

9th Grade Pre-AP Integrated Science Embedded Curriculum (SCI 393/ 394)

Date		Hobbs Science Standards 9 th Grade	NM Standards & Benchmarks	Resources
		By being embedded throughout the curriculum, these Processing Skills will be addressed throughout the year. These Processing Skills will also be in the projects completed each 9 weeks.		Basic text is <u>Prentice Hall Physical Science</u>
		Students will be able to:	Strand, Standards, Benchmarks, & Performance Standards	Supplemental books, labs, videos, projects, digital curriculum
<hr/> <hr/> <hr/> <hr/>	9.1	<ol style="list-style-type: none"> Describe the essential components of an investigation, including appropriate methodologies, proper equipment, and safety precautions. Design and conduct scientific investigations that include: <ul style="list-style-type: none"> Testable hypotheses Controls and variables Methods to collect, analyze, and interpret data Results that address hypotheses being investigated Predictions based on results Re-evaluation of hypotheses and additional experimentation as necessary Error analysis. Use appropriate technologies to collect, analyze, and communicate scientific data (e.g., computers, calculators, balances, microscopes). Convey results of investigations using scientific concepts, methodologies, and expressions, including: <ul style="list-style-type: none"> Scientific language and symbols Diagrams, charts, and other data displays Mathematical expressions and processes (e.g., mean, median, slope, proportionality) 	<p>I, I, I, 1</p> <p>I, I, I, 2</p> <p>I, I, I, 3</p> <p>I, I, I, 4</p>	<p>Equipment Lab</p> <p>Measurement Lab</p> <p>Motion Detector Lab</p> <p>Investigating</p> <p>Average Speed Lab</p>

_____		<ul style="list-style-type: none"> • Clear, logical, and concise communication • Reasoned arguments. 		
_____		5. Understand how scientific theories are used to explain and predict natural phenomena (e.g., plate tectonics, ocean currents, structure of atom).	I, I, I, 5	
_____	9.2	1. Understand how scientific processes produce valid, reliable results, including: <ul style="list-style-type: none"> • Consistency of explanations with data and observations • Openness to peer review • Full disclosure and examination of assumptions • Testability of hypotheses • Repeatability of experiments and reproducibility of results. 	I, I, II, 1	
_____		2. Use scientific reasoning and valid logic to recognize: <ul style="list-style-type: none"> • Faulty logic • Cause and effect • The difference between observation and unsubstantiated inferences and conclusion • Potential bias 	I, I, II, 2	
_____		3. Understand how new data and observations can result in new scientific knowledge.	I, I, II, 3	
_____		4. Critically analyze an accepted explanation by reviewing current scientific knowledge.	I, I, II, 4	
_____		5. Examine investigations of current interest in science (e.g., superconductivity, molecular machines, age of the universe).	I, I, II, 5	
_____		6. Examine the scientific processes and logic used in investigations of past events (e.g., using data from crime scenes, fossils), investigations that can be planned in advance but are only done once (e.g., expensive or time-consuming experiments such as medical clinical trials), and investigations of phenomena that can be repeated easily and frequently.	I, I, II, 6	
_____	9.3	1. Create multiple displays of data to analyze and explain the relationships in scientific investigations.	I, I, III, 1	

_____		2. Use mathematical models to describe, explain, and predict natural phenomena.	I, I, III, 2	
_____		3. Use technologies to quantify relationships in scientific hypotheses (e.g., calculators, computer spreadsheets and databases, graphing software, simulations, modeling).	I, I, III, 3	
_____		4. <i>Identify and apply measurement techniques and consider possible effects of measurement errors.</i>	I, I, III, 4	
_____		5. <i>Use mathematics to express and establish scientific relationships (e.g., scientific notation, vectors, dimensional analysis).</i>	I, I, III, 5	
_____	9.6	Science and Technology 1. Know how science enables technology but also constrains it, and recognize the difference between real technology and science fiction (e.g., rockets vs. antigravity machines; nuclear reactors vs. perpetual-motion machines; medical X-rays vs. Star-Trek tricorders).	III, I, I, 1	“The Core” “Apollo 13” “The Day After Tomorrow” “Armageddon” “Star Wars”- Tech. vs. Science Fiction
_____	9.7	2. Understand how advances in technology enable further advances in science (e.g., microscopes and cellular structure; telescopes and understanding of the universe).	III, I, I, 2	
_____	9.3	3. Evaluate the influences of technology on society (e.g., communications petroleum, transportation, nuclear energy, computers, medicine, genetic engineering) including both desired and undesired effects, and including some historical examples (e.g., the wheel, the plow, the printing press, the lightning rod).	III, I, I, 3	Science & Technology Questionnaire
_____	9.8	4. Understand the scientific foundations of common technologies (e.g., kitchen appliances, radio, television, aircraft, rockets, computers, medical X-rays, selective breeding, fertilizers and pesticides, agricultural equipment).	III, I, I, 4	Chapter 2.2 Chapter 9.1 Chapter 23.5
_____	9.5	5. Analyze the impact of digital technologies on the availability, creation, and dissemination of information.	III, I, I, 6	
	9.6	6. <i>Examine the role that New Mexico research facilities play in current space</i>	III, I, I, 7	Web Quest

