Mr Geiger's Physical Science 1st Semester Schedule

matthew.geiger@hpstigers.org ***Physical Science Webpage*** ***Google Classroom Code:*** ***Period 4:*** ***Period 6:*** ***Period 7:***	***Physical Science Power Essentials*** ***Conceptual Physical Science Class Syllabus*** ***Honors Physical Science Class Syllabus*** ***Online Textbook: ck12.org***	UNIT 1: Introduction to Science UNIT 2: Classification of Matter UNIT 3: Atoms, Periodic Table, and Radioactivity UNIT 4: The Structure of Matter UNIT 5: Chemical Reactions	August September October November December

Date	***Essentials/Targets***	***In-class Topics and Practice Activities***	***Practice Activities***
UNIT 1: Introduction to Physical Science **Essential 1.0: The student can describe the nature of science including the observation and interpretation of data.**			
Aug. 14,15	Students will be able to explain what the study of physical science involves, reference how science is active in the world today, and review critical thinking skills.	Find your Seat (Seating Chart) Welcome Back The Electric Pickle Discuss: What is Science? What's this class going to be about? (Questions to Ponder) Catapult Challenge Science in the News 1. New thermal 'cloak' keeps spaces from getting too hot or too cold (August 2023) [Team Work] 2. Shouting into the wind may seem futile — but it's really not (June 2023) 3. Shade Balls(1, 2, 3) Science and Technological Advances in Transportation Obtain 1-inch 3-ring binder and paper	Extra Project The Next Great Invention Fun Articles: 1) Shade Balls(1, 2, 3) 2) Rio Games: Why Olympians Shatter Records in Swimming but Not Track 3) 20 Science Questions for the Presidential Candidates 4) Have we reached the end of physics? 5) The Government's Using 'X-Ray Vision Carrots' To Fight Food Waste 6) Watch This Plant Shoot Its Seeds Like Spiraling Footballs 7) Guy flies across the English Channel on a hoverboard 8) Dead Spider Robots (Aug. 2022) 9) Physicist Claims To Have Solved the Mystery of Consciousness (Aug. 2022) 10) Physicists identify most complex protein knots (Aug. 2022)

Aug. 16,19	Students will be able to reference the class syllabus for classroom expectations and use critical thinking skills to identify a current problem and write a solution. Students will review common science vocabulary.	Review the Class Syllabus. (Links are at the top.) Bookmark Online Planner Join the Physical Science Google Classroom. (Codes are at the top.) Complete the Information Google Form online. 8th Grade Standards Assessment Why taking good notes is important? Cornell Notes: Video 1, Video 2; Cornell Note Template Science and Technological Advances in Transportation Presentations [if started on the previous day] Discuss: Branches of Science, Models, Theories, Laws,... Demonstration: The Magic Cord TED Talk video: Puzzles and Magic The Extra Piece Puzzle (Team Problem Solving) T3 - ABC's of expectations at HHS	Article: The Google Effect Online Textbook: Chapter 1 Sections 1-23 (exclude sections 5, 6, 12, 13, 16) covers an introduction to physical science. Sections 17-23 cover the Scientific Method. Extra Project: The Next Great Invention Science and Society Alternative Assignment
Aug. 20,21	Students will be able to identify the branches of science, define a scientific model, distinguish the differences between a law and a theory, understand the purpose of the scientific method, and identify the basic units of the metric system.	Discuss: The Scientific Method and the Metric System Practice: Metric System and Metric Prefixes WS: Activity: How Good of a Witness Were You? Discuss: Significant Figures and Math Operations with SigFigs Demonstration/Lab Practice: Using Measuring Device Correctly	Online Textbook: Chapter 1 Section 24-33: Measurement and Collecting Data WS: The Metric System WS: Metric Prefixes
Aug. 22,23	Students will be able to identify the number of significant figures contained in a numerical	Discuss: Lab Expectations Lab: 5 mL Challenge - Precision	Online Textbook: Chapter 1 Section 24-33: Measurement and Collecting Data WS: Significant Figures

