

**Correlation to New Mexico Science Content Standards, 9th - 12th grade
Foundations of Physical Science Student Text and Investigation Manual**

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page	Volume 2 Investigation Manual page		
I.1.1.01 Scientific Thinking and Practice	Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.	Use accepted scientific methods to collect, analyze, and interpret data and observations and to design and conduct scientific investigations and communicate results.	Describe the essential components of an investigation, including appropriate methodologies, proper equipment, and safety precautions.	9	steps in the scientific method	6	how do we ask questions and get answers from nature?
				10	forming a hypothesis	7	variables in an experiment
				10	the research question and hypothesis	7	compare results with hypothesis
				11	control and experimental variables	7	doing a controlled experiment
				12	writing lab procedures	9	design three experiments and choose equipment
				19	design your own experiment	9	conduct three experiments with appropriate equipment
				26	independent and dependent variables	10	selecting ramp and photogates
				28	identifying cause and effect relationships	12	select equipment and set up experiment
				41	identify cause and effect	20	safety tip for car/ramp setup
				288	find the thickness of a single card	21	determine effect of increasing mass
				500	safety rules described	21	choose independent and dependent variables for graph
				501	safety quiz	24	ropes and pulley safety
						26	safety tip for hanging weights from lever
						27	recognize variables
		30	rigging block and tackle				

Correlation to New Mexico Science Content Standards, 9th - 12th grade
***Foundations of Physical Science* Student Text and Investigation Manual**

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page	Volume 2 Investigation Manual page
					40 electrical safety
					44 short circuit safety warning
					56 short circuit safety warning
					58 short circuit safety warning
					75 plan three experiments to determine which variable affects the period of a pendulum
					145 carry out procedure and select equipment
					145 plan a procedure and select necessary equipment
					146 safety in the lab
					150 chemistry safety
					151 write a procedure
					151 select materials from list
					151 plan procedures and select materials
					158 wear goggles and apron
					164 safety equipment
					166 write a procedure
					166 which factor will produce fastest dissolving rate?
					168 hot water safety
					172 safety tip for water testing

Correlation to New Mexico Science Content Standards, 9th - 12th grade
***Foundations of Physical Science* Student Text and Investigation Manual**

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page	Volume 2 Investigation Manual page
					175 safety tip for testing local surface water 180 thermometer safety 182 heat safety 186 thermometer safety 192 heat safety 198 heat safety 200 safely using rubber bands

**Correlation to New Mexico Science Content Standards, 9th - 12th grade
Foundations of Physical Science Student Text and Investigation Manual**

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page	Volume 2 Investigation Manual page		
I.1.1.02 Scientific Thinking and Practice	Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.	Use accepted scientific methods to collect, analyze, and interpret data and observations and to design and conduct scientific investigations and communicate results.	Design and conduct scientific investigations.	7	experimentation begins with a question	7	perform your own experiment
				9	steps in the scientific method	7	compare results with hypothesis
				10	forming a hypothesis	7	design your own experiment
				19	design your own experiment	9	design three experiments using car and ramp
				19	design your own experiment	9	design three experiments and choose technology
				42	devise an experiment	9	design three experiments and choose equipment
				288	find the thickness of a single card	9	conduct three experiments with appropriate equipment
						10	selecting ramp and photogates
						10	conduct car/ramp experiment
						12	select equipment and set up experiment
		16	decide how to vary the force on the car for this experiment				
		16	investigate Newton's 2nd law				
		26	what variables can be changed?				
		30	rigging block and tackle				

Correlation to New Mexico Science Content Standards, 9th - 12th grade
***Foundations of Physical Science* Student Text and Investigation Manual**

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page	Volume 2 Investigation Manual page
					34 investigate motion on a rollercoaster
					40 choose circuit parts to light a bulb
					75 perform self-designed experiment
					75 design pendulum experiment
					75 plan three experiments to determine which variable affects the period of a pendulum
					93 decision trees and the advantage of doing multiple trials
					145 plan a procedure and select necessary equipment
					145 carry out procedure and select equipment
					151 design experiment to find out if mass is conserved
					151 plan procedures and select materials
					151 select materials from list
					166 what three factors influence dissolving rate?
					166 which factor will produce fastest dissolving rate?

Correlation to New Mexico Science Content Standards, 9th - 12th grade
***Foundations of Physical Science* Student Text and Investigation Manual**

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page	Volume 2 Investigation Manual page
					174 visit local water supply and perform testing

**Correlation to New Mexico Science Content Standards, 9th - 12th grade
Foundations of Physical Science Student Text and Investigation Manual**

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page	Volume 2 Investigation Manual page
I.1.1.03 Scientific Thinking and Practice	Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.	Use accepted scientific methods to collect, analyze, and interpret data and observations and to design and conduct scientific investigations and communicate results.	Use appropriate technologies to collect, analyze, and communicate scientific data (e.g., computers, calculators, balances, and microscopes).	5 measuring distance 24 using an electronic timer 288 find the thickness of a single card	<p>data tables and graphs can be created on computer or graphing calculator</p> <p>5 measuring metric and english lengths</p> <p>6 measure time</p> <p>9 design three experiments and choose equipment</p> <p>9 conduct three experiments with appropriate equipment</p> <p>9 design three experiments and choose technology</p> <p>10 selecting ramp and photogates</p> <p>12 select equipment and set up experiment</p> <p>12 using photogates</p> <p>14 using photogates</p> <p>16 measure force</p> <p>16 use a force scale</p> <p>17 use photogates to study car on ramp</p> <p>18 use a balance to find mass of car</p> <p>30 rigging block and tackle</p> <p>30 use force scale</p>

Correlation to New Mexico Science Content Standards, 9th - 12th grade
***Foundations of Physical Science* Student Text and Investigation Manual**

