



**OnRamps Physics**  
**Year at a Glance (YAG)**  
**2023-2024**



First Semester		Second Semester	
1 <sup>st</sup> Nine Weeks		3 <sup>rd</sup> Nine Weeks	
	<p><b>Math Review and Kinematics</b>            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. Students will investigate the relationship between acceleration, velocity and position. Students will derive and use the equations of motion to solve problems.</p> <p><b>2 dimensional kinematics and dynamics</b>            Students will use the properties of projectile motion to solve problems. Students will use vector addition to find relative velocity. 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><b>Circular motion and rotation</b>            Students will investigate and understand circular motion. Students will be able to solve problems involving circular motion.</p> <p><b>Solids and fluids</b>            Students will be able to use Bernoulli's laws to describe and explain the motion of fluids and changes in pressure. Students will be able to solve problems associated with fluid motion.</p> <p><b>Simple harmonic motion and waves (18 days)</b>            Students will be able to describe the relationship between SHM and waves. Students will be able to solve problems involving SHM and waves</p>
2 <sup>nd</sup> Nine Weeks		4 <sup>th</sup> Nine Weeks	
	<p><b>Work, energy and power</b>            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><b>Conservation of momentum</b>            Students will investigate and be able to calculate for missing values in problems associated with conservation of momentum and impulse.</p>		<p><b>Thermodynamics</b>            Explain everyday examples that illustrate the four laws of thermodynamics and the processes of thermal energy transfer. Students will investigate heat engines and their efficiency</p>

Resources

1st Nine Weeks	2nd Nine Weeks	3rd Nine Weeks	4th Nine Weeks
Openstax College Physics	Openstax College Physics	Openstax College Physics	Openstax College Physics