		<i>exploration (e.g., Very Large Array, Goddard Space Center).</i>		
	9.4, 9.7	7. Describe uses of radioactivity (e.g. nuclear power, nuclear medicine, radiometric dating).	III, I, I, 8	
	9.6	8. Understand how knowledge about the universe comes from evidence collected from advanced technology (e.g., telescopes, satellites, images, computer models).	II, III, I, 3	Chapter 25.1
	9.6	9. <i>Describe the key observations that led to the acceptance of the Big Bang theory and that the age of the universe is over 10 billion years.</i>	II, III, I, 4	Chapter 26.5
		Science and Society		
	9.5	1. Describe how human activities have affected ozone in the upper atmosphere and how it affects health and the environment.	III, I, I, 7	Scientist Report Chapter 3.2 Chapter 4.1 Chapter 5.1 Web Quest Class Debate
	9.4, 9.7	2. Describe how scientific knowledge helps decision makers with local, national, and global challenges (e.g., Waste Isolation Pilot Project [WIPP], mining, drought, population growth, alternative energy, climate change).	III, I, I, 9	
	9.4, 9.7	3. Describe major historical changes in scientific perspectives (e.g., atomic theory, germs, cosmology, relativity, plate tectonics, evolution) and the experimental observations that triggered them.	III, I, I, 10	
	9.4	4. Know that societal factors can promote or constrain scientific discovery (e.g., government funding, laws and regulations about human cloning and genetically modified organisms, gender and ethnic bias, AIDS research, alternative-energy research).	III, I, I, 11	
	9.4	5. Describe how environmental, economic, and political interests impact resource management and use in New Mexico.	III, I, I, 13	
		Science and Individuals		
	9.4, 9.8	1. <i>Describe New Mexico's role in nuclear science (e.g., Manhattan Project, WIPP, national laboratories).</i>	III, I, I, 14	Career Research "Technology Through the

_____	9.5	2. Identify how science has produced knowledge that is relevant to individual health and material prosperity.	III, I, I, 15	Ages” Interview Darwin Chapter 22.4
_____	9.6	3. Understand that reasonable people may disagree about some issues that are of interest to both science and religion (e.g., the origin of life on Earth, the cause of the Big Bang, the future of Earth).	III, I, I, 16	
_____	9.6, 9.9	4. Identify important questions that science cannot answer (e.g., questions that are beyond today’s science, decisions that science can only help to make, questions that are inherently outside the realm of science).	III, I, I, 17	
_____	9.7	5. Understand that scientists have characteristics in common with other individuals (e.g., employment and career needs, curiosity, desire to perform public service, greed, preconceptions and biases, temptation to be unethical, core values, including honesty and openness).	III, I, I, 18	
_____	9.4	6. Know that science plays a role in many different kinds of careers and activities (e.g., public service, volunteers, public office holders, researchers, teachers, doctors, nurses, technicians, farmers, ranchers).	III, I, I, 19	

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(1st 9 weeks- 1st 4 ½ weeks)