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page	Volume 2 Investigation Manual page
					40 choose circuit parts to light a bulb 44 measure voltage 44 using electrical meter 46 using electrical meter 46 measure current 48 measure resistance 48 using electrical meter 50 using electrical meter 87 measure wavelength 116 measure mass 117 measure volume 145 carry out procedure and select equipment 145 plan a procedure and select necessary equipment 151 plan procedures and select materials 151 select materials from list 158 use a thermometer 180 measure temperature

Correlation to New Mexico Science Content Standards, 9th - 12th grade
Foundations of Physical Science Student Text and Investigation Manual

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page	Volume 2 Investigation Manual page		
I.1.1.04 Scientific Thinking and Practice	Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.	Use accepted scientific methods to collect, analyze, and interpret data and observations and to design and conduct scientific investigations and communicate results.	Convey results of investigations using scientific concepts, methodologies, and expressions.	12	writing lab procedures	6	compare results with other groups
				19	which group did the best experiment?	7	perform your own experiment
				20	explain your reasoning	9	present conclusions to the class
				20	finding variability in data	9	reporting on an experiment
				24	making a graph	10	conduct car/ramp experiment
				24	interpretations of patterns in data	11	graph speed vs. position
				26	creating graphs	11	analyze speed change of car
				27	reading a graph	13	graph distance vs. time
				28	identifying cause and effect relationships	15	construct a quantitative graphical model
				41	make a graph	15	interpret a speed vs. time graph
				41	identify cause and effect	16	investigate Newton's 2nd law
				42	interpreting distance/time graph	18	evaluate graphs as to whether or not they show relationships between variables
				42	analyze a speed/distance graph	18	study data table for relationship between force and motion
				78	analyze lever diagram		
				79	look at force data and decide the usefulness of a machine		

Correlation to New Mexico Science Content Standards, 9th - 12th grade
***Foundations of Physical Science* Student Text and Investigation Manual**

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page	Volume 2 Investigation Manual page
					<p>18 use data to describe relationship between force and motion</p> <p>19 use data to infer correct relationship between variables</p> <p>21 construct reasonable explanation based on data</p> <p>21 determine effect of increasing mass</p> <p>21 evaluate percent change for data collected</p> <p>25 analyze block and tackle data</p> <p>25 create a mathematical model</p> <p>27 analyze lever equilibrium data</p> <p>27 find math rule for lever equilibrium</p> <p>28 derive a math formula</p> <p>30 interpret block and tackle data</p> <p>34 investigate motion on a rollercoaster</p> <p>35 does data support hypothesis?</p>

Correlation to New Mexico Science Content Standards, 9th - 12th grade
***Foundations of Physical Science* Student Text and Investigation Manual**

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page	Volume 2 Investigation Manual page
					<p>35 study data and determine importance of height on speed of marble</p> <p>37 organize data into a graph of speed vs. height</p> <p>37 describe the flow of energy based on experimental graph</p> <p>39 give a brief presentation to the class</p> <p>45 did battery voltage change?</p> <p>45 analyze data and explain a rule</p> <p>47 present and defend an explanation</p> <p>51 graph voltage vs. current</p> <p>75 perform self-designed experiment</p> <p>75 evaluate statistical significance</p> <p>76 analyze pendulum data</p> <p>101 how could you extend the investigation to explore materials that give off light when heated?</p> <p>117 how could you find the volume of one drop of water?</p>

Correlation to New Mexico Science Content Standards, 9th - 12th grade
***Foundations of Physical Science* Student Text and Investigation Manual**

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page	Volume 2 Investigation Manual page
					121 graph mass vs. volume 141 build models of Na and Cl and use them to explain bonding 145 present findings and methods used 147 organize observations into a category table 147 students analyze chemical change lab results 151 present results to the class 151 write a procedure 157 add new rules to list based on findings 166 write a procedure 167 evaluate method based on data 173 write praragraph to explain results 175 create water quality report 179 write summary of findings 181 construct a graphical model 183 construct a temperature vs. time graph

Correlation to New Mexico Science Content Standards, 9th - 12th grade
***Foundations of Physical Science* Student Text and Investigation Manual**

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page		Volume 2 Investigation Manual page	
I.1.1.05 Scientific Thinking and Practice	Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.	Use accepted scientific methods to collect, analyze, and interpret data and observations and to design and conduct scientific investigations and communicate results.	Understand how scientific theories are used to explain and predict natural phenomena (e.g., plate tectonics, ocean currents, structure of atom).	20	how will speed change?	6	asking questions and learning about natural world
				23	why make models?		
				24	predicting speed from a graph	76	use data to predict best string length for a pendulum clock
				24	scientific models		
				24	what is a scientific model?	121	use graph to predict mass of six objects
				42	predict the speed of a car		
				313	development of atomic theory	130	investigate Rutherford's gold foil experiment
				324	research and create a poster to illustrate development of atomic model	156	make predictions about solubility

**Correlation to New Mexico Science Content Standards, 9th - 12th grade
Foundations of Physical Science Student Text and Investigation Manual**

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page		Volume 2 Investigation Manual page	
I.I.II.01 Scientific Thinking and Practice	Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.	Understand that scientific processes produce scientific knowledge that is continually evaluated, validated, revised, or rejected.	Understand how scientific process produce valid, reliable results.	19	which group did the best experiment?	6	asking questions and learning about natural world
				20	explain your reasoning	7	variables in an experiment
						9	present conclusions to the class
						18	evaluate graphs as to whether or not they show relationships between variables
						21	evaluate percent change for data collected
						37	describe the flow of energy based on experimental graph
						39	give a brief presentation to the class
						47	present and defend an explanation
						75	evaluate statistical significance
						145	present findings and methods used
						151	present results to the class
						167	evaluate method based on data

Correlation to New Mexico Science Content Standards, 9th - 12th grade
Foundations of Physical Science Student Text and Investigation Manual

