

**MIAMI-DADE COUNTY PUBLIC SCHOOLS  
DISTRICT PACING GUIDE**

**YEAR-AT-A-GLANCE**

PHYSICS I HONORS		COURSE CODE: 200339001	
1 <sup>st</sup> Nine Weeks	2 <sup>nd</sup> Nine Weeks	3 <sup>rd</sup> Nine Weeks	4 <sup>th</sup> Nine Weeks
<p><b>I. Scientific Thinking/Graphical Methods (How do scientists model the physical world?)</b></p> <ul style="list-style-type: none"> <li>A. Review the Scientific Process</li> <li>B. Develop the Modeling Cycle through Lab Activities</li> <li>C. Use Linearization to Develop Relationships</li> <li>D. Use Dimensional Analysis to Give Meaning to Physical Quantities</li> </ul> <p><b>II. Constant Velocity Particle Model (How do you describe motion?)</b></p> <ul style="list-style-type: none"> <li>A. Derive the Meaning of Velocity</li> <li>B. Represent Motion in Multiple Ways</li> <li>C. Develop the Concept of Relative Motion</li> </ul> <p><b>III. Uniform Acceleration (Why do we need seatbelts?)</b></p> <ul style="list-style-type: none"> <li>A. Derive the Meaning of Acceleration</li> <li>B. Analyze Motion of Objects in Free Fall</li> </ul> <p><b>IV. Inertia and Free Particle Model (Why does a car skid in the rain?)</b></p> <ul style="list-style-type: none"> <li>A. Review the Concept of Force</li> <li>B. Apply Newton's First Law</li> <li>C. Apply Newton's Third Law</li> <li>D. Apply Newton's Law of Universal Gravitation</li> <li>E. Model Motion and Forces with Vectors</li> </ul>	<p><b>V. Constant Force Particle Model (What causes a change in motion?)</b></p> <ul style="list-style-type: none"> <li>A. Apply Newton's Second Law</li> <li>B. Analyze Friction</li> <li>C. Review and apply the Concept of Free-Fall</li> </ul> <p><b>VI. Two-Dimensional Particle Motion (Why does a free-throw from LeBron James follow a curved path?)</b></p> <ul style="list-style-type: none"> <li>A. Apply the Concept of Projectile Motion</li> <li>B. Analyze Uniform Circular Motion</li> <li>C. Derive Kepler's 3<sup>rd</sup> Law</li> </ul> <p><b>VII. Energy (What is Energy?)</b></p> <ul style="list-style-type: none"> <li>A. Review Kinetic-Molecular Theory</li> <li>B. Develop Models to Describe the First Law of Thermodynamics</li> <li>C. Apply the Law of Conservation of Energy</li> <li>D. Discuss the Second Law of Thermodynamics</li> <li>E. Explore the connection Between Work and Energy</li> </ul> <p><b>VIII. Momentum (What effect does mass have on the result of a collision?)</b></p> <ul style="list-style-type: none"> <li>A. Define Linear Momentum</li> <li>B. Apply the Concept of Conservation of Momentum</li> <li>C. Develop the Concept of Angular Momentum</li> </ul>	<p><b>IX. Charge Behavior and Interactions (What is an electric charge?)</b></p> <ul style="list-style-type: none"> <li>A. Develop a Model of Charges</li> <li>B. Distinguish Between Conductors and Insulators</li> <li>C. Analyze Coulomb's Law</li> <li>D. Explore Electric Fields</li> </ul> <p><b>X. Electric Potential (How does a battery store energy?)</b></p> <ul style="list-style-type: none"> <li>A. Discuss the Energy Implications of the Electric Field</li> <li>B. Discuss Electric Potential</li> <li>C. Map Equipotential Lines</li> </ul> <p><b>XI. Electric Current and Circuits (What makes charges move?)</b></p> <ul style="list-style-type: none"> <li>A. Define Electric Current</li> <li>B. Develop Ohm's Law</li> <li>C. Define Electric Power</li> <li>D. Develop Diagrams for Electrical Circuits</li> </ul> <p><b>XII. Magnetism (Why does a compass point North?)</b></p> <ul style="list-style-type: none"> <li>A. Discuss the Concept of Magnetism</li> <li>B. Analyze Electric Currents and Magnetic Fields</li> <li>C. Discuss Electromagnetic Induction</li> </ul>	<p><b>XIII. Waves and Sound (Can you hear sound in space?)</b></p> <ul style="list-style-type: none"> <li>A. Describe Vibrations and Waves</li> <li>B. Represent the Types of Waves</li> <li>C. Discuss Interference</li> <li>D. Describe Sound</li> </ul> <p><b>XIV. Light (What is light?)</b></p> <ul style="list-style-type: none"> <li>A. Describe the Dual Nature of Light</li> <li>B. Analyze Electromagnetic Waves</li> </ul> <p><b>XV. Optics (Why do you see yourself in the mirror?)</b></p> <ul style="list-style-type: none"> <li>A. Analyze the Properties of Reflection</li> <li>B. Analyze the Properties of Refraction</li> <li>C. Model the use of Lenses and Mirrors to Produce Images</li> <li>D. Discuss Diffraction and Interference</li> <li>E. Describe Lasers and Holograms</li> </ul>