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# Physics

Curriculum Guide

Scranton School District

Scranton, PA



Scranton School District  
Curriculum Guide

**Physics**

**Prerequisite:**

- Students who enroll in Physics should have successfully completed Geometry and should be currently taking at least Algebra II/Trigonometry or an equivalent mathematics course.
- Students who select Physics should possess strong mathematical abilities and problem solving skills along with mature study skills.

The course is designed to prepare students for a first year college physics class. The topics of the course include but are not limited to Newtonian Mechanics, Waves and Optics, Electricity and Magnetism and/or Fluid Mechanics. The class meets six periods a week, which includes one two period lab session. The students are required to complete lab experiments and to submit laboratory reports.

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Year-at-a-glance

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| <b>Subject: Physics</b> | <b>Grade Level: 12</b> | <b>Date Completed: June 12, 2015</b> |
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**1<sup>st</sup> Quarter**

| Topic  | Resources  | Academic Standards  |
|--|--|---|
| <b>Introduction :</b><br><b>Mathematical Review</b><br><b>Measurement</b><br><b>Dimensional Analysis</b><br><b>Metric Prefixes</b><br><b>Factor Label</b><br><b>SI Units</b><br><b>Math Review</b><br><b>Conversions of Units</b><br><b>Metric Prefixes</b><br><b>Dimensional Analysis</b><br><b>Displaying Data</b> | <b>Approved Physics Text</b><br><b>Power Point Displays</b><br><b>Worksheets</b><br><b>Problems</b><br><b>Lab Activity</b><br><b>Critical Thinking Questions</b> | <p>There are no PA Physics standards for this unit at this time but it serves as a foundation for the course.</p> <p>CC.3.6.11-12.A<br/>           CC.3.5.11-12.A<br/>           CC.3.5.11-12.B<br/>           CC.3.5.11-12.C<br/>           CC.3.5.11-12.D<br/>           CC.3.5.11-12.E<br/>           CC.3.5.11-12.F</p> |
| <b>Motion in One Dimension</b>   | <b>Approved Physics Text</b><br><b>Power Point Displays</b><br><b>Worksheets</b><br><b>Problems</b><br><b>Lab Activity</b><br><b>Critical Thinking Questions</b> | <p>There are no PA Physics standards for this unit at this time but it serves as a foundation for the course.</p> <p>CC.3.6.11-12.A<br/>           CC.3.5.11-12.A<br/>           CC.3.5.11-12.B<br/>           CC.3.5.11-12.C<br/>           CC.3.5.11-12.D<br/>           CC.3.5.11-12.E<br/>           CC.3.5.11-12.F</p> |

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| <b>Two Dimensional Motion and Vectors</b> | <b>Approved Physics Text<br/>Power Point Displays<br/>Worksheets<br/>Problems<br/>Lab Activity<br/>Critical Thinking Questions</b> | <b>There are no PA Physics standards for this unit at this time but it serves as a foundation for the course.</b><br><br>CC.3.6.11-12.A<br>CC.3.5.11-12.A<br>CC.3.5.11-12.B<br>CC.3.5.11-12.C<br>CC.3.5.11-12.D<br>CC.3.5.11-12.E<br>CC.3.5.11-12.F |
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**2<sup>nd</sup> Quarter**