	value and to work with significant figures in a mathematical operation.	Discuss: Procedures in the lab and Lab Reports Continue Discussion: Significant Figures and Math Operations with SigFigs Practice Exercises: SigFigs Discuss: Measuring with Significant Figures Lab: Measuring with Significant Figures	KHAN Academy Practice (video)
Aug. 26,27	Students will be able to use significant figures while collecting data and understand the correct method for collecting and reporting information gathered from an experiment.	Review SigFigs. / Scientific Notation Introduce: Metric Conversions - King Henry and Dimensional Analysis Finish Discussion: Measuring with Significant Figures Continue Lab: Measuring with Significant Figures	Online Textbook: Chapter 1 Sections 24-33: Measurement and Collecting Data WS: Using Significant Figures When Measuring Work on Lab Report
Aug. 28,29	Students will be able to read and write numerical values with scientific notation.	In-Class Practice: Significant Figures and Conversion of Units Finish Lab and Conduct Peer Review	Online Textbook: Chapter 1 Sections 24-33: Measurement and Collecting Data WS: Scientific Notation (optional) WS: Significant Figures and Scientific Notation Lab Report due at the end of the period.
Aug. 30 Sept.3	Students will be able to convert between metric prefixes. Students will be able to identify the three main graphical relationships and convert between metric units.	In-Clas Practice Metric Conversions / Dimensional Analysis Discuss:Graphing Lab: Graphing Mass and Volume	Online Textbook: Chapter 1 Sections 24-33: Measurement and Collecting Data WS: Percent Error, Precision, and Accuracy WS: Conversion Practice #1 WS: Conversion Practice #2
Sept. 2		No School - Labor Day	
Spet. 4,5	Students will be able to identify the three main graphical relationships	Review for the Test - look over notes, in-class practice problems, practice worksheets, ck12	WS: Conversion Practice #3 WS: Line Graphs

	and convert between metric units.		WS: Conversion Practice #3: Dimensional Analysis
Sept. 6,9	Students will be assessed on the essentials. Students will understand how to classify matter into pure substances and mixtures.	**Bring your science notebook to class so it can be checked for completeness.** **TEST: Physical Science Concepts and Skills** TED video on Mixtures (Watch video, complete THINK and DigDeeper sections) WS01 Can You Classify Matter?	Why Do Onions Make You Cry and Other Questions to Ponder: As an Introduction to Chemistry, Preview this website and be ready to pose and answer a question in the next class period.
SCHEDULED UPDATED UP TO THIS POINT			
UNIT 2: Classification of Matter **2.0 Power Essential: The student can describe the classification of matter.**			
Sept. 12,13	Students will understand how to classify matter into pure substances and mixtures. Students will be able to classify matter into the following groups: element, compound, solution, colloid, and suspension.	Go Over Test Results ** Introduction to Chemistry ** Think About: Ways to Organize a Grocery Store Discuss: Classification of Matter; What is Matter? Why Classify? How? TED video on Mixtures (Watch the video, complete THINK and DigDeeper sections) WS01 Can You Classify Matter?	WS02 Atoms and Molecules WS04 Classification of Matter
Sept 14,15	Students will be able to classify matter into the following groups: element, compound, solution, colloid, and suspension.	Discuss: Kinetic Molecular Theory, States of Matter, and Phase Changes Lab: Introduction to Pure Substances and Mixtures	Finish WS03 Classifying Matter WS05 What is Matter?

Sept 18,19	Students will be able to define the kinetic-molecular theory, define the different states of matter, and describe a material as it undergoes a phase change.	Finish Discussion on Kinetic Molecular Theory, States of Matter, and Phase Changes Discuss: Operating the Bunsen Burner and Lab Safety Finish: Lab: Introduction to Pure Substances and Mixtures	WS06 States of Matter WS07 States of Matter and Energy
Sept. 20,21	Students will be able to describe the properties of a gas and describe how the variable; Pressure, Volume, and Temperature are related through the Gas Laws.	Discuss: Properties of a Gas Lab: Bunsen Burner Lab: Properties of Gases	WS08 Matter and Energy Lab: Colloids (optional)
Sept. 22		NO SCHOOL - Fall Break	
Sept. 25,26	Students will be able to identify the difference between a physical property and a chemical property; identify between a physical change and a chemical change.	Gas Law Practice Problems: WS09 Gas Laws Discuss: Physical and Chemical Properties of Matter LINK TO GRAPHING DATA Finish Properties of Gases	WS10 Density WS11 Properties of Matter Online Simulation of Gas Laws
Sept. 27, 28	Students will be able to identify the difference between a physical property and a chemical property; identify between a physical change and a chemical change.	Review Physical and Chemical Changes Lab: Chemical Changes Lab: Separating a Mixture (optional) Lab: Physical and Chemical Properties (optional)	WS12 Density II

