

1st Quarter (42 Days)

Resources: STEMScopes			
Week	Unit/Lesson	Learning Objectives	TEKS
1st: August 11 – August 14 (4 days)	Welcome to School	The instructor will get to know the students, their interests, explain what is expected of them inside and outside the classroom, introduce what physics is about as well as problem-solving strategies in general.	N/A
2nd: August 17 – August 21 (5 days)	Graphing Motion	The students will be able to: ● break down different types of motion by interpreting various kinds of motion graphs. ● generate different types of motion graphs using hand graphing and real-time technology. ● define scalar and vector quantities related to different kinds of motion. ● combine vectors using both graphical vector addition and the Pythagorean theorem.	P.5A P.5B
3rd: August 24 – August 28 (5 days)	Graphing Motion	The students will be able to: ● break down different types of motion by interpreting various kinds of motion graphs. ● generate different types of motion graphs using hand graphing and real-time technology. ● define scalar and vector quantities related to different kinds of motion. ● combine vectors using both graphical vector addition and the Pythagorean theorem.	P.5A P.5B
4th: August 31 – September 4 (5 days)	Motion Equations	The students will be able to: ● describe motion in one dimension through equations for different variables. ● break down motion in one dimension through equations for different variables.	P.5C
5th: September 8 – September 11 (4 days)	Motion Equations Monday: Labor Day	The students will be able to: ● describe motion in one dimension through equations for different variables. ● break down motion in one dimension through equations for different variables.	P.5C
6th: September 14 – September 18 (5 days)	Projectile Motion	The students will be able to: ● describe and break down acceleration in uniform circular motion through two dimensions. ● describe and break down acceleration in horizontal projectile motion through two dimensions.	P.5D
7th: September 21 – September 25	Projectile Motion	The students will be able to:	P.5D



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(5 days)		● describe and break down acceleration in uniform circular motion through two dimensions. ● describe and break down acceleration in horizontal projectile motion through two dimensions.	
8 th : September 28 - October 2 (5 days)	Newton's Three Laws	The students will be able to: ● explain the concepts of equilibrium and inertia as shown in Newton's first law of motion. ● apply the concepts of equilibrium and inertia as shown in Newton's first law of motion. ● use free-body diagrams to calculate the effects of forces on objects, including tension, friction, normal force, gravity, centripetal force, and applied forces. ● calculate the relationship between force and acceleration as shown in Newton's second law of motion. ● illustrate the simultaneous forces between two objects as shown in Newton's third law of motion. ● identify and describe the simultaneous forces between two objects as shown in Newton's third law of motion.	P.5E P.5F P.5G
9 th : October 5 - October 8 (4 days)	Newton's Three Laws Friday: Staff Development	The students will be able to: ● explain the concepts of equilibrium and inertia as shown in Newton's first law of motion. ● apply the concepts of equilibrium and inertia as shown in Newton's first law of motion. ● use free-body diagrams to calculate the effects of forces on objects, including tension, friction, normal force, gravity, centripetal force, and applied forces. ● calculate the relationship between force and acceleration as shown in Newton's second law of motion. ● illustrate the simultaneous forces between two objects as shown in Newton's third law of motion. ● identify and describe the simultaneous forces between two objects as shown in Newton's third law of motion.	P.5E P.5F P.5G



