment, p. 563 (#5) Section 16.3, Formative Assessment, p. 571 (#4) R32-R33 [Student Resources, Appendix D: Equations]</p> <p>TE: Section 16.2, Classroom Practice, p. 557</p> <p>Science Standards Guide: SE: 22-24 TE: 43-47</p> <p>Online Lab: Electric Force (16.2)</p>

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SC.912.P.10.14	Differentiate among conductors, semiconductors, and insulators.	<p>SE: Section 16.1, pp. 553-555; Formative Assessment, p. 555 (#5) Section 16.3, p. 570 Section 17.3, p. 599 Chapter 17, Why It Matters, p. 605 Chapter 21, Physics on the Edge, pp. 762-763</p> <p>TE: Section 16.3, Differentiated Instruction, p. 570</p> <p>Science Standards Guide: SE: 25-26 TE: 48-52</p> <p>Animations & Simulations: PhET Simulation: Conductivity (16.1)</p>
SC.912.P.10.15	Investigate and explain the relationships among current, voltage, resistance, and power.	<p>SE: Section 17.3, pp. 596-604 Section 19.2, pp. 672-674; Quick Lab, p. 673 Section 20.2, pp. 702-707 R34 [Student Resources, Appendix D: Equations]</p> <p>TE: Section 17.3, Demonstration, p. 601 Section 19.2, Demonstration, p. 672; Differentiated Instruction, pp. 672-673; Section 20.2, Differentiated Instruction, pp. 702-703; Why It Matters, p. 708</p> <p>Science Standards Guide: SE: 27-28 TE: 53-57</p> <p>Online Labs: Current and Resistance (17.3); Ohm’s Law (17.3); Design a Circuit (18.3); Designing a Dimmer Switch (18.3); Magnetism from Electricity (19.2)</p> <p>Animations & Simulations: Resistance in a Wire (17.3)</p> <p>Multimedia Labs & Activities: Virtual Lab: Ohm’s Law (Chapter 17)</p>

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SC.912.P.10.18	Explore the theory of electromagnetism by comparing and contrasting the different parts of the electromagnetic spectrum in terms of wavelength, frequency, and energy, and relate them to phenomena and applications.	<p>SE: Section 13.1, pp. 444-448; Formative Assessment, p. 448 (#1) Chapter 13, Review, p. 475 (#1, #2) Section 20.4, pp. 717-723 Chapter 20, Why It Matters, p. 720; Formative Assessment, p. 723 (#1, #3, #4)</p> <p>TE: Section 13.1, Demonstration, p. 445; Section 20.4, Teach From Visuals, p. 717; Differentiated Instruction, pp. 721, 722</p> <p>Science Standards Guide: SE: 29-30 TE: 58-61</p> <p>Online Labs: Using Maxwell’s Rainbow (20.4)</p> <p>Multimedia Labs & Activities: Visual Concepts: Electromagnetic Waves (13.1); Electromagnetic Spectrum (13.1); Electromagnetic Spectrum (20.4)</p>
SC.912.P.10.20	Describe the measurable properties of waves and explain the relationships among them and how these properties change when the wave moves from one medium to another.	<p>SE: Section 11.3, pp. 380-386; Formative Assessment, p. 386 (#3); Alternative Assessment, p. 400 (#3); Chapter 11 Review, p. 397 (#12)</p> <p>TE: Section 11.3, Differentiated Instruction, p. 380; Demonstration, p. 384; Problem Solving, pp. 384-385</p> <p>Science Standards Guide: SE: 31-32 TE: 62-65</p> <p>Animations & Simulations: Animated Physics: Characteristics of a Wave (11.3) PhET Simulations: Fourier: Making Waves (11.3)</p>
SC.912.P.10.21	Qualitatively describe the shift in frequency in sound or electromagnetic waves due to the relative motion of a source or a receiver.	<p>SE: Section 12.1, pp. 410-411; Formative Assessment, p. 411 (#7) Chapter 12, Physics on the Edge, pp. 430-431; Graphing Calculator Practice, p. 437; Review, Alternative Assessment, p. 438 (#5)</p> <p>TE: Section 12.1, Demonstration, p. 410</p> <p>Science Standards Guide: SE: 33-34 TE: 61-64</p> <p>Animations & Simulations: PhET Simulation: Sound (12.1)</p>