Date		Hobbs Science Standards 9 th Grade	NM Standards & Benchmarks	Resources
		Students will be able to:	Strand, Standards, Benchmarks, & Performance Standards	Basic text is <u>Prentice Hall Physical Science</u> Supplemental books, labs, videos, projects, digital curriculum
		Motion and Force		APEX Core Physical Science Sem. 1- Units 2, 3, & 4 Core Earth Science Sem. 2- Unit 1 Honors Physical Science Sem. 1- Unit 2, 3, & 4 Honors Earth Science Sem. 2- Unit 1 Bill Nye “Energy” PS in Action “Forces” Bill Nye “Friction” Bill Nye “Gravity” Chapter 12 Chapter 22.1 Foldable
_____	9.7	1. Identify different forms of energy, including kinetic, gravitational (potential), chemical, thermal, nuclear, and electromagnetic.	II, I, II, 1	
_____	9.7	2. Understand that energy can change from one form to another (e.g., changes in kinetic and potential energy in a gravitational field, heats of reaction, hydroelectric dams) and know that energy is conserved in these changes.	II, I, II, 3	
_____	9.4	3. Describe the internal structure of earth (e.g., core, mantle, crust) and the structure of Earth’s plates.	II, III, II, 3	
_____	9.4	4. Explain plate tectonic theory and understand the evidence that supports it.	II, III, II, 5	
_____	9.8	5. <i>Understand the concept of equilibrium (i.e., thermal, mechanical, and chemical).</i>	II, I, II, 11	Chapter 7

_____	9.9	6. Know that there are four fundamental forces in nature: gravitation, electromagnetism, weak nuclear force, and strong nuclear force.	II, I, III, 1	
_____	9.9	7. Know that every object exerts gravitational force on every other object, and how this force depends on the masses of the objects and the distance between them.	II, I, III, 2	
_____	9.6	8. Predict changes in the positions and appearances of objects in the sky (e.g., moon, sun) based on knowledge of current positions and patterns of movements (e.g., lunar cycles, seasons).	II, III, I, 2	Chapter 25 Moon Journal
_____	9.9	9. Understand the relationship between force and pressure, and how pressure of a volume of gas depends on the temperature and the amount of gas.	II, I, III, 4	Chapter 13 Mythbusters
_____	9.9	10. Represent the magnitude and direction of forces by vector diagrams.	II, I, III, 6	Vector Lab
_____	9.9	11. Know that when one object exerts a force on a second object, the second object exerts a force of equal magnitude and in the opposite direction on the first object (i.e., Newton's Third Law).	II, I, III, 7	Balloon Rocket Lab Chapter 11 Chapter 12
_____	9.10	12. Apply Newton's Laws to describe and analyze the behavior of moving objects, including: <ul style="list-style-type: none"> • Displacement, velocity, and acceleration of a moving object. • Newton's Second Law, $F = ma$ (e.g., momentum and its conservation, the motion of an object falling under gravity, the independence of a falling object's motion on mass) • <i>Circular motion and centripetal force.</i> 	II, I, III, 8	Mythbusters "Inertia" Bill Nye "Momentum" Mythbusters "Force & Motion" Bill Nye "Motion"
_____	9.10	13. Describe relative motions using frames of reference.	II, I, III, 9	Chapter 11

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(1st 9 weeks- 2nd 4 ½ weeks)

Date		Hobbs Science Standards 9 th Grade	NM Standards & Benchmarks	Resources
		Students will be able to:	Strand, Standards, Benchmarks, & Performance Standards	Basic text is <u>Prentice Hall Physical Science</u> Supplemental books, labs, videos, projects, digital curriculum
<div style="border-bottom: 1px solid black; height: 15px; margin-bottom: 5px;"></div> <div style="border-bottom: 1px solid black; height: 15px; margin-bottom: 5px;"></div> <div style="border-bottom: 1px solid black; height: 15px; margin-bottom: 5px;"></div> <div style="border-bottom: 1px solid black; height: 15px; margin-bottom: 5px;"></div> <div style="border-bottom: 1px solid black; height: 15px;"></div>		Work and Simple Machines		<p style="text-align: center;">APEX</p> <p>Core Physical Science Sem. 1- Unit 4</p> <p>Honors Physical Science Sem. 1- Unit 4</p> <p>Chapter 16</p> <p>Lever Lab Pulley Lab Inclined Plane Lab Power Lab</p> <p>Bill Nye “Simple Machines”</p>
	9.7	1. Identify different forms of energy, including kinetic, gravitational (potential), chemical, thermal, nuclear, and electromagnetic.	II, I, II, 1	
	9.7	2. Understand that energy can change from one form to another (e.g., changes in kinetic and potential energy in a gravitational field, heats of reaction, hydroelectric dams) and know that energy is conserved in these changes.	II, I, II, 3	
	9.7	3. <i>Understand the ability of energy to do something useful (work) tends to decrease (and never increases) as energy is converted from one form to another.</i>	II, I, II, 6	
	9.9	4. Know that when one object exerts a force on a second object, the second object exerts a force of equal magnitude and in the opposite direction on the first object (i.e., Newton’s Third Law).	II, I, III, 7	
	9.10	5. Apply Newton’s Laws to describe and analyze the behavior of moving objects, including:	II, I, III, 8	

