

General Brown Central School District Curriculum Map

Course Title: Physics	Prepared By: D. Newvine
Time Frame: 9/8 - 9/22	Unit/Theme Metric System / Conversions / Graphing
<p>Essential Questions:</p> <p>What is the metric system?</p> <p>How can I convert between two different systems of measurements?</p> <p>How can I look at a graph and interpret an equation / relationship between quantities?</p>	
<p>NYS Standards:</p> <p>HS - PS2 - 6</p> <p>HS - PS1 - 1</p> <p>WHST.9-12.9</p>	<p>Vocabulary:</p> <p>Kilograms</p> <p>Seconds</p> <p>Newtons</p> <p>Meters</p> <p>Dimensional Analysis</p> <p>Pascals</p> <p>Prefixes</p>
<p>Student Objectives (The student will...):</p> <p>TSW convert from imperial to metric systems.</p> <p>TSW interpret graphs and make comparisons to equations and data.</p> <p>TSW gather data that supports their claims.</p>	
<p>Assessments:</p> <p>Homework</p> <p>Test:</p> <p>Quiz: Quiz #1</p> <p>Labs: Lab #1, Lab #2, & Lab #3</p>	
<p>Recommended Texts:</p> <p>Text: <i>The Physical Setting – Physics</i></p>	<p>Resources:</p> <p>Powerpoints - Mechanics 1 & 2</p> <p>Lab Materials</p> <p>Calculators</p> <p>Reference Tables</p> <p>Technology</p>

General Brown Central School District Curriculum Map

Course Title: Physics	Prepared By: D. Newwine
Time Frame: 9/23 - 10/7	Unit/Theme Vectors and Velocity
<p>Essential Questions:</p> <p>What are vectors and scalars?</p> <p>How do you calculate the velocity of an object?</p> <p>How do you manipulate units?</p>	
<p>NYS Standards:</p> <p>HS - PS1 - 5</p> <p>HS - PS1 - 10</p> <p>RST.11-12.1</p>	<p>Vocabulary:</p> <p>Vectors</p> <p>Scalars</p> <p>Motion</p> <p>Linear</p> <p>Initial Velocity</p> <p>Final Velocity</p> <p>Displacement</p>
<p>Student Objectives (The student will...):</p> <p>TSW know the difference between scalars and vectors.</p> <p>TSW calculate distance, time, and velocity for specific situations. .</p> <p>TSW understand how velocity can be mapped out on a graph.</p>	
<p>Assessments:</p> <p>Homework</p> <p>Test: Test #1</p> <p>Quiz:</p> <p>Labs: Lab #4, Lab #5, & Lab #6</p>	
<p>Recommended Texts:</p> <p>Text: <i>The Physical Setting – Physics</i></p>	<p>Resources:</p> <p>Powerpoints - Mechanics 3 & 4</p> <p>Lab Materials</p> <p>Calculators</p> <p>Reference Tables</p> <p>Technology</p>

General Brown Central School District Curriculum Map

Course Title: Physics	Prepared By: D. Newvine
Time Frame: 10/8 - 10/14	Unit/Theme Acceleration
<p>Essential Questions:</p> <p>How do you calculate acceleration?</p> <p>How are acceleration and velocity different?</p> <p>How can the acceleration of an object be shown on a graph?</p>	
<p>NYS Standards:</p> <p>HS - PS1 - 2</p> <p>HS - ETS1 - 4</p> <p>RST.11-12.8</p>	<p>Vocabulary:</p> <p>Acceleration</p> <p>Free Fall</p> <p>Acceleration due to gravity</p>
<p>Student Objectives (The student will...):</p> <p>TSW show the difference between velocity and acceleration graphs.</p> <p>TSW calculate acceleration for both objects and the acceleration due to gravity on the surface of the Earth.</p> <p>TSW apply equations to real world problems to solve for unknown variables.</p>	
<p>Assessments:</p> <p>Homework</p> <p>Test:</p> <p>Quiz:</p> <p>Labs: Lab #7</p>	
<p>Recommended Texts:</p> <p>Text: <i>The Physical Setting – Physics</i></p>	<p>Resources:</p> <p>Powerpoint - Mechanics 5</p> <p>Lab Materials</p> <p>Calculators</p> <p>Reference Tables</p> <p>Technology</p>