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SC.912.P.10.22	Construct ray diagrams and use thin lens and mirror equations to locate the images formed by lenses and mirrors.	<p>SE: Section 13.3, pp. 457-466; Formative Assessment, p. 466 (#1) Section 14.2, pp. 491-497; Formative Assessment, p. 501 (#5) R32-R33 [Student Resources, Appendix D: Equations]</p> <p>TE: Section 13.3, Differentiated Instruction, p. 457; Problem Solving, pp. 458-459, 462-463 Section 14.2, Differentiated Instruction, p. 494; Problem Solving, pp. 496-497</p> <p>Science Standards Guide: SE: 35-36 TE: 70-73</p> <p>Online Labs: Curved Mirrors (13.3); Converging Lenses (14.2); Focal Length (14.2); Prescription Glasses (14.2)</p> <p>Animations & Simulations: Animated Physics: Curved Mirrors (13.3); Lenses (14.2) PhET Simulation: Geometric Optics (14.2)</p> <p>Multimedia Labs & Activities: Virtual Lab: Image Formation Using Lenses (Chapter 14)</p>
SC.912.P.12.1	Distinguish between scalar and vector quantities and assess which should be used to describe an event.	<p>SE: Section 3.1, pp. 82-85; Formative Assessment, p. 85 (#1)</p> <p>TE: Section 3.1, Differentiated Instruction, p. 82</p> <p>Science Standards Guide: SE: 37-38 TE: 74-77</p> <p>Online Labs: Vector Treasure Hunt (3.1)</p> <p>Animations & Simulations: PhET Simulation: Forces in 1 Dimension (3.1)</p>

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SC.912.P.12.2	Analyze the motion of an object in terms of its position, velocity, and acceleration (with respect to a frame of reference) as functions of time.	<p>SE: Section 2.1, pp. 38-45; Formative Assessment, p. 45 (#2) Section 2.2, pp. 46-57; Formative Assessment, p. 53 (#3) Section 2.3, pp. 58-59, 61, 63 Chapter 2, Physics on the Edge, pp. 68-69 Section 3.1, pp. 80, 82-84</p> <p>TE: Section 2.1, Differentiated Instruction, pp. 39, 40, 43; Problem Solving, p. 42</p> <p>Science Standards Guide: SE: 39-40 TE: 78-81</p> <p>Online Labs: Motion (2.1); Position (2.1); Acceleration (2.2)</p> <p>Animations & Simulations: Animated Physics: Acceleration in One Dimension (2.2) PhET Simulation: Maze Game (2.2)</p>
SC.912.P.12.3	Interpret and apply Newton’s three laws of motion.	<p>SE: Section 4.2, pp. 125-129 Section 4.3, pp. 130-134; Formative Assessment, p. 134 (#1, #2, #3, #5) Chapter 4 Review, p. 147 (#14) R27 [Student Resources, Appendix D: Equations]</p> <p>TE: Section 4.3, Differentiated Instruction - Inclusion, p. 130; Demonstration, p. 132; Differentiated Instruction, p. 132; p. 133 (Misconception Alert);</p> <p>Science Standards Guide: SE: 41-42 TE: 82-85</p> <p>Online Labs: Discovering Newton’s Laws (4.1); Newton’s First Law (4.1)</p> <p>Animations & Simulations: Animated Physics: Force (4.3) PhET Simulations: Forces and Motion (4.1); Forces and Motion: Basics (4.1)</p> <p>Multimedia Labs & Activities: Virtual Lab: Newton’s Second Law of Motion (Chapter 4)</p>

