

Grades 9-12 Science Curriculum Alignment with State Standards

NM Statute 22-13-1.6.A. Each school district shall align its curricula to meet the state standards for each grade level and subject area so that students who transfer between public schools within the school district receive the same educational opportunity within the same grade or subject area.

District:

Information Key: **Biology: Green Font, Chemistry: Blue Font, Physics: Red Font**

Strand: SCIENTIFIC THINKING AND PRACTICE	Standard I: Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.	9-12 Benchmark I: Use accepted scientific methods to collect, analyze, and interpret data and observations and to design and conduct scientific investigations and communicate results.
--	---	--

Grades 9-12 Performance Standards	Course Name, Textbook Name, and Pages	Supplemental Materials	Month(s) when Addressed
1. Describe the essential components of an investigation, including appropriate methodologies, proper equipment, and safety precautions.	Biology, The Dynamics of Life: 11-18, 24-25 CHEMISTRY HOLT (46-53, 66, 70, 751-759) Physics, Conceptual Physics by Paul G. Hewitt, pp 0-8	Safety Video Concept Development Practice Book pp 1-2	August August August
2. 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. 	Biology, The Dynamics of Life: 58-59, 164-165, 330-331 CHEMISTRY HOLT (46-63, 792) Physics, Conceptual Physics by Paul G. Hewitt pp 0-8	Concept Development Practice Book pp 1-2	August – May August - May August
3. Use appropriate technologies to collect, analyze, and communicate scientific data (e.g., computers, calculators, balances, microscopes).	Biology, The Dynamics of Life: 14-15, 24-25, 58-59, 84-85, 104-105, etc. CHEMISTRY HOLT (54-63, 792) Physics, Conceptual Physics by Paul G. Hewitt, pp 0-8	Computer pods CBL with graphing calculators, and probes: voltage, temperature, pressure, pH meters Concept Development Practice Book pp 1-2	August - May August

Grades 9-12 Science Curriculum Alignment with State Standards

Strand: SCIENTIFIC THINKING AND PRACTICE	Standard I: Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.	9-12 Benchmark I: Use accepted scientific methods to collect, analyze, and interpret data and observations and to design and conduct scientific investigations and communicate results.	
Grades 9-12 Performance Standards	Course Name, Textbook Name, and Pages	Supplemental Materials	Month(s) when Addressed
4. Convey results of investigations using scientific concepts, methodologies, and expressions, including: <ul style="list-style-type: none">scientific language and symbolsdiagrams, charts, and other data displaysmathematical expressions and processes (e.g., mean, median, slope, proportionality)clear, logical, and concise communicationreasoned arguments.	Biology, The Dynamics of Life: 16-21, etc CHEMISTRY HOLT (46-53, 225, 377, 380, 458) Density lab Physics, Conceptual Physics by Paul G. Hewitt, pp 10 - 27	Lab experiments conducted weekly Concept Development Practice Book pp 3 -8 Motion Detector Laboratory, Physically Racing Laboratory, or similar.	August – May August - May August
5. Understand how scientific theories are used to explain and predict natural phenomena (e.g., plate tectonics, ocean currents, structure of atom).	Biology, The Dynamics of Life: 141-151, 376-377, 392-415 CHEMISTRY HOLT (52,53, 68, 69) Physics, Conceptual Physics by Paul G. Hewitt, pp 10 - 27	Spectral analysis with spectral tube and flame test; Rutherford Simulation Concept Development Practice Book pp 3 -8 Motion Detector Laboratory, Physically Racing Laboratory, or similar	October September-October August

Grades 9-12 Science Curriculum Alignment with State Standards

District:

Information Key: **Biology:** Green Font, **Chemistry:** Blue Font, **Physics:** Red Font

Strand: SCIENTIFIC THINKING AND PRACTICE	Standard I: Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.	9-12 Benchmark II: Understand that scientific processes produce scientific knowledge that is continually evaluated, validated, revised, or rejected.
--	---	---

Grades 9-12 Performance Standards	Course Name, Textbook Name, and Pages	Supplemental Materials	Month(s) when Addressed
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. 	Biology, The Dynamics of Life: 16-18 16-18 CHEMISTRY HOLT (46-53, 68-70) Physics, Conceptual Physics by Paul G. Hewitt, pp 0 - 27	All labs Concept Development Practice Book pp 3 -8 Motion Detector Laboratory, Physically Racing Laboratory, or similar.	August - May August - September August/ September
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 conclusions potential bias. 	Biology, The Dynamics of Life 21, 26, 85, 165, 303 CHEMISTRY HOLT (46-53, 68-70) Physics, Conceptual Physics by Paul G. Hewitt, pp 0 - 27	All labs Concept Development Practice Book pp 3 -8 Motion Detector Laboratory, Physically Racing Laboratory, or similar.	August - May August - September August/ September

<p>3. Understand how new data and observations can result in new scientific knowledge.</p>	<p>Biology, The Dynamics of Life 16-18, 25, 29, 59, 127, 275, 331, 415</p> <p>CHEMISTRY HOLT (46-53, 68-70, 90-91, 115, 117, 148, 214, 249, 368)</p> <p>Physics, Conceptual Physics by Paul G. Hewitt, pp 0 - 27</p>	<p>All labs</p> <p>Concept Development Practice Book pp 3 -8</p> <p>Motion Detector Laboratory, Physically Racing Laboratory, or similar.</p>	<p>August – May</p> <p>August - September</p> <p>August/September</p>
<p>4. Critically analyze an accepted explanation by reviewing current scientific knowledge.</p>	<p>Biology, The Dynamics of Life 17, 18, 21-23, 26</p> <p>Physics, Conceptual Physics by Paul G. Hewitt, pp 0 - 27</p>	<p>All labs</p> <p>Concept Development Practice Book pp 3 -8</p> <p>Motion Detector Laboratory, Physically Racing Laboratory, or similar.</p>	<p>August - May</p> <p>August - September</p> <p>August/ September</p>