		<ul style="list-style-type: none"> • Displacement, velocity, and acceleration of a moving object. • Newton's Second Law, $F = ma$ (e.g., momentum and its conservation, the motion of an object falling under gravity, the independence of a falling object's motion on mass) • <i>Circular motion and centripetal force.</i> 		
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9th Grade Pre-AP Integrated Science Embedded Curriculum (SCI 393/ 394)

(2nd 9 weeks- 3rd 4 ½ weeks)

Date		Hobbs Science Standards 9 th Grade	NM Standards & Benchmarks	Resources
		Students will be able to:	Strand, Standards, Benchmarks, & Performance Standards	Basic text is <u>Prentice Hall Physical Science</u> Supplemental books, labs, videos, projects, digital curriculum
		Electricity and Magnetism		APEX Core Physical Science Sem. 1- Unit 6 Core Earth Science Sem. 2- Unit 1 Honors Physical Science Sem. 1- Unit 6 Honors Earth Science Sem.2- Unit 1 Chapter 18 Chapter 20 Chapter 21 Chapter 24 Electricity Lab Static Lab Electrostatic Lab Electric Current Lab Bill Nye “Static Electricity”
_____	9.7	1. Identify different forms of energy, including kinetic, gravitational (potential), chemical, thermal, nuclear, and electromagnetic.	II, I, II, 1	
_____	9.9	2. Know that there are four fundamental forces in nature: gravitational, electromagnetism, weak nuclear force, and strong nuclear force.	II, I, III, 1	
_____	9.7	3. Understand that energy can change from one form to another (e.g., changes in kinetic and potential energy in a gravitational field, heats of reaction, hydroelectric dams) and know that energy is conserved in these changes.	II, I, II, 3	
_____	9.8	4. Understand that electromagnetic waves carry energy that can be transferred when they interact with matter.	II, I, II, 7	
_____	9.8	5. <i>Know that each kind of atom or molecule can gain or lose energy only in discrete amounts.</i>	II, I, II, 9	
_____	9.6	6. Explain how objects in the universe emit different electromagnetic radiation and how this information is used.	II, III, I, 5	
_____	9.9	7. <i>Know that materials containing equal amounts of positive and negative charges are electrically neutral, but that a small excess or deficit of negative charges produces significant electrical forces.</i>	II, I, III, 3	

<hr/>	9.9	8. Explain how electric currents cause magnetism and how changing magnetic field produces electricity (e.g., electric motors, generators).	II, I, III, 5	Bill Nye “Electricity”
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(2nd 9 weeks- 4th 4 ½ weeks)

