

SCOPE AND SEQUENCE

OURSE TITLE: 9th Grade Physical Science

TOPIC	Standards	RESOURCES/ CHAPTERS	Essential Learning Outcomes/I Can Statements	Curriculum/ Resources	ASSESSMENT	Technology Integrated
- ature nce	<p>9.1.3.2.2 Analyze possible careers in science and engineering in terms of education</p> <p>9.1.1.1.1 Explain the implications of the assumption that the rules of the universe are the same everywhere and these rules can be discovered via investigation</p> <p>9.1.1.1.6 Describe how change in scientific knowledge generally occur in incremental steps that include and build on earlier knowledge</p> <p>9.1.1.2.1 Formulate a testable hypothesis, design and conduct an experiment.</p> <p>9.1.3.4.2 Determine and use appropriate safety procedures.</p> <p>9.1.3.4.5 Demonstrate how unit consistency and</p>	<p>Holt Physical Science</p> <ul style="list-style-type: none"> • Ch 1 	<p>1) I can describe the Scientific Method</p> <p>2) I can use the Metric System in scientific measurement</p> <p>3) I can use dimensional analysis to make conversation between units</p> <p>4) I can make accurate and precise measurements</p> <p>5) I can organize and interpret data by making and using graphs</p>	<p>1) Unit 1 Study Guide</p> <p>2) Science Skill Scramble Lab</p> <p>3) Surface Tension Lab</p> <p>4) History of Metric Article</p> <p>5) Incredible Measurement activity</p> <p>6) Skittles Graphing Activity</p>	<p>1) Unit 1 Vocab Quiz</p> <p>2) Open Note Quiz - Measurement and Metric</p> <p>3) Metric Conv and Dimen. Analysis Quiz</p> <p>4) Unit 1 Test - The Nature of Science</p>	<p>Use google sheets create graphs and share them via em with Mrs Reeves</p> <p>Use of Powerpoint</p> <p>Use of SMART board technologies</p>

	dimensional analysis can guide the calculation of quantitative solutions and verification of results.					
-	<p>9.1.3.4.3 Select and use appropriate numeric, symbolic, pictorial, or graphical representation to communicate scientific ideas, procedures and experimental results.</p> <p>9.2.1.1.1 Describe the relative charges, masses, and locations of the protons, neutrons, and electrons in an atom of an element.</p>	<p>Holt Physical Science</p> <ul style="list-style-type: none"> Chapter 2 	<p>1) I can identify the differences between:</p> <p>a) elements, compounds, molecules, and mixtures</p> <p>b) physical and chemical properties</p> <p>c) physical and chemical changes</p>	<p>1) Unit 2 Study Guide</p> <p>2) Mixtures Activity</p> <p>3) Hail in a test tube lab</p> <p>4) Rainbow dens column lab</p> <p>5) Density Calculations Worksheet</p>	<p>1) Unit 2 Vocab Quiz</p> <p>2) Open Note Quiz - Matter</p> <p>3) Density Calc Quiz</p> <p>4) Unit 2 Test - Matter</p>	
- of	<p>9.2.3.2.1 Identify the energy forms and explain the transfers of energy involved in the states of matter</p>	<p>Holt Physical Science</p> <ul style="list-style-type: none"> Chapter 3 	<p>1) I can identify the differences in K.E. in solids, liquids, gases and plasma</p> <p>2) I can describe energy transfers in changes of state</p> <p>3) I can describe principles associated with buoyancy and gas laws</p>	<p>1) Unit 3 Study Guide</p> <p>2) Melting of ice lab</p> <p>3) Virtual Lab - Phase Changes</p> <p>4) Oobleck Lab</p> <p>5) Ice Cream Lab</p>	<p>1) Unit 3 Vocab Quiz</p> <p>2) Boyles and Charles Law Quiz</p> <p>3) Open Note Quiz on Changes of State</p> <p>4) Unit 3 Test - States of Matter</p>	
- and	<p>9.1.1.1.7 Explain how scientific and technological innovations</p>	<p>Holt Physical Science</p>	<p>1) I can describe the history of the atom;</p>	<p>1) Unit 4 Study Guide</p>	<p>1) Unit 4 Vocab Quiz</p>	<p>Students will use interactive periodic</p>

Periodic	<p>-as well as new evidence- can challenge portions of, or entire accepted theories and models including the atomic theory.</p> <p>9.1.3.4.6 Analyze the strengths and limitations of physical, conceptual, mathematical and computer models used by scientists.</p> <p>9.2.1.1.2 Describe how experimental evidence led Dalton, Rutherford, Thompson, Chadwick and Bohr to develop increasingly accurate models of the atom.</p> <p>9.2.1.1.3 Explain the arrangement of the elements on the Periodic Table, including the relationships among elements in a given column or row.</p> <p>9.2.1.1.4 Explain that isotopes of an element have different numbers of neutrons.</p>	<ul style="list-style-type: none"> Chapter 4 & 5 	<p>scientists and discoveries</p> <p>2) I can identify the particles found within the atom</p> <p>3) I can draw and describe Bohr Model</p> <p>4) I can describe the contributions of Mendeleev and Moseley in organizing the periodic table</p>	<p>2) History of the atom project</p> <p>3) Elements Video</p> <p>4) Flame Test Lab</p>	<p>2) Open Note Quiz on Bohr Models and atoms</p> <p>4) Unit 4 Test - States of Matter</p>	<p>table to find properties of elements, check the accuracy of Bohr models,</p>
- The nature of Ionic	<p>9.2.1.2.1 Describe the role of valence electrons in the formation of chemical bonds.</p>	<p>Holt Physical Science</p> <ul style="list-style-type: none"> Chapter 	<p>1) I can describe chemical bonds</p> <p>2) I can identify the</p>	<p>1) Unit 5 Study Guide</p> <p>2) Bonding Basic</p>	<p>1) Unit 5 Vocab Quiz</p> <p>2) Open Note</p>	

<p>ent rg</p>	<p>9.2.1.2.2 Explain how the rearrangement of atoms in a chemical reaction illustrates the law of conservation of mass.</p>	<p>er 6</p>	<p>difference between:</p> <ol style="list-style-type: none"> Ionic Bonds Covalent Bonds Metallic Bonds <p>3) I can name and write formulas for ionic and covalent compounds</p>	<p>3) Ionic Bonding Lab 4) Ionic Bonding Puzzle 5) Flashcards - polyions 6) Video - Corrosion and Decomposition 7) Marshmallow Bond Lab</p>	<p>bonding Quiz 3) Polyatomic Ion Quiz 4) Unit 5 Test - Structure of Matter</p>	
<p>- ical ions</p>	<p>9.2.1.2.3 Describe a chemical reaction using words and symbolic equations. 9.2.1.2.4 Relate exothermic and endothermic chemical reactions to temperature and energy changes. 9.2.3.2.6 Compare fission and fusion in terms of the reactants and the products formed. 9.1.3.2.1 Provide examples of how diverse cultures, including natives from all of the Americas, have contributed scientific and mathematical ideas and technological inventions.</p>	<p>Holt Physical Science</p> <ul style="list-style-type: none"> Chapter 7 	<p>1) I can describe chemical reaction using words and symbolic equation. 2) I can distinguish between endothermic and exothermic reactions 3) I can correctly balance chemical reactions 4) I can identify reactions as:</p> <ol style="list-style-type: none"> synthesis decomposition single replacement double replacement combustion 	<p>1) Unit 6 Study Guide 2) Conserv of Mass Lab 3) Balancing Act Wksht 4) Catalyst Lab Activity 5) Single replacement Lab 6) Types of chemical reactions lab</p>	<p>1) Unit 6 Vocab Quiz 2) Open Note reactions quiz 3) Balancing Quiz 4) Unit 5 Test - Structure of Matter</p>	

SCOPE AND SEQUENCE

COURSE TITLE: 9th Grade Physical Science (Trimester 2)

TOPIC	Standards	RESOURCES/ CHAPTERS	Essential Learning Outcomes	Curriculum/Resources	ASSESSMENT
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<p>- 1</p>	<p>9.1.3.4.4 Relate the reliability of data to consistency of results, identify sources of error, and suggest ways to improve data collection and analysis.</p>	<p>Holt Physical Science</p> <ul style="list-style-type: none"> Chapter 11 	<p>1) I can describe speed and velocity 2) I can calculate speed, distance, time, acceleration and velocity 3) I can graph velocity and acceleration 4) I can describe the four fundamental forces 5) I can identify the different types of friction</p>	<p>1) Unit 7 Study Guide 2) Speed Lab 3) Velocity/accel ramp lab worksheet 4) WHS velocity and accel worksheet 5) Video: Speed/Decathlon 6) Video: Friction - That Mu you do</p>	<p>1) Unit 7 Vocab Quiz 2) Open Note motion qu 3) Velocity & Acceler. Quiz 4) Unit 7 Test - Struct of Matter</p>
<p>- s and n's</p>	<p>9.2.2.2.1 Recognize that inertia is the property of an object that causes it to resist changes in motion 9.2.2.2.2 Explain and calculate the acceleration of an object subjected to a set of forces in one dimension ($F=ma$) 9.2.2.2.3 Demonstrate that whenever one object exerts force on another, an equal but opposite force is exerted by the 2nd object. 9.2.2.2.4 Use Newton's universal law of gravitation to describe and calculate the attraction between massive objects.</p>	<p>Holt Physical Science</p> <ul style="list-style-type: none"> Chapter 12 	<p>1) I can describe: a) Newton's First Law b) Newton's 2nd Law c) Weight vs Mass d) Newton's Third Law e) Momentum 2) I can calculate Force, Mass, Acceleration, and Weight</p>	<p>1) Unit 8 Study guide 2) Calculating weight and forces worksheet 3) Strength of paper Lab 4) Video: Disney Newton's Law</p>	<p>1) Unit 8 Vocab Quiz 2) Open Note Forces qu 3) Newton's Law Quiz 4) Unit 8 Test - Forces & Newton's Law</p>

<p>Energy</p>	<p>9.2.3.2.1 Identify the energy forms and explain the transfers of energy involved in the operation of common devices (e.g. light bulbs) 9.2.3.2.2 Calculate and explain the energy, work, and power involved in energy transfers in a mechanical system.</p>	<p>Holt Physical Science</p> <ul style="list-style-type: none"> Chapter 13 	<ol style="list-style-type: none"> I can distinguish between work and energy I can identify the 6 types of simple machines I can describe the difference between potential and kinetic energy I can calculate potential and kinetic energy 	<ol style="list-style-type: none"> Unit 9 Study Guide Work and Power Lab Kinetic and Potential Energy Pendulum Lab Simple Machines Summary Poster 	<ol style="list-style-type: none"> Unit 9 Vocab Quiz Open Note work quiz Energy Calc Quiz Unit 9 Test - Work and Energy
<p>Temperature</p>	<p>9.2.3.2.1 Identify the energy forms and explain the transfers of energy involved in the operation of common devices (e.g. light bulbs)</p>	<p>Holt Physical Science</p> <ul style="list-style-type: none"> Chapter 14 	<ol style="list-style-type: none"> I can identify methods of energy transfer I can describe Conductors and Insulators I can describe specific heat I can calculate changes in specific heat using temperature values. 	<ol style="list-style-type: none"> Unit 10 Study Guide Heat Transfer Activity Specific Heat Lab - Food Calories 	<ol style="list-style-type: none"> Unit 10 Vocab Quiz Open Note Heat quiz Heat and Calories Quiz Unit 10 Test - Heat and Temp
<p>Waves</p>	<p>9.1.3.4.1 Describe how technological problems and advances often create a demand for new scientific knowledge, improved mathematics and new technology.</p>	<p>Holt Physical Science</p> <ul style="list-style-type: none"> Chapter 15 	<ol style="list-style-type: none"> I can describe: <ol style="list-style-type: none"> Transverse waves Longitudinal waves Surface waves 	<ol style="list-style-type: none"> Unit 11 Study Guide Creating Waves with a Pendulum Lab Create surface waves Lab Calculating frequency, 	<ol style="list-style-type: none"> Unit 11 Vocab Quiz Open Note quiz - type of waves Amplitude, freq Quiz Unit 11 Test - Waves

			<ul style="list-style-type: none"> d. Wave Properties e. The Doppler Effect f. Reflection, Diffraction and Refraction g. Interference 	period, waves speed wksht	
2 - Is and city	<p>9.2.3.2.3 Describe how energy is transferred through sound waves and how pitch and loudness are related to wave properties of frequency and amplitude.</p> <p>9.2.3.2.4 Explain and calculate current, voltage and resistance, and describe energy transfers in simple electric circuits.</p> <p>9.2.3.2.5 Describe how an electric current produces a magnetic force, and how this interaction is used in motors and electromagnets to produce mechanical energy.</p>	<p>Holt Physical Science</p> <ul style="list-style-type: none"> • Chapter 16 	<ul style="list-style-type: none"> 1) I can describe: <ul style="list-style-type: none"> a. properties of sound b. Ultrasound and Sonar 2) I can identify how reflection of light produces images 3) I can describe the process of refraction of light 4) I can identify how light interacts with mirrors and lenses 	<ul style="list-style-type: none"> 1) Unit 12 Study Guide 2) Amplifying the Sound of a Tuning Fork Lab 3) Light and Mirrors Lab 	<ul style="list-style-type: none"> 1) Unit 12 Vocab Quiz 2) Open Note Sound and Light quiz 3) Unit 12 Test - Structure of Matter

