

Correlation to Louisiana Physical Science and Inquiry Benchmarks
***Foundations of Physical Science* Student Text and Investigation Manual**

Standard #: Area/Grade Le	Standard	Topic	Benchmark	student text pg	detail	investigation pg	detail
PS-H-A1 Physical Science/ 9-12	Students will develop understanding of the characteristics and relationships of matter and energy	Measurement and symbolic representation	manipulating and analyzing quantitative data using the SI system	5	make measurements with precision	5	making measurements with precision
				6	scientists use metric units	7	measure and record variables
				19	convert from english to metric	12	make metric length measurement
				78	use and understand mass measurements	16	understand and use units of force
				280	measuring volume of liquids	17	measure the force
				280	measuring volume of solids	17	measure the force
						25	measure and record the force
						30	measure height difference
						36	make precise height measurements
						63	making measurements with precision
		75	make precise length measurements				
		116	measuring mass				
		117	measuring volume				
		176	measure pH				

Correlation to Louisiana Physical Science and Inquiry Benchmarks
Foundations of Physical Science Student Text and Investigation Manual

Standard #: Area/Grade Le	Standard	Topic	Benchmark	student text pg	detail	investigation pg	detail
PS-H-A2 Physical Science/ 9-12	Students will develop understanding of the characteristics and relationships of matter and energy	Measurement and symbolic representation	understanding the language of chemistry (formulas, equations, symbols) and its relationship to molecules, atoms, ions, and subatomic particles	315	atomic number discussed	133	identify element symbol and name
				316	mass number discussed	133	identify atomic number
				322	atomic mass on the periodic table	133	identify mass number
				322	mass number on the periodic table	136	atomic number
				322	atomic number on the periodic table	136	mass number
				322	chemical symbols and element names	143	classify ionic compounds
				330	ionic bonds	143	name chemical compounds
				331	covalent bonds	143	predict chemical formulas
				332	distinguishing between ionic and covalent bonds	145	determine empirical formula
				336	writing a chemical formula	148	chemical equations
				338	summary of chemical formula writing rules	149	balance these equations
				339	naming compounds		
				357	chemical reactions involve rearrangement of atoms		
				371	which of the equations is balanced?		

Correlation to Louisiana Physical Science and Inquiry Benchmarks
Foundations of Physical Science Student Text and Investigation Manual

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PS-H-B1 Physical Science/ 9-12	Students will develop understanding of the characteristics and relationships of matter and energy	Atomic structure	describing the structure of the atom plus identifying and characterizing the particles that compose it (including the structure and properties of isotopes)	311	protons/neutrons/electrons	132	building atom models
				311	location/size/charge of subatomic particles	133	exploring isotopes
				315	atomic number discussed	133	identify element symbol and name
				315	atoms of same element have same atomic number	133	identify atomic number
						133	identify mass number
				316	isotopes explained	133	location of electrons in atom
				316	mass number discussed	133	protons and neutrons
				318	proton/electron attraction	136	understanding isotopes
				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	model stable and neutral atoms
				322	chemical symbols and element names	137	importance of atomic number
						137	build atomic models
				388	showing valence electrons in a diagram	140	find the number of electrons in outermost level
						140	review subatomic particles

Correlation to Louisiana Physical Science and Inquiry Benchmarks
Foundations of Physical Science Student Text and Investigation Manual

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PS-H-B2 Physical Science/ 9-12	Students will develop understanding of the characteristics and relationships of matter and energy	Atomic structure	describing the nature and importance of radioactive isotopes and nuclear reactions (fission, fusion, radioactive decay)	387 388	fusion and fission explained nuclear vs chemical reactions	138 138 160 160	fusion and fission nuclear reactions radioactive decay how do you simulate nuclear decay?
PS-H-B3 Physical Science/ 9-12	Students will develop understanding of the characteristics and relationships of matter and energy	Atomic structure	understanding that an atom's electron configuration, particularly that of the outermost electrons, determines the chemical properties of that atom	321 324 324 329 330 332 335 335 388	groups of elements and valence shells which element is more likely to combine with other elements? use the periodic table to predict chemical formulas periodic table columns and valence electrons bonding and periodic table position periodic table and electronegativities periodic table and oxidation numbers chemical bonding and the periodic table showing valence electrons in a diagram	136 140 141 141 141 142	ions find the number of electrons in outermost level build model of Na and Cl atoms and explain why they bond to form a molecule when an atom ionizes modeling a chemical bond arrangement of electrons and groups of elements