Date		Hobbs Science Standards 9 th Grade	NM Standards & Benchmarks	Resources
		Students will be able to:	Strand, Standards, Benchmarks, & Performance Standards	Basic text is <u>Prentice Hall Physical Science</u> Supplemental books, labs, videos, projects, digital curriculum
		Heat		APEX
_____	9.7	1. Identify different forms of energy, including kinetic, gravitational (potential), chemical, thermal, nuclear, and electromagnetic.	II, I, II, 1	Core Physical Science Sem. 2- Unit 4
_____	9.5	2. Describe patterns and relationships in the circulation of air and water driven by the sun's radiant energy, including: <ul style="list-style-type: none"> • Patterns in weather systems related to the transfer of energy. • Differences between climate and weather. • Global climate, global warming, and the greenhouse effect. • El Nino, La Nina, and other climatic trends. 	II, III, II, 8	Core Earth Science Sem. 1- Unit 4 Sem. 2- Unit 2 Honors Physical Science Sem. 2- Unit 4
_____	9.7	3. <i>Explain how thermal energy (heat consists of the random motion and vibrations of atoms and molecules and is measured by temperature).</i>	II, I, II, 2	Honors Earth Science Sem. 1- Unit 4 Sem. 2- Unit 2
_____	9.7	4. Understand that energy can change from one form to another (e.g., changes in kinetic and potential energy in a gravitational field, heats of reaction, hydroelectric dams) and know that energy is conserved in these changes.	II, I, II, 3	Chapter 15 Chapter 16
_____	9.7	5. Understand how heat can be transferred by conduction, convection, and radiation, and how heat conduction differs in conductors and insulators.	II, I, II, 4	Foldable Venn Diagram Weather Ball Demo
_____	9.7	6. Explain how heat flows in terms of the transfer of <i>vibrational motion of atoms and molecules</i> from hotter to colder regions.	II, I, II, 5	Calorie Lab Insulated Building Lab

_____	9.4	7. <i>Know that Earth’s systems are driven by internal (i.e., radioactive decay and gravitational energy) and external (i.e., sun) sources of energy.</i>	II, III, II, 6	Bill Nye “Heat” Chapter 22
_____	9.4	8. Describe convection as the mechanism for moving heat energy from deep within Earth to the surface and discuss how this process results in plate tectonics, including: <ul style="list-style-type: none"> • Geological manifestations (e.g., earthquakes, volcanoes, mountain building) that occur at plate boundaries. • Impact of plate motions on societies and the environment (e.g., earthquakes, volcanoes). 	II, III, II, 7	Mind Map
_____	9.4	9. Describe the characteristics and the evolution of Earth in terms of the geosphere, the hydrosphere, the atmosphere, and the biosphere.	II, III, II, 1	Chapter 24 Foldable
_____	9.8	10. <i>Understand the concept of equilibrium (i.e., thermal, mechanical, and chemical).</i>	II, I, II, 11	Chapter 7
_____	9.4	11. Explain how the availability of ground water through aquifers can fluctuate based on multiple factors (i.e., rate of use, rate of replenishment, surface changes, and changes in temperature).	II, III, II, 12	Chapter 23 Aquifer Lab
Waves, Light, Sound				
_____	9.7	1. Identify different forms of energy, including kinetic, gravitational (potential), chemical, thermal, nuclear, and electromagnetic.	II, I, II, 1	APEX Core Physical Science Sem. 1- Unit 5
_____	9.8	2. Understand that electromagnetic waves carry energy that can be transferred when they interact with matter.	II, I, II, 7	Honors Physical Science Sem. 1- Unit 5
_____	9.8	3. Describe the characteristics of electromagnetic waves (e.g., visible light, radio, microwave, X-ray, ultraviolet, gamma) and other waves (e.g., sound seismic waves, water waves), including: <ul style="list-style-type: none"> • Origin and potential hazards of various forms of electromagnetic radiation • <i>Energy of electromagnetic waves carried in discrete energy packets (photons) whose energy is inversely proportional to wavelength.</i> 	II, I, II, 8	Chapter 18

_____	9.8	4. <i>Explain how wavelengths of electromagnetic radiation can be used to identify atoms, molecules, and the composition of stars.</i>	II, I, II, 10	Chapter 17 Gyro Lab
_____	9.6	5. Explain how objects in the universe emit different electromagnetic radiation and how this information is used.	II, III, I, 5	
_____	9.10	6. Describe wave propagation using amplitude, wavelength, frequency, and speed.	II, I, III, 10	
_____	9.10	7. Explain how the interactions of waves can result in <i>interference</i> , reflection, and refraction.	II, I, III, 11	
_____	9.10	8. Describe how waves are used for practical purposes (e.g., seismic data, acoustic effects, Doppler Effect).	II, I, III, 12	

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(3rd 9 weeks- 5th 4 ½ weeks)

