

Correlation to Illinois Learning Standards for Science

CPO Science Foundations of Physics, 2nd Ed.

Student Text and Investigation Manual

Standard #: Area	State Goal	Learning Standard	Learning Expectation	Volume One Student Text Page	Volume Two Investigation Manual Page		
11.A.4a Scientific Inquiry	Understand the processes of scientific inquiry and technological design to investigate questions, conduct experiments and solve problems.	Know and apply the concepts, principles and processes of scientific inquiry.	Formulate hypotheses referencing prior research and knowledge.	17	hypotheses and the importance of experiments	18	what do the results tell you?
				25	the usefulness of phlogiston theory despite being incorrect	50	what would happen if...?
				93	parachutes and air resistance	57	formulate a hypothesis
				328	explain why hearing can be damaged by loud sounds	77	form a hypothesis
						91	write a hypothesis
						92	explain your observations
						100	explain how force applied causes the response
						103	explain why higher tension makes waves move faster
105	explain how wind might cause big waves in water						
124	explain how the colored filters work						
153	what conclusions can you draw?						
154	analyze data and explain a rule						

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Standard #: Area	State Goal	Learning Standard	Learning Expectation	Volume One Student Text Page	Volume Two Investigation Manual Page		
11.A.4b Scientific Inquiry	Understand the processes of scientific inquiry and technological design to investigate questions, conduct experiments and solve problems.	Know and apply the concepts, principles and processes of scientific inquiry.	Conduct controlled experiments or simulations to test hypotheses.	49	control and experimental variables	29	set up the ultimate pulley
				50	dependent and independent variables in graphs	50	perform experiment
				264	finding a basic cycle of harmonic motion	77	investigate motion on a roller coaster
				273	changing the natural frequency of a stretched rubber band	80	set up the straight track
				454	making a simple capacitor	80	investigate motion on a roller coaster
				478	an experiment with a wire and compass	94	dependent and independent variables
				485	building an electromagnet with wire and a nail	94	determine which variable has the greatest effect
				489	experiment demonstrating electromagnetic induction	97	select appropriate technology to make measurements
						97	design and test a way to increase natural frequency
			150	choose circuit parts to light a bulb			
				194	variables that affect the performance of the generator		

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11.A.4c Scientific Inquiry	Understand the processes of scientific inquiry and technological design to investigate questions, conduct experiments and solve problems.	Know and apply the concepts, principles and processes of scientific inquiry.	Collect, organize and analyze data accurately and precisely.	50	constructing a graph	11	collecting data with precision
				50	graphs are a way of representing data	18	create a graph
				51	graphical models	18	describe the graph
				52	recognizing patterns using graphs	28	record position and time data
				164	finding x and y components of velocity for model rocket	41	make a graph
				268	understanding graphs of harmonic motion	42	make a graph
				312	the process of digital sound reproduction	50	sketch four graphs
				326	comparison of wave forms from guitar sounds	65	create a graph
				329	decibel level vs. frequency graph for human hearing	74	as mechanical advantage increases what happens to length of pulled string?
				433	the waveform of AC electricity	78	create a graph of speed vs. position
				449	diagramming electric fields using field lines	78	what does the graph tell you?
				465	diagramming magnetic fields using magnetic field lines	78	record data in table
				501	current vs.voltage graph for a transistor	83	record data in table
						94	make three different graphs
						94	create data table for self-designed experiment
		94	analyze data				
		94	record your data in table				
		100	sketch a graph				

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					154 did battery voltage change? 157 graph voltage vs. current 158 graph voltage vs. current 178 make a graph of voltage vs. time 187 create a graph 195 make a graph of voltage vs. number of magnets 198 make a current vs. voltage graph for the diode
11.A.4d Scientific Inquiry	Understand the processes of scientific inquiry and technological design to investigate questions, conduct experiments and solve problems.	Know and apply the concepts, principles and processes of scientific inquiry.	Apply statistical methods to the data to reach and support conclusions.	65 slope of a position vs. time graph 85 acceleration and slope of a speed vs. time graph 282 analyze graph of an oscillator 434 average voltage and current of AC power	18 find the slope of the line 26 find the average time 41 calculate percent difference 42 calculate percent difference 50 calculate percent difference 80 calculate average of three times 84 calculate average work and power 95 calculate percent error