General Brown Central School District Curriculum Map

Course Title: Physics	Prepared By: D. Newwine
Time Frame: 10/15 - 11/1	Unit/Theme Forces
<p>Essential Questions:</p> <p>What is a force?</p> <p>How can you calculate the net force on an object?</p> <p>How can an object be in equilibrium?</p>	
<p>NYS Standards:</p> <p>HS - PS2 - 2</p> <p>RST.11-12.8</p>	<p>Vocabulary:</p> <p>Force</p> <p>Newton</p> <p>Free-Body Diagram</p> <p>Resultant</p> <p>Vector Addition</p> <p>Vector Subtraction</p>
<p>Student Objectives (The student will...):</p> <p>TSW calculate the net force of specific objects that are in motion.</p> <p>TSW draw and interpret free body diagrams.</p> <p>TSW use vector algebra to calculate the magnitude and direction of forces acting on objects.</p>	
<p>Assessments:</p> <p>Homework</p> <p>Test:</p> <p>Quiz: Quiz #2</p> <p>Labs: Lab #8, Lab #9</p>	
<p>Recommended Texts:</p> <p>Text: <i>The Physical Setting – Physics</i></p>	<p>Resources:</p> <p>Powerpoints - Mechanics 6 & 7</p> <p>Lab Materials</p> <p>Calculators</p> <p>Reference Tables</p> <p>Technology</p>

General Brown Central School District Curriculum Map

Course Title: Physics	Prepared By: D. Newwine
Time Frame: 11/2 - 11/15	Unit/Theme Newton's Laws
<p>Essential Questions:</p> <p>What are Isaac Newton's three laws of motion?</p> <p>How are the three laws of motion used to find different types of forces?</p> <p>How can we calculate the gravitational forces of planets and other celestial objects?</p>	
<p>NYS Standards:</p> <p>HS - PS2 - 1</p> <p>RST.11-12.7</p>	<p>Vocabulary:</p> <p>Friction Force</p> <p>Weight</p> <p>Equilibrium</p> <p>Normal Force</p> <p>Force of Gravity</p> <p>Action and Reaction Forces</p> <p>Inertia</p>
<p>Student Objectives (The student will...):</p> <p>TSW calculate the acceleration of any object from using Newton's second law.</p> <p>TSW define Newton's third law of motion.</p> <p>TSW calculate the inertia of an object.</p> <p>TSW calculate forces using the Universal Law of Gravitation.</p>	
<p>Assessments:</p> <p>Homework</p> <p>Test: Test #2</p> <p>Quiz:</p> <p>Labs: Lab #10, Lab #11, Lab #12</p>	
<p>Recommended Texts:</p> <p>Text: <i>The Physical Setting – Physics</i></p>	<p>Resources:</p> <p>Powerpoints - Mechanics 8 & 9</p> <p>Lab Materials</p> <p>Calculators</p> <p>Reference Tables</p> <p>Technology</p>

General Brown Central School District Curriculum Map

Course Title: Physics	Prepared By: D. Newwine
Time Frame: 11/16 - 11/30	Unit/Theme Projectiles
<p>Essential Questions:</p> <p>What is two dimensional motion?</p> <p>What forces act on a projectile?</p> <p>What equations should I use to calculate the motion of a projectile?</p>	
<p>NYS Standards:</p> <p>HS - ETS1 - 4</p> <p>RST.11-12.9</p>	<p>Vocabulary:</p> <p>Range</p> <p>Trajectory</p> <p>Initial Height</p> <p>Angle</p> <p>Terminal Velocity</p> <p>Componentwise Vectors</p>
<p>Student Objectives (The student will...):</p> <p>TSW analyze and solve horizontal projectiles.</p> <p>TSW Analyze and solve for variables of projectiles at an angle.</p> <p>TSW know the difference between horizontal and vertical dimensions.</p>	
<p>Assessments:</p> <p>Homework</p> <p>Test:</p> <p>Quiz: Quiz #3</p> <p>Labs: Lab #13, Lab #14</p>	
<p>Recommended Texts:</p> <p>Text: <i>The Physical Setting – Physics</i></p>	<p>Resources:</p> <p>Powerpoints - Mechanics 10 & 11</p> <p>Lab Materials</p> <p>Calculators</p> <p>Reference Tables</p> <p>Technology</p>