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page	Volume 2 Investigation Manual page		
I.I.II.02 Scientific Thinking and Practice	Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.	Understand that scientific processes produce scientific knowledge that is continually evaluated, validated, revised, or rejected.	Use scientific reasoning and valid logic.	10	the research question and hypothesis	6	formulate hypothesis
				19	which group did the best experiment?	6	predict which car will move fastest
				20	finding variability in data	6	how do we ask questions and get answers from nature?
				28	identifying cause and effect relationships	7	perform your own experiment
				41	identify cause and effect	7	test the effect of one other variable
				79	look at force data and decide the usefulness of a machine	9	devise a hypothesis
						10	conduct car/ramp experiment
						16	investigate Newton's 2nd law
						18	use data to describe relationship between force and motion
						18	evaluate graphs as to whether or not they show relationships between variables
		19	use data to infer correct relationship between variables				
		21	determine effect of increasing mass				
		21	evaluate percent change for data collected				

Correlation to New Mexico Science Content Standards, 9th - 12th grade
***Foundations of Physical Science* Student Text and Investigation Manual**

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page	Volume 2 Investigation Manual page
					27 think about the variables
					30 interpret block and tackle data
					34 investigate motion on a rollercoaster
					34 formulate hypothesis
					34 where does the marble move the fastest?
					43 how did A and B tapes acquire different charge?
					75 investigate variables that affect the period of a pendulum
					75 evaluate statistical significance
					75 perform self-designed experiment
					141 build models of Na and Cl and use them to explain bonding
					151 perform the experiment you designed
					151 explain how hypothesis compares to results
					157 add new rules to list based on findings
					166 devise hypothesis and explain

Correlation to New Mexico Science Content Standards, 9th - 12th grade
Foundations of Physical Science Student Text and Investigation Manual

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page	Volume 2 Investigation Manual page
					166 which method will give fastest dissolving rate? 167 evaluate method based on data 178 formulate hypothesis 198 which type of food contains the most energy? 198 formulate hypothesis
I.I.II.03 Scientific Thinking and Practice	Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.	Understand that scientific processes produce scientific knowledge that is continually evaluated, validated, revised, or rejected.	Understand how new data and observations can result in new scientific knowledge.	19 which group did the best experiment? 73 impact of Da Vinci's work	18 evaluate graphs as to whether or not they show relationships between variables 21 evaluate percent change for data collected 75 evaluate statistical significance 157 add new rules to list based on findings 167 evaluate method based on data

**Correlation to New Mexico Science Content Standards, 9th - 12th grade
Foundations of Physical Science Student Text and Investigation Manual**

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page	Volume 2 Investigation Manual page
I.I.II.04 Scientific Thinking and Practice	Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.	Understand that scientific processes produce scientific knowledge that is continually evaluated, validated, revised, or rejected.	Critically analyze an accepted explanation by reviewing current scientific knowledge.	10 process of reviewing hypothesis explained	<p>35 what evidence is there in support of your hypothesis?</p> <p>39 critique group's explanation of energy transformations</p> <p>39 review energy theory in context of everyday scenarios</p> <p>39 analyze energy transformations in different scenarios</p> <p>77 show how energy loss data could be applied to designing a real clock</p> <p>77 compare law of conservation of energy to motion of pendulum</p> <p>151 review your hypothesis</p> <p>151 do the data support the hypothesis</p> <p>167 did you prove or disprove your hypothesis?</p> <p>167 what was happening at molecular level?</p>

Correlation to New Mexico Science Content Standards, 9th - 12th grade
***Foundations of Physical Science* Student Text and Investigation Manual**

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page		Volume 2 Investigation Manual page	
I.I.II.05 Scientific Thinking and Practice	Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.	Understand that scientific processes produce scientific knowledge that is continually evaluated, validated, revised, or rejected.	Examine investigations of current interest in science (e.g., superconductivity, molecular machines, age of the universe).	34	Newton's research impacted mathematics	70	using engineering design cycle
				73	relationship between science and technology		
				73	impact of technology		
				73	impact of Da Vinci's work		

**Correlation to New Mexico Science Content Standards, 9th - 12th grade
Foundations of Physical Science Student Text and Investigation Manual**

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page		Volume 2 Investigation Manual page	
I.I.II.06 Scientific Thinking and Practice	Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.	Understand that scientific processes produce scientific knowledge that is continually evaluated, validated, revised, or rejected.	Examine the scientific processes and logic used in investigations of past events, investigations that can be planned in advance but are only done once, and investigations of phenomena that can be repeated easily and frequently.	7	experimentation begins with a question	6	asking questions and learning about natural world
				9	steps in the scientific method	7	perform your own experiment
				10	forming a hypothesis	7	compare results with hypothesis
				19	design your own experiment	7	design your own experiment
				19	design your own experiment	9	design three experiments and choose equipment
				42	devise an experiment	9	design three experiments using car and ramp
				73	impact of Da Vinci's work	10	conduct car/ramp experiment
				288	find the thickness of a single card	16	decide how to vary the force on the car for this experiment
						16	investigate Newton's 2nd law
						26	what variables can be changed?
		34	investigate motion on a rollercoaster				
		75	perform self-designed experiment				
		75	design pendulum experiment				

Correlation to New Mexico Science Content Standards, 9th - 12th grade
***Foundations of Physical Science* Student Text and Investigation Manual**

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page	Volume 2 Investigation Manual page
					<p>75 plan three experiments to determine which variable affects the period of a pendulum</p> <p>93 decision trees and the advantage of doing multiple trials</p> <p>145 plan a procedure and select necessary equipment</p> <p>151 design experiment to find out if mass is conserved</p> <p>151 plan procedures and select materials</p> <p>166 which factor will produce fastest dissolving rate?</p> <p>166 what three factors influence dissolving rate?</p> <p>174 visit local water supply and perform testing</p>