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11.A.4e Scientific Inquiry	Understand the processes of scientific inquiry and technological design to investigate questions, conduct experiments and solve problems.	Know and apply the concepts, principles and processes of scientific inquiry.	Formulate alternative hypotheses to explain unexpected results.	210 perpetual motion machines	59 does your experiment provide confirmation? 78 does this agree with your hypothesis?
11.A.4f Scientific Inquiry	Understand the processes of scientific inquiry and technological design to investigate questions, conduct experiments and solve problems.	Know and apply the concepts, principles and processes of scientific inquiry.	Using available technology, report, display and defend to an audience conclusions drawn from investigations.	49 writing procedures in a lab notebook helps make sure your results are repeatable	142 communicate your findings 142 present your findings 205 display information you found for your element
11.B.4a Technological Design	Understand the processes of scientific inquiry and technological design to investigate questions, conduct experiments and solve problems.	Know and apply the concepts, principles and processes of technological design.	Identify a technological design problem inherent in a commonly used product.	135 conceptual design for a bridge 135 the engineering design cycle 565 failure analysis in the design process	191 propose solutions that will work for each disk 191 apply steps of the design cycle to building different electric motors 203 designing and building logic circuits

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11.B.4b Technological Design	Understand the processes of scientific inquiry and technological design to investigate questions, conduct experiments and solve problems.	Know and apply the concepts, principles and processes of technological design.	Propose and compare different solution designs to the design problem based upon given constraints including available tools, materials and time.	135 build and test a prototype structure out of toothpicks	95 design and construct a pendulum 97 create a system that oscillates 191 design and test different electric motors 225 build an air-speed tester

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11.B.4c Technological Design	Understand the processes of scientific inquiry and technological design to investigate questions, conduct experiments and solve problems.	Know and apply the concepts, principles and processes of technological design.	Develop working visualizations of the proposed solution designs (e.g., blueprints, schematics, flowcharts, cad-cam, animations).	49	writing procedures in a lab notebook helps make sure your results are repeatable	18	create a graph
						18	describe the graph
						29	interpret setup diagram
						41	make a graph
						42	make a graph
						50	sketch four graphs
						65	create a graph
						78	create a graph of speed vs. position
						94	make three different graphs
						97	draw a sketch of your system
						100	sketch a graph
						105	sketch the wave fronts
						142	communicate your findings
						157	graph voltage vs. current
						158	graph voltage vs. current
		178	make a graph of voltage vs. time				
		187	create a graph				
		195	make a graph of voltage vs. number of magnets				

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					198 make a current vs. voltage graph for the diode
11.B.4d Technological Design	Understand the processes of scientific inquiry and technological design to investigate questions, conduct experiments and solve problems.	Know and apply the concepts, principles and processes of technological design.	Determine the criteria upon which the designs will be judged, identify advantages and disadvantages of the designs and select the most promising design.	135 test and evaluate the prototype structure design 135 build and test a prototype structure out of toothpicks 135 conceptual design for a bridge 135 the engineering design cycle 411 electrical devices are designed to operate at a certain voltage 565 evaluate three designs for a bridge 565 failure analysis in the design process	95 design and construct a pendulum 97 create a system that oscillates 190 evaluate the performance of motor designs 191 design and test different electric motors 191 propose solutions that will work for each disk 191 apply steps of the design cycle to building different electric motors 195 suggest improvements you could make to the generator design 203 designing and building logic circuits 225 build an air-speed tester

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11.B.4e Technological Design	Understand the processes of scientific inquiry and technological design to investigate questions, conduct experiments and solve problems.	Know and apply the concepts, principles and processes of technological design.	Develop and test a prototype or simulation of the solution design using available materials, instruments and technology	135	conceptual design for a bridge 191 propose solutions that will work for each disk
11.B.4f Technological Design	Understand the processes of scientific inquiry and technological design to investigate questions, conduct experiments and solve problems.	Know and apply the concepts, principles and processes of technological design.	Evaluate the test results based on established criteria, note sources of error and recommend improvements.	135 135 135 135 411 565 565	test and evaluate the prototype structure design build and test a prototype structure out of toothpicks conceptual design for a bridge the engineering design cycle electrical devices are designed to operate at a certain voltage evaluate three designs for a bridge failure analysis in the design process 95 design and construct a pendulum 97 create a system that oscillates 190 evaluate the performance of motor designs 191 design and test different electric motors 191 propose solutions that will work for each disk 191 apply steps of the design cycle to building different electric motors 195 suggest improvements you could make to the generator design 203 designing and building logic circuits 225 build an air-speed tester