General Brown Central School District Curriculum Map

Course Title: Physics	Prepared By: D. Newwine
Time Frame: 12/1 - 12/8	Unit/Theme Centripetal Forces
<p>Essential Questions:</p> <p>What causes centripetal motion?</p> <p>What variables affect centripetal motion?</p> <p>How can centripetal motion be seen visually?</p>	
<p>NYS Standards:</p> <p>HS - PS2 - 1</p> <p>RST.11-12.7</p>	<p>Vocabulary:</p> <p>Centripetal Motion</p> <p>Centripetal Acceleration</p> <p>Centripetal Force</p> <p>Centrifugal Force</p> <p>Rotation</p> <p>Radius</p>
<p>Student Objectives (The student will...):</p> <p>TSW calculate centripetal force and acceleration.</p> <p>TSW define center of mass.</p> <p>TSW draw centripetal motion using free-body diagrams.</p>	
<p>Assessments:</p> <p>Homework</p> <p>Test:</p> <p>Quiz:</p> <p>Labs: Lab #15</p>	
<p>Recommended Texts:</p> <p>Text: <i>The Physical Setting – Physics</i></p>	<p>Resources:</p> <p>Powerpoint - Mechanics 12</p> <p>Lab Materials</p> <p>Calculators</p> <p>Reference Tables</p> <p>Technology</p>

General Brown Central School District Curriculum Map

Course Title: Physics	Prepared By: D. Newwine
Time Frame: 12/9 - 12/21	Unit/Theme Momentum
<p>Essential Questions:</p> <p>What is momentum?</p> <p>What is impulse?</p> <p>How can you calculate conservation of momentum during a collision?</p>	
<p>NYS Standards:</p> <p>HS - PS2 - 2</p> <p>HS - PS2 - 3</p> <p>WHST.9-2.7</p>	<p>Vocabulary:</p> <p>Momentum</p> <p>Impulse</p> <p>Conservation</p> <p>Inelastic Collision</p> <p>Elastic Collision</p>
<p>Student Objectives (The student will...):</p> <p>TSW know the difference between momentum and impulse.</p> <p>TSW calculate impulse and momentum for separate objects.</p> <p>TSW calculate momentums during a collision between two objects.</p> <p>TSW use conservation of momentum to solve for unknown quantities.</p>	
<p>Assessments:</p> <p>Homework</p> <p>Test:Test #3</p> <p>Quiz:</p> <p>Labs: Lab #16, Lab #17</p>	
<p>Recommended Texts:</p> <p>Text: <i>The Physical Setting – Physics</i></p>	<p>Resources:</p> <p>Powerpoints - Mechanics 13 & 14</p> <p>Lab Materials</p> <p>Calculators</p> <p>Reference Tables</p> <p>Technology</p>

General Brown Central School District Curriculum Map

Course Title: Physics	Prepared By: D. Newwine
Time Frame: 1/2 - 1/10	Unit/Theme Work
<p>Essential Questions:</p> <p>What is work?</p> <p>How can you calculate the amount of work an object or person does?</p> <p>How are power and work related?</p>	
<p>NYS Standards:</p> <p>HS - PS3 - 1</p> <p>SL.11-12.5</p>	<p>Vocabulary:</p> <p>Work</p> <p>Joule</p> <p>Power</p> <p>Watt</p> <p>Componentwise Vectors</p>
<p>Student Objectives (The student will...):</p> <p>TSW calculate work from objects in the appropriate dimension.</p> <p>TSW calculate power output from specific devices.</p> <p>TSW understand the similarities and differences between work and power.</p>	
<p>Assessments:</p> <p>Homework</p> <p>Test:</p> <p>Quiz: Quiz #4</p> <p>Labs: Lab #18</p>	
<p>Recommended Texts:</p> <p>Text: <i>The Physical Setting – Physics</i></p>	<p>Resources:</p> <p>Powerpoint - Mechanics #15</p> <p>Lab Materials</p> <p>Calculators</p> <p>Reference Tables</p> <p>Technology</p>

General Brown Central School District Curriculum Map

Course Title: Physics	Prepared By: D. Newwine
Time Frame: 1/11 - 2/1	Unit/Theme Energy
<p>Essential Questions:</p> <p>What happens to energy in a given situation?</p> <p>How is energy different from work?</p> <p>What are the different types of energy?</p>	
<p>NYS Standards:</p> <p>HS - PS3 - 1</p> <p>HS - PS3 - 2</p> <p>WHST.9-12.9</p>	<p>Vocabulary:</p> <p>Energy</p> <p>Potential Energy</p> <p>Kinetic Energy</p> <p>Spring Constant</p> <p>Work-Energy Theorem</p> <p>Conservative Forces</p> <p>Non-Conservative Forces</p>
<p>Student Objectives (The student will...):</p> <p>TSW identify different types of energy.</p> <p>TSW interpret hooke's law.</p> <p>TSW evaluate situations using conservation of energy.</p> <p>TSW compare conservative vs nonconservative forces.</p>	
<p>Assessments:</p> <p>Homework</p> <p>Test: Midterm #1</p> <p>Quiz:</p> <p>Labs: Lab #19, Lab #20</p>	
<p>Recommended Texts:</p> <p>Text: <i>The Physical Setting – Physics</i></p>	<p>Resources:</p> <p>Powerpoints - Mechanics 16 & 17</p> <p>Lab Materials</p> <p>Calculators</p> <p>Reference Tables</p> <p>Technology</p>