Correlation to Louisiana Physical Science and Inquiry Benchmarks
Foundations of Physical Science Student Text and Investigation Manual

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PS-H-C1 Physical Science/ 9-12	Students will develop understanding of the characteristics and relationships of matter and energy	The structure and properties of matter	distinguishing among elements, compounds, and/or mixtures	279	summary of matter classification	114	investigate a homogeneous mixture
				283	atoms and molecules	132	comparing atoms
				288	create a poster of matter classification	141	compare and contrast elements and compounds
				311	all matter is formed from atoms	165	investigate solutions and colloids and suspensions
				311	all matter is formed from atoms		
PS-H-C2 Physical Science/ 9-12	Students will develop understanding of the characteristics and relationships of matter and energy	The structure and properties of matter	discovering the patterns of physical and chemical properties found on the periodic table of the elements	321	groups of elements and valence shells	141	build model of Na and Cl atoms and explain why they bond to form a molecule
				329	periodic table columns and valence electrons	142	arrangement of electrons and groups of elements
				330	bonding and periodic table position	146	investigate and observe chemical and physical changes in the lab
				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		

Correlation to Louisiana Physical Science and Inquiry Benchmarks
Foundations of Physical Science Student Text and Investigation Manual

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PS-H-C3 Physical Science/ 9-12	Students will develop understanding of the characteristics and relationships of matter and energy	The structure and properties of matter	understanding that physical properties of substances reflect the nature of interactions among its particles	278	mixtures can be separated by physical means	114	separating a homogeneous mixture				
				284	states of matter and arrangement of molecules	118	molecules in a liquid				
				284	melting and boiling points	118	investigate melting				
				284	melting and boiling point explained	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				
				292	elasticity is a physical property of matter	128	use CPO viscometer to study viscosity				
				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						
				PS-H-C4 Physical Science/ 9-12	Students will develop understanding of the characteristics and relationships of matter and energy	The structure and properties of matter	separating mixtures based upon the physical properties of their components	278	pure substances cannot be separated by physical means	114	investigating a mixture

Correlation to Louisiana Physical Science and Inquiry Benchmarks
Foundations of Physical Science Student Text and Investigation Manual

Standard #: Area/Grade Le	Standard	Topic	Benchmark	student text pg	detail	investigation pg	detail
PS-H-C5 Physical Science/ 9-12	Students will develop understanding of the characteristics and relationships of matter and energy	The structure and properties of matter	understanding that chemical bonds are formed between atoms when the outermost electrons are transferred or shared to produce ionic and covalent bonds	278 330 331 332 343	compounds are composed of elements ionic bonds covalent bonds distinguishing between ionic and covalent bonds mole quantities	140 142 143 144	who do atoms form chemical bonds? who do atoms combine in certain ratios? classify ionic compounds show ratios in which elements combine to form a compound
PS-H-C6 Physical Science/ 9-12	Students will develop understanding of the characteristics and relationships of matter and energy	The structure and properties of matter	recognizing that carbon atoms can bond to one another in chains, rings, and branching networks to form a variety of structures	364	carbon chains	162	carbon reactions and the environment

Correlation to Louisiana Physical Science and Inquiry Benchmarks
Foundations of Physical Science Student Text and Investigation Manual

