Physics

Essential Resources Spiraled TEKS	District Resources to Teach 100% of the TEKS: STEMscopes and Discovery Education
	Scientific Investigations & Reasoning P.1A & B, P.2A, B, C, D, E, F, G, H, I & J & P.3A, B, C, D & E

Timeline		**1st Quarter** **Aug 23 - Oct 15, 2021** **(38 Instructional Days)**	**2nd Quarter** **Oct 19 - Dec 17, 2021** **(39 Instructional Days)**
Big Idea	Current Grade	**Analyzing Motion Displacement Acceleration Velocity**	**Effect of Forces Motion in 2-Dimensions** **Gravity** **Constant Acceleration**
TEKS	Current Grade	P.3A & E **P.4A, B** **LABORATORY SKILLS**: Analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning and experimental and observational testing, so as to encourage critical thinking by the student, express, manipulate and interpret relationships symbolically in accordance with accepted theories to make predictions and solve problems mathematically. **KINEMATICS**: Generate and interpret graphs and charts describing different types of motion, including investigations using real-time technology, describe and analyze motion in one dimension using equations and graphical vector addition with the concepts of distance, displacement, speed, average velocity, instantaneous velocity, frames of reference and acceleration.	P.4C **P.4A & D** **KINEMATICS**: analyze and describe accelerated motion in two dimensions using equations graphical vector addition and projectile and circular examples. **FORCES OF MOTION AND NEWTON'S LAWS**: Generate and interpret graphs and charts describing different types of motion, including investigations using real-time technology, calculate the effect of forces on objects.

Timeline		**3rd Quarter** **Jan 4 - March 11, 2021** **(47 Instructional Days)**	**4th Quarter** **March 21 - May 28, 2022** **(47 Instructional Days)**
Big Idea	Current Grade	**Work Energy Theorem** **Kinetic and Potential Energy Transformations Conservation of Energy and Momentum Centripital Acceleration** **Gravitational Forces Laws of Thermodynamics**	**Characteristics of Waves Behavior of Waves** **Transverse and Longitudinal Waves Electric and Magnetic Forces Electric Circuits** **Image Formation Nature of Light** **Mass-Energy Equivalence Application of** **Atomic and Nuclear Phenomena**
TEKS	Current Grade	**P.6A, B, C, D** & E **P.4**C & D **P.5**A & **B** **WORK, POWER AND ENERGY (MOMENTUM AND IMPULSE)**: Investigate and calculate quantities using the work-energy theorem in various situations, investigate examples of kinetic and potential energy and their transformations, calculate the mechanical energy of, power generated within, impulse applies to and momentum of a physical system, demonstrate and apply the laws of conservation of energy and conservation of momentum in one dimensions. **ANGULAR MOTION**: Analyze and describe accelerated motion in two dimensions using equations, graphical vector addition and projectile and circular examples calculate the effect of forces on objects. **GRAVITATIONAL INTERACTIONS**: Describe the concepts of gravitational, electromagnetic, weak nuclear, and strong nuclear forces, describe and calculate how the magnitude of the gravitational force between two objects depends on their masses and the distance between their centers. **THERMODYNAMICS**: Demonstrate and apply the laws of conservation of energy and conservation of momentum in one dimension, explain everyday examples that illustrate the 4 laws of thermodynamics and processes of thermal energy transfer.8	**P.7**A, **B**, C, **D** & E **P.8A**, B, C & D **P.5**C, D, E & **F** **WAVES AND SOUNDS**: Examine and describe oscillatory motion and wave propagation in various types of media, investigate and analyze characteristics of waves, compare characteristics and behaviors of transverse waves and characteristics and behaviors of longitudinal waves, investigate behaviors of waves. **EINSTEIN'S EQUATION E=MC²**: calculate and describe the applications of mass-energy equivalence **LIGHTS AND OPTICS**: Investigate behaviors of waves, describe and predict image formation as a consequence of reflection from a plane mirror and refraction through a thin convex lens. **ELECTRICITY AND MAGNETISM**: Describe and calculate how the magnitude of the electric force between two objects depends on their charges and the distance between their centers, identify and describe examples of electric and magnetic forces and fields in everyday life, characterize materials as conductors or insulators based on their electric properties, investigate and calculate current through, potential difference across, resistance of, and power used by electric circuit elements connected in both series and parallel combinations. **PHOTOELECTRIC EFFECT AND MODERN PHYSICS**: Describe the photoelectric effect and the dual nature of light, compare and explain the emission spectra produced by various atoms, calculate and describe the applications of mass-energy equivalence, give examples of applications of atomic and nuclear phenomena and examples of applications of quantum phenomena.

Readiness standards are in bold and underlined