Grades 9-12 Science Curriculum Alignment with State Standards

District:

Information Key: **Biology:** Green Font, **Chemistry:** Blue Font, **Physics:** Red Font

Strand: SCIENTIFIC THINKING AND PRACTICE	Standard I: Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.	9-12 Benchmark II: Understand that scientific processes produce scientific knowledge that is continually evaluated, validated, revised, or rejected.
--	---	---

Grades 9-12 Performance Standards	Course Name, Textbook Name, and Pages	Supplemental Materials	Month(s) when Addressed
5. Examine investigations of current interest in science (e.g., superconductivity, molecular machines, age of the universe).	Biology, The Dynamics of Life 1, 28, 341-363 Physics, Conceptual Physics by Paul G. Hewitt, pp 168 - 181	Science News articles- Chem Concept Development Practice Book pp 55 - 58 Motion H-R Diagram, Orbit of Mars, or similar Laboratory	August - May August-May November/December
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.	Biology, The Dynamics of Life 11-23 104-105 370-375 Physics, Conceptual Physics by Paul G. Hewitt, pp 168 - 181	Motion H-R Diagram, Orbit of Mars, or similar Laboratory	August - May November/December

Grades 9-12 Science Curriculum Alignment with State Standards

District:

Information Key: **Biology:** Green Font, **Chemistry:** Blue Font, **Physics:** Red Font

Strand: SCIENTIFIC THINKING AND PRACTICE	Standard I: Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.	9-12 Benchmark III: Use mathematical concepts, principles, and expressions to analyze data, develop models, understand patterns and relationships, evaluate findings, and draw conclusions.
--	---	--

Grades 9-12 Performance Standards	Course Name, Textbook Name, and Pages	Supplemental Materials	Month(s) when Addressed
1. Create multiple displays of data to analyze and explain the relationships in scientific investigations.	Biology, The Dynamics of Life: 24-25, 59, 85, 105, 127, 188, 215, 239, 275, 331, 387, 415, 437, 461 CHEMISTRY HOLT (46-53, 377) Matter & Energy Physics, Conceptual Physics by Paul G. Hewitt, pp 10 – 198, 371 - 608	Concept Development Practice Book pp 114-117 Hold that Force, Around and Around, Period of the Pendulum, Image This Laboratories or similar.	August - May August - September August - May
2. Use mathematical models to describe, explain, and predict natural phenomena.	Biology, The Dynamics of Life: 95, 102-105, 203, 276, 291, 350, 385-387, 414-416 CHEMISTRY HOLT (53, 267-271, 282, 377, 641) Physics, Conceptual Physics by Paul G. Hewitt, pp 10 – 198, 371 - 608	Density lab, Exploring Gas laws Concept Development Practice Book pp 114-117 Hold that Force, Around and Around, Period of the Pendulum, Image This Laboratories or similar.	August - May August, September, February August - May

<p>3. Use technologies to quantify relationships in scientific hypotheses (e.g., calculators, computer spreadsheets and databases, graphing software, simulations, modeling).</p>	<p>Biology, The Dynamics of Life: 24-25, 104-105, 274-275, 415-416</p> <p>CHEMISTRY HOLT (56-63, 154, 186, 220, 256, 298, 334, 412, 450, 492, 526, 638, 674)</p> <p>Physics, Conceptual Physics by Paul G. Hewitt, pp 10 – 198, 371 - 608</p>	<p>CBL with graphing calculator, computer pod,</p> <p>Concept Development Practice Book pp 114-117</p> <p>Hold that Force, Around and Around, Period of the Pendulum, Image This Laboratories or similar.</p>	<p>August - May</p> <p>August-May</p> <p>August - May</p>
<p>4. Identify and apply measurement techniques and consider possible effects of measurement errors.</p>	<p>Biology, The Dynamics of Life: 58-59, 84-85, 188-189, 214-215</p> <p>CHEMISTRY HOLT (18, 54-63, 225, 577)</p> <p>Physics, Conceptual Physics by Paul G. Hewitt, pp 10 – 198, 371 - 608</p>	<p>Density lab, Molar Volume lab,</p> <p>Concept Development Practice Book pp 114-117</p> <p>Hold that Force, Around and Around, Period of the Pendulum, Image This Laboratories or similar.</p>	<p>August - May</p> <p>August - May</p>
<p>5. Use mathematics to express and establish scientific relationships (e.g., scientific notation, vectors, dimensional analysis).</p>	<p>Biology, The Dynamics of Life: 92, 102, 154, 155, 173, 212, 276, 350, 397, 416</p> <p>CHEMISTRY HOLT (13, 14, 54-63, 100-103, 225-233, 307-311, 317, 322, 324, 327)</p> <p>Physics, Conceptual Physics by Paul G. Hewitt, pp 10 – 198, 371 - 608</p>	<p>Density lab</p> <p>Concept Development Practice Book pp 114-117</p> <p>Hold that Force, Around and Around, Period of the Pendulum, Image This Laboratories or similar.</p>	<p>September - October</p> <p>August - May</p> <p>August - May</p>

Grades 9-12 Science Curriculum Alignment with State Standards

District:

Information Key: **Biology:** Green Font, **Chemistry:** Blue Font, **Physics:** Red Font

Strand: CONTENT OF SCIENCE	Standard I (Physical Science): Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.	9-12 Benchmark I: Understand the properties, underlying structure, and reactions of matter.
----------------------------	---	--