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SC.912.P.12.4	Describe how the gravitational force between two objects depends on their masses and the distance between them.	<p>SE: Section 7.2, pp. 232-234; Practice, p. 234 (#3); Quick Lab, p. 237; Formative Assessment, p. 239 (#3, 4, 5)</p> <p>TE: Section 7.2, Differentiated Instruction, p. 231; Teach From Visuals, p. 233; Classroom Practice, p. 234</p> <p>Science Standards Guide: SE: 43-44 TE :86-89</p> <p>Animations & Simulations: PhET Simulation: Gravity Force Lab (7.2)</p> <p>Multimedia Labs & Activities: Virtual Lab: Centripetal Force (Chapter 7)</p>
SC.912.P.12.5	Apply the law of conservation of linear momentum to interactions, such as collisions between objects.	<p>SE: Section 6.2, pp. 199-205, Formative Assessment, p. 205 (#3) Section 6.3, pp. 206-214, Formative Assessment, p. 214 (#5b) Chapter 6 Review, Alternative Assessment, p. 222 (#1) R28-R29 [Student Resources, Appendix D: Equations]</p> <p>TE: Section 6.2, Problem Solving, p. 202 Section 6.3, Differentiated Instruction, p. 210</p> <p>Science Standards Guide: SE: 45-46 TE: 90-93</p> <p>Online Labs: Conservation of Momentum (6.2); Momentum, Energy, and Collisions (6.2); Collisions (6.3); Elastic and Inelastic Collisions (6.3)</p> <p>Animations & Simulations: Animated Physics: Conservation of Momentum (6.2) PhET Simulation: Collision Lab (6.3)</p> <p>Multimedia Labs & Activities: Virtual Lab: Momentum and Impulse (Chapter 6); Conservation of Momentum (Chapter 6)</p>
SC.912.P.12.7	Recognize that nothing travels faster than the speed of light in vacuum which is the same for all observers no matter how they or the light source are moving.	<p>SE: Chapter 3, Physics on the Edge, pp. 106-107 Section 14.1, pp. 485-489 Section 20.4, pp. 719, 721-723; Why It Matters, p. 720; Think Science, p. 724</p> <p>TE: Section 20.4, Problem Solving, p. 719</p> <p>Science Standards Guide: SE: 47-48 TE: 94-97</p>

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SC.912.P.12.9	Recognize that time, length, and energy depends on the frame of reference.	<p>SE: Section 2.1, pp. 38-39 Section 3.4, pp. 102-105; Formative Assessment, p. 105 (#3) Chapter 3 Review, p. 113 (#39) Section 22.1, Did You Know, p. 776</p> <p>TE: Section 2.1, Differentiated Instruction: Below Level, p. 39</p> <p>Science Standards Guide: SE: 49-50 TE: 98-101</p>
LAFS.1112.RST.1.1	Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.	<p>SE: Chapter 7 Review, Alternative Assessment, p. 268 (#1)</p> <p>TE: Chapter 3, Physics on the Edge, Extension, p. 104</p> <p>Online Student Resources: Scientific Reasoning Skill Builder: 122–124, 126–128</p>
LAFS.1112.RST.1.2	Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.	<p><i>This Benchmark is covered throughout the program. The following are some of the many examples:</i></p> <p>SE: Chapters 1-22, Formative Assessments/Reviewing Main Ideas, pp. 94, 134, 198, 253, 339, 373, 466, 539 Chapter 7 Review, Alternative Assessment, p. 268 (#3) Chapter 8 Review, Alternative Assessment, p. 294 (#3) Chapter 10 Review, Alternative Assessment, p. 362 (#2, #3) Chapter 21 Review, Alternative Assessment, p. 768 (#3) Chapter 22 Review, Alternative Assessment, p. 810 (#5)</p> <p>TE: Chapter 5 Summary, Teaching Tip, p. 182</p>
LAFS.1112.RST.1.3	Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.	<p>SE: Chapter 13 Review, Alternative Assessment, p. 479 (#6)</p> <p><i>This Benchmark is covered throughout the Lab program. The following are some of the many examples:</i></p> <p>Online Labs: Physics and Measurement (1.2); Free-Fall Acceleration (2.3); Velocity of a Projectile (3.3); Force and Acceleration (4.3); Impulse and Momentum (6.1); Newton’s Law of Cooling (9.2); Specific Heat Capacity (9.3); Polarization of Light (13.4); Capacitors (17.2);</p>