| <b>Topic</b>                         | <b>Resources</b>   | <b>Academic Standards</b>   |
|--------------------------------------|--|---|
| <b>Forces and the Laws of Motion</b> | <b>Approved Physics Text</b><br><b>Power Point Displays</b><br><b>Worksheets</b><br><b>Problems</b><br><b>Lab Activity</b><br><b>Critical Thinking Questions</b> | <b>3.2.P.B6</b><br><b>3.2.12.B6</b><br><b>CC.3.6.11-12.A</b><br><b>CC.3.5.11-12.A</b><br><b>CC.3.5.11-12.B</b><br><b>CC.3.5.11-12.C</b><br><b>CC.3.5.11-12.D</b><br><b>CC.3.5.11-12.E</b><br><b>CC.3.5.11-12.F</b>  |
| <b>Work and Energy</b>               | <b>Approved Physics Text</b><br><b>Power Point Displays</b><br><b>Worksheets</b><br><b>Problems</b><br><b>Lab Activity</b><br><b>Critical Thinking Questions</b> | <b>3.2.P.B2</b><br><b>3.2.12.B6</b><br><b>CC.3.6.11-12.A</b><br><b>CC.3.5.11-12.A</b><br><b>CC.3.5.11-12.B</b><br><b>CC.3.5.11-12.C</b><br><b>CC.3.5.11-12.D</b><br><b>CC.3.5.11-12.E</b><br><b>CC.3.5.11-12.F</b>  |
| <b>Momentum and Collisions</b>       | <b>Approved Physics Text</b><br><b>Power Point Displays</b><br><b>Worksheets</b><br><b>Problems</b><br><b>Lab Activity</b><br><b>Critical Thinking Questions</b> | <b>3.2.12.B2</b><br><b>3.2.12.B6</b><br><b>CC.3.6.11-12.A</b><br><b>CC.3.5.11-12.A</b><br><b>CC.3.5.11-12.B</b><br><b>CC.3.5.11-12.C</b><br><b>CC.3.5.11-12.D</b><br><b>CC.3.5.11-12.E</b><br><b>CC.3.5.11-12.F</b> |

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**3<sup>rd</sup> Quarter**

| <b>Topic</b>                           | <b>Resources</b>   | <b>Academic Standards</b>   |
|--|--|---|
| <b>Circular Motion and Gravitation</b> | <b>Approved Physics Text</b><br><b>Power Point Displays</b><br><b>Worksheets</b><br><b>Problems</b><br><b>Lab Activity</b><br><b>Critical Thinking Questions</b> | <b>3.2.P.B1</b><br><b>3.2.12.B1</b><br><b>CC.3.6.11-12.A</b><br><b>CC.3.5.11-12.A</b><br><b>CC.3.5.11-12.B</b><br><b>CC.3.5.11-12.C</b><br><b>CC.3.5.11-12.D</b><br><b>CC.3.5.11-12.E</b><br><b>CC.3.5.11-12.F</b>                    |
| <b>Vibrations and Waves</b>            | <b>Approved Physics Text</b><br><b>Power Point Displays</b><br><b>Worksheets</b><br><b>Problems</b><br><b>Lab Activity</b><br><b>Critical Thinking Questions</b> | <b>3.2.P.B1</b><br><b>3.2.P.B5</b><br><b>3.2.12.B5</b><br><b>CC.3.6.11-12.A</b><br><b>CC.3.5.11-12.A</b><br><b>CC.3.5.11-12.B</b><br><b>CC.3.5.11-12.C</b><br><b>CC.3.5.11-12.D</b><br><b>CC.3.5.11-12.E</b><br><b>CC.3.5.11-12.F</b> |
| <b>Sound</b>                           | <b>Approved Physics Text</b><br><b>Power Point Displays</b><br><b>Worksheets</b><br><b>Problems</b><br><b>Lab Activity</b><br><b>Critical Thinking Questions</b> | <b>3.2.P.B5</b><br><b>3.2.12.B5</b><br><b>CC.3.6.11-12.A</b><br><b>CC.3.5.11-12.A</b><br><b>CC.3.5.11-12.B</b><br><b>CC.3.5.11-12.C</b><br><b>CC.3.5.11-12.D</b><br><b>CC.3.5.11-12.E</b><br><b>CC.3.5.11-12.F</b>                    |