**Correlation to New Mexico Science Content Standards, 9th - 12th grade
Foundations of Physical Science Student Text and Investigation Manual**

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page		Volume 2 Investigation Manual page		
I.1.III.01 Scientific Thinking and Practice	Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.	Use mathematical concepts, principles, and expressions to analyze data, develop models, understand patterns and relationships, evaluate findings, and draw conclusions.	Create multiple displays of data to analyze and explain the relationships in scientific investigations.	24	making a graph	data tables and graphs can be created on computer or graphing calculator		
				26	creating graphs			
				41	make a graph			
				42	interpreting distance/time graph		9	construct a data table
							12	understand and use data table
							13	graph distance vs. time
							15	construct a quantitative graphical model
							17	record results in data table
							18	organize different combinations of data
							24	use data table to record results
		25	create a mathematical model	27	find math rule for lever equilibrium			
		27	use data table to record results	28	derive a math formula			
		30	record ropes and pulley data in table	36	organize data into a table			
		37	organize data into a graph of speed vs. height	51	graph voltage vs. current			

Correlation to New Mexico Science Content Standards, 9th - 12th grade
Foundations of Physical Science Student Text and Investigation Manual

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page	Volume 2 Investigation Manual page
					75 create data table for self-designed experiment 121 graph mass vs. volume 147 organize observations into a category table 151 design a data table 167 use data table for observations 173 organize water quality data into a table 181 construct a graphical model 183 construct a temperature vs. time graph
I.I.III.02 Scientific Thinking and Practice	Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.	Use mathematical concepts, principles, and expressions to analyze data, develop models, understand patterns and relationships, evaluate findings, and draw conclusions.	Use mathematical models to describe, explain, and predict natural phenomena.	24 interpretations of patterns in data 27 reading a graph 42 interpreting distance/time graph 78 analyze lever diagram	15 interpret a speed vs. time graph 25 create a mathematical model 27 find math rule for lever equilibrium 28 derive a math formula 151 does your experiment agree with law of conservation of mass?

**Correlation to New Mexico Science Content Standards, 9th - 12th grade
Foundations of Physical Science Student Text and Investigation Manual**

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page	Volume 2 Investigation Manual page
I.I.III.03 Scientific Thinking and Practice	Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.	Use mathematical concepts, principles, and expressions to analyze data, develop models, understand patterns and relationships, evaluate findings, and draw conclusions.	Use technologies to quantify relationships in scientific hypotheses.	5 measuring distance	5 measuring metric and english lengths 6 measure time 7 perform your own experiment 9 design three experiments and choose technology 10 conduct car/ramp experiment 16 investigate Newton's 2nd law 16 measure force 34 investigate motion on a rollercoaster 40 choose circuit parts to light a bulb 44 measure voltage 46 measure current 48 measure resistance 75 perform self-designed experiment 87 measure wavelength 116 measure mass 117 measure volume 180 measure temperature

Correlation to New Mexico Science Content Standards, 9th - 12th grade
***Foundations of Physical Science* Student Text and Investigation Manual**

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page		Volume 2 Investigation Manual page	
I.1.III.04 Scientific Thinking and Practice	Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.	Use mathematical concepts, principles, and expressions to analyze data, develop models, understand patterns and relationships, evaluate findings, and draw conclusions.	Identify and apply measurement techniques and consider possible effects of measurement errors.	5	measuring distance	4	difference between precise and accurate data
				11	controlling variables in experiments	5	measuring metric and english lengths
				12	importance of reliable and accurate data collection	6	measure time
				19	did you run a controlled experiment?	6	electronic timer and release technique
				20	what factors could explain the variability in their data?	7	what variables should be controlled?
				7	record time interval		
				9	collect speed data		
				11	calculate % error		
				16	measure force		
				17	record times		
				24	collect weight data		
				36	collect precise speed and height data		
				44	measure voltage		
				46	measure current		
				48	measure resistance		
75	collect mass and amplitude data						
76	calculate % error						
87	measure wavelength						
116	measure mass						
117	measure volume						

Correlation to New Mexico Science Content Standards, 9th - 12th grade
***Foundations of Physical Science* Student Text and Investigation Manual**

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page	Volume 2 Investigation Manual page
					129 control the height of the liquid 165 what does the word "control" mean? 165 why was plain water tested? 167 collect time data and record observations 180 measure temperature
I.I.III.05 Scientific Thinking and Practice	Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.	Use mathematical concepts, principles, and expressions to analyze data, develop models, understand patterns and relationships, evaluate findings, and draw conclusions.	Use mathematics to express and establish scientific relationships.	24 interpretations of patterns in data 27 reading a graph 42 interpreting distance/time graph 78 analyze lever diagram	15 interpret a speed vs. time graph 25 create a mathematical model 27 find math rule for lever equilibrium 28 derive a math formula

Correlation to New Mexico Science Content Standards, 9th - 12th grade
Foundations of Physical Science Student Text and Investigation Manual

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page	Volume 2 Investigation Manual page
II.1.1.01 The Content of Science	Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.	Understand the properties, underlying structure, and reactions of matter.	Classify matter in a variety of ways (e.g., element, compound, mixture; solid liquid, gas; acidic, basic, neutral).	180 harmonic motion in natural systems 258 optical systems 278 system of classifying matter 279 summary of matter classification 283 atoms and molecules 284 changes of state 288 create a poster of matter classification 409 a solute and a solvent make up a system	114 investigate a homogeneous mixture 119 energy and phase changes 141 compare and contrast elements and compounds 165 investigate solutions and colloids and suspensions 176 investigate acids and bases

Correlation to New Mexico Science Content Standards, 9th - 12th grade
Foundations of Physical Science Student Text and Investigation Manual