Grades 9-12 Performance Standards	Course Name, Textbook Name, and Pages	Supplemental Materials	Month(s) when Addressed
1. Classify matter in a variety of ways (e.g., element, compound, mixture; solid, liquid, gas; acidic, basic, neutral).	CHEMISTRY HOLT (21-28, 32-33, 378, 384, 530-538, 546)	Chem vs. Physical properties demo, separation of mixtures lab	August, Sept.
2. Identify, measure, and use a variety of physical and chemical properties (e.g., electrical conductivity, density, viscosity, chemical reactivity, pH, melting point).	CHEMISTRY HOLT (4-19, 27, 397, 478-480, 531, 546-547) Physics, Conceptual Physics by Paul G. Hewitt, pp 531 - 561	Chem vs. Physical properties demo, separation of mixtures lab Concept Development Practice Book pp 125 - 130 Ohm Sweet Ohm or similar Laboratory.	August, Sept., March, April April - May
3. Know how to use properties to separate mixtures into pure substances (e.g., distillation, chromatography, solubility).	CHEMISTRY HOLT (27, 228, 458-459)	Separation of mixtures lab Video – chemical change	August, March
4. Describe trends in properties (e.g., ionization energy or reactivity as a function of location on the periodic table, boiling point of organic liquids as a function of molecular weight).	CHEMISTRY HOLT (132-141, 685-686)	Periodic properties lab	September
5. Understand that matter is made of atoms and that atoms are made of subatomic particles.	CHEMISTRY HOLT (21, &4-76, 78-89, 107-111) Physics, Conceptual Physics by Paul G. Hewitt, pp 244-257 & 596 - 606	Spectral tube lab, Radiation lab DVD – The Atom Radioactive Dice Laboratory or similar.	September-October March - April

Strand: CONTENT OF SCIENCE	Standard I (Physical Science): Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.	9-12 Benchmark I: Understand the properties, underlying structure, and reactions of matter.
----------------------------	---	--

Grades 9-12 Performance Standards	Course Name, Textbook Name, and Pages	Supplemental Materials	Month(s) when Addressed
6. Understand atomic structure, including: <ul style="list-style-type: none"> • most space occupied by electrons • nucleus made of protons and neutrons • isotopes of an element • masses of proton and neutron 2000 times greater than mass of electron • atom held together by proton-electron electrical forces. 	CHEMISTRY HOLT (74-78, 96-99, 119, 160, 166-169, 190-198, 647, 649) Physics, Conceptual Physics by Paul G. Hewitt, pp 244-257 & 596 - 606	Spectral tube lab, Rutherford experimtn DVD – The Atom Basketballs and Atoms Activity or similar	Sept-October March - April
7. Explain how electrons determine the properties of substances by: <ul style="list-style-type: none"> • interactions between atoms through transferring or sharing valence electrons • ionic and covalent bonds • the ability of carbon to form a diverse array of organic structures. 	CHEMISTRY HOLT (74-78, 96-99, 119, 160, 166-169, 190-198, 386-392) Physics, Conceptual Physics by Paul G. Hewitt, pp 244-257 & 596 - 606	Chemical bonding lab; Configurations of atoms and ion exercise Basketballs and Atoms Activity or similar	October March - April
8. Make predictions about elements using the periodic table (e.g., number of valence electrons, metallic character, reactivity, conductivity, type of bond between elements).	CHEMISTRY HOLT (118-122, 124-141)	Periodic Table Lab of Mars, Halides Lab Video: Periodic Table	September-October
9. Understand how the type and arrangement of atoms and their bonds determine macroscopic properties (e.g., boiling point, electrical conductivity, hardness of minerals).	CHEMISTRY HOLT (197-198, 385-392, 468-473) Physics, Conceptual Physics by Paul G. Hewitt, pp 531 - 561	Lab: Concept Development Practice Book pp 125 - 130 Ohm Sweet Ohm or similar Laboratory.	January- April April - May

Strand: CONTENT OF SCIENCE	Standard I (Physical Science): Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.	9-12 Benchmark I: Understand the properties, underlying structure, and reactions of matter.
----------------------------	---	--

Grades 9-12 Performance Standards	Course Name, Textbook Name, and Pages	Supplemental Materials	Month(s) when Addressed
10. Know that states of matter (i.e., solid, liquid, gas) depend on the arrangement of atoms and molecules and on their freedom of motion.	CHEMISTRY HOLT (378-384),	Metal or Nonmetal Lab, Chemical bond Lab	October
11. Know that some atomic nuclei can change, including: <ul style="list-style-type: none"> spontaneous decay half-life of isotopes fission fusion (e.g., the sun) alpha, beta, and gamma radiation 	CHEMISTRY HOLT (641-657) Physics, Conceptual Physics by Paul G. Hewitt, pp 244-257 & 596 - 606	Radiation lab; Half life of pennies (or such) lab Basketballs and Atoms Activity or similar	September March - April
12. Know that chemical reactions involve the rearrangement of atoms, and that they occur on many timescales (e.g., picoseconds to millennia).	CHEMISTRY HOLT (260-262, 814-817)	Observing Chemical Reactions Lab; Evidence of a Chemical Reaction Lab; Cu & AgNO ₃ Lab	November-December
13. Understand types of chemical reactions (e.g., synthesis, decomposition, combustion, redox, neutralization) and identify them as exothermic or endothermic.	CHEMISTRY HOLT (275-285, 192, 262, 293-298),	Baggie Reaction Activity Types of Chemical Reactions Lab	September & December
14. Know how to express chemical reactions with balanced equations that show: <ul style="list-style-type: none"> conservation of mass products of common reactions. 	CHEMISTRY HOLT (263-274, 52, 76-77, 292-298)	Type of Reaction Activity, Determine Activity Series	November & December
15. Describe how the rate of chemical reactions depends on many factors that include temperature, concentration, and the presence of catalysts.	CHEMISTRY HOLT (582-585, 593-595, 722-724, 814-817)	Iodine Clock Lab	May

Grades 9-12 Science Curriculum Alignment with State Standards

District:

Information Key: **Biology:** Green Font, **Chemistry:** Blue Font, **Physics:** Red Font

Strand: CONTENT OF SCIENCE	Standard I (Physical Science): Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.	9-12 Benchmark II: Understand the transformation and transmission of energy and how energy and matter interact.
----------------------------	---	--