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| <b>Light and Reflection</b> | <b>Approved Physics Text</b><br><b>Power Point Displays</b><br><b>Worksheets</b><br><b>Problems</b><br><b>Lab Activity</b><br><b>Critical Thinking Questions</b> | <b>3.2.P.B5</b><br><b>CC.3.6.11-12.A</b><br><b>CC.3.5.11-12.A</b><br><b>CC.3.5.11-12.B</b><br><b>CC.3.5.11-12.C</b><br><b>CC.3.5.11-12.D</b><br><b>CC.3.5.11-12.E</b><br><b>CC.3.5.11-12.F</b> |
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**4<sup>th</sup> Quarter**

| Topic                                | Resources  | Academic Standards  |
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| <b>Refraction</b>                    | <b>Approved Physics Text</b><br><b>Power Point Displays</b><br><b>Worksheets</b><br><b>Problems</b><br><b>Lab Activity</b><br><b>Critical Thinking Questions</b> | <b>There are no PA Physics standards for this unit at this time.</b>  |
| <b>Electric Forces and Fields</b>    | <b>Approved Physics Text</b><br><b>Power Point Displays</b><br><b>Worksheets</b><br><b>Problems</b><br><b>Lab Activity</b><br><b>Critical Thinking Questions</b> | <b>3.2.12.B4</b><br><b>3.2.12.B6</b><br><b>CC.3.6.11-12.A</b><br><b>CC.3.5.11-12.A</b><br><b>CC.3.5.11-12.B</b><br><b>CC.3.5.11-12.C</b><br><b>CC.3.5.11-12.D</b><br><b>CC.3.5.11-12.E</b><br><b>CC.3.5.11-12.F</b> |
| <b>Electrical Energy and Current</b> | <b>Approved Physics Text</b><br><b>Power Point Displays</b><br><b>Worksheets</b><br><b>Problems</b><br><b>Lab Activity</b><br><b>Critical Thinking Questions</b> | <b>3.2.P.B4</b><br><b>CC.3.6.11-12.A</b><br><b>CC.3.5.11-12.A</b><br><b>CC.3.5.11-12.B</b><br><b>CC.3.5.11-12.C</b><br><b>CC.3.5.11-12.D</b><br><b>CC.3.5.11-12.E</b><br><b>CC.3.5.11-12.F</b>                      |



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| <p><b>Circuits and Circuit Elements</b></p>  | <p><b>Approved Physics Text<br/>Power Point Displays<br/>Worksheets<br/>Problems<br/>Lab Activity<br/>Critical Thinking Questions</b></p> | <p><b>3.2.P.B4<br/>CC.3.6.11-12.A<br/>CC.3.5.11-12.A<br/>CC.3.5.11-12.B<br/>CC.3.5.11-12.C<br/>CC.3.5.11-12.D<br/>CC.3.5.11-12.E<br/>CC.3.5.11-12.F</b></p>                            |
| <p><b>Extra Topics</b></p> <p><b>Suggested Extra Topics:</b><br/> <b>Fluid Mechanics</b><br/> <b>Interference and Diffraction</b><br/> <b>Magnetism and Electromagnetic Induction</b><br/> <b>Atomic Physics</b><br/> <b>Subatomic Physics</b></p> | <p><b>Approved Physics Text<br/>Power Point Displays<br/>Worksheets<br/>Problems<br/>Lab Activity<br/>Critical Thinking Questions</b></p> | <p><b>3.2.12.A3<br/>3.2.P.B5<br/>3.2.P.B4<br/>CC.3.6.11-12.A<br/>CC.3.5.11-12.A<br/>CC.3.5.11-12.B<br/>CC.3.5.11-12.C<br/>CC.3.5.11-12.D<br/>CC.3.5.11-12.E<br/>CC.3.5.11-12.F</b></p> |
| <p><b>Final Exam Review</b></p>  |   |  |

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**Note: Academic Standards for Writing and Reading in Science and Technical Subjects are included in all general topics.**