Standard #: Area/Grade Le	Standard	Topic	Benchmark	student text pg	detail	investigation pg	detail
PS-H-C7 Physical Science/ 9-12	Students will develop understanding of the characteristics and relationships of matter and energy	The structure and properties of matter	using a kinetic theory to describe the behavior of atoms and molecules during phase changes and to describe the behavior of matter in its different phases	284 284 285 451	states of matter and arrangement of molecules changes of state characteristics of matter related to its state increasing temperature means increasing motion of molecules	118 118 118 118 119 119 119 119	observe melting process and study quantitatively molecules in a liquid investigate melting think of melting process at molecular level investigate melting and create a graph adding heat energy to melt an ice cube create a temperature vs. time graph of phase change energy and phase changes
PS-H-D1 Physical Science/ 9-12	Students will develop understanding of the characteristics and relationships of matter and energy	Chemical reactions	observing and describing changes in matter and citing evidence of chemical change	353 354 355 357 357 361 372	physical and chemical changes and digestion new substances are formed when a chemical change occurs physical and chemical changes in tire recycling chemical reactions involve rearrangement of atoms combustion reaction heartburn reaction determine if changes are chemical or physical	146 148	investigate and observe chemical and physical changes in the lab chemical equations

Correlation to Louisiana Physical Science and Inquiry Benchmarks
Foundations of Physical Science Student Text and Investigation Manual

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PS-H-D2 Physical Science/ 9-12	Students will develop understanding of the characteristics and relationships of matter and energy	Chemical reactions	comparing, contrasting, and measuring the pH of acids and bases using a variety of indicators	437 440 443	concentration of ions and pH examples of acid and base chemistry pH and blood	176 176 176	measure pH investigate acids and bases measure pH of everyday solutions
PS-H-D3 Physical Science/ 9-12	Students will develop understanding of the characteristics and relationships of matter and energy	Chemical reactions	writing balanced equations to represent a variety of chemical reactions (acid/base, oxidation/reduction, etc.)	336 359 368 371	writing chemical formulas balancing chemical equations predicting amount of product which of the equations is balanced?	148 149 149 152 152 155	reactants and products practice balancing equations balance these equations write the balanced equation predict how much product formed given the reactants calculating product yield
PS-H-D4 Physical Science/ 9-12	Students will develop understanding of the characteristics and relationships of matter and energy	Chemical reactions	analyzing the factors that affect the rate and equilibrium of a chemical reaction	364	formation of petroleum is a very slow chemical reaction	156	predict products in a double displacement reaction
PS-H-D5 Physical Science/ 9-12	Students will develop understanding of the characteristics and relationships of matter and energy	Chemical reactions	applying the law of conservation of matter to chemical reactions	363	history of law of conservation of mass	150	investigate conservation of mass in effervescent tablet reaction

Correlation to Louisiana Physical Science and Inquiry Benchmarks
Foundations of Physical Science Student Text and Investigation Manual

Standard #: Area/Grade Le	Standard	Topic	Benchmark	student text pg	detail	investigation pg	detail
PS-H-D6 Physical Science/ 9-12	Students will develop understanding of the characteristics and relationships of matter and energy	Chemical reactions	comparing and contrasting the energy changes that accompany changes in matter	381 382	exothermic reactions and MREs endothermic reactions and cold packs	158	investigate energy changes in chemical reactions
PS-H-D7 Physical Science/ 9-12	Students will develop understanding of the characteristics and relationships of matter and energy	Chemical reactions	identifying important chemical reactions that occur in living systems, the home, industry, and the environment	333 354 361 378 378 381 395 395 397 408 444 487 489	plastics chemical reactions and digestion chemical reactions in living systems consumer chemistry combustion reactions MRE ration heater reaction chemistry of the atmosphere chemistry of the atmosphere carbon reactions capsule coating chemical reactions and the formation of acid rain chemical reactions in living systems metabolism and stored energy	162	investigating combustion reactions

Correlation to Louisiana Physical Science and Inquiry Benchmarks
***Foundations of Physical Science* Student Text and Investigation Manual**

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PS-H-E1 Physical Science/ 9-12	Students will develop understanding of the characteristics and relationships of matter and energy	Forces and motion	recognizing the characteristics and relative strengths of the forces of nature (gravitational, electrical, magnetic, nuclear)	45	Newton's first law summarized	136	strong force
				48	Newton's first law in detail		
				106	electrical force is incredibly strong!		
				106	electrical forces		
				159	magnetism explained		
				163	understanding magnetic fields		
				389	forces in the nucleus		
				389	electromagnetic force		
				389	strong nuclear force		

