

Design and Development Physics - *Conceptual Physics Text Forseman/Wesley*

CWI-MTCHS

Physics Concept	Knowledge and Skill	Topic	Text/Chapters	Competency Assessment	weeks	Quarter
<i>Motion and Forces</i>	Solve Problems involving Constant, Average Speed and acceleration	<i>Linear Motion</i>	CH2 - Motion/Speed/Velocity/Acceleration/Motion Graphs - 2weeks	Students can calculate Speed, Acceleration, and create motion graphs.	2	1st Quarter Motion/Forces
<i>Motion and Forces</i>	Solve Problems involving trajectory and vectors	<i>Projectile Motion</i>	CH3 -Vectors/Projectile Motion/ - 1week	Students can add or subtract motion vectors and calculate projectile motion.	2	
<i>Motion and Forces</i>	Understanding First Law of Motion	<i>First Law of Motion</i>	CH4 - Aristotle/Copernicus/Galileo/Newton/Mass/Net Force/ - 1week	Students can explain inertia, and how mass and inertia relate	1	Laws of Motion
<i>Motion and Forces</i>	Understanding Second Law of Motion	<i>Second Law of Motion</i>	CH5 -Second Law/Force Acceleration/Friction/Pressure/Free Fall/ - 1week	Students can demonstrate and communicate examples of Newtons Second Law	1	
<i>Motion and Forces</i>	Understanding Third Law of Motion	<i>Third Law of Motion</i>	CH6 -Actions and reactions/Third Law/ - 1week	Students can demonstrate and communicate examples of Newtons Second Law	1	
<i>Motion and Forces</i>	Understanding Momentum and its relation to energy and forces	<i>Momentum</i>	CH7-9 - Momentum/Bouncing/Collisions/Momentum Vectors/ - 1week	Students can calculate momentum/solve problems involving collisions.	1	
<i>Motion and Forces</i>	Understanding the relationship of Universal Law of Gravity	<i>Gravity</i>	CH12-13 -Falling objects/Newtons Law of Gravity/Universal Gravity/ - 1week	Students can explain the interactions of gravity with planets, Earth, tides, stars and Black Holes	1	2nd Quarter Energy/Heat
<i>Energy and Work</i>	Understanding Energy, Work , and Simple Machines	<i>Work/Energy</i>	CH8 -Work/Energy/Potential Energy/Kinetic Energy/ - 2weeks	Students can calculate and use formulas for Work and Energy	2	

<i>Energy and Work</i>	Understanding Energy, Work, and Simple Machines	<i>Simple Machines</i>	CH8 -Work/Simple Machines - 2weeks	Students can calculate formulas for simple machines	
<i>Heat & Thermodynamics</i>	Understanding Heat Energy, Energy Transfer, and Measuring Heat Energy	<i>Heat</i>	CH21 -Temperature/Heat/ Thermal Equilibrium - 2weeks	Students can define Heat, Temperature, Thermal Equilibrium. Also can calculate heat exchange.	2
<i>Heat & Thermodynamics</i>	Understanding Heat Transfer,Radiant Energy Global Warming	<i>Heat</i>	CH22 -Conduction, Convection, and Radiation - 2weeks	Students can define Conduction, Radiation, Convection. Students can supply evidence for and against Global Warming	2
<i>Heat & Thermodynamics</i>	Understanding Absolute Zero, Law of Thermodynamics, Entropy	<i>Thermodynamics</i>	CH21 -Temperature/Heat/ Thermal Equilibrium - 2weeks	Students can define Heat, Temperature, Thermal Equilibrium. Also can calculate heat exchange.	1
<i>Waves, Sound, & Light,</i>	Understanding wave principles and types of waves	<i>Waves</i>	CH25 -Wave Energy, Transvers, Longitudinal waves, and Doppler Shift - 2week	Students can identify types of waves, can identify Frequency, Wavelength, and Amplitude.	2
<i>Waves, Sound, & Light,</i>	Understanding Origin of Sounds, Media Transmission,	<i>Sound</i>	CH25 -Sound in air, Speed of Sound, Interference, and Resonance, - 1week	Students can identify the properties of Sound waves	1
<i>Waves, Sound, & Light,</i>	Understanding Electromagnetic Spectrum, Basic light concepts	<i>Light</i>	CH27 -Spectrum of light, speed of light, , - 1week	Students can identify the characteristic properties of light	2

3rd Quarter Waves & Light

<i>Waves, Sound, & Light,</i>	Understanding Spectrum of White Light, Types of Colors	<i>Color</i>	CH28 -Color Spectrum, Mixing Colors, Light vs Pigments, , - 1week	Students can explain Color by reflection and transmission, Pigments vs Light	2
<i>Waves, Sound, & Light,</i>	Understanding Lenses	<i>Light / Lenses</i>	CH30-Converging-Diverging Lenses, Optical instruments, , - 1week	Students know how to identify diffraction, refraction, and polarization	1
<i>Electricity and Magnetism</i>	Understanding Electrical Charges, Atomic Charges	<i>Electricity</i>	CH32-Charges, Conductors and Insulators, Charging objects, , - 1week	Students can solve problems related to electrical charges.	1
<i>Electricity and Magnetism</i>	Understanding Electrical Fields and Energy Storage	<i>Electricity</i>	CH33-Electrical Fields, Shielding, Electrical Potential Energy, - 1week	Students can apply concepts of EPE to problem solving	1
<i>Electricity and Magnetism</i>	Understanding Electric Currents and Circuits	<i>Electricity</i>	CH34-35 AC and DC currents,Electrical Currents, Voltage, Resistance, Ohms Law, - 2weeks	Students can solve problems using Ohm's Law, can develop different currents.	2
<i>Electricity and Magnetism</i>	Understanding Magnetism	<i>Magnetics</i>	CH36 Magnetic Poles-Fields, Electricity and Magnetism, - 2weeks	Students understand the relationship between Magnetism and Electricity, and can explain the nature of Magnetism	2
<i>Nuclear Science</i>	Understanding the Atom and Particles	<i>The Atom</i>	CH39 The Atom,Particles, Radiation, - 2weeks	Students can model the Atom, calculate Half-Life, and explain carbon dating	2

4th Quarter Electrical / Magnetism/Nuclear Physics