Grades 9-12 Performance Standards	Course Name, Textbook Name, and Pages	Supplemental Materials	Month(s) when Addressed
1. Identify different forms of energy, including kinetic, gravitational (potential), chemical, thermal, nuclear, and electromagnetic.	CHEMISTRY HOLT (393-398, 41-42, 192-193, 340-344, 381, 422, 429, 439, 590-595) Physics, Conceptual Physics by Paul G. Hewitt, pp 103 - 121	Nova: Absolute Zero Energy of a Tossed Ball, Energy on a Hot Wheels Track Laboratory or similar	October/ November
2. Explain how thermal energy (heat) consists of the random motion and vibrations of atoms and molecules and is measured by temperature.	CHEMISTRY HOLT (39, 42-45, 339, 381-384),	Brownian Motion Demo	January & March
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.	CHEMISTRY HOLT (38-41, 350, 734-738) Physics, Conceptual Physics by Paul G. Hewitt, pp 103 - 121	Heating & Cooling Curves Lab Energy of a Tossed Ball, Energy on a Hot Wheels Track Laboratory or similar	January & March October/ November
4. Understand how heat can be transferred by conduction, convection, and radiation, and how heat conduction differs in conductors and insulators.	CHEMISTRY HOLT (42-45, 337-344)	Video: The Driving Force Peanut/Candle lab	August and February
5. Explain how heat flows in terms of the transfer of vibrational motion of atoms and molecules from hotter to colder regions.	CHEMISTRY HOLT (42-45, 337-344)	Heating & Cooling Curves Lab Specific Heat of metal	January

6. Understand that the ability of energy to do something useful (work) tends to decrease (and never increases) as energy is converted from one form to another.	<p>CHEMISTRY HOLT (338-344, 358-368, 612-631)</p> <p>Physics, Conceptual Physics by Paul G. Hewitt, pp 103 - 121</p>	<p>Demo on Voltaic Cell Video on Busy Electron</p> <p>Energy of a Tossed Ball, Energy on a Hot Wheels Track Laboratory or similar</p>	<p>May</p> <p>October/ November</p>
---	--	---	-------------------------------------

Strand: CONTENT OF SCIENCE	Standard I (Physical Science): Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.	9-12 Benchmark II: Understand the transformation and transmission of energy and how energy and matter interact.
----------------------------	---	--

Grades 9-12 Performance Standards	Course Name, Textbook Name, and Pages	Supplemental Materials	Month(s) when Addressed
7. Understand that electromagnetic waves carry energy that can be transferred when they interact with matter.	CHEMISTRY HOLT (92-94, 99) Physics, Conceptual Physics by Paul G. Hewitt, pp 104 - 420	Video: The Atom Optics Simulation on the Web Laboratory or similar	September January/ February
8. 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 • energy of electromagnetic waves carried in discrete energy packets (photons) whose energy is inversely proportional to wavelength. 	CHEMISTRY HOLT (92-94, 772-775) Physics, Conceptual Physics by Paul G. Hewitt, pp 104 – 420, 596 - 608	PHET: Virtual Lab on Radiowaves & EM Fields Optics Simulation on the Web Laboratory or similar	September, October January/ February
9. Know that each kind of atom or molecule can gain or lose energy only in discrete amounts.	CHEMISTRY HOLT(90-99, 644-645) Physics, Conceptual Physics by Paul G. Hewitt, pp 244-257 & 596 - 606	Video: Chemical Bond Basketballs and Atoms , Bohr Model of the Atom Activity or similar	September, October March - April
10. Explain how wavelengths of electromagnetic radiation can be used to identify atoms, molecules, and the composition of stars.	CHEMISTRY HOLT(90-99) Physics, Conceptual Physics by Paul G. Hewitt, pp 104 - 441	Spectral tube Lab Flame test lab PHET: Virtual lab on Photoelectric Effect Optics Simulation on the Web, Spectrometer Laboratory or similar	September, October January/ February
11. Understand the concept of equilibrium (i.e., thermal, mechanical, and chemical).	CHEMISTRY HOLT(496-519) Physics, Conceptual Physics by Paul G. Hewitt, pp 43 - 85	Intro to Equilibrium Lab Hold that Force, Parachute Man Laboratory or similar Concept Development Workbook pp 18 - 19	April, May October

Grades 9-12 Science Curriculum Alignment with State Standards

District:

Information Key: **Biology:** Green Font, **Chemistry:** Blue Font, **Physics:** Red Font

Strand: CONTENT OF SCIENCE	Standard I (Physical Science): Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.	9-12 Benchmark III: Understand the motion of objects and waves, and the forces that cause them.
----------------------------	---	--

Grade 9-12 Performance Standards	Course Name, Textbook Name, and Pages	Supplemental Materials	Month(s) when Addressed
1. Know that there are four fundamental forces in nature: gravitation, electromagnetism, weak nuclear force, and strong nuclear force.	CHEMISTRY HOLT(642-644) Physics, Conceptual Physics by Paul G. Hewitt, pp 168 – 181, 500 – 516, 596 - 608	Electric Charge Laboratory or similar Concept Development Workbook pp 17	September, October October - May
2. 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.	Physics, Conceptual Physics by Paul G. Hewitt, pp 168 – 181,	Orbit of Mars Laboratory or similar Concept Development Workbook pp 57 - 58	November
3. 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.	CHEMISTRY HOLT(156-181) Physics, Conceptual Physics by Paul G. Hewitt, pp 500 – 516	Video on Chemical Bonding Electric Charge Laboratory or similar Concept Development Workbook pp 117	October, November April
4. 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.	CHEMISTRY HOLT(414-433)	PHET Virtual Lab on Gas Properties	February
5. Explain how electric currents cause magnetism and how changing magnetic fields produce electricity (e.g., electric motors, generators).	Physics, Conceptual Physics by Paul G. Hewitt, pp 562 - 594	It Can't Work or similar	April- May