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page	Volume 2 Investigation Manual page		
II.1.1.02 The Content of Science	Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.	Understand the properties, underlying structure, and reactions of matter.	Identify, measure, and use a variety of physical and chemical properties.	278	mixtures can be separated by physical means	114	separating a homogeneous mixture
				284	melting and boiling point explained	116	mass and volume measurements
				284	melting and boiling points	118	observe melting process and study quantitatively
				285	characteristics of matter related to its state	119	melting point of ice
				285	table of melting and boiling points	124	build a density column
				291	density is independent of amount of substance	126	investigating buoyancy with clay boats
				291	density explained	128	use CPO viscometer to study viscosity
				292	hardness is a physical property of matter	132	building atom models
				292	elasticity is a physical property of matter	136	model stable and neutral atoms
				293	brittleness is a physical property of matter	141	build model of Na and Cl atoms and explain why they bond to form a molecule
				294	tensile strength is a physical property of matter	142	arrangement of electrons and groups of elements
				294	malleability is a physical property of matter	146	investigate and observe chemical and physical changes in the lab
				295	relationship between mass volume and density	166	design experiments to explore dissolving rate
				296	density of liquid water vs. ice	168	investigate solubility of sugar
				297	buoyancy explained	170	solubility and pressure

Correlation to New Mexico Science Content Standards, 9th - 12th grade
***Foundations of Physical Science* Student Text and Investigation Manual**

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page	Volume 2 Investigation Manual page		
				298	sinking and floating	170	solubility and temperature
				302	viscosity of motor oils		
				305	viscosity of glue mixtures		
				318	proton/electron attraction		
				321	groups of elements and valence shells		
				329	periodic table columns and valence electrons		
				330	bonding and periodic table position		
				332	periodic table and electronegativities		
				335	periodic table and oxidation numbers		
				353	physical and chemical changes and digestion		
				355	physical and chemical changes in tire recycling		
				372	determine if changes are chemical or physical		
				406	molecular motion and dissolving rate		
				406	molecular motion and dissolving rate		
				407	surface area and dissolving rate		
				411	effect of temperature on solubility		

Correlation to New Mexico Science Content Standards, 9th - 12th grade
***Foundations of Physical Science* Student Text and Investigation Manual**

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page	Volume 2 Investigation Manual page
				413 pressure and the solubility of gases 421 why water is a nearly universal solvent 423 polar solutes	
II.1.1.03 The Content of Science	Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.	Understand the properties, underlying structure, and reactions of matter.	Know how to use properties to separate mixtures into pure substances.	278 pure substances cannot be separated by physical means 278 mixtures can be separated by physical means 291 density is independent of amount of substance 292 elasticity is a physical property of matter 292 hardness is a physical property of matter 293 brittleness is a physical property of matter 294 tensile strength is a physical property of matter 294 malleability is a physical property of matter	114 investigating a mixture 114 separating a homogeneous mixture

Correlation to New Mexico Science Content Standards, 9th - 12th grade
Foundations of Physical Science Student Text and Investigation Manual

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page	Volume 2 Investigation Manual page		
II.1.1.04 The Content of Science	Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.	Understand the properties, underlying structure, and reactions of matter.	Describe trends in properties.	284	melting and boiling point explained	116	mass and volume measurements
				284	melting and boiling points	119	melting point of ice
				285	table of melting and boiling points	141	build model of Na and Cl atoms and explain why they bond to form a molecule
				291	density is independent of amount of substance	142	arrangement of electrons and groups of elements
				292	hardness is a physical property of matter	166	design experiments to explore dissolving rate
				292	elasticity is a physical property of matter	168	investigate solubility of sugar
				293	brittleness is a physical property of matter	170	solubility and pressure
				294	malleability is a physical property of matter	170	solubility and temperature
				294	tensile strength is a physical property of matter	176	measure pH of everyday solutions
				294	development of Kevlar brand fiber		
				295	relationship between mass volume and density		
				321	groups of elements and valence shells		
				329	periodic table columns and valence electrons		
				330	bonding and periodic table position		
				332	periodic table and electronegativities		

Correlation to New Mexico Science Content Standards, 9th - 12th grade
***Foundations of Physical Science* Student Text and Investigation Manual**

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page	Volume 2 Investigation Manual page
				335	
				periodic table and oxidation numbers	
				406	
				molecular motion and dissolving rate	
				406	
				molecular motion and dissolving rate	
				407	
				surface area and dissolving rate	
				411	
				effect of temperature on solubility	
				413	
				pressure and the solubility of gases	
				421	
				why water is a nearly universal solvent	
				423	
				polar solutes	
				437	
				concentration of ions and pH	
				440	
				examples of acid and base chemistry	
				443	
				pH and blood	

Correlation to New Mexico Science Content Standards, 9th - 12th grade
Foundations of Physical Science Student Text and Investigation Manual

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page	Volume 2 Investigation Manual page		
II.1.1.05 The Content of Science	Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.	Understand the properties, underlying structure, and reactions of matter.	Understand that matter is made of atoms and that atoms are made of subatomic particles.	278	compounds are composed of elements	132	building atom models
				311	all matter is formed from atoms	132	comparing atoms
				311	location/size/charge of subatomic particles	133	identify mass number
				311	protons/neutrons/electrons	133	location of electrons in atom
				315	atomic number discussed	133	protons and neutrons
				316	isotopes explained	133	identify atomic number
				316	mass number discussed	133	exploring isotopes
				318	proton/electron attraction	133	identify element symbol and name
				322	atomic mass on the periodic table	136	atomic number
				322	mass number on the periodic table	136	mass number
				322	atomic number on the periodic table	136	understanding isotopes
				322	chemical symbols and element names	136	model stable and neutral atoms
						137	build atomic models
						140	why do atoms form chemical bonds?
		140	review subatomic particles				
		142	why do atoms combine in certain ratios?				