**CC.3.6.11-12.A - Write arguments focused on discipline –specific content.\***

**CC.3.5.11-12.A - Support Science analysis using technical text.\***

**CC.3.5.11-12.B – Determine the central ideas and conclusions of a text.\***

**CC.3.5.11-12.C - Follow complex multistep procedures to perform technical tasks and analyze specific results by using text.\***

**CC.3.5.11-12.D -Determine the meaning of symbols, key terms and phrases that are used in technical context.\***

**CC.3.5.11-12.E - Use text to structure information into categories. \***

**CC.3.5.11-12.F- Describe a procedure and an experiment by using text.\***

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| General Topic           | Academic Standard(s)   | Essential Knowledge, Skills & Vocabulary  | Resources & Activities   | Assessments   | Suggested Time |
|-------------------------|--|---|--|---|----------------|
| Introduction to Physics | There are no PA Physics standards for this unit at this time but it serves as a foundation for the course.<br>CC.3.6.11-12.A<br>CC.3.5.11-12.A<br>CC.3.5.11-12.B<br>CC.3.5.11-12.C<br>CC.3.5.11-12.D | Areas of Physics<br>Measurement and Units<br>The SI System<br>Dimensional Analysis<br>Significant Figures<br>Factor Label and the Conversion of Units<br>Scientific Notation<br>Graphing Rules<br>* | Approved Physics Text<br>Power Point Displays<br>Worksheets<br>Problems<br>Related Lab Activities<br><br>Critical Thinking Questions<br><br>Teacher Demonstrations | Tests , quizzes, homework problems, worksheets, Lab reports | 12 days        |

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| <p><b>Motion in One Dimension</b></p>            | <p>There are no PA Physics standards for this unit at this time.<br/>CC.3.6.11-12.A<br/>CC.3.5.11-12.A<br/>CC.3.5.11-12.B<br/>CC.3.5.11-12.C<br/>CC.3.5.11-12.D<br/>CC.3.5.11-12.E<br/>CC.3.5.11-12.F</p>        | <p>Position, Speed.<br/>Velocity,<br/>Displacement,<br/>Acceleration, Motion with Constant Acceleration,<br/>Kinematics<br/>Equations, Graphical Interpretations,<br/>Acceleration due to Gravity, Free Fall,<br/>Scalars and Vectors</p> <p>*</p> | <p>Approved Physics Text<br/>Power Point Displays<br/>Worksheets<br/>Problems<br/>Related Lab Activities</p> <p>Critical Thinking Questions</p> <p>Teacher Demonstrations</p> | <p>Tests , quizzes, homework problems, worksheets, Lab reports</p> | <p>15 days</p> |
| <p><b>Two Dimensional Motion and Vectors</b></p> | <p>There are no PA Physics standards for this unit at this time but it serves as a foundation for the course.<br/>CC.3.6.11-12.A<br/>CC.3.5.11-12.A<br/>CC.3.5.11-12.B<br/>CC.3.5.11-12.C<br/>CC.3.5.11-12.D</p> | <p>Motion in Two Dimensions, Scalars and Vectors and their Applications to Two Dimensional Motion, Vector Components, Projectile Motion, Relative Motion</p> <p>*</p>  | <p>Approved Physics Text<br/>Power Point Displays<br/>Worksheets<br/>Problems<br/>Related Lab Activities</p> <p>Critical Thinking Questions</p> <p>Teacher Demonstrations</p> | <p>Tests , quizzes, homework problems, worksheets, Lab reports</p> | <p>18 days</p> |

