



Advanced Physics
Year at a Glance (YAG)
2021-2022



First Semester		Second Semester	
1 st Nine Weeks – 40 days		3 rd Nine Weeks – 45 days	
<p>TEKS</p> <p>P.1A, P.1B, P.2A, P.2B, P.2C, P.2D, P.2E, P.2F, P.2G, P.2H, P.2I, P.2J, P.3A, P.3B, P.3C, P.3D, P.3E, P.4A, P.4B, P.4C</p>	<p>Scientific process and math review (5 days) Students will review the scientific process and be able to describe how physics relates to the other areas of science. Students will review algebraic methods of solving literal equations and trigonometry.</p> <p>1 dimensional kinematics (20 days) Students will investigate the relationship between acceleration, velocity and position. Students will derive and use the equations of motion to solve problems.</p> <p>2 dimensional kinematics (15 days) Students will use the properties of projectile motion to solve problems. Students will use vector addition to find relative velocity.</p>	<p>TEKS</p> <p>P.1A, P.1B, P.2A, P.2B, P.2C, P.2D, P.2E, P.2F, P.2G, P.2H, P.2I, P.2J, P.3A, P.3B, P.3C, P.3D, P.3E, P.6C, P.6D, P.6E, P.7A, P.7B, P.7C, P.7D, P.7E</p>	<p>Conservation of momentum (10 days) Students will investigate and be able to calculate for missing values in problems associated with conservation of momentum and impulse.</p> <p>Thermodynamics (10 days) Explain everyday examples that illustrate the four laws of thermodynamics and the processes of thermal energy transfer.</p> <p>Waves (18 days) Explain everyday examples that illustrate the four laws of thermodynamics and the processes of thermal energy transfer.</p>
2 nd Nine Weeks – 43 days		4 th Nine Weeks – 45 days	
<p>TEKS</p> <p>P.1A, P.1B, P.2A, P.2B, P.2C, P.2D, P.2E, P.2F, P.2G, P.2H, P.2I, P.2J, P.3A, P.3B, P.3C, P.3D, P.3E, P.4D, P.5A, P.5B, P.6A, P.6B, P.6C, P.6D</p>	<p>Dynamics (15 days) Students will investigate Newton’s 3 laws of motion. Students will draw free body diagrams to find resultant forces or find missing forces.</p> <p>Universal Gravitation (5 days) Students will describe the concepts of gravitational, electromagnetic, weak nuclear, and strong nuclear forces. Students will Describe and calculate how the magnitude of the gravitational force between two objects depends on their masses and the distance between their centers.</p> <p>Work and Energy (15 days) Students will investigate and be able to calculate for missing values in problems associated with conservation of energy, work energy theorem and power.</p>	<p>TEKS</p> <p>P.1A, P.1B, P.2A, P.2B, P.2C, P.2D, P.2E, P.2F, P.2G, P.2H, P.2I, P.2J, P.3A, P.3B, P.3C, P.3D, P.3E, P.5A, P.5C, P.5D, P.5E, P.5F, P.8A, P.8B, P.8C, P.8D</p>	<p>Electrical and magnetic forces and fields (12 days) Describe and calculate how the magnitude of the electric force between two objects and identify and describe examples of electric and magnetic forces in everyday life.</p> <p>Current Electricity(16 days) Investigate and calculate current, potential difference across, resistance, and power used by electric circuit elements connected in both series and parallel combinations.</p> <p>Atomic, Nuclear and Quantum Physics (7 days) Describe the photoelectric effect and the dual nature of light. Compare and explain the emission spectra produced by atoms. Calculate and describe the applications of the mass-energy equivalence.</p>

Resources

1st Nine Weeks	2nd Nine Weeks	3rd Nine Weeks	4th Nine Weeks
Physics (Serway-Faughn)	Physics (Serway-Faughn)	Physics (Serway-Faughn)	Physics (Serway-Faughn)