Correlation to Louisiana Physical Science and Inquiry Benchmarks
Foundations of Physical Science Student Text and Investigation Manual

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PS-H-E2 Physical Science/ 9-12	Students will develop understanding of the characteristics and relationships of matter and energy	Forces and motion	understanding the relationship of displacement, time, rate of motion, and rate of change of motion; representing rate and changes of motion mathematically and graphically	14	how to calculate speed	9	collect data and calculate speed of car
				15	compare and contrast speed and velocity	10	calculate speed of the car
				20	find speed of bumblebee	12	calculate speed of moving car
				20	calculate speed of car	12	model the car's motion graphically
				24	accurate speed measurements	12	find speed of car at different positions
				29	position vs. time graph discussion	13	make a position vs. time graph
				30	position vs. time graphs	14	calculate acceleration of car on ramp
				32	average speed vs. instantaneous	14	acceleration is the rate at which speed changes
				33	understanding acceleration	14	calculate speed of car at two places on the ramp
				35	how to calculate acceleration	14	exploring acceleration on a ramp
				36	examples of acceleration	15	make a speed vs. time graph
				37	speed vs. time graphs	15	changes in motion can be represented graphically
				37	speed vs. time graph discussion	17	explore 2nd law and acceleration
				41	find acceleration of car	17	calculate speed of car
				42	calculate speed from distance/time graph	36	find speed of marble
				49	link between force and acceleration		
				53	acceleration due to gravity		

Correlation to Louisiana Physical Science and Inquiry Benchmarks
Foundations of Physical Science Student Text and Investigation Manual

Standard #: Area/Grade Le	Standard	Topic	Benchmark	student text pg	detail	investigation pg	detail
PS-H-E3 Physical Science/ 9-12	Students will develop understanding of the characteristics and relationships of matter and energy	Forces and motion	understanding effects of forces on changes in motion as explained by Newtonian mechanics		Newton's third law summarized	14	exploring acceleration on a ramp
				45	Newton's first law summarized	16	2nd law
				45	Newton's second law summarized	16	unbalanced forces and acceleration of car
				46	force has potential to change motion	16	thinking about force
				48	Newton's laws explained and applied	19	discover 2nd law of motion
				48	Newton's first law in detail	19	find correct relationship between force mass and acceleration
				49	force is related to acceleration	20	investigate effect of gravity on motion
				49	Newton's second law in detail	20	force and motion with car and ramp
				50	Newton's second law applied	21	effect of friction on the car
				51	net force explained	22	car and ramp and Newton's 3rd law
				51	balanced and unbalanced forces	23	using 3rd law to explain common phenomena
				52	the effect of gravity	24	measure force in newtons
				56	friction explained		
				59	Newton's third law in detail		
				60	law of conservation of momentum		
64	solving problems using $f=ma$						

Correlation to Louisiana Physical Science and Inquiry Benchmarks
Foundations of Physical Science Student Text and Investigation Manual

Standard #: Area/Grade Le	Standard	Topic	Benchmark	student text pg	detail	investigation pg	detail
				64	research effect of friction on human joints		
				69	newtons and pounds		
PS-H-E4 Physical Science/ 9-12	Students will develop understanding of the characteristics and relationships of matter and energy	Forces and motion	illustrating how frame of reference affects our ability to judge motion	13	speed is relative		
				18	what is the speed of an object that is standing still?		
				25	conceptual models of motion		

Correlation to Louisiana Physical Science and Inquiry Benchmarks
Foundations of Physical Science Student Text and Investigation Manual