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| <p><b>Forces and the Laws of Motion</b></p> | <p><b>3.2.P.B6<br/>3.2.12.B6<br/>CC.3.6.11-12.A<br/>CC.3.5.11-12.A<br/>CC.3.5.11-12.B<br/>CC.3.5.11-12.C<br/>CC.3.5.11-12.D<br/>CC.3.5.11-12.E<br/>CC.3.5.11-12.F</b></p> | <p><b>Newton’s Three<br/>Laws of Motion, Free<br/>Body Diagrams,<br/>Weight, Force<br/>Normal, Static and<br/>Kinetic Friction, The<br/>First Condition of<br/>Equilibrium, Forces<br/>on the Inclined Plane</b></p> <p><b>Use Newton’s Laws<br/>of Motion to describe<br/>and predict the<br/>motion of objects.<br/>Compare and<br/>contrast the motion<br/>of objects using<br/>forces Newton’s<br/>Laws.</b></p> <p><b>*</b></p> | <p><b>Approved Physics Text<br/>Power Point Displays<br/>Worksheets<br/>Problems<br/>Related Lab Activities</b></p> <p><b>Critical Thinking<br/>Questions</b></p> <p><b>Teacher Demonstrations</b></p> | <p><b>Tests , quizzes,<br/>homework<br/>problems,<br/>worksheets,<br/>Lab reports</b></p> | <p><b>18 days</b></p> |
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| <p><b>Work and Energy</b></p> | <p><b>3.2.P.B2<br/>3.2.12.B6<br/>CC.3.6.11-12.A<br/>CC.3.5.11-12.A<br/>CC.3.5.11-12.B<br/>CC.3.5.11-12.C<br/>CC.3.5.11-12.D<br/>CC.3.5.11-12.E<br/>CC.3.5.11-12.F</b></p> | <p><b>Mechanical Energy,<br/>Conservative and<br/>Nonconservative<br/>Forces, Work done by<br/>nonconservative<br/>forces, The Work<br/>Kinetic Energy<br/>Theorem,<br/>Conservation of<br/>Mechanical Energy,<br/>Power Simple<br/>Machines</b></p> <p><b>Compare and<br/>contrast the motion<br/>of objects using<br/>forces Newton's Laws<br/>and Conservation of<br/>Energy.</b></p> <p><b>*</b></p> | <p><b>Approved Physics Text<br/>Power Point Displays<br/>Worksheets<br/>Problems<br/>Related Lab Activities</b></p> <p><b>Critical Thinking<br/>Questions</b></p> <p><b>Teacher Demonstrations</b></p> | <p><b>Tests , quizzes,<br/>homework<br/>problems,<br/>worksheets,<br/>Lab reports</b></p> | <p><b>14 days</b></p> |
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| <p><b>Momentum and Collisions</b></p> | <p>3.2.12.B2<br/>3.2.12.B6<br/>CC.3.6.11-12.A<br/>CC.3.5.11-12.A<br/>CC.3.5.11-12.B<br/>CC.3.5.11-12.C<br/>CC.3.5.11-12.D<br/>CC.3.5.11-12.E<br/>CC.3.5.11-12.F</p> | <p><b>Linear Momentum, Impulse, Interpretation of F vs. t graphs, Conservation of Linear Momentum, Elastic, Inelastic, and Partially Elastic Collisions</b></p> <p><b>Demonstrate how the law of conservation of momentum and conservation of energy provide alternate approaches to predict and describe the motion of objects.</b></p> <p><b>Compare and contrast the motion of objects using forces and conservation laws</b></p> <p>*</p> | <p><b>Approved Physics Text<br/>Power Point Displays<br/>Worksheets<br/>Problems<br/>Related Lab Activities</b></p> <p><b>Critical Thinking Questions</b></p> <p><b>Teacher Demonstrations</b></p> | <p><b>Tests , quizzes, homework problems, worksheets, Lab reports</b></p> | <p><b>13 days</b></p> |