Correlation to New Mexico Science Content Standards, 9th - 12th grade
Foundations of Physical Science Student Text and Investigation Manual

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page	Volume 2 Investigation Manual page
II.1.1.06 The Content of Science	Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.	Understand the properties, underlying structure, and reactions of matter.	Understand atomic structure.	311 location/size/charge of subatomic particles 311 protons/neutrons/electrons 315 atoms of same element have same atomic number 318 proton/electron attraction 388 showing valence electrons in a diagram	132 atomic number determines what element that atom is 132 building atom models 133 location of electrons in atom 133 protons and neutrons 136 model stable and neutral atoms 137 importance of atomic number 137 build atomic models 140 find the number of electrons in outermost level 140 review subatomic particles

Correlation to New Mexico Science Content Standards, 9th - 12th grade
Foundations of Physical Science Student Text and Investigation Manual

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page	Volume 2 Investigation Manual page
II.1.1.07 The Content of Science	Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.	Understand the properties, underlying structure, and reactions of matter.	Explain how electrons determine the properties of substances.	315 atoms of same element have same atomic number 321 groups of elements and valence shells 324 use the periodic table to predict chemical formulas 324 which element is more likely to combine with other elements? 329 periodic table columns and valence electrons 330 bonding and periodic table position 332 periodic table and electronegativities 335 periodic table and oxidation numbers 335 chemical bonding and the periodic table	132 atomic number determines what element that atom is 137 importance of atomic number 141 build model of Na and Cl atoms and explain why they bond to form a molecule 141 modeling a chemical bond 142 arrangement of electrons and groups of elements

Correlation to New Mexico Science Content Standards, 9th - 12th grade
***Foundations of Physical Science* Student Text and Investigation Manual**

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page	Volume 2 Investigation Manual page
II.1.1.08 The Content of Science	Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.	Understand the properties, underlying structure, and reactions of matter.	Make predictions about elements using the periodic table.	320 groups of elements 321 studying the periodic table 321 groups of elements and valence shells 329 periodic table columns and valence electrons 330 bonding and periodic table position 332 metals nonmetals and metalloids 332 periodic table and electronegativities 335 periodic table and oxidation numbers	133 using the periodic table 136 building and studying the periodic table 141 build model of Na and Cl atoms and explain why they bond to form a molecule 142 arrangement of electrons and groups of elements

Correlation to New Mexico Science Content Standards, 9th - 12th grade
Foundations of Physical Science Student Text and Investigation Manual

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page	Volume 2 Investigation Manual page
II.1.1.09 The Content of Science	Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.	Understand the properties, underlying structure, and reactions of matter.	Understand how the type and arrangement of atoms and their bonds determine macroscopic properties.	330 Lewis Dot diagrams 330 ionic bonds 331 covalent bonds 332 distinguishing between ionic and covalent bonds 357 chemical reactions involve rearrangement of atoms 364 carbon chains 421 a water molecule is v-shaped 421 water structure and its function as a solvent 437 concentration of ions and pH 440 examples of acid and base chemistry 443 pH and blood	136 ions 141 when an atom ionizes 143 classify ionic compounds 143 ionic compounds 162 carbon reactions and the environment 176 measure pH of everyday solutions
II.1.1.10 The Content of Science	Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.	Understand the properties, underlying structure, and reactions of matter.	Know that states of matter depend on the arrangement of atoms and molecules and on their freedom of motion.	284 states of matter and arrangement of molecules 451 increasing temperature means increasing motion of molecules	118 molecules in a liquid 118 investigate melting 119 adding heat energy to melt an ice cube

Correlation to New Mexico Science Content Standards, 9th - 12th grade
Foundations of Physical Science Student Text and Investigation Manual

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page	Volume 2 Investigation Manual page
II.I.I.11 The Content of Science	Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.	Understand the properties, underlying structure, and reactions of matter.	Know that some atomic nuclei can change.	387 fusion and fission explained 388 nuclear vs chemical reactions	138 fusion and fission 138 nuclear reactions 160 radioactive decay 160 how do you simulate nuclear decay?
II.I.I.12 The Content of Science	Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.	Understand the properties, underlying structure, and reactions of matter.	Know that chemical reactions involve the rearrangement of atoms, and that they occur on many timescales.	357 chemical reactions involve rearrangement of atoms	157 predict the products of double displacement reactions
II.I.I.13 The Content of Science	Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.	Understand the properties, underlying structure, and reactions of matter.	Understand types of chemical reactions and identify them as exothermic or endothermic.	381 exothermic reactions and MREs 382 endothermic reactions and cold packs	158 investigate energy changes in chemical reactions 158 measure energy changes in 3 different reactions

Correlation to New Mexico Science Content Standards, 9th - 12th grade
Foundations of Physical Science Student Text and Investigation Manual

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page		Volume 2 Investigation Manual page	
II.I.I.14 The Content of Science	Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.	Understand the properties, underlying structure, and reactions of matter.	Know how to express chemical reactions with balanced equations.	336	writing chemical formulas	149	balance these equations
				368	predicting amount of product	155	calculating product yield
				371	which of the equations is balanced?		
II.I.I.15 The Content of Science	Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.	Understand the properties, underlying structure, and reactions of matter.	Describe how the rate of chemical reactions depends on many factors that include temperature, concentration, and the presence of catalysts.	364	formation of petroleum is a very slow chemical reaction	156	predict products in a double displacement reaction
				437	concentration of ions and pH	176	measure pH of everyday solutions
				440	examples of acid and base chemistry		
				443	pH and blood		
II.I.II.01 The Content of Science	Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.	Understand the transformation and transmission of energy and matter interact.	Identify different forms of energy, including kinetic, gravitational, chemical, thermal, nuclear, and electromagnetic.	91	following an energy transformation	38	identify potential/kinetic energy conversions
				91	understand basic forms of energy	39	identify type of energy involved

Correlation to New Mexico Science Content Standards, 9th - 12th grade
Foundations of Physical Science Student Text and Investigation Manual