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PS-H-F1 Physical Science/ 9-12	Students will develop understanding of the characteristics and relationships of matter and energy	Energy	describing and representing relationships among energy, work, power, and efficiency	67	how simple machines manipulate forces	27	changing force and distance on a lever
				68	compound machines	29	design and construct complex gear machines
				70	mechanical advantage of block and tackle	30	exploring force and distance with ropes and pulleys
				71	the human body and simple machines	31	calculate work done on block
				71	pliers as an example of a lever	31	work output vs. work input
				71	parts of a lever	31	work = force X distance
				72	mechanical advantage of a lever	185	find efficiency of water heater
				75	how gears work		
				78	design a toothbrush		
				79	analyze pulleys with different numbers of supporting strings		
				79	analyze block and tackle		
				80	analyzing the jaw as a lever		
				80	analyze wheelbarrow		
				80	analyze block and tackle machine on a sailboat		
				83	how to calculate work		
				84	work input and output		
				85	efficiency explained		
				85	efficiency and bicycles		

Correlation to Louisiana Physical Science and Inquiry Benchmarks
***Foundations of Physical Science* Student Text and Investigation Manual**

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				86	power explained		
				86	how to calculate power		
				87	concept of energy as stored work		
				96	decide whether or not work is done		
				96	calculate work done		
				97	calculate work accomplished by a motor		
				97	calculate power		
				97	calculate power of two different machines		
				97	analyze power of motor		
				97	find the efficiency of a machine		
				97	compare different amounts of work done		
				97	calculate work output from efficiency data		
				138	how to calculate electrical power		
				488	work vs. calories used by the body		
				488	work vs. calories used by the body		
				491	work and mechanical systems		

Correlation to Louisiana Physical Science and Inquiry Benchmarks
Foundations of Physical Science Student Text and Investigation Manual

Standard #: Area/Grade Le	Standard	Topic	Benchmark	student text pg	detail	investigation pg	detail
PS-H-F2 Physical Science/ 9-12	Students will develop understanding of the characteristics and relationships of matter and energy	Energy	applying the universal law of conservation of matter, energy, and momentum, and recognizing their implications	60	law of conservation of momentum	36	energy conservation and the roller coaster
				88	potential and kinetic energy explained	37	investigating conservation of energy with rollercoaster
				90	conservation of energy explained	38	identify potential/kinetic energy conversions
				91	following an energy transformation	38	explore energy transformations
				91	understand basic forms of energy	38	conservation of energy and energy transformations
				91	energy conversions		
				92	energy transformations and conservation	39	identify type of energy involved
				93	different forms of energy described	188	specific heat and conservation of energy
				96	prove that energy is conserved		
PS-H-G1 Physical Science/ 9-12	Students will develop understanding of the characteristics and relationships of matter and energy	Interactions of energy and matter	giving examples of the transport of energy through wave action	195	waves transmit energy		
				474	energy and radiation relationships		

Correlation to Louisiana Physical Science and Inquiry Benchmarks
Foundations of Physical Science Student Text and Investigation Manual

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PS-H-G2 Physical Science/ 9-12	Students will develop understanding of the characteristics and relationships of matter and energy	Interactions of energy and matter	analyzing the relationship and interaction of magnetic ad electrical fields and the forces they produce	164 166 166 168 170 171	what is an electromagnet? building an electromagnet increased current vs. strength of magnetic field how electric motors work dissecting an electric motor electromagnetic induction explained	66 67 68 73 73	build an electromagnet find out what happens to strength of electromagnet when current is increased investigate how an electric motor works use magnetic induction to create an electric field exploring electric generators

Correlation to Louisiana Physical Science and Inquiry Benchmarks
Foundations of Physical Science Student Text and Investigation Manual

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PS-H-G3 Physical Science/ 9-12	Students will develop understanding of the characteristics and relationships of matter and energy	Interactions of energy and matter	characterizing and differentiating electromagnetic and mechanical waves and their effects on objects as well as humans	196	waves are all around us	82	study wave pulses on elastic cord
				197	transverse and longitudinal waves	83	find speed of a wave
				198	frequency and wavelength and amplitude	83	measure speed of a wave pulse
				204	resonance explained	84	make different types of waves in a ripple tank
				205	standing waves on a string	86	adjust frequency of a standing wave
				206	constructive and destructive interference	86	investigate frequency and wavelength
				210	natural frequency of a building and earthquakes	87	investigating resonance
				210	can wave interference sink a ship?	88	natural frequency and resonance of standing waves on a string
				215	properties of sound waves	90	investigate human perception of sound
				219	frequency of sound and pitch	90	what is sound and how do we hear it?
				220	voice recognition programs	94	does sound behave like other waves?
				220	sonograms	95	investigate interference with sound waves
				220	white noise	96	investigating sound resonance
				221	importance of wavelength of sound waves	98	investigate sound and music
				222	effect of medium on speed of sound wave	101	examine light through diffraction grating
				222	effect of temperature on speed of sound wave		