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| <p><b>Circular Motion and Gravitation</b></p> | <p>3.2.P.B1<br/>3.2.12.B1<br/>CC.3.6.11-12.A<br/>CC.3.5.11-12.A<br/>CC.3.5.11-12.B<br/>CC.3.5.11-12.C<br/>CC.3.5.11-12.D<br/>CC.3.5.11-12.E<br/>CC.3.5.11-12.F</p> | <p>Centripetal Force, Newton's Law of Universal Gravitation, Kepler's Laws of Planetary Motion, Rotational Kinematics, Connections between linear and rotational quantities, Torque, second condition of equilibrium, center of mass</p> <p>Differentiate between translational motion and rotational motion in terms of position, velocity, and acceleration.</p> <p>Use force and mass to explain translational motion or simple harmonic motion of objects.</p> <p>Relate torque and rotational inertia to explain rotational motion.</p> <p>*</p> | <p>Approved Physics Text<br/>Power Point Displays<br/>Worksheets<br/>Problems<br/>Related Lab Activities</p> <p>Critical Thinking Questions</p> <p>Teacher Demonstrations</p> | <p>Tests , quizzes, homework problems, worksheets, Lab reports</p> | <p>12 days</p> |
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| <p><b>Vibration and Waves</b></p> | <p>3.2.P.B1<br/>3.2.P.B5<br/>3.2.12.B5<br/>CC.3.6.11-12.A<br/>CC.3.5.11-12.A<br/>CC.3.5.11-12.B<br/>CC.3.5.11-12.C<br/>CC.3.5.11-12.D<br/>CC.3.5.11-12.E<br/>CC.3.5.11-12.F</p> | <p>Periodic Motion,<br/>Simple Harmonic<br/>Motion, types of<br/>waves, Superposition<br/>and Interference,<br/>Standing Waves,<br/>Hooke's Law, the<br/>simple pendulum,<br/>the mass spring<br/>system, the concepts<br/>of wave speed,<br/>frequency,<br/>wavelength,<br/>amplitude, and<br/>energy and their<br/>relationships and<br/>causes; the<br/>relationships among<br/>force, velocity, and<br/>acceleration in<br/>simple harmonic<br/>motion</p> <p>Differentiate among<br/>translational motion,<br/>harmonic motion,<br/>and rotational<br/>motion in terms of<br/>position, velocity,<br/>and acceleration.</p> | <p>Approved Physics Text<br/>Power Point Displays<br/>Worksheets<br/>Problems<br/>Related Lab Activities</p> <p>Critical Thinking<br/>Questions</p> <p>Teacher Demonstrations</p> | <p>Tests , quizzes,<br/>homework<br/>problems,<br/>worksheets,<br/>Lab reports</p> | <p>12 days</p> |
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|  |  | <p>Use force and mass to explain the simple harmonic motion of objects.</p> <p>Explain how waves transfer energy without transferring matter. Explain how waves carry information that can be detected and received.</p> <p>*</p> |  |  |  |
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| <b>Sound</b> | <b>3.2.P.B5<br/>3.2.12.B5<br/>CC.3.6.11-12.A<br/>CC.3.5.11-12.A<br/>CC.3.5.11-12.B<br/>CC.3.5.11-12.C<br/>CC.3.5.11-12.D<br/>CC.3.5.11-12.E<br/>CC.3.5.11-12.F</b> | <b>Sound waves, sound intensity, the Doppler Effect, Beats, Resonance, Harmonics, Timbre</b><br><br><b>Research technologies that incorporate principles of wave transmission.</b><br><br>* | <b>Approved Physics Text<br/>Power Point Displays<br/>Worksheets<br/>Problems<br/>Related Lab Activities</b><br><br><b>Critical Thinking Questions</b><br><br><b>Teacher Demonstrations</b> | <b>Tests , quizzes, homework problems, worksheets, Lab reports</b> | <b>10 days</b> |