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page		Volume 2 Investigation Manual page	
II.1.II.02 The Content of Science	Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.	Understand the transformation and transmission of energy and how energy and matter interact.	Explain how thermal energy (heat) consists of the random motion and vibrations of atoms and molecules and is measured by temperature.	451	temperature and kinetic energy		
II.1.II.03 The Content of Science	Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.	Understand the transformation and transmission of energy and how energy and matter interact.	Understand that energy can change from one form to another and know that energy is conserved in these changes.	88	potential and kinetic energy explained	36	energy conservation and the roller coaster
				90	conservation of energy explained	37	investigating conservation of energy with rollercoaster
				91	energy conversions	38	explore energy transformations
				92	energy transformations and conservation	38	conservation of energy and energy transformations
				93	different forms of energy described	188	specific heat and conservation of energy
				96	prove that energy is conserved		

Correlation to New Mexico Science Content Standards, 9th - 12th grade
Foundations of Physical Science Student Text and Investigation Manual

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page		Volume 2 Investigation Manual page	
II.1.II.04 The Content of Science	Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.	Understand the transformation and transmission of energy and how energy and matter interact.	Understand how heat can be transferred by conduction, convection, and radiation, and how heat conduction differs in conductors and insulators.	468	heat transfer through air	190	investigate conduction through all states of matter
				468	densely packed solids are good conductors of heat	192	investigate convection in liquids
				470	convection currents and weather	194	investigate radiation emitted by solids
				470	warming hands over candle	194	investigate radiation emitted by liquids
				472	convection currents in water		
				476	solid road surface emits radiation		
				478	apply knowledge of heat transfer to different situations		
				481	global warming and heat transfer by radiation		
II.1.II.05 The Content of Science	Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.	Understand the transformation and transmission of energy and how energy and matter interact.	Explain how heat flows in terms of the transfer of vibrational motion of atoms and molecules from hotter to colder regions.	455	temperature and thermal energy and heat	119	investigate temperature and energy transfer in melting process
						182	relationship between heat and temperature

Correlation to New Mexico Science Content Standards, 9th - 12th grade
Foundations of Physical Science Student Text and Investigation Manual

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page		Volume 2 Investigation Manual page	
II.1.II.06 The Content of Science	Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.	Understand the transformation and transmission of energy and how energy and matter interact.	Understand that the ability of energy to do something useful (work) tends to decrease as energy is converted from one form to another.	85	some input work is converted to heat	38	explore energy transformations
				91	energy conversions		
				92	where does "spent" energy go?		
				96	explain the "lost" energy		
II.1.II.07 The Content of Science	Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.	Understand the transformation and transmission of energy and how energy and matter interact.	Understand that electromagnetic waves carry energy that can be transferred when they interact with matter.	195	waves transmit energy		
				474	energy and radiation relationships		

Correlation to New Mexico Science Content Standards, 9th - 12th grade
Foundations of Physical Science Student Text and Investigation Manual

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page		Volume 2 Investigation Manual page	
II.1.II.08 The Content of Science	Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.	Understand the transformation and transmission of energy and how energy and matter interact.	Describe the characteristics of electromagnetic waves and other waves.	198	frequency and wavelength and amplitude	83	measure speed of a wave pulse
				215	properties of sound waves	83	find speed of a wave
				219	frequency of sound and pitch	86	investigate frequency and wavelength
				221	importance of wavelength of sound waves	86	adjust frequency of a standing wave
				237	visible light and the electromagnetic spectrum	90	what is sound and how do we hear it?
				237	light waves and the electromagnetic spectrum	134	investigating visible light with a spectrometer
				242	properties of light waves		
474	ultraviolet and infrared light						
II.1.II.09 The Content of Science	Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.	Understand the transformation and transmission of energy and how energy and matter interact.	Know that each kind of atom or molecule can gain or lose energy only in discrete amounts.	245	we see color in terms of reflected light		

Correlation to New Mexico Science Content Standards, 9th - 12th grade
Foundations of Physical Science Student Text and Investigation Manual

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page		Volume 2 Investigation Manual page	
II.I.II.10 The Content of Science	Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.	Understand the transformation and transmission of energy and how energy and matter interact.	Explain how wavelengths of electromagnetic radiation can be used to identify atoms, molecules, and the composition of stars.	234	electrons and energy levels and light emission	134	using a spectrometer
				319	fireworks displays and electron excitation	134	what does atomic structure have to do with light and color?
				388	showing valence electrons in a diagram	135	observing different light sources with a spectrometer
						140	find the number of electrons in outermost level
II.I.II.11 The Content of Science	Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.	Understand the transformation and transmission of energy and how energy and matter interact.	Understand the concept of equilibrium.	51	what is equilibrium?		
II.I.III.01 The Content of Science	Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.	Understand the motion of objects and waves, and the forces that cause them.	Know that there are four fundamental forces in nature: gravitation, electromagnetism, weak nuclear force, and strong nuclear force.	52	the effect of gravity	20	investigate effect of gravity on motion
				389	electromagnetic force	136	strong force
				389	strong nuclear force		
				389	forces in the nucleus		

Correlation to New Mexico Science Content Standards, 9th - 12th grade
Foundations of Physical Science Student Text and Investigation Manual

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page		Volume 2 Investigation Manual page	
II.1.III.02 The Content of Science	Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.	Understand the motion of objects and waves, and the forces that cause them.	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.	52 52 54 55	gravity depends on mass the effect of gravity Newton's law of universal gravitation calculating gravitational force between objects	20	investigate effect of gravity on motion
II.1.III.03 The Content of Science	Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.	Understand the motion of objects and waves, and the forces that cause them.	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.	105 106 107 108 108 318	charge is a fundamental property of matter static charge discussed explanation of coulomb how an electroscope works electroscopes proton/electron attraction	42 132 136	investigate electric charge building atom models model stable and neutral atoms
II.1.III.04 The Content of Science	Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.	Understand the motion of objects and waves, and the forces that cause them.	Understand the relationship between force and pressure, and how the pressure of a volume of gas depends on the temperature and amount of gas.	299 300	Charles' law Boyle's law		