6. Represent the magnitude and direction of forces by vector diagrams.	<p>CHEMISTRY HOLT(208-214, 385-392)</p> <p>Physics, Conceptual Physics by Paul G. Hewitt, pp 28 - 73</p>	<p>Building Molecular Models Lab</p> <p>Adding Forces, The Vector Game, The Bombing Run Laboratories or similar</p> <p>Concept Development Workbook pp 16-17</p>	<p>January</p> <p>September/ October</p>
--	--	--	--

Strand: CONTENT OF SCIENCE	Standard I (Physical Science): Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.	9-12 Benchmark III: Understand the motion of objects and waves, and the forces that cause them.
----------------------------	---	--

Grade 9-12 Performance Standards	Course Name, Textbook Name, and Pages	Supplemental Materials	Month(s) when Addressed
7. 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).	Physics, Conceptual Physics by Paul G. Hewitt, pp 74 -102	Collision Laboratory, Newton's Playday, or similar Concept Development Workbook pp 28 - 30	October - November
8. 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) circular motion and centripetal force. 	Physics, Conceptual Physics by Paul G. Hewitt, pp 43- 85, 122 - 135	Around and Around, Hold that Force Laboratory or similar Concept Development Workbook pp 37 - 39	October/November
9. Describe relative motion using frames of reference.	Physics, Conceptual Physics by Paul G. Hewitt, pp 10 - 27	Concept Development Workbook pp 7 - 8	August/ September
10. Describe wave propagation using amplitude, wavelength, frequency, and speed.	Physics, Conceptual Physics by Paul G. Hewitt, pp 372 - 389	Ripple While You Work Laboratory or similar Concept Development Workbook pp 89, 93	January
11. Explain how the interactions of waves can result in interference, reflection, and refraction.	Physics, Conceptual Physics by Paul G. Hewitt, pp 372 - 479	Ripple While You Work, Refraction of Light, Image This Laboratories or similar Concept Development Workbook pp 114	January / February

12. Describe how waves are used for practical purposes (e.g., seismic data, acoustic effects, Doppler effect).	Physics, Conceptual Physics by Paul G. Hewitt, pp 74 -102	Collision Laboratory, Newton's Playday, or similar Concept Development Workbook pp 28 - 30	October - November
--	---	---	--------------------

Grades 9-12 Science Curriculum Alignment with State Standards

District:

Information Key: **Biology:** Green Font, **Chemistry:** Blue Font, **Physics:** Red Font

Strand: CONTENT OF SCIENCE	Standard II (Life Science): Understand the properties, structures, and processes of living things and the interdependence of living things and their environments.	9-12 Benchmark I: Understand how the survival of species depends on biodiversity and on complex interactions, including the cycling of matter and the flow of energy.
----------------------------	---	--

Grades 9-12 Performance Standards	Course Name, Textbook Name, and Pages	Supplemental Materials	Month(s) when Addressed
1. Know that an ecosystem is complex and may exhibit fluctuations around a steady state or may evolve over time.	Biology, The Dynamics of Life 3.1 65-69 84-85, 88, 89 135		September, March - April
2. Describe how organisms cooperate and compete in ecosystems (e.g., producers, decomposers, herbivores, carnivores, omnivores, predator-prey, symbiosis, mutualism).	Biology, The Dynamics of Life, 2.1 44-45 62-63 132-133, 136, 137		September - October
3. Understand and describe how available resources limit the amount of life an ecosystem can support (e.g., energy, water, oxygen, nutrients).	Biology, The Dynamics of Life 2.1, 4.1 37-38 42-43 58-59 62, 63, 93-94, 109, 134		September - December
4. Critically analyze how humans modify and change ecosystems (e.g., harvesting, pollution, population growth, technology	Biology, The Dynamics of Life 1.3, 2.2, 5.1, 13.2 23, 26 54-57, 60, 62, 119-120, 128 348		September - October
5. Explain how matter and energy flow through biological systems (e.g., organisms, communities, ecosystems), and how the total amount of matter and energy is conserved but some energy is always released as heat to the environment.	Biology, The Dynamics of Life 2.2 46-63 133-134		August - December

6. Describe how energy flows from the sun through plants to herbivores to carnivores and decomposers.	Biology, The Dynamics of Life 2.2, 9.1 46-63 133-134		August - September
---	--	--	--------------------

Strand: CONTENT OF SCIENCE	Standard II (Life Science): Understand the properties, structures, and processes of living things and the interdependence of living things and their environments.	9-12 Benchmark I: Understand how the survival of species depends on biodiversity and on complex interactions, including the cycling of matter and the flow of energy.
----------------------------	---	--

Grades 9-12 Performance Standards	Course Name, Textbook Name, and Pages	Supplemental Materials	Month(s) when Addressed
7. Understand and explain the principles of photosynthesis (i.e., chloroplasts in plants convert light energy, carbon dioxide, and water into chemical energy).	Biology, The Dynamics of Life 9.2, 9.3 225-- 247		November - December
8. Understand and explain the hierarchical classification scheme (i.e., domain, kingdom, phylum, class, order, family, genus, species), including: <ul style="list-style-type: none"> • classification of an organism into a category • similarity inferred from molecular structure (DNA) closely matching classification based on anatomical similarities • similarities of organisms reflecting evolutionary relationships. 	Biology, The Dynamics of Life 17.1, 17.2 443-469		April - May
9. Understand variation within and among species, including: <ul style="list-style-type: none"> • mutations and genetic drift • factors affecting the survival of an organism • natural selection. 	Biology, The Dynamics of Life 15.1, 15.2 397-419		March - April

Grades 9-12 Science Curriculum Alignment with State Standards

District:

Information Key: **Biology:** Green Font, **Chemistry:** Blue Font, **Physics:** Red Font

Strand: CONTENT OF SCIENCE	Standard II (Life Science): Understand the properties, structures, and processes of living things and the interdependence of living things and their environments.	9-12 Benchmark II: Understand the genetic basis for inheritance and the basic concepts of biological evolution.
----------------------------	---	--