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LAFS.1112.RST.2.4	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11–12 texts and topics.	SE: Section 1.2, p. 15 (Sample Problem A), Formative Assessment, p. 27 (#1) Chapter 11 Review, Alternative Assessment, p. 400 (#12, #13) Chapter 17 Review, Alternative Assessment, p. 424 (#1) R24-R25 [Appendix C, Symbols] TE: Section 1.1, Differentiated Instruction, pp. 4-5 Section 1.2, Problem Solving, p. 12 Online Teacher Resources: Teacher Toolkit Section D—Vocabulary Strategies, Worksheets D25–D31 Online Student Resources: Scientific Reasoning Skill Builder: Section 3-1, pp. 34–43; Section 3-2, pp. 44–46; Section 3-3, pp. 47–51; Section 8.3, pp. 146–150
LAFS.1112.RST.2.5	Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.	TE: Chapter 3 Summary, p. 110; Chapter 4 Summary, p. 145; Chapter 6 Summary, p. 217; Chapter 8 Summary, p. 287; Chapter 9 Summary, p. 324; Chapter 10 Summary, p. 358; Chapter 11 Summary, p. 396; Chapter 17 Summary, p. 615; Chapter 18 Summary, p. 656; Chapter 20 Summary, p. 725; Chapter 21 Summary, p. 762; Chapter 22 Summary, p. 803 Online Interactive Review—Interactive Concept Maps: Chapter 1 Interactive Concept Map; Chapter 2 Interactive Concept Map; Chapter 3 Interactive Concept Map
LAFS.1112.RST.2.6	Analyze the author’s purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, identifying important issues that remain unresolved.	SE: Chapter 7 Review, Alternative Assessment, p. 268 (#1) Chapter 9 Review, Alternative Assessment, p. 328 (#4) Online Student Resources: Scientific Reasoning Skill Builder: Chapter 7, Section 7-5, pp. 122–124, 126–128
LAFS.1112.RST.3.7	Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.	Online Labs: Power Programming (5.4) Science Standards Guide: SE: 8-9 TE: 14-17
LAFS.1112.RST.3.8	Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information.	SE: Chapter 7 Review, Alternative Assessment, p. 268(#1) Online Labs: Power Programming (5.4)