Correlation to Louisiana Physical Science and Inquiry Benchmarks
***Foundations of Physical Science* Student Text and Investigation Manual**

Standard #: Area/Grade Le	Standard	Topic	Benchmark	student text pg	detail	investigation pg	detail
				223	interference of sound waves	134	investigating visible light with a spectrometer
				225	consonance and dissonance and beats		
				226	musical instruments		
				237	radio and television signals		
				237	visible light and the electromagnetic spectrum		
				237	light waves and the electromagnetic spectrum		
				237	microwave ovens		
				242	properties of light waves		
				245	we see color in terms of reflected light		
				250	identify uses of electromagnetic waves		
				264	human eye as an optical instrument		
				270	what is a laser?		
				272	identify uses of electromagnetic waves		
				474	electromagnetic radiation		

Correlation to Louisiana Physical Science and Inquiry Benchmarks
***Foundations of Physical Science* Student Text and Investigation Manual**

Standard #: Area/Grade Le	Standard	Topic	Benchmark	student text pg	detail	investigation pg	detail
PS-H-G4 Physical Science/ 9-12	Students will develop understanding of the characteristics and relationships of matter and energy	Interactions of energy and matter	explaining the possible hazards of exposure to various forms and amounts of energy	388 393 393 400	nuclear vs chemical reactions carbon dating radioisotopes in science and medicine research pros and cons of nuclear technology	138 160 161	nuclear reactions how do you simulate nuclear decay? research pros and cons of uses for radioactive elements
SI-H-A1 Inquiry/ 9-12	The students will do science by engaging impartial and full inquiries	The abilities necessary to do scientific inquiry	identifying questions and concepts that guide scientific investigations	10	the research question and hypothesis	6	how do we ask questions and get answers from nature?

Correlation to Louisiana Physical Science and Inquiry Benchmarks
Foundations of Physical Science Student Text and Investigation Manual

Standard #: Area/Grade Le	Standard	Topic	Benchmark	student text pg	detail	investigation pg	detail
SI-H-A2 Inquiry/ 9-12	The students will do science by engaging impartial and full inquiries	The abilities necessary to do scientific inquiry	designing and conducting scientific investigations	7	experimentation begins with a question	6	formulate hypothesis
				9	steps in the scientific method	7	perform your own experiment
				10	forming a hypothesis	7	design your own experiment
				11	control and experimental variables	7	compare results with hypothesis
				19	design your own experiment	7	doing a controlled experiment
				19	design your own experiment	9	design three experiments using car and ramp
				26	independent and dependent variables	9	devise a hypothesis
				42	devise an experiment	10	conduct car/ramp experiment
						16	decide how to vary the force on the car for this experiment
						16	investigate Newton's 2nd law
						21	choose independent and dependent variables for graph
						26	what variables can be changed?
						27	recognize variables
						34	investigate motion on a rollercoaster
						34	formulate hypothesis

Correlation to Louisiana Physical Science and Inquiry Benchmarks
Foundations of Physical Science Student Text and Investigation Manual

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						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
						151	design experiment to find out if mass is conserved
						166	devise hypothesis and explain
						166	which factor will produce fastest dissolving rate?
						166	what three factors influence dissolving rate?
						166	which method will give fastest dissolving rate?
						178	formulate hypothesis
						198	which type of food contains the most energy?
						198	formulate hypothesis

Correlation to Louisiana Physical Science and Inquiry Benchmarks
Foundations of Physical Science Student Text and Investigation Manual