2 nd Quarter (42 Days)			
Resources: STEMScopes			
Week	Unit/Lesson	Learning Objectives	TEKS
1st: October 14 – October 16 (3 days)	Universal Gravitation	The students will be able to ● describe how the size of the force between two objects depends on their masses and the distance between them. ● calculate the size of the force between two objects depending on their masses and the distance between them. ● predict the effects of gravity on objects in linear and orbiting systems.	P.5H
2nd: October 19 – October 23 (5 days)	Universal Gravitation	The students will be able to ● describe how the size of the force between two objects depends on their masses and the distance between them. ● calculate the size of the force between two objects depending on their masses and the distance between them. ● predict the effects of gravity on objects in linear and orbiting systems.	P.5H
7th: November 30 – December 4 (5 days)	Coulomb's Law Friday: Parent-Teacher Conferences	The students will be able to predict how the size of the electrical force between two objects depends on their charges and the distance between them through Coulomb's law.	P.6A
8th: December 7 – December 11 (5 days)	Coulomb's Law	The students will be able to predict how the size of the electrical force between two objects depends on their charges and the distance between them through Coulomb's law.	P.6A
7th: November 30 – December 4 (5 days)	Real-World Electromagnetism	The students will be able to: ● identify examples of electric and magnetic forces and fields in everyday life. ● describe examples of electric and magnetic forces and fields in everyday life.	P.6B
8th: December 7 – December 11 (5 days)	Real-World Electromagnetism	The students will be able to: ● identify examples of electric and magnetic forces and fields in everyday life. ● describe examples of electric and magnetic forces and fields in everyday life.	P.6B
7th: November 30 – December 4 (5 days)	Conservation of Charge	The students will be able to: ● investigate the conservation of charge during the processes of induction, conduction, or polarization.	P.6C



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Week	Unit/Lesson	Learning Objectives	TEKS
		describe the conservation of charge during the processes of induction, conduction, or polarization.	
8 th : December 7 – December 11 (5 days)	Electric Circuits	The students will be able to: - break down series and parallel circuits through schematics and materials. - design series and parallel circuits through schematics and materials. - construct series and parallel circuits through schematics and materials. - use Ohm's law to calculate the current, potential difference, resistance, and power in both series and parallel circuits.	P.6D P.6E
9 th : December 14 – December 18 (5 days)	Electric Circuits	The students will be able to: - break down series and parallel circuits through schematics and materials. - design series and parallel circuits through schematics and materials. - construct series and parallel circuits through schematics and materials. - use Ohm's law to calculate the current, potential difference, resistance, and power in both series and parallel circuits.	P.6D P.6E

3 rd Quarter (37 Days)			
<u>Resources:</u> STEMScopes			
Week	Unit/Lesson	Learning Objectives	TEKS
1 st : January 5 – January 8 (4 days)	Work and Power Monday: Staff Development	The students will be able to: - calculate work and power performed in one dimension. - explain work and power performed in one dimension. - identify when work is and is not being done.	P.7A
2 nd : January 11 – January 15 (5 days)	Energy of a System	The students will be able to - investigate the mechanical, kinetic, and potential energy of a system. - calculate the mechanical, kinetic, and potential energy of a system.	P.7B P.7C



3 rd Quarter (37 Days)			
<u>Resources:</u> STEMScopes			
Week	Unit/Lesson	Learning Objectives	TEKS
		● apply the concept of the conservation of energy through the work-energy theorem, energy diagrams, or energy transformation equations.	
3 rd : January 19 – January 22 (4 days)	Energy of a System Monday: MLK Day	The students will be able to ● investigate the mechanical, kinetic, and potential energy of a system. ● calculate the mechanical, kinetic, and potential energy of a system. ● apply the concept of the conservation of energy through the work-energy theorem, energy diagrams, or energy transformation equations.	P.7B P.7C
4 th : January 25 – January 29 (5 days)	Impulse and Momentum January 26: 100 Days of School	The students will be able to: ● calculate the impulse and momentum of objects in physical systems. ● describe the impulse and momentum of objects in physical systems. ● examine evidence of the conservation of momentum qualitatively in different kinds of collisions through models, diagrams, or simulations.	P.7D P.7E
5 th : February 1 – February 5 (5 days)	Impulse and Momentum	The students will be able to: ● calculate the impulse and momentum of objects in physical systems. ● describe the impulse and momentum of objects in physical systems. ● examine evidence of the conservation of momentum qualitatively in different kinds of collisions through models, diagrams, or simulations.	P.7D P.7E
6 th : February 8 – February 12 (5 days)	Simple Harmonic Motion	The students will be able to: ● examine and describe simple harmonic motion. ● examine and describe how energy is propagated by waves in various types of media.	P.8A
7 th : February 16 – February 19 (4 days)	Simple Harmonic Motion Monday: School Closed	The students will be able to: ● examine and describe simple harmonic motion. ● examine and describe how energy is propagated by waves in various types of media.	P.8A
8 th : February 22 – February 26	Characteristics of Waves	The students will be able to: ● compare the characteristics of transverse and longitudinal waves.	P.8B P.8C