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LAFS.1112.RST.3.9	Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.	<p>SE: Chapter 14, Think Science, p. 509 Chapter 15, Think Science, p. 541 Chapter 19, Think Science, p. 682</p> <p>TE: Chapter 14, Think Science, p. 509 Chapter 15, Think Science, p. 541 Chapter 19, Think Science, p. 682</p> <p>Science Standards Guide: SE: 8-9, 20-21 TE: 14-17, 38-42</p> <p>Online Labs: Power Programming (5.4)</p>
LAFS.1112.RST.4.10	By the end of grade 12, read and comprehend science/technical texts in the grades 11–12 text complexity band independently and proficiently.	<p>SE: Section 1.1, p. 9 (Did You Know?) Chapter 2, Alternative Assessment, p. 78 (#3, #5) Chapter 12, Alternative Assessment, p. 438 (#1, #4, #5, #7, #8) Chapter 14, Alternative Assessment, p. 516 (#6, #7, #8) Chapter 15, Think Science, p. 541; Alternative Assessment, p. 545 (#4, 5) Chapter 16, Alternative Assessment, p. 578 (#4, #7) Chapter 17, Alternative Assessment, p. 624 (#2, #3, #5, #6) S.T.E.M. Engineering and Technology, Conduct Research, pp. 216, 627 Chapter 19, Think Science, p. 682 Chapter 20, Alternative Assessment, p. 730 (#3, #4)</p> <p>TE: Section 1.1, Differentiated Instruction: Pre-AP, p. 8</p>
LAFS.1112.SL.1.1	<p>Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 11–12 topics, texts, and issues, building on others’ ideas and expressing their own clearly and persuasively.</p> <p>a. Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.</p> <p>b. Work with peers to promote civil, democratic discussions and decision-making, set clear goals and deadlines, and establish individual roles as needed.</p> <p>c. Propel conversations by posing and responding to questions that probe reasoning and evidence; ensure a hearing for a full range of positions on a topic or issue; clarify, verify, or challenge ideas and conclusions; and promote divergent and creative perspectives.</p> <p>d. Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the task.</p>	<p><i>This Benchmark is covered throughout the program. The following are some of the many examples:</i></p> <p>SE: Chapter 2 Review, p. 78 (#2) Chapter 4 Review, p. 147 (#18) Section 5.2, Formative Assessment, p. 168 (#5) Section 5.4, Conceptual Challenge, p. 175 Chapter 5 Review, p. 185 (#27) Chapter 6 Review, p. 218 (#5, #6) Chapter 9 Review, p. 328 Chapter 18 Review, p. 657 (#13) Chapter 19 S.T.E.M. Engineering and Technology, p. 691</p> <p>TE: In the Classroom Discussion activities, students participate in a range of collaborative discussions. See, for example: Chapter 9 S.T.E.M. Engineering and Technology, p. 331 Chapter 19 S.T.E.M. Engineering and Technology, p. 691</p>

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LAFS.1112.SL.1.2	LAFS.1112.SL.1.2 Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.	Online Lab: Power Programming (5.4) Science Standards Guide: SE: 8-9 TE: 14-17
LAFS.1112.SL.1.3	Evaluate a speaker’s point of view, reasoning, and use of evidence and rhetoric, assessing the stance, premises, links among ideas, word choice, points of emphasis, and tone used.	TE: Chapter 5, Physics on the Edge, p. 178
LAFS.1112.SL.2.4	Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.	Science Standards Guide: SE: 8-9 TE: 14-17 SE: Chapter 2 Review, Alternative Assessment, p. 78 (#4) Chapter 14 Review, Alternative Assessment, p. 516 (#4, #5, #7) Chapter 15 Review, Alternative Assessment, p. 545 (#4, #5) Chapter 17 Review, Alternative Assessment, p. 624 (#2, #5) Chapter 19 Review, Alternative Assessment, p. 688 (#3) Chapter 22 Review, Alternative Assessment, p. 810 (#2, #4)
LAFS.1112.SL.2.5	Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.	Science Standards Guide: SE: 8-9 TE: 14-17 SE: Chapter 13 Review, Alternative Assessment, p. 479 (#4, #6) Chapter 14 Review, Alternative Assessment, p. 516 (#5, #7) Chapter 15 Review, Alternative Assessment, p. 545 (#4) Chapter 17 Review, Alternative Assessment, p. 624 (#2, #5) Chapter 22 Review, Alternative Assessment, p. 810 (#4)
LAFS.1112.WHST.1.1	Write arguments focused on discipline-specific content. a. Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences the claim(s), counterclaims, reasons, and evidence. b. Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form that anticipates the audience’s knowledge level, concerns, values, and possible biases. c. Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims. d. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. e. Provide a concluding statement or section that follows from or supports the argument presented.	SE: Chapter 17 Review, Alternative Assessment, p. 624 (#6) Chapter 22 Review, Alternative Assessment, p. 811(#6) TE: Chapter 9, Why It Matters, p. 316(Extension) Online Labs: STEM Lab: Curved Mirrors (13.3) Online Teacher Resources—Classroom Management Resources: <i>Writing a Research Paper</i>