Date		Hobbs Science Standards 9 th Grade	NM Standards & Benchmarks	Resources
		Students will be able to:	Strand, Standards, Benchmarks, & Performance Standards	Basic text is <u>Prentice Hall Physical Science</u> Supplemental books, labs, videos, projects, digital curriculum
		States (Properties) of Matter		APEX Core Physical Science Sem. 2- Units 1 & 4 Core Earth Science Sem. 1- Unit 3 Sem. 2- Unit 3 Honors Physical Science Sem. 2- Unit 1 & 4 Honors Earth Science Sem. 1- Unit 3 Sem. 2- Unit 3
_____	9.11	1. Classify matter in a variety of ways (e.g., element, compound, mixture; solid, liquid, gas; acidic, basic, neutral).	II, I, I, 1	
_____	9.11	2. Identify, measure, and use a variety of physical and chemical properties (e.g., <i>electrical conductivity</i> , density, viscosity, chemical reactivity, pH, melting point).	II, I, I, 2	
_____	9.11	3. Know how to use properties to separate mixtures into pure substances (e.g., distillation, <i>chromatography</i> , solubility).	II, I, I, 3	
_____	9.11	4. Describe trends in properties (e.g., <i>ionization energy</i> or reactivity as a function of location on the periodic table, <i>boiling point of organic liquids as a function of molecular weight</i>).	II, I, I, 4	
_____	9.4	5. Know that Earth's system contains a fixed amount of natural resources that cycle among land, water, the atmosphere, and living things (e.g., carbon and nitrogen cycles, rock cycle, water cycle, ground water, aquifers).	II, III, II, 9	Chapter 2 Chromatography Lab
_____	9.9	6. Understand the relationship between force and pressure, and how the pressure of a volume of gas depends on the temperature and the amount of gas.	II, I, III, 4	Chapter 5
_____	9.4	7. Describe the composition and structure of Earth's materials, including:	II, III, II, 10	Chapter 22 Chapter 23 Cloud Journal

_____	9.4	<ul style="list-style-type: none"> the major rock types (i.e., sedimentary, igneous, metamorphic) and their formation natural resources (e.g., minerals, petroleum) and their formation. <p>8. Explain how layers of the atmosphere (e.g., ozone, ionosphere) change naturally and artificially.</p>	II, III, II, 11	<p>Chapter 15 Chapter 22 Rock Cycle Map</p> <p>Chapter 24</p>
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9th Grade Pre-AP Integrated Science Embedded Curriculum (SCI 393/ 394)

(3rd 9 weeks- 6th 4 ½ weeks)

Date		Hobbs Science Standards 9 th Grade	NM Standards & Benchmarks	Resources
		Students will be able to:	Strand, Standards, Benchmarks, & Performance Standards	Basic text is <u>Prentice Hall Physical Science</u> Supplemental books, labs, videos, projects, digital curriculum
		Atomic Structure and the Periodic Table		APEX Core Physical Science Sem. 2- Unit 1
_____	9.12	1. Understand that matter is made of atoms and that atoms are made of subatomic particles.	II, I, I, 5	
_____	9.8	2. Explain how wavelengths of electromagnetic radiation can be used to identify atoms, molecules, and the composition of stars.	II, I, II, 10	Core Earth Science Sem. 1- Unit 2
_____	9.6	3. Understand the scale and contents of the universe, including <ul style="list-style-type: none"> range of structures from atoms through astronomical objects to the universe objects in the universe such as planets, stars, galaxies, and nebulae. 	II, III, I, 1	Honors Physical Science Sem. 2- Unit 1 Honors Earth Science Sem. 1- Unit 2
_____	9.12	4. Understand atomic structure, including: <ul style="list-style-type: none"> Most space occupied by electrons Nucleus made of protons and neutrons <i>Isotopes of an element</i> Masses of proton and neutron 2000 times greater than mass of electron Atom held together by proton-electron electrical forces. 	II, I, I, 6	Obsentainer Lab Chapter 4 Chapter 5.3 Chapter 25.4 Chapter 26.4 Scale Activity
_____	9.12	5. Make predictions about element using the periodic table (e.g., <i>number of valence electrons</i> , metallic character reactivity, conductivity, <i>type of bond between elements</i>).	II, I, I, 8	Chapter 5 P. Table Foldable Stamp Activity Element Brochure