Standard #: Area/Grade Le	Standard	Topic	Benchmark	student text pg	detail	investigation pg	detail
SI-H-A3 Inquiry/ 9-12	The students will do science by engaging impartial and full inquiries	The abilities necessary to do scientific inquiry	using technology and mathematics to improve investigations and communications	18	perform dimensional analysis calculations		data tables and graphs can be created on computer or graphing calculator
				24	using an electronic timer		
				24	making a graph	6	compare results with other groups
				26	drawing a best fit curve		
				26	creating graphs	11	calculate % error
				41	make a graph	11	analyze speed change of car
				42	analyze a speed/distance graph	11	graph speed vs. position
						11	draw best fit curve
						12	using photogates
						13	graph distance vs. time
						13	draw best fit curve
						14	using photogates
						15	construct a quantitative graphical model
						17	use photogates to study car on ramp
						18	study data table for relationship between force and motion
						25	analyze block and tackle data
						27	analyze lever equilibrium data
						35	does data support hypothesis?

Correlation to Louisiana Physical Science and Inquiry Benchmarks
***Foundations of Physical Science* Student Text and Investigation Manual**

Standard #: Area/Grade Le	Standard	Topic	Benchmark	student text pg	detail	investigation pg	detail
						37	organize data into a graph of speed vs. height
						44	using electrical meter
						45	did battery voltage change?
						46	using electrical meter
						48	using electrical meter
						50	using electrical meter
						51	graph voltage vs. current
						76	analyze pendulum data
						76	calculate % error
						121	graph mass vs. volume
						129	find average velocity
						147	organize observations into a category table
						147	students analyze chemical change lab results
						151	does your experiment agree with law of conservation of mass?
						167	average dissolving rate
						181	construct a graphical model
						183	construct a temperature vs. time graph

Correlation to Louisiana Physical Science and Inquiry Benchmarks
Foundations of Physical Science Student Text and Investigation Manual

Standard #: Area/Grade Le	Standard	Topic	Benchmark	student text pg	detail	investigation pg	detail
SI-H-A4 Inquiry/ 9-12	The students will do science by engaging impartial and full inquiries	The abilities necessary to do scientific inquiry	formulating and revising scientific explanations and models using logic and evidence	24	interpretations of patterns in data	6	predict which car will move fastest
				27	reading a graph	7	test the effect of one other variable
				28	identifying cause and effect relationships	15	interpret a speed vs. time graph
				41	identify cause and effect	21	determine effect of increasing mass
				42	interpreting distance/time graph	21	construct reasonable explanation based on data
				78	analyze lever diagram	25	create a mathematical model
						27	think about the variables
						27	find math rule for lever equilibrium
						28	derive a math formula
						34	where does the marble move the fastest?
						35	study data and determine importance of height on speed of marble
						43	how did A and B tapes acquire different charge?
						45	analyze data and explain a rule
						75	investigate variables that affect the period of a pendulum

Correlation to Louisiana Physical Science and Inquiry Benchmarks
***Foundations of Physical Science* Student Text and Investigation Manual**

Standard #: Area/Grade Le	Standard	Topic	Benchmark	student text pg	detail	investigation pg	detail
						151 perform the experiment you designed 151 explain how hypothesis compares to results 157 add new rules to list based on findings	
SI-H-A5 Inquiry/ 9-12	The students will do science by engaging impartial and full inquiries	The abilities necessary to do scientific inquiry	recognizing and analyzing alternative explanations and models			39 critique group's explanation of energy transformations 39 review energy theory in context of everyday scenarios 39 analyze energy transformations in different scenarios 77 show how energy loss data could be applied to designing a real clock 77 compare law of conservation of energy to motion of pendulum 151 do the data support the hypothesis 151 does your experiment agree with law of conservation of mass? 167 what was happening at molecular level?	