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LAFS.1112.WHST.1.2	<p>Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.</p> <p>a. Introduce a topic and organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.</p> <p>b. Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience’s knowledge of the topic.</p> <p>c. Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.</p> <p>d. Use precise language, domain-specific vocabulary and techniques such as metaphor, simile, and analogy to manage the complexity of the topic; convey a knowledgeable stance in a style that responds to the discipline and context as well as to the expertise of likely readers.</p> <p>e. Provide a concluding statement or section that follows from and supports the information or explanation provided (e.g., articulating implications or the significance of the topic).</p>	<p>Science Standards Guide: SE: 5-7, 8-9, 18-19, 22-24 TE: 9-13, 14-1734-37, 43-47</p> <p>SE: Chapter 1 Review, Alternative Assessment, p. 34 (#4); Chapter 5 Review, Alternative Assessment, p. 188 (#4, #8) Chapter 6 Review, Alternative Assessment, p. 222 (#1) Chapter 7 Review, Alternative Assessment, p. 265 (#1) Chapter 9 Review, Alternative Assessment, p. 328 (#6) Chapter 12 Review, Alternative Assessment, p. 438 (#8) Chapter 14 Review, Alternative Assessment, p. 516 (#8)</p> <p>TE: Section 17.4, Extension, p. 610</p> <p>Online Labs: STEM Lab Power Programming (5.4)</p> <p>Online Teacher Resources—Classroom Management Resources: <i>Writing a Research Paper, Writing a Lab Report</i></p>
LAFS.1112.WHST.2.4	<p>Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p>	<p>Science Standards Guide: SE: 5-7, 8-9, 18-19, 22-24 TE: 9-13, 14-1734-37, 43-47</p> <p>SE: Chapter 1 Review, Alternative Assessment, p. 34 (#4) Chapter 5 Review, Alternative Assessment, p. 188 (#4, #8) Chapter 6 Review, Alternative Assessment, p. 222 (#1) Chapter 7 Review, Alternative Assessment, p. 265 (#1) Chapter 9 Review, Alternative Assessment, p. 328 (#6) Chapter 12 Review, Alternative Assessment, p. 438 (#8) Chapter 14 Review, Alternative Assessment, p. 516 (#8) Chapter 17 Review, Alternative Assessment, p. 624 (#6) Chapter 22 Review, Alternative Assessment, p. 811(#6)</p> <p>TE: Chapter 9, Why It Matters, p. 316(Extension); Section 17.4, Extension, p. 610</p> <p>Online Labs: Power Programming (5.4); Curved Mirrors (13.3)</p> <p>Online Teacher Resources—Classroom Management Resources: <i>Writing a Research Paper, Writing a Lab Report</i></p>

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LAFS.1112.WHST.2.5	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.	<p>Science Standards Guide: SE: 5-7, 8-9, 18-19, 22-24 TE: 9-13, 14-1734-37, 43-47</p> <p>SE: Section 1.1, p. 6</p> <p>Online Teacher Resources—Classroom Management Resources: <i>Writing a Research Paper</i></p>
LAFS.1112.WHST.2.6	Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.	<p>Science Standards Guide: SE: 5-7, 8-9, 18-19, 22-24 TE: 9-13, 14-1734-37, 43-47</p> <p>SE: Chapter 13 Review, Alternative Assessment, p. 479 (#4) Chapter 14 Review, Alternative Assessment, p. 516 (#7) Chapter 17 Review, Alternative Assessment, p. 624 (#2) Chapter 22 Review, Alternative Assessment, p. 810 (#4)</p> <p>Online Labs: Power Programming (5.4); STEM Lab: Curved Mirrors (13.3)</p> <p>Online Teacher Resources—Classroom Management Resources: <i>Writing a Research Paper</i></p>
LAFS.1112.WHST.3.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.	<p>Science Standards Guide: SE: 5-7, 8-9, 18-19, 22-24 TE: 9-13, 14-17, 34-37, 43-47</p> <p>SE: Chapter 5 Review, Alternative Assessment, p. 188 (#5) Chapter 7 Review, Alternative Assessment, p. 268 (#1) Chapter 12 Review, Alternative Assessment, p. 438 (#8) Chapter 14 Review, Alternative Assessment, p. 516 (#8) Chapter 19, Think Science, p. 682 Chapter 22, S.T.E.M. Engineering and Technology, pp. 812–813 TE: Section 17.4, p. 610 (Extension)</p> <p>Online Labs Power Programming (5.4); Curved Mirrors (13.3)</p> <p>Online Teacher Resources—Classroom Management Resources: <i>Writing a Research Paper</i></p>