Sept.29 Oct. 2	Students will be able to identify the difference between a physical property and a chemical property; identity between a physical change and a chemical change.	Review Finish Lab: Chemical Changes	
Oct. 3,4	Students will be assessed on the essentials.	**TEST: Matter**	
UNIT 3: Atoms, the Periodic Table, and Radioactivity **3.0 Power Essential: The student can describe the atomic structure of matter and use the periodic table to describe the characteristics of an element.**			
Oct. 5,6	Students will be able to describe the development of the atom through history and identify the parts of the atom.	Review Test Results Quick Lab: Determining the Structure of an Atom Discuss: The Model of the Atom, Atomic Structure, Ions, and Isotopes Discuss: Drawing Atoms	WS00: History of Atomic Theory Timeline (not completed in 2020) WS 17: Atomic Structure Videos WS01: Atoms and Their Parts WS02: Atomic Structure
Oct. 9,10	Students will be able to identify the structure of the atom and construct an atomic diagram of the elements.	Review: The Model of the Atom, Atomic Structure, Ions, and Isotopes Periodic Table Lab: Rutherford Simulation and Isotopes	WS 17: Atomic Structure Videos Online: Build an Atom Practice
Oct. 11,16	Students will be able to identify the structure of the atom and construct an atomic diagram of the elements.	Review: The Model of the Atom, Atomic Structure, Ions, and Isotopes What is an Ion? video ← watch this 0:00 to 5:30 What is an Isotope? video ← watch this Isotopes and Elements Practice video ← watch this	Isotope Video WS03: Atoms, Isotopes, and Ions WS04: Atomic Structure II WS05: Nature of Atoms

		Practice: Calculating Average Atomic Mass Finish: Lab: Rutherford Simulation and Isotopes	
Oct. 12-15		NO SCHOOL-Fall Break	
Oct. 17		NO SCHOOL - Grade 9 and Grade 10 Testing	
Oct. 18,19	Students will be able to identify trends in the periodic table along periods and families.	Discuss: The Periodic Table Characteristics of Element Families - Blank Periodic Table Electron Orbits Video Introduce Using Moles to Count Atoms WS18: Periodic Bedazzle Project [SIGN UP HERE],[Spreadsheet] due October 26(black)/27(orange).	WS19: Me and My Family (optional) Activity: Graphing Properties and Trends in the Periodic Table (optional)
Oct. 20,23	Students will be able to identify trends in the periodic table along periods and families.	Review Atomic Structure and Organization/Trends of the Periodic Table WS 11: The Periodic Table WS 13: Periodic Puzzle Discuss: Using Moles to Count Atoms Practice: Conversions	WS 06: Moles, Atoms, and Grams
Oct. 24,25	Students will be able to convert between mass, moles, and the number of particles.	Review: Atomic Theory History, Atomic Structure and the Periodic Table Continue Discussion: Using Moles to Count Atoms Discuss: Radioactive Decay	WS07: Converting Moles WS08: Converting Amount to Mass
Oct. 26,27	Students will review the previous targets in preparation of the unit assessment.	Review Lab/Demo: Atomic Structure and the Flame Test	
Oct. 30,31	Students will be assessed on the	TEST: Atomic Structure and the Periodic Table	

