Current Staff						
Course	7th Grade Physical Science					
Unit/ Length	**Unit Objectives/ Big Ideas**	**Basic Outline/ Structure**	**Materials/ Text**	**Content Vocabulary**	**CCSS**	**Activities & Assessments**
August	PS4-2 Because light can travel through space, it cannot be a matter wave, like sound or water waves.	Types of Waves	PH Sound and Light Chapter 1 Section 1	**wave, energy,** medium, mechanical wave, longitudinal wave, crest, trough, compression, rarefaction	RST.6-8.1	Note-taking Wave Diagram Worksheets
August	PS4-1 A simple wave has a repeating pattern with a specific wavelength, frequency, and amplitude.	Properties of Waves Calculating Speed	PH: Sound and Light Chapter 1 Section 2	amplitude, frequency, wavelength	RST.6-8.1 RST.6-8.3	Note-taking Speed Calculations Galloping Gertie Video Skinky Lab
Septem-ber	PS4-2 A sound wave needs a medium through which it is transmitted.	Sound waves Interactions of Sound Waves	PH: Sound and Light Chapter 2 Section 1	echo, elasticity, **density**	RST.6-8.1	Note-taking Brainpop Worksheets
Septem-ber	PS4-3 Digitized signals (sent as pulse waves) are a more reliable way to encode and transmit information.	Pulse Waves Coding and transmitting info	PH Sound and Light 3-4	electromagnetic wave,, photon, electromagnetic spectrum, radio wave, microwave, **radar**, infrared, UV rays, x-rays, gamma rays, luminous, fluorescent light	RST.6-8.1	Note-taking Worksheets
October	PS4-2 When light shines on an object, it is reflected, absorbed, or transmitted through the object, depending on the object's material and the frequency (color) of the light.	Light waves and interactions	PH: Sound and Light Chapter 4 Section 1	transparent, translucent, opaque	RST.6-8.1	Note-taking Discovery Activity-pg 106

October	PS4-2 A wave model of light is useful for explaining brightness, color and the frequency-dependent bending of light at a surface between media.	Light and Color	PH: Sound and Light Chapter 4 Section 1	**primary, secondary,** and complementary colors, pigment	RST.6-8.1	Worksheet Brainpop
October	PS4-2 The path light travels can be traced as straight lines, except at surfaces between different transparent materials where the light bends.	Reflections of light rays	PH: Sound and Light Chapter 4 Section 1 & 2	**reflection**, ray, plane mirror, image, concave mirror, optical axis, focal point, real image, convex mirror	RST.6-8.1	Note-taking Flashlight demo Worksheets
Oct/Nov	PS2-2 All positions of objects and the directions of forces and motions must be described using diagrams which can be shared with others.	Universal use of arrows to display motion forces.	PH: Motion, Forces and Energy Chapter 2 (ALL)	reference point, velocity, slope, **force**	RST.6-8.1	Note-taking Spring Scales Describing and measuring motion-practice calculations Worksheets
Novem-ber	PS2-4 Gravitational forces are always attractive. Force depends on mass.	Factors affecting force between two objects. Objects accelerate during free fall.	PH: Motion, Forces and Energy Chapter 2 Section 2	**friction**, **gravity**, **mass**, weight, **resistance**	RST.6-8.1 RST.6-8.3	Note-taking Worksheets Friction demos Egg Drop? Analyzing Graphed data
Novem-ber	PS2-2 The motion of an object is determined by the sum of the forces acting on it. (This is affected by mass)	Newton's 2nd Law of motion Acceleration	PH: Motion, Forces, and Energy Chapter 2 Section 3	inertia	RST.6-8.1 RST.6-8.4	Note-taking Inertia lab Practice Calculations Worksheets
Novem-ber	PS2-1 Newton's 3rd law	Understanding momentum Law of Conservation of momentum	PH: Motion, Forces, and Energy Chapter 2 Section 4	momentum, **law of conservation** of momentum	RST.6-8.1 RST.6-8.4	Note-taking Momentum lab Swing the bucket worksheets Ch. 2 TEST

Nov/Dec	PS3-1 Understand kinetic energy; proportional to the mass of the moving object and grows with the square of its speed.	Calculating Kinetic Energy	PH Motion, Forces and Energy Chapter 5 Section 1	energy, kinetic	RST.6-8.1 RST.6-8.4	Demonstration of Kinetic Energy Worksheets Ball Bounce
Nov/Dec	PS3-2 Objects may contain stored potential energy depending on position.	Potential Energy	PH Motion, Forces and Energy Chapter 5 Section 1	potential, gravitational potential energy	RST.6-8.1 RST.6-8.4	Potential Energy Sketches Worksheets
Nov/Dec	PS3-5 When the motion energy of an object changes, there is inevitably some other change in energy at the same time.	Mechanical Energy	PH: Motion, Forces and Energy Chapter 5 Section 2	mechanical energy	RST.6-8.1	Note-taking Calculations of mechanical energy Worksheets
Decem-ber	PS3-2 When two objects interact, each one exerts a force on the other that can cause energy to be transferred to or from the object.	Energy Transformation	PH Motion, Forces and Energy Chapter 5 Section 3	thermal, electrical, chemical, nuclear and electromagnetic energy	RST.6-8.1 RST.6-8.4	Note-taking Pendulum lab Worksheets Ch 5 TEST
Decem-ber	PS3-4 The amount of energy transfer needed to change the temperature of a matter sample by a given amount depends on the nature of the matter, the size of the sample, and the environment.	Specific Heat	PH: Motion, Forces and Energy Chapter 6 Section 1	specific heat, temperature, Fahrenheit, Celsius, and Kelvin scales, absolute zero, heat	RST.6-8.1	Note-taking Calculations & Graphing Practice Worksheets
Decem-ber	PS3-3 Energy is spontaneously transferred out of hotter regions or objects and into colder ones.	The transfer of heat	PH: Motion, Forces and Energy Chapter 6 Section 2	conduction, convection, convection current, radiation, **conductor, insulator**	RST.6-8.1	Note-taking Brainpop Video & Quiz Heat Transfer Lab Worksheets