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LAFS.1112.WHST.3.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.	Science Standards Guide: SE: 5-7, 8-9, 18-19, 22-24 TE: 9-13, 14-17, 34-37, 43-47 SE: Chapter 5 Review, Alternative Assessment, p. 188 (#5) Online Labs: Power Programming (5.4); Curved Mirrors (13.3) Online Teacher Resources—Classroom Management Resources: <i>Writing a Research Paper</i>
LAFS.1112.WHST.3.9	Draw evidence from informational texts to support analysis, reflection, and research.	Science Standards Guide: SE: 20-21, 22-24 TE: 38-42, 43-47 SE: Chapter 7 Review, Alternative Assessment, p. 268 (#1) Chapter 22 Review, Alternative Assessment, p. 811(#6) TE: Chapter 3, Physics on the Edge, Extension, p. 107 Online Labs: Power Programming (5.4); Curved Mirrors (13.3)
LAFS.1112.WHST.4.10	Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.	Science Standards Guide: SE: 5-7, 8-9, 18-19, 22-24 TE: 9-13, 14-1734-37, 43-47 SE: Chapter 2, Science Writer, p. 70 Chapter 4 Review, Alternative Assessment, p. 150 (#3) Chapter 5 Review, Alternative Assessment, p. 188 (#4-8) Chapter 14 Review, Alternative Assessment, p. 516 (#6-8) Chapter 18 Review, Alternative Assessment, p. 662 (#3)
MAFS.912.F-IF.2.4	For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.	SE: Section 1.3, pp. 23-27 TE: Section 1.1, Differentiated Instruction, p. 8 Section 1.3, Differentiated Instruction, p. 23 Science Standards Guide: SE: 51-52 TE: 102-105 Online Labs: Graph Matching (1.3); Motion (2.1); Free Fall (2.3) Animations & Simulations: Animated Physics: Dimensional Analysis (1.2)

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MAFS.912.F-IF.3.7	Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. * a. Graph linear and quadratic functions and show intercepts, maxima, and minima. b. Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions. c. Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior. d. Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available, and showing end behavior. e. Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude, and using phase shift.	SE: R7-R10 [Appendix A, Mathematical Review] TE: R7-R10 [Appendix A, Mathematical Review] Science Standards Guide: SE: 51-52 TE: 102-105
MAFS.912.G-MG.1.2	Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot). *	SE: Section 8.1, pp. 272-277 TE: Section 8.1, Demonstration, p. 273, Problem Solving, pp. 274-275 Animations & Simulations: Animated Physics: Density and Buoyant Force (8.1) PhET Simulation: Density (8.1)
MAFS.912.N-Q.1.1	Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays. *	SE: Section 1.2, pp. 11-15 Section 1.3, Formative Assessment, p. 27 (#2) Section 2.2, p. 46 Section 2.3, p. 66; Chapter 7, Take It Further, pp. 258-259 Section 8.2, p. 278; Graphing Calculator Practice, p. 294 Chapter 10 Review, p. 359 (#3) Section 17.1, p. 584 R38-R39 [Student Resources, Appendix E, SI Units] TE: Section 1.2, Differentiated Instruction, pp. 10-11, Demonstration, p. 11 Online Labs: Physics and Measurement (1.2) Animations & Simulations: Animated Physics: Dimensional Analysis (1.2)