Grades 9-12 Performance Standards	Course Name, Textbook Name, and Pages	Supplemental Materials	Month(s) when Addressed
1. Know how DNA carries all genetic information in the units of heredity called genes, including: <ul style="list-style-type: none"> the structure of DNA (e.g., subunits A, G, C, T) information-preserving replication of DNA alteration of genes by inserting, deleting, or substituting parts of DNA. 	Biology, The Dynamics of Life 11.1, 11.2, 13.2 281-295 341-362 404		January - March
2. Use appropriate vocabulary to describe inheritable traits (i.e., genotype, phenotype).	Biology, The Dynamics of Life 10.1, 13.1, 15.2 258-278 339-340 404-405		January - March
3. Explain the concepts of segregation, independent assortment, and dominant/recessive alleles.	Biology, The Dynamics of Life 10.1, 12.1 253-262 309-314 360-365		January - March
4. Identify traits that can and cannot be inherited.	Biology, The Dynamics of Life 12.2 321-322		January – March
5. Know how genetic variability results from the recombination and mutation of genes, including: <ul style="list-style-type: none"> sorting and recombination of genes in sexual reproduction result in a change in DNA that is passed on to offspring radiation or chemical substances can cause mutations in cells, resulting in a permanent change in DNA. 	Biology, The Dynamics of Life 10.1, 11.3 265-266 296-307		January - March

Strand: CONTENT OF SCIENCE	Standard II (Life Science): Understand the properties, structures, and processes of living things and the interdependence of living things and their environments.	9-12 Benchmark II: Understand the genetic basis for inheritance and the basic concepts of biological evolution.
----------------------------	---	--

Grades 9-12 Performance Standards	Course Name, Textbook Name, and Pages	Supplemental Materials	Month(s) when Addressed
6. Understand the principles of sexual and asexual reproduction, including meiosis and mitosis.	Biology, The Dynamics of Life 8.2, 8.3, 10.2 203-219 263-279		December, January
7. Know that most cells in the human body contain 23 pairs of chromosomes including one pair that determines sex, and that human females have two X chromosomes and human males have an X and a Y chromosome.	Biology, The Dynamics of Life 10.2, 12.2, 12.3 263-266 318-319 326-329		January - March
8. Describe the evidence for the first appearance of life on Earth as one-celled organisms, over 3.5 billion years ago, and for the later appearance of a diversity of multicellular organisms over millions of years.	Biology, The Dynamics of Life 14.1, 14.2 369-391		March
9. Critically analyze the data and observations supporting the conclusion that the species living on Earth today are related by descent from the ancestral one-celled organisms.	Biology, The Dynamics of Life 15.1 388-403		April
10. Understand the data, observations, and logic supporting the conclusion that species today evolved from earlier, distinctly different species, originating from the ancestral one-celled organisms.	Biology, The Dynamics of Life 10.1, 15.1		April
11. Understand that evolution is a consequence of many factors, including the ability of organisms to reproduce, genetic variability, the effect of limited resources, and natural selection.	Biology, The Dynamics of Life 14.1, 14.2, 15.1, 15.2 369-419 467-468		April

Strand: CONTENT OF SCIENCE	Standard II (Life Science): Understand the properties, structures, and processes of living things and the interdependence of living things and their environments.	9-12 Benchmark II: Understand the genetic basis for inheritance and the basic concepts of biological evolution.
----------------------------	---	--

Grades 9-12 Performance Standards	Course Name, Textbook Name, and Pages	Supplemental Materials	Month(s) when Addressed
12. Explain how natural selection favors individuals who are better able to survive, reproduce, and leave offspring	Biology, The Dynamics of Life 15.1, 15.2 395-396 407-409 414-419		April
13. Analyze how evolution by natural selection and other mechanisms explains many phenomena including the fossil record of ancient life forms and similarities (both physical and molecular) among different species.	Biology, The Dynamics of Life 14.1, 15.1 370-375 390-393 399-400 418-419 468		April - May

Grades 9-12 Science Curriculum Alignment with State Standards

District:

Information Key: **Biology:** Green Font, **Chemistry:** Blue Font, **Physics:** Red Font

Strand: CONTENT OF SCIENCE	Standard II (Life Science): Understand the properties, structures, and processes of living things and the interdependence of living things and their environments.	9-12 Benchmark III: Understand the characteristics, structures, and functions of cells.
----------------------------	---	--

Grades 9-12 Performance Standards	Course Name, Textbook Name, and Pages	Supplemental Materials	Month(s) when Addressed
1. Know that cells are made of proteins composed of combinations of amino acids.	Biology, The Dynamics of Life 6.3		November - December
2. Know that specialized structures inside cells in most organisms carry out different functions, including: <ul style="list-style-type: none"> • parts of a cell and their functions (e.g., nucleus, chromosomes, plasma, and mitochondria) • storage of genetic material in DNA • similarities and differences between plant and animal cells • prokaryotic and eukaryotic cells. 	Biology, The Dynamics of Life 7.1, 7.2, 7.3		November - December
3. Describe the mechanisms for cellular processes (e.g., energy production and storage, transport of molecules, waste disposal, synthesis of new molecules).	Biology, The Dynamics of Life 7.2, 7.3		November - December
4. Know how the cell membrane controls which ions and molecules enter and leave the cell based on membrane permeability and transport (i.e., osmosis, diffusion, active transport, passive transport).	Biology, The Dynamics of Life 8.2		November - December

Strand: CONTENT OF SCIENCE	Standard II (Life Science): Understand the properties, structures, and processes of living things and the interdependence of living things and their environments.	9-12 Benchmark III: Understand the characteristics, structures, and functions of cells.
----------------------------	---	--