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11.B.4g Technological Design	Understand the processes of scientific inquiry and technological design to investigate questions, conduct experiments and solve problems.	Know and apply the concepts, principles and processes of technological design.	Using available technology, report to an audience the relative success of the design based on the test results and criteria.	49 writing procedures in a lab notebook helps make sure your results are repeatable	142 communicate your findings 142 present your findings 205 display information you found for your element

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12.C.5a Physics	Understand the fundamental concepts, principles and interconnections of the life, physical and earth/space sciences.	Know and apply concepts that describe properties of matter and energy and the interactions between them.	Analyze reactions (e.g., nuclear reactions, burning of fuel, decomposition of waste) in natural and man-made energy systems.	211	energy appears in different forms	167 the cost of using electrical appliances
				212	different forms of energy	
				218	hydroelectric power system	
				218	environmental impacts of hydroelectric power	
				219	efficiency of the Hoover Dam	
				221	trace the energy transformations from sun to a flashing taillight	
				226	efficiency of Earth	
				227	calories in food	
				232	energy from the sun drives the weather on Earth	
				234	understand basic forms of energy	
				237	energy flows in biological systems	
				239	advantages of tidal energy	
				239	extracting tidal power	
				332	light is a form of energy	
				344	photons are bundles of light energy	
400	electrical energy					

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				406	
				batteries use chemical energy	
				492	
				energy for generators	
				524	
				elements past #92 are radioactive and decay	
				574	
				explanation of pressure and energy	
				592	
				use of radioactive isotopes in medicine	
				592	
				radioactive isotopes	
				595	
				fusion	
				595	
				nuclear reactions	
				601	
				structure of water molecule	
				614	
				radioactive decay	
				616	
				energy and radioactivity	
				618	
				power released by radioactive decay	
				619	
				radiation as a flow of energy	
				622	
				x-ray machines	
				622	
				energy of x-rays	
				623	
				CAT scans	
				625	
				nuclear reactions	
				625	
				energy changes in nuclear reactions	

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				626	
					source of energy in nuclear reactions
				627	
					fusion reactions and the sun
				627	
					energy of fusion reactions
				627	
					fusion reactions
				628	
					energy of fission reactions
				628	
					fission reactions
				631	
					nuclear power application
				631	
					nuclear power application
				632	
					nuclear energy
				632	
					nuclear energy
				632	
					nuclear energy
				634	
					comparison of fission and fusion
				635	
					differences between fission and fusion
				647	
					energy from antimatter

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12.C.5b Physics	Understand the fundamental concepts, principles and interconnections of the life, physical and earth/space sciences.	Know and apply concepts that describe properties of matter and energy and the interactions between them.	Analyze the properties of materials (e.g., mass, boiling point, melting point, hardness) in relation to their physical and/or chemical structures.	48	size and mass and shape are variables that affect motion	205	find the melting and boiling point
				525	molecules and properties of matter	205	find the density
				531	changing from solid to liquid		
				532	changing from liquid to gas		
				537	specific heat is a property of materials		
				562	densities of common materials		
				562	density is independent of amount of substance		
				562	definition of density and density formula		
				563	strength of materials depends on form and material		
				564	tensile strength is a physical property of matter		
564	breaking strength of materials under stress						
566	brittleness and elasticity are physical properties of matter						

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				567	
					coefficient of thermal expansion is a property of matter
				569	
					density of ice vs. liquid water
				569	
					relationship between mass and volume and density
				569	
					buoyancy explained
				577	
					viscosity is a physical property of matter
				578	
					density of gases can change
				578	
					buoyancy of gases
				581	
					gas constant is a property of a gas
				583	
					buoyancy of Alvin
				585	
					density is independent of size of material

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12.D.5a Physics	Understand the fundamental concepts, principles and interconnections of the life, physical and earth/space sciences.	Know and apply concepts that describe force and motion and the principles that explain them.	Analyze factors that influence the relative motion of an object (e.g., friction, wind shear, cross currents, potential differences.	48	effect of friction on motion of a ball on a ramp	25	investigate the effect of gravity
				83	any acceleration must come from a force	27	collect data on Newton's first law
				90	free fall and acceleration due to gravity	27	study Newton's first law