_____	9.12	6. Know that states of matter (i.e., solid, liquid, gas) depend on the arrangement of atoms and molecules and on their freedom of motion.	II, I, I, 10	Chapter 3 Chapter 6 Slime Lab
_____	9.12	7. Know that some atomic nuclei can change, including: <ul style="list-style-type: none"> • Spontaneous decay • Half-life of isotopes • <i>Fission</i> • Fusion (e.g., the sun) • <i>Alpha, beta, and gamma radiation.</i> 	II, I, I, 11	Chapter 10
_____	9.6	8. Describe how stars are powered by nuclear fusion, how luminosity and temperature indicate their age, and how stellar processes create heavier and stable elements that are found throughout the universe.	II, III, I, 6	Chapter 26.2 Star Activity

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(4th 9 weeks- 7th 4 ½ weeks)

Date		Hobbs Science Standards 9 th Grade	NM Standards & Benchmarks	Resources
		Students will be able to:	Strand, Standards, Benchmarks, & Performance Standards	Basic text is <u>Prentice Hall Physical Science</u> Supplemental books, labs, videos, projects, digital curriculum
_____	9.12	Chemical Bonding 1. <i>Explain how electrons determine the properties of substances by:</i> <ul style="list-style-type: none"> <i>Interactions between atoms through transferring or sharing valence electrons</i> <i>Ionic and covalent bonds</i> <i>The ability of carbon to form a diverse array of organic structures.</i> 	II, I, I, 7	APEX Core Physical Science Sem. 2- Unit 2 Honors Physical Science Sem. 2- Unit 2 Chapter 5.2, 5.3 Chapter 6.1 Chapter 9.1
_____	9.12	2. Make predictions about element using the periodic table (e.g., <i>number of valence electrons</i> , metallic character reactivity, conductivity, <i>type of bond between elements</i>).	II, I, I, 8	Ion Lab
_____	9.12	3. <i>Understand how the type and arrangement of atoms and their bonds determine macroscopic properties (e.g., boiling point, electrical conductivity, hardness of minerals).</i>	II, I, II, 9	

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(4th 9 weeks- 8th 4 ½ weeks)

Date		Hobbs Science Standards 9 th Grade	NM Standards & Benchmarks	Resources
		Students will be able to:	Strand, Standards, Benchmarks, & Performance Standards	Basic text is <u>Prentice Hall Physical Science</u> Supplemental books, labs, videos, projects, digital curriculum
		Chemical Reactions		APEX
_____	9.7	1. Identify different forms of energy, including kinetic, gravitational (potential), chemical, thermal, nuclear, and electromagnetic.	II, I, II, 1	Core Physical Science Sem. 2- Unit 3
_____	9.7	2. Understand that energy can change from one form to another (e.g., changes in kinetic and potential energy in a gravitational field, heats of reaction, hydroelectric dams) and know that energy is conserved in these changes.	II, I, II, 3	Core Earth Science Sem. 2- Unit 4 Honors Physical Science Sem. 2- Unit 3
_____	9.4	3. Recognize that radiometric data indicate that Earth is at least 4 billion years old and that Earth has changed during that time.	II, III, II, 2	Honors Earth Science Sem. 2- Unit 4
_____	9.4	4. Understand the changes in Earth's past and the investigative methods used to determine geologic time, including: <ul style="list-style-type: none"> Rock sequences, relative dating, fossil correlation, and radiometric dating Geologic time scales, historic changes in life forms, and the evidence for absolute ages (e.g., radiometric methods, tree rings, paleomagnetism). 	II, III, II, 4	Chapter 23 Chapter 23 Time Scale Activity
_____	9.7	5. <i>Know that chemical reactions involve the rearrangement of atoms, and that they occur on many timescales (e.g., picoseconds to millennia).</i>	II, I, I, 12	Chapter 7.4
_____	9.13	6. Understand <i>types of</i> chemical reactions (e.g., <i>synthesis, decomposition,</i>	II, I, I, 13	Chapter 7.2, 7.3

_____	9.13	<i>combustion, redox, neutralization</i>) and identify them as exothermic or endothermic. 7. Know how to express chemical reactions with balanced equations that show: <ul style="list-style-type: none"> • Conservation of mass • Products of common reactions. 	II, I, I, 14	Chapter 7.1
_____	9.13	8. Describe how the rate of chemical reactions depends on many factors that include temperature, concentration, <i>and the presence of catalysts</i> .	II, I, I, 15	Ziplock Rxn. Lab Chapter 7.4