Correlation to New Mexico Science Content Standards, 9th - 12th grade
Foundations of Physical Science Student Text and Investigation Manual

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page		Volume 2 Investigation Manual page	
II.1.III.05 The Content of Science	Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.	Understand the motion of objects and waves, and the forces that cause them.	Explain how electric currents cause magnetism and how changing magnetic fields produce electricity.	164	what is an electromagnet?	66	build an electromagnet
				166	increased current vs. strength of magnetic field	67	find out what happens to strength of electromagnet when current is increased
				166	building an electromagnet	73	exploring electric generators
				171	electromagnetic induction explained	73	use magnetic induction to create an electric field
II.1.III.07 The Content of Science	Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.	Understand the motion of objects and waves, and the forces that cause them.	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.	45	Newton's third law summarized	22	car and ramp and Newton's 3rd law
				59	Newton's third law in detail	23	using 3rd law to explain common phenomena
				60	law of conservation of momentum		
II.1.III.08 The Content of Science	Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.	Understand the motion of objects and waves, and the forces that cause them.	Apply Newton's Laws to describe and analyze the behavior of moving objects.	45	Newton's third law summarized	14	exploring acceleration on a ramp
				45	Newton's second law summarized	16	2nd law
				45	Newton's first law summarized	16	thinking about force
				48	Newton's first law in detail	19	discover 2nd law of motion
				49	Newton's second law in detail	20	force and motion with car and ramp
				59	Newton's third law in detail	22	car and ramp and Newton's 3rd law
				64	solving problems using $f=ma$	23	using 3rd law to explain common phenomena

Correlation to New Mexico Science Content Standards, 9th - 12th grade
Foundations of Physical Science Student Text and Investigation Manual

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page	Volume 2 Investigation Manual page
II.1.III.09 The Content of Science	Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.	Understand the motion of objects and waves, and the forces that cause them.	Describe relative motion using frames of reference.	13 speed is relative 18 what is the speed of an object that is standing still? 25 conceptual models of motion	
II.1.III.10 The Content of Science	Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.	Understand the motion of objects and waves, and the forces that cause them.	Describe wave propagation using amplitude, wavelength, frequency, and speed.	179 what is a cycle? 182 concept of frequency explained 182 concept of period explained 192 analyze systems to find cycle/period/frequency 198 frequency and wavelength and amplitude 215 properties of sound waves 219 frequency of sound and pitch 221 importance of wavelength of sound waves 237 light waves and the electromagnetic spectrum 242 color and frequency of light waves 242 properties of light waves 474 electromagnetic radiation	83 measure speed of a wave pulse 83 find speed of a wave 86 investigate frequency and wavelength 86 adjust frequency of a standing wave 90 what is sound and how do we hear it? 105 explore relationship between color and wavelength

Correlation to New Mexico Science Content Standards, 9th - 12th grade
Foundations of Physical Science Student Text and Investigation Manual

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page	Volume 2 Investigation Manual page		
II.I.III.11 The Content of Science	Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.	Understand the motion of objects and waves, and the forces that cause them.	Explain how the interactions of waves can result in interference, reflection, and refraction.	201	waves and refraction	85	observing reflection in water waves
				201	waves and reflection	95	interference and sound waves
				201	reflection in water waves and light waves	95	investigate interference with sound waves
				201	waves and absorption	101	examine light through diffraction grating
				202	refraction and eyeglasses	107	plot reflected rays from a mirror
				206	constructive and destructive interference	107	investigate reflection of light
				210	can wave interference sink a ship?	108	tracing incident and refracted rays
				223	interference of sound waves	108	explore refraction with a prism
				225	consonance and dissonance and beats		
				245	we see color in terms of reflected light		
				258	refraction in optical systems		
				260	reflection and mirrors		
				261	refraction and lenses		
				263	index of refraction		
				263	index of refraction		
476	absorption and emission						

Correlation to New Mexico Science Content Standards, 9th - 12th grade
Foundations of Physical Science Student Text and Investigation Manual

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page	Volume 2 Investigation Manual page		
II.1.III.12 The Content of Science	Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.	Understand the motion of objects and waves, and the forces that cause them.	Describe how waves are used for practical purposes.	196	waves are all around us	82	study wave pulses on elastic cord
				197	transverse and longitudinal waves	84	make different types of waves in a ripple tank
				205	standing waves on a string	90	investigate human perception of sound
				220	voice recognition programs	94	does sound behave like other waves?
				220	white noise	98	investigate sound and music
				220	sonograms	107	investigate how light interacts with mirrors
				222	effect of temperature on speed of sound wave	108	investigate how light interacts with a prism
				222	effect of medium on speed of sound wave	108	explore refraction with lenses
				226	musical instruments	110	finding focal point and focal length of a lens
				237	visible light and the electromagnetic spectrum	111	plotting images formed when light is refracted by a lens
				237	microwave ovens	113	observe internal reflection and relate to fiber optics
				237	light waves and the electromagnetic spectrum	134	investigating visible light with a spectrometer
				237	radio and television signals		
				245	we see color in terms of reflected light		
				250	identify uses of electromagnetic waves		
				258	forming images with lenses		

Correlation to New Mexico Science Content Standards, 9th - 12th grade
***Foundations of Physical Science* Student Text and Investigation Manual**

Standard #: Strand	Standard	Benchmark	Performance Standard	Volume 1 Student Text page	Volume 2 Investigation Manual page
				264 human eye as an optical instrument	
				268 total internal reflection and fiber optics	
				270 what is a laser?	
				272 identify uses of electromagnetic waves	
				474 ultraviolet and infrared light	