Correlation to Louisiana Physical Science and Inquiry Benchmarks
***Foundations of Physical Science* Student Text and Investigation Manual**

Standard #: Area/Grade Le	Standard	Topic	Benchmark	student text pg	detail	investigation pg	detail
SI-H-A6 Inquiry/ 9-12	The students will do science by engaging impartial and full inquiries	The abilities necessary to do scientific inquiry	communicating and defending a scientific argument	20	explain your reasoning	9	present conclusions to the class
						9	reporting on an experiment
						37	describe the flow of energy based on experimental graph
						39	give a brief presentation to the class
						47	present and defend an explanation
						145	present findings and methods used
						145	present findings to the class
						151	present results to the class
						173	write praragraph to explain results
						175	create water quality report
						179	write summary of findings

Correlation to Louisiana Physical Science and Inquiry Benchmarks
Foundations of Physical Science Student Text and Investigation Manual

Standard #: Area/Grade Le	Standard	Topic	Benchmark	student text pg	detail	investigation pg	detail
SI-H-A7 Inquiry/ 9-12	The students will do science by engaging impartial and full inquiries	The abilities necessary to do scientific inquiry	utilizing scientific safety procedures during scientific investigations	500 501	safety rules described safety quiz	20 24 26 40 44 56 58 146 150 158 164 168 172 180 182 186 192 198 200	safety tip for car/ramp setup ropes and pulley safety safety tip for hanging weights from lever electrical safety short circuit safety warning short circuit safety warning short circuit safety warning safety in the lab chemistry safety wear goggles and apron safety equipment hot water safety safety tip for water testing thermometer safety heat safety thermometer safety heat safety heat safety safely using rubber bands

Correlation to Louisiana Physical Science and Inquiry Benchmarks
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Standard #: Area/Grade Le	Standard	Topic	Benchmark	student text pg	detail	investigation pg	detail
SI-H-B1 Inquiry/ 9-12	The students will do science by engaging impartial and full inquiries	Understanding scientific inquiry	communicating that scientists usually base their investigations on existing models, explanation, and theories	10 23 24 24	process of reviewing hypothesis explained why make models? what is a scientific model? scientific models	35 39 39 39 77 77 151 151 167 167	what evidence is there in support of your hypothesis? critique group's explanation of energy transformations review energy theory in context of everyday scenarios analyze energy transformations in different scenarios show how energy loss data could be applied to designing a real clock compare law of conservation of energy to motion of pendulum review your hypothesis do the data support the hypothesis did you prove or disprove your hypothesis? what was happening at molecular level?

Correlation to Louisiana Physical Science and Inquiry Benchmarks
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Standard #: Area/Grade Le	Standard	Topic	Benchmark	student text pg	detail	investigation pg	detail
SI-H-B2 Inquiry/ 9-12	The students will do science by engaging impartial and full inquiries	Understanding scientific inquiry	communicating that scientists conduct investigations for many reasons, such as exploration of new areas, discovery of new aspects of the new world, confirmation of prior investigations, evaluation of current theories, and comparison of models and theories	58 78 120 320 391	Newton on a skateboard describe a problem that would be solved by an engineer circuits in your house the quests of alchemists scientific discovery and the atomic age	39	study energy transformations in daily life scenarios
SI-H-B3 Inquiry/ 9-12	The students will do science by engaging impartial and full inquiries	Understanding scientific inquiry	communicating that scientists rely on technology to enhance the gathering and manipulation of data	73	relationship between science and technology	70	using engineering design cycle

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Standard #: Area/Grade Le	Standard	Topic	Benchmark	student text pg	detail	investigation pg	detail
SI-H-B4 Inquiry/ 9-12	The students will do science by engaging impartial and full inquiries	Understanding scientific inquiry	analyzing a proposed explanation of scientific evidence according to the following criteria: following a logical structure, following rules of evidence, allowing for questions and modifications, and basing it on historical and current scientific knowledge	34 73 73 110 142 395 434	Newton's research impacted mathematics impact of technology impact of Da Vinci's work study appliance labels and instructions create pamphlet on utility's energy saver programs impact of industrial revolution study claims made by bottled water companies	76 162 163 173	analyze watch manufacturer's claims inferences from promotional materials for vehicles evaluating choice of favorite car study water filtration device claims
SI-H-B5 Inquiry/ 9-12	The students will do science by engaging impartial and full inquiries	Understanding scientific inquiry	communicating that the results of scientific inquiry, new knowledge, and methods emerge from different types of investigations and public communication among scientists	73 395	impact of Da Vinci's work impact of industrial revolution		