Grades 9-12 Performance Standards	Course Name, Textbook Name, and Pages	Supplemental Materials	Month(s) when Addressed
5. Explain how cells differentiate and specialize during the growth of an organism, including: <ul style="list-style-type: none"> • differentiation, regulated through the selected expression of different genes • specialized cells, response to stimuli (e.g., nerve cells, sense organs). 	Biology, The Dynamics of Life 8.2, 10.2		November - December
6. Know that DNA directs protein building (e.g., role of RNA).	Biology, The Dynamics of Life 11.2		November – February
7. Describe how most cell functions involve chemical reactions, including: <ul style="list-style-type: none"> • promotion or inhibition of biochemical reactions by enzymes • processes of respiration (e.g., energy production, ATP) • communication from cell to cell by secretion of a variety of chemicals (e.g., hormones). 	Biology, The Dynamics of Life 9.1, 9.2, 9.3		November – February

Grades 9-12 Science Curriculum Alignment with State Standards

District:

Information Key: **Biology:** Green Font, **Chemistry:** Blue Font, **Physics:** Red Font

Strand: CONTENT OF SCIENCE	Standard III (Earth and Space Science): Understand the structure of Earth, the solar system, and the universe, the interconnections among them, and the processes and interactions of Earth's systems.	9-12 Benchmark I: Examine the scientific theories of the origin, structure, contents, and evolution of the solar system and the universe, and their interconnections.
----------------------------	--	--

Grades 9-12 Performance Standards	Course Name, Textbook Name, and Pages	Supplemental Materials	Month(s) when Addressed
1. 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. 	Physics, Conceptual Physics by Paul G. Hewitt, pp 168 – 181, 244 - 257	H-R Diagram, Orbit of Mars Laboratories or similar	November/ December
2. 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).	Physics, Conceptual Physics by Paul G. Hewitt, pp 168 – 181	Lunar Journal Analysis, Moon Phase Lab	November/ December
3. Understand how knowledge about the universe comes from evidence collected from advanced technology (e.g., telescopes, satellites, images, computer models).	Physics, Conceptual Physics by Paul G. Hewitt, pp 404 - 498	Optics Simulations on the Web, Image This Laborties	March/ April
4. 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.	Physics, Conceptual Physics by Paul G. Hewitt, pp 168 – 181	H-R Diagram, Orbit of Mars Laboratories or similar	November/ December
5. Explain how objects in the universe emit different electromagnetic radiation and how this information is used.	Physics, Conceptual Physics by Paul G. Hewitt, pp 404 - 420	H-R Diagram, Spectroscopes, Laboratories or similar	November, April

Strand: CONTENT OF SCIENCE	Standard III (Earth and Space Science): Understand the structure of Earth, the solar system, and the universe, the interconnections among them, and the processes and interactions of Earth's systems.	9-12 Benchmark I: Examine the scientific theories of the origin, structure, contents, and evolution of the solar system and the universe, and their interconnections.
----------------------------	--	--

Grades 9-12 Performance Standards	Course Name, Textbook Name, and Pages	Supplemental Materials	Month(s) when Addressed
6. 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.	Physics, Conceptual Physics by Paul G. Hewitt, pp 168 – 181	H-R Diagram, Orbit of Mars Laboratories or similar	November/ December
7. Examine the role that New Mexico research facilities play in current space exploration (e.g., Very Large Array, Goddard Space Center).	Physics, Conceptual Physics by Paul G. Hewitt, pp 168 – 181	H-R Diagram, Orbit of Mars Laboratories or similar	November/ December

Grades 9-12 Science Curriculum Alignment with State Standards

District:

Information Key: **Biology:** Green Font, **Chemistry:** Blue Font, **Physics:** Red Font

Strand: CONTENT OF SCIENCE	Standard III (Earth and Space Science): Understand the structure of Earth, the solar system, and the universe, the interconnections among them, and the processes and interactions of Earth's systems.	9-12 Benchmark II: Examine the scientific theories of the origin, structure, energy, and evolution of Earth and its atmosphere, and their interconnections.
----------------------------	--	--

Grades 9-12 Performance Standards	Course Name, Textbook Name, and Pages	Supplemental Materials	Month(s) when Addressed
1. Describe the characteristics and the evolution of Earth in terms of the geosphere, the hydrosphere, the atmosphere, and the biosphere.	Biology, The Dynamics of Life Ch 14, pgs 369 - 379		April-May
2. Recognize that radiometric data indicate that Earth is at least 4 billion years old and that Earth has changed during that period.	Biology, The Dynamics of Life Ch 14, pgs 369 - 379		April-May
3. Describe the internal structure of Earth (e.g., core, mantle, crust) and the structure of Earth's plates.	Biology, The Dynamics of Life Ch 14, pgs 369 - 379 CHEMISTRY HOLT, Ch 4, Metals		April-May October
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). 	Biology, The Dynamics of Life Ch 14, pgs 369 - 379		April-May
5. Explain plate tectonic theory and understand the evidence that supports it.	Physics, Conceptual Physics by Paul G. Hewitt, pp 10 - 27	Physically Racing or similar Laboratory	August/ September

Strand: CONTENT OF SCIENCE	Standard III (Earth and Space Science): Understand the structure of Earth, the solar system, and the universe, the interconnections among them, and the processes and interactions of Earth's systems.	9-12 Benchmark II: Examine the scientific theories of the origin, structure, energy, and evolution of Earth and its atmosphere, and their interconnections.
----------------------------	--	--

Grades 9-12 Performance Standards	Course Name, Textbook Name, and Pages	Supplemental Materials	Month(s) when Addressed
6. Know that Earth's systems are driven by internal (i.e., radioactive decay and gravitational energy) and external (i.e., the sun) sources of energy.	Physics, Conceptual Physics by Paul G. Hewitt, pp 244 – 257, 596 - 645	Radioactive Dice Laboratory	May
7. 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). 	Biology, The Dynamics of Life Pgs. 369-379		April - May
8. Describe the 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 Niño, La Niña, and other climatic trends. 	Biology, The Dynamics of Life Ch 5, pgs. 111-128	An Inconvenient Truth (IMC-LAHS)	October