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| <p><b>Light and Reflection</b></p> | <p><b>3.2.P.B5<br/>CC.3.6.11-12.A<br/>CC.3.5.11-12.A<br/>CC.3.5.11-12.B<br/>CC.3.5.11-12.C<br/>CC.3.5.11-12.D<br/>CC.3.5.11-12.E<br/>CC.3.5.11-12.F</b></p> | <p><b>Electromagnetic Spectrum,<br/>Electromagnetic Waves, The Speed of Light, Reflection of Light, Flat Mirrors, Concave Spherical Mirrors, Convex Spherical Mirrors, Magnification, Polarization</b></p> <p><b>Explain how waves carry information from remote sources that can be detected and interpreted.</b></p> <p><b>*</b></p> | <p><b>Approved Physics Text<br/>Power Point Displays<br/>Worksheets<br/>Problems<br/>Related Lab Activities</b></p> <p><b>Critical Thinking Questions</b></p> <p><b>Teacher Demonstrations</b></p> | <p><b>Tests , quizzes, homework problems, worksheets, Lab reports</b></p> | <p><b>11 days</b></p> |
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| <b>Refraction</b> | <p>There are no PA standards for this unit at this time.<br/>           CC.3.6.11-12.A<br/>           CC.3.5.11-12.A<br/>           CC.3.5.11-12.B<br/>           CC.3.5.11-12.C<br/>           CC.3.5.11-12.D<br/>           CC.3.5.11-12.E<br/>           CC.3.5.11-12.F</p> | <p>The Law of Refraction,<br/>           Thin Lenses, Thin lens<br/>           Combinations, Snell's<br/>           Law, Critical Angle,<br/>           Total Internal<br/>           Reflection<br/>           *</p> | <p>Approved Physics Text<br/>           Power Point Displays<br/>           Worksheets<br/>           Problems<br/>           Related Lab Activities<br/> <br/>           Critical Thinking<br/>           Questions<br/> <br/>           Teacher Demonstrations</p> | <p>Tests , quizzes,<br/>           homework<br/>           problems,<br/>           worksheets,<br/>           Lab reports</p> | <p>5 days</p> |
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| <p><b>Electric Forces and Fields</b></p> | <p><b>3.2.12.B4<br/>3.2.12.B6<br/>CC.3.6.11-12.A<br/>CC.3.5.11-12.A<br/>CC.3.5.11-12.B<br/>CC.3.5.11-12.C<br/>CC.3.5.11-12.D<br/>CC.3.5.11-12.E<br/>CC.3.5.11-12.F</b></p> | <p><b>Electric Charge, Elemental Charge, Insulators and Conductors, Charging by Induction, Coulomb’s Law, The Superposition Principle, Electrical Equilibrium, Electric Field Strength, Electric Field Lines</b></p> <p><b>Describe the attractive and repulsive forces between objects with charges and the distance between them.</b></p> <p><b>Compare and contrast the motions of objects using forces and conservation laws.</b></p> <p><b>*</b></p> | <p><b>Approved Physics Text<br/>Power Point Displays<br/>Worksheets<br/>Problems<br/>Related Lab Activities</b></p> <p><b>Critical Thinking Questions</b></p> <p><b>Teacher Demonstrations</b></p> | <p><b>Tests , quizzes, homework problems, worksheets, Lab reports</b></p> | <p><b>7 days</b></p> |
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| <p><b>Electrical Energy and Current</b></p> | <p><b>3.2.P.B4<br/>CC.3.6.11-12.A<br/>CC.3.5.11-12.A<br/>CC.3.5.11-12.B<br/>CC.3.5.11-12.C<br/>CC.3.5.11-12.D<br/>CC.3.5.11-12.E<br/>CC.3.5.11-12.F</b></p> | <p><b>Electric Potential,<br/>Electric Potential<br/>Energy, Potential<br/>Difference, Voltage,<br/>Current and Charge<br/>Movement,<br/>Resistance, Ohm's<br/>Law, Electric Power</b></p> <p><b>Develop qualitative<br/>and quantitative<br/>understanding of<br/>current, voltage,<br/>resistance, and the<br/>connections between<br/>them.</b></p> <p><b>*</b></p> | <p><b>Approved Physics Text<br/>Power Point Displays<br/>Worksheets<br/>Problems<br/>Related Lab Activities</b></p> <p><b>Critical Thinking<br/>Questions</b></p> <p><b>Teacher Demonstrations</b></p> | <p><b>Tests , quizzes,<br/>homework<br/>problems,<br/>worksheets,<br/>Lab reports</b></p> | <p><b>7 days</b></p> |
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| <b>Circuits and Circuit Elements</b> | <b>3.2.P.B4<br/>CC.3.6.11-12.A<br/>CC.3.5.11-12.A<br/>CC.3.5.11-12.B<br/>CC.3.5.11-12.C<br/>CC.3.5.11-12.D<br/>CC.3.5.11-12.E<br/>CC.3.5.11-12.F</b> | <b>Electric Circuits,<br/>Schematic Diagrams,<br/>Resistors in Series,<br/>Resistors in Parallel,<br/>Complex Resistor<br/>Combinations</b><br><br><b>Develop qualitative<br/>and quantitative<br/>understanding of<br/>current, voltage,<br/>resistance, and the<br/>connections between<br/>them.</b><br><br>* | <b>Approved Physics Text<br/>Power Point Displays<br/>Worksheets<br/>Problems<br/>Related Lab Activities</b><br><br><b>Critical Thinking<br/>Questions</b><br><br><b>Teacher Demonstrations</b> | <b>Tests , quizzes,<br/>homework<br/>problems,<br/>worksheets,<br/>Lab reports</b> | <b>6 days</b> |
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| <p><b>Extra Topics</b></p> <p><b>Suggested Extra Topics:</b><br/> <b>Fluid Mechanics</b><br/> <b>Interference and Diffraction</b><br/> <b>Magnetism and</b><br/> <b>Electromagnetic Induction</b><br/> <b>Atomic Physics</b><br/> <b>Subatomic Physics</b></p> | <p><b>3.2.12.A3</b><br/> <b>3.2.P.B4</b><br/> <b>CC.3.6.11-12.A</b><br/> <b>CC.3.5.11-12.A</b><br/> <b>CC.3.5.11-12.B</b><br/> <b>CC.3.5.11-12.C</b><br/> <b>CC.3.5.11-12.D</b><br/> <b>CC.3.5.11-12.E</b><br/> <b>CC.3.5.11-12.F</b></p> | <p><b>Explain how matter is transformed into energy in nuclear reactions.</b></p> <p><b>Explain how stationary and particles result in electricity and magnetism.</b></p> <p><b>Explain how electrical induction is applied in technology.</b></p> <p><b>*</b></p> | <p><b>Approved Physics Text</b><br/> <b>Power Point Displays</b><br/> <b>Worksheets</b><br/> <b>Problems</b><br/> <b>Related Lab Activities</b></p> <p><b>Critical Thinking Questions</b></p> <p><b>Teacher Demonstrations</b></p> | <p><b>Tests , quizzes, homework problems, worksheets, Lab reports</b></p> | <p><b>10 days</b></p> |
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| <p><b>Final Examination Review</b></p> | <p>There are no specific PA standards for this unit at this time. All prior standards apply to the Final Review.</p> <p>CC.3.6.11-12.A<br/>CC.3.5.11-12.A<br/>CC.3.5.11-12.B<br/>CC.3.5.11-12.C<br/>CC.3.5.11-12.D<br/>CC.3.5.11-12.E<br/>CC.3.5.11-12.F</p> | <p>Subject areas studied during the four quarters of the academic school year will be reviewed.</p> <p>*</p> | <p>Approved Physics Text<br/>Power Point Displays<br/>Worksheets<br/>Problems<br/>Related Lab Activities</p> <p>Critical Thinking Questions</p> <p>Teacher Demonstrations</p> | <p>Classroom group review activities, homework problems, worksheets, unit review sheets</p> | <p>10 days</p> |
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