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MAFS.912.N-Q.1.3	Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. *	SE: Section 1.2, pp. 16-20, Formative Assessment, p. 22 (#4), Chapter 1 Review, p. 31 (#17); Alternative Assessment, p. 34 (#2, #4); R15-R16 [Appendix A, Mathematical Review] TE: Section 1.2, Demonstration, Differentiated Instruction, p. 16 Science Standards Guide: SE: 53-54 TE: 106-110 Online Labs: Physics and Measurement (1.2)
MAFS.912.N-VM.1.3	Solve problems involving velocity and other quantities that can be represented by vectors.	SE: Section 2.1, pp. 38-44; Formative Assessment, p. 85 (#1, #4) Section 2.2, pp. 48-49 Section 3.1, pp. 82-85 Section 3.2, pp. 86-94 TE: Section 2.2, Demonstration, p. 49; Problem-Solving, p. 50 Section 3.2, Problem Solving, p. 86; Teaching Tip, p. 92 Online Labs: Here and There (2.1); Motion (2.1); Race-Car Construction (2.2); Free-Fall Acceleration (2.3); Velocity of a Projectile (3.3)
MAFS.912.S-ID.1.1	Represent data with plots on the real number line (dot plots, histograms, and box plots). *	SE: Section 1.2, pp. 21-22 Section 21.1, p. 737 Science Standards Guide: SE: 55-56 TE: 111-115
MAFS.912.S-ID.1.2	Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets. *	SE: Section 1.2, pp. 21-22 Section 21.1, p. 737 Science Standards Guide: SE: 57-58 TE: 116-119
MAFS.912.S-ID.1.3	Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers). *	SE: Section 1.2, pp. 21-22 Section 2.2, p. 48 Section 21.1, p. 737 Science Standards Guide: SE: 59-60 TE: 121-124

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MAFS.912.S-ID.1.4	Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve. *	SE: Section 1.2, pp. 21-22 Science Standards Guide: SE: 59-60 TE: 121-124
MAFS.912.S-ID.2.5	Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data. *	SE: Section 1.3, p. 23 Chapter 9 Review, Alternative Assessment, p. 328 (#3) Chapter 9 S.T.E.M. Engineering and Technology, p. 330 TE: Section 1.3, Differentiated Instruction, p. 23 Science Standards Guide: SE: 61-62 TE: 124-12
ELD.K12.ELL.SC.1	English language learners communicate information, ideas and concepts necessary for academic success in the content area of Science.	<i>This Benchmark is covered throughout the program. The following are some of the many examples:</i> SE: Strategies for English Language Learners, pp. xvii-xxii; TE: Strategies for English Language Learners, pp. xvii-xxii; Section 2.2 Differentiated Instruction: English Learners, p. 46; Section 5.3 Differentiated Instruction: English Learners, p. 169; Section 9.1 Differentiated Instruction: English Learners, p. 300; Section 19.1 Differentiated Instruction: English Learners, p. 667; Section 21.1 Differentiated Instruction: English Learners, p. 736
ELD.K12.ELL.SI.1	English language learners communicate for social and instructional purposes within the school setting.	<i>This Benchmark is covered throughout the program. The following are some of the many examples:</i> SE: Strategies for English Language Learners, pp. xvii-xxii; TE: Strategies for English Language Learners, pp. xvii-xxii; Section 2.2 Differentiated Instruction: English Learners, p. 46; Section 5.3 Differentiated Instruction: English Learners, p. 169; Section 9.1 Differentiated Instruction: English Learners, p. 300; Section 19.1 Differentiated Instruction: English Learners, p. 667; Section 21.1 Differentiated Instruction: English Learners, p. 736