Strand: CONTENT OF SCIENCE	Standard III (Earth and Space Science): Understand the structure of Earth, the solar system, and the universe, the interconnections among them, and the processes and interactions of Earth's systems.	9-12 Benchmark II: Examine the scientific theories of the origin, structure, energy, and evolution of Earth and its atmosphere, and their interconnections.
----------------------------	--	--

Grades 9-12 Performance Standards	Course Name, Textbook Name, and Pages	Supplemental Materials	Month(s) when Addressed
9. 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).	Biology, The Dynamics of Life Pgs. 46-57		September
10. Describe the composition and structure of Earth's materials, including: <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. 	Biology, The Dynamics of Life, Evolution Ch 14, pgs. 365-379		March - April
11. Explain how layers of the atmosphere (e.g., ozone, ionosphere) change naturally and artificially.	Biology, The Dynamics of Life Ch 5, pgs. 111-120		September – October
12. 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).	CHEMISTRY HOLT, Water/Solutions Ch 13		February - March

Grades 9-12 Science Curriculum Alignment with State Standards

District:

Information Key: **Biology:** Green Font, **Chemistry:** Blue Font, **Physics:** Red Font

Strand: SCIENCE AND SOCIETY	Standard I: Understand how scientific discoveries, inventions, practices, and knowledge influence, and are influenced by, individuals and societies.	9-12 Benchmark I: Examine and analyze how scientific discoveries and their applications affect the world, and explain how societies influence scientific investigations and applications.
-----------------------------	---	--

Grades 9-12 Performance Standards	Course Name, Textbook Name, and Pages	Supplemental Materials	Month(s) when Addressed
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).	Physics, Conceptual Physics by Paul G. Hewitt, Ch 3, 15 Biology, The Dynamics of Life Ch 13	Stomp Rocket Lab Gattaca (DVD) IMC-LAHS	September - November March
2. Understand how advances in technology enable further advances in science (e.g., microscopes and cellular structure; telescopes and understanding of the universe).	Biology, The Dynamics of Life Ch 6-7		October - November
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).	Physics, Conceptual Physics by Paul G. Hewitt, pp 500 – 530	Van De Graff Generator Demonstration or similar Laboratory	March
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).	Physics, Conceptual Physics by Paul G. Hewitt, pp 404 – 420, 562 - 594	Film: Learning about Light It's a Motor or similar Laboratory	April/ May

Strand: SCIENCE AND SOCIETY	Standard I: Understand how scientific discoveries, inventions, practices, and knowledge influence, and are influenced by, individuals and societies.	9-12 Benchmark I: Examine and analyze how scientific discoveries and their applications affect the world, and explain how societies influence scientific investigations and applications.
-----------------------------	---	--

Grades 9-12 Performance Standards	Course Name, Textbook Name, and Pages	Supplemental Materials	Month(s) when Addressed
5. Understand that applications of genetics can meet human needs and can create new problems (e.g., agriculture, medicine, cloning)	Biology, The Dynamics of Life Ch 13, pgs. 337-356		March - April
6. Analyze the impact of digital technologies on the availability, creation, and dissemination of information.	Biology, The Dynamics of Life Ch 13, pgs. 337-356		March - April
7. Describe how human activities have affected ozone in the upper atmosphere and how it affects health and the environment.	Biology, The Dynamics of Life Pgs. 116-118		October
8. Describe uses of radioactivity (e.g., nuclear power, nuclear medicine, radiometric dating).	Biology, The Dynamics of Life Pgs. 376-375		April
9. 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).	Biology, The Dynamics of Life Ch 4 & 5, pgs. 91-128	"World in Balance" IMC-LAHS	October
10. Describe major historical changes in scientific perspectives (e.g., atomic theory, germs, cosmology, relativity, plate tectonics, evolution) and the experimental observations that triggered them.	Physics, Conceptual Physics by Paul G. Hewitt, pp 168 – 181,	H-R Diagrams or similar Laboratory	November / December

Strand: SCIENCE AND SOCIETY	Standard I: Understand how scientific discoveries, inventions, practices, and knowledge influence, and are influenced by, individuals and societies.	9-12 Benchmark I: Examine and analyze how scientific discoveries and their applications affect the world, and explain how societies influence scientific investigations and applications.
-----------------------------	---	--

Grades 9-12 Performance Standards	Course Name, Textbook Name, and Pages	Supplemental Materials	Month(s) when Addressed
11. 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).	Biology, The Dynamics of Life Ch 13, pgs. 337-356		March
12. Explain how societies can change ecosystems and how these changes can be reversible or irreversible.	Biology, The Dynamics of Life Ch 5, pgs. 11-126		October
13. Describe how environmental, economic, and political interests impact resource management and use in New Mexico.	Biology, The Dynamics of Life Pgs. 11-126	Internet	September - October
14. Describe New Mexico's role in nuclear science (e.g., Manhattan Project, WIPP, national laboratories).	CHEMISTRY HOLT, Ch 18		October
15. Identify how science has produced knowledge that is relevant to individual health and material prosperity.	Biology, The Dynamics of Life Pgs. 349- 353		November, March
16. 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).	Biology, The Dynamics of Life Pgs. 369-379 Physics, Conceptual Physics by Paul G. Hewitt, pp 0-8	Class Discussion	August - May August

Strand: SCIENCE AND SOCIETY	Standard I: Understand how scientific discoveries, inventions, practices, and knowledge influence, and are influenced by, individuals and societies.	9-12 Benchmark I: Examine and analyze how scientific discoveries and their applications affect the world, and explain how societies influence scientific investigations and applications.
-----------------------------	---	--

Grades 9-12 Performance Standards	Course Name, Textbook Name, and Pages	Supplemental Materials	Month(s) when Addressed
17. 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 of the realm of science).	Biology, The Dynamics of Life Pgs. 2-19		August
18. 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).	Biology, The Dynamics of Life Pgs. 374; 849; 448; 481; 297; 674; 6; 38; 150; 822		Throughout Year
19. 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).	Biology, The Dynamics of Life Pgs. 374; 849; 448; 481; 297; 674; 6; 38; 150; 822		August - May