General Brown Central School District Curriculum Map

Course Title: Physics	Prepared By: D. Newwine
Time Frame: 2/2 - 2/23	Unit/Theme Electrostatics
<p>Essential Questions:</p> <p>How do you calculate current in a circuit?</p> <p>What is the difference between static electricity and current?</p> <p>What is the difference between a series and parallel circuit?</p>	
<p>NYS Standards:</p> <p>HS - PS3 - 5</p> <p>HS - PS3 - 6</p> <p>WHST.9-12.9</p>	<p>Vocabulary:</p> <p>Resistance</p> <p>Current</p> <p>Voltage</p> <p>Series</p> <p>Parallel</p> <p>Charge</p> <p>Electrostatic Force</p>
<p>Student Objectives (The student will...):</p> <p>TSW identify parts of the atom.</p> <p>TSW calculate the electrostatic force between two point charges.</p> <p>TSW draw different types of circuits.</p> <p>TSW solve for different quantities in a circuit.</p>	
<p>Assessments:</p> <p>Homework</p> <p>Test:</p> <p>Quiz: Quiz #5</p> <p>Labs: Lab #21, Lab #22</p>	
<p>Recommended Texts:</p> <p>Text: <i>The Physical Setting – Physics</i></p>	<p>Resources:</p> <p>Powerpoints - Electricity 1,2, & 3</p> <p>Lab Materials</p> <p>Calculators</p> <p>Reference Tables</p> <p>Technology</p>

General Brown Central School District Curriculum Map

Course Title: Physics	Prepared By: D. Newwine
Time Frame: 2/24 -3/4	Unit/Theme Magnetism
<p>Essential Questions:</p> <p>How are magnetic fields produced?</p> <p>How can we draw / calculate a magnetic field?</p> <p>Where is a magnetic field the strongest?</p>	
<p>NYS Standards:</p> <p>HS - PS3 - 5</p> <p>WHST.9 - 12.7</p>	<p>Vocabulary:</p> <p>Magnetic Field</p> <p>Magnetic Flux</p> <p>Magnetic Field Strength</p>
<p>Student Objectives (The student will...):</p> <p>TSW draw and interpret magnetic field maps.</p> <p>TSW calculate magnetic fields on magnetic objects.</p> <p>TSW define magnetic flux.</p>	
<p>Assessments:</p> <p>Homework</p> <p>Test: Test #5</p> <p>Quiz:</p> <p>Labs: Lab #23</p>	
<p>Recommended Texts:</p> <p>Text: <i>The Physical Setting – Physics</i></p>	<p>Resources:</p> <p>Powerpoint - Magnetism 1</p> <p>Lab Materials</p> <p>Calculators</p> <p>Reference Tables</p> <p>Technology</p>

General Brown Central School District Curriculum Map

Course Title: Physics	Prepared By: D. Newwine
Time Frame: 3/5 - 4/3	Unit/Theme Waves / Optics
<p>Essential Questions:</p> <p>What is periodic motion?</p> <p>How do we interact with waves on a daily basis?</p> <p>How can waves benefit our lives?</p> <p>How can we draw a ray diagram?</p>	
<p>NYS Standards:</p> <p>HS - PS4 - 1</p> <p>HS - PS4 - 2</p> <p>HS - PS4 - 4-6</p> <p>RST.11-12.7</p>	<p>Vocabulary:</p> <p>Frequency Ray Diagram</p> <p>Period Concave</p> <p>Wavelength Convex</p> <p>Phase Light Bending</p> <p>Cycle</p> <p>Electromagnetic Waves</p> <p>Standing Wave</p>
<p>Student Objectives (The student will...):</p> <p>TSW identify different types of EM waves.</p> <p>TSW calculate different quantities of waves.</p> <p>TSW draw waves and interpret graphs of waves.</p> <p>TSW draw optical situations, using ray diagrams.</p>	
<p>Assessments:</p> <p>Homework</p> <p>Test: Test #6</p> <p>Quiz: Quiz #6</p> <p>Labs: Lab #24, Lab #25, Lab #26, Lab #27</p>	
<p>Recommended Texts:</p> <p>Text: <i>The Physical Setting – Physics</i></p>	<p>Resources:</p> <p>Powerpoints - Waves 1,2,3, & 4</p> <p>Lab Materials</p> <p>Calculators</p> <p>Reference Tables</p> <p>Technology</p>