**3rd Quarter (37 Days)**

Resources: STEMScopes			
Week	Unit/Lesson	Learning Objectives	TEKS
(5 days)		● investigate and examine evidence of the characteristics of waves. ● calculate the relationships between wave speed, frequency, and wavelength.	

4th Quarter (51 Days)

Resources: StemScopes			
Week	Unit/Lesson	Learning Objectives	TEKS
1st: March 15 – March 19 (5 days)	Characteristics of Waves	The students will be able to: ● compare the characteristics of transverse and longitudinal waves. ● investigate and examine evidence of the characteristics of waves. ● calculate the relationships between wave speed, frequency, and wavelength.	P.8B P.8C
2nd: March 22 – March 26 (5 days)	Behavior of Waves	The students will be able to investigate wave behaviors, including reflection, refraction, diffraction, interference, standing wave, the Doppler effect, polarization, and superposition.	P.8D
3rd: March 29 – April 2 (5 days)	Behavior of Waves	The students will be able to investigate wave behaviors, including reflection, refraction, diffraction, interference, standing wave, the Doppler effect, polarization, and superposition.	P.8D
4th: April 5 – April 9 (5 days)	Image Formation	The students will be able to: ● describe image formation as a result of reflection from a plane mirror or refraction through a thin, convex lens. ● predict image formation as a result of reflection from a plane mirror or refraction through a thin, convex lens.	P.8G
5th: April 12 – April 16 (5 days)	Electromagnetic Spectrum	The students will be able to compare the different applications of the electromagnetic spectrum.	P.8E
6th: April 19 – April 23 (5 days)	Photoelectric Effect	The students will be able to: ● investigate the emission spectra produced by various atoms.	P.8F P.9A



4 th Quarter (51 Days)			
<u>Resources:</u> StemScopes			
Week	Unit/Lesson	Learning Objectives	TEKS
		● explain the relationship between emission spectra and the electromagnetic spectrum. ● describe the photoelectric effect and emission spectra. ● describe how the photoelectric effect and emission spectra are explained by the photon model of light.	
7 th : April 26 – April 30 (5 days)	Photoelectric Effect	The students will be able to: ● investigate the emission spectra produced by various atoms. ● explain the relationship between emission spectra and the electromagnetic spectrum. ● describe the photoelectric effect and emission spectra. ● describe how the photoelectric effect and emission spectra are explained by the photon model of light.	P.8F P.9A
8 th : May 3 – May 7 (5 days)	Malus's Law	The students will be able to: ● investigate Malus's law. ● describe examples of applications of wave polarization.	P.9B
9 th : May 10 – May 14 (5 days)	Application of Quantum Physics	The students will be able to: ● compare the superposition of quantum states to the wave-particle dual nature of light. ● explain how the superposition of quantum states relates to the wave-particle dual nature of light. ● give examples of applications of quantum phenomena.	P.9C P.9D
10 th : May 19 – May 21 (3 days)	Application of Quantum Physics	The students will be able to: ● compare the superposition of quantum states to the wave-particle dual nature of light. ● explain how the superposition of quantum states relates to the wave-particle dual nature of light. ● give examples of applications of quantum phenomena.	P.9C P.9D
11 th : May 24 – May 27	Wednesday: Award Ceremonies		



4th Quarter (51 Days)

Resources:
StemScopes

Week	Unit/Lesson	Learning Objectives	TEKS
(4 days)			