Decem-ber	PS3-3 Temperature is a measure of kinetic energy of particles. Relationship between temperature and energy is dependent on type, state, and amount of matter present.	States of Matter and Thermal Energy Measuring Temperature	PH Motion, Forces and Energy Chapter 6 Section 1 & 3	**state**, change of state, melting, freezing, evaporation, boiling, condensation, thermal expansion	RST.6-8.1	Note-taking Worksheets Ch 6 TEST
January	PS2-3 Electromagnetic forces can be attractive or repulsive and their sizes depend on the magnitude of the charges, currents, or magnetic strengths involved and on the distances between the interacting objects.	Understand relationship between current and magnetic field. Characteristics of magnetic fields and electromagnets.	PH: Electricity and Magnetism Chapter 1 Section 1	magnet, magnetic pole, magnetic force, magnetic field, field lines	RST.6-8.1	Note-taking magnet demo Brainpop Worksheets
January	PS2-5 Forces that act at a distance can be explained by fields that extend through space and can be mapped by their effect on a test object.	Effects of Earth's magnetic field	PH Electricity and Magnetism Chapter 1 Section 3	compass, Van Allen belts, solar wind, magnetosphere, aurora	RST.6-8.1	Note-taking Brainpop worksheets
February	PS1-1 Substances are made of atoms, which combine with one another in various ways.	Properties used to describe matter Properties of a mixture What are elements and their relationship to compounds	Prentice Hall Text: Chemical Building Blocks Ch 1 Section 1 Also in PH: Chemical Interactions Chapter 1 Section 1	**matter**, chemistry, substance, element, **atom**, chemical bond, molecule, **compound**, chemical formula, **mixture**, heterogeneous, homogeneous, solution	RST.6-8.1	Chemical & Physical Properties T-chart Atom Sketches Note-taking Worksheets

February	PS1-2 Substances are made up of characteristic chemical and physical properties which may be used to identify them.	What is physical change? Chemical Change? How are changes in matter related to changes in energy?	PH: Chemical Building Blocks Chapter 1 Section 3 PH: Chemical Interactions Chapter 2 Section 1	physical **change**, chemical change, energy, **temperature**, thermal energy	RST.6-8.1	Note- taking Worksheet Ch 1 TEST
March	PS1-4 Gases and liquids are made of molecules or atoms that are moving.	Characteristics of solids, liquids and gases	PH: Chemical Building Blocks Chapter 2 Section 1	solid, liquid, gas, viscosity, crystalline, amorphous, fluid, surface tension	RST.6-8.1	Solid, Liquid, Gas Diagrams Brainpop quiz
March	PS1-4 Changes of state occur with variations in temperature or pressure which can be predicted.	Changes in states of matter	PH: Chemical Building Blocks Chapter 2 Section 2	melting, freezing, vaporization, evaporation, boiling, condensation, sublimation	RST.6-8.1	Vaporization Sketches Analyzing Graph data- pg 52 Ch 2 TEST
April	PS1-5 The total number of each type of atom is conserved, and thus does not change.	Conservation of mass Balancing equations	PH: Chemical Interactions Chapter 2 Section 2	chemical equation, conservation of mass, product, reactant, coefficient	RST.6-8.1	Note-taking Worksheets
May	PS1-3 Substances react in characteristic ways. Products of reactions have different properties of reactants.	Understanding chemical equations Balancing equations Categories of chemical reactions	PH: Chemical Interactions Chapter 2 Section 2	synthesis, decomposition, replacement	RST.6-8.1	Note-taking Brainpop Videos and quizzes
May	PS1-6 Some chemical reactions release energy, others store energy.	Exothermic and Endothermic Reactions	PH: Chemical Interactions Chapter 2 Section 3	exothermic and endothermic **reactions**, activation energy, **catalyst**, enzymes, inhibitor	RST.6-8.1	Note-taking worksheets Ch 2 TEST

Textbook	**Chapter/Section required coverage to address NGSS-**covering your bases	**Real World Classroom Application-** to ensure that the class structure is cohesive and not choppy	**Timeframe-**please understand this is a general outline and will need tweaked…it has not been done yet at HJHS
Sound and Light	Ch. 1 Sections 1 & 2 Ch. 2 Section 1 Ch. 3 Section 4 Ch. 4 Section 1 & 2	Chapters 1 through 4 Cover them all	August, September & October
Motion, Forces & Energy	Ch. 2 ALL Ch. 5 Sections 1,2,3 Ch. 6 Sections	Chapter 2 ALL Chapter 5 ALL Chapter 6 ALL	November & December
Electricity & Magnetism	Ch. 1 Sections 1 & 3	Chapter 1 ALL	January
Chemical Building Blocks	Ch. 1 Sections 1 & 3 Ch. 2 Sections 1 & 2	Chapter 1 ALL Chapter 2 ALL	February & March
Chemical Interactions	Ch. 1 Section 1 Ch. 2 Sections 1,2,3	Chapter 1 ALL Chapter 2 ALL	April & May