	learning goals listed above.		
UNIT 4: The Structure of Matter **4.0 Power Essential: The student can describe chemical interactions.**			
Nov. 1,2	Students will be able to identify the nature of the chemical bond and how this influences the properties of a compound.	Review Atoms/Periodic Table Test Results Discuss: Compounds, Molecules, and Bonds, Chemical Bonding (Ionic, Covalent, Metallic)	WS01_Chemical Bonding Study Guide WS02: Compounds and Molecules
Nov. 3		NO SCHOOL	
Nov. 6,7	Students will distinguish the difference between an ionic bond and a covalent bond. Students will be able to create a Lewis Dot diagram for a given compound.	Discuss: Bonding and Drawing Structures Practice Lewis Structures Lab: Ionic and Covalent Compounds	WS03: Ionic and Covalent Bonding WS04: Bond Identification WS05: Lewis Dot Structures
Nov. 8,9	Students will identify the type of bond in various chemical compounds. Students will be able to name chemical compounds.	Discuss: Alloys, Polyatomic Ions, and Naming Compounds Practice Naming Compounds Formula Poker	WS06: Compound Names and Formulas WS07: Ions in Compounds Lewis Structures
Nov. 10,13	Students will practice the naming of ionic and covalently bonded compounds.	Review Ionic and Cocalent Bonding Lewis Structure Practice Discuss: Naming Compounds Practice Naming Compounds	Drawing Lewis Structures WS08: Naming Ionic Compounds I WS09: Naming Ionic Compounds II
Nov. 14,15	Students will practice the naming of ionic and	Review Units 1-3	WS10: Naming Covalent Compounds

	covalently bonded compounds.	Finish: Naming Compounds Lab/Demo: Atomic Structure and the Flame Test	
Nov. 16,17	Students will practice the naming of ionic and covalently bonded compounds.	Practice Naming Compounds	WS11: Naming Compounds (Extra Practice) Molecule Builder (FUN)
Nov. 20,21		**TEST: Chemical Bonding**	
Nov. 22-26		HAPPY THANKSGIVING	
UNIT 5: Chemical Reactions **5.0 Power Essential: The student can describe a chemical reaction.**			
Nov. 27,28	Students will be able to identify the five types of chemical reactions and write a chemical equation.	Review the Chemical Bonding Test Results ck12 Reading and Questions (posted on Google Classroom) Discuss: Describing Reactions and Types of Reactions	WS01_Types of Chemical Reactions
Nov. 29,30	Students will be able to write and balance chemical equations.	Optional Physical Science Ornament [On Google Classroom] - due Dec 8 Discuss: Writing and Balancing Chemical Equations Lab: Observing a Chemical Reaction	WS02_Balancing Chemical Equations 1
Dec. 1 Dec. 4	Students will be able to describe what contributes to the rate at which a reaction occurs and write and balance chemical equations.	Discuss: Energy Changes in Reactions and Reaction Rates, and Equilibrium Practice Balancing Reactions Finish Lab	WS03_Balancing Chemical Equations 2
Dec. 5,6	Students will be able to write and balance chemical equations.	Lab: Lab: Solubility and Precipitates Practice Writing and Balancing Chemical Equations	WS04_Balancing Chemical Equations 3
Dec. 7,8	Students will be able to identify the reactants	Finish Lab: Solubility and Precipitates	

	and products in a chemical reaction.		
Dec. 11,12		Review	WS05_Writing and Balancing Equations Answers to Balancing Chemical Equation Worksheets
Dec. 13.14	Students will be assessed on chemical bonding and chemical reactions.	TEST: Chemical Reactions	Semester Test Concept Outline Semester Student Created Study Guide Slides Used for Review the Past Several Weeks
Dec. 15,18		Semester Review	
SCHEDULE UPDATED TO THIS POINT.			

SEMESTER TEST SCHEDULE			
	Tuesday, December 19	Wednesday, December 20	Thursday, December 21
8:05-9:30	Open	Open/Finals Make-up	Open/Finals Make-up
9:35-11:00	Period 4 TEST	Period 5 TEST	Period 2 TEST
11:05-1:15	Period 6 TEST	Period 7 TEST	Period 3 TEST
1:20-2:45	Period 10 TEST	Period 11 TEST	
2:45-4:00	Open/Finals Make-up	Open/Finals Make-up	