General Brown Central School District Curriculum Map

Course Title: Physics	Prepared By: D. Newwine
Time Frame: 4/4 - 4/18	Unit/Theme Thermodynamics
<p>Essential Questions:</p> <p>How are energy and heat related?</p> <p>What is internal energy?</p> <p>How are the states of matter affected by internal energy?</p>	
<p>NYS Standards:</p> <p>HS - PS3 - 3</p> <p>HS - PS3 - 4</p> <p>WHST.9-12.7</p>	<p>Vocabulary:</p> <p>Heat</p> <p>1st Law of Thermodynamics</p> <p>2nd law of Thermodynamics</p> <p>Specific heat</p> <p>Celsius</p> <p>Fahrenheit</p> <p>Pascal</p> <p>Bernoulli</p>
<p>Student Objectives (The student will...):</p> <p>TSW convert from different temperature scales.</p> <p>TSW calculate the amount of heat an object possesses.</p> <p>TSW understand different principles of thermodynamic processes.</p>	
<p>Assessments:</p> <p>Homework</p> <p>Test:</p> <p>Quiz: Quiz #7</p> <p>Labs: Lab #28</p>	
<p>Recommended Texts:</p> <p>Text: <i>The Physical Setting – Physics</i></p>	<p>Resources:</p> <p>Powerpoints - Thermo 1 & 2</p> <p>Lab Materials</p> <p>Calculators</p> <p>Reference Tables</p> <p>Technology</p>

General Brown Central School District Curriculum Map

Course Title: Physics	Prepared By: D. Newwine																
Time Frame: 4/25 - 5/20	Unit/Theme Quantum																
<p>Essential Questions:</p> <p>Do the same rule of physics apply at the subatomic world?</p> <p>What are quarks and how do they form atomic particles?</p> <p>What is standard model of particle physics?</p>																	
<p>NYS Standards:</p> <p>HS - PS1 - 4</p> <p>HS - PS1 - 7</p> <p>HS - PS4 - 4</p>	<p>Vocabulary:</p> <table style="width: 100%; border: none;"> <tr> <td>Hadrons</td> <td>Weak Force</td> </tr> <tr> <td>Leptons</td> <td>Gravitational Force</td> </tr> <tr> <td>Baryons</td> <td>Electromagnetic Force</td> </tr> <tr> <td>Mesons</td> <td>Gluons</td> </tr> <tr> <td>Quarks</td> <td>Bosons</td> </tr> <tr> <td>Antiquarks</td> <td>Photons</td> </tr> <tr> <td>Protons, Neutrons, and Electrons</td> <td></td> </tr> <tr> <td>Strong Force</td> <td></td> </tr> </table>	Hadrons	Weak Force	Leptons	Gravitational Force	Baryons	Electromagnetic Force	Mesons	Gluons	Quarks	Bosons	Antiquarks	Photons	Protons, Neutrons, and Electrons		Strong Force	
Hadrons	Weak Force																
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Quarks	Bosons																
Antiquarks	Photons																
Protons, Neutrons, and Electrons																	
Strong Force																	
<p>Student Objectives (The student will...):</p> <p>TSW identify the classification and charge of a quark combination.</p> <p>TSW calculate energy absorption and emission at the atomic level.</p> <p>TSW understand the randomness and probabilities at the quantum realm.</p> <p>TSW understand wave-particle duality.</p>																	
<p>Assessments:</p> <p>Homework</p> <p>Test: Test #7</p> <p>Quiz:</p> <p>Labs: Lab #29, Lab #30</p>																	
<p>Recommended Texts:</p> <p>Text: <i>The Physical Setting – Physics</i></p>	<p>Resources:</p> <p>Powerpoints - Quantum 1 & 2</p> <p>Lab Materials</p> <p>Calculators</p> <p>Reference Tables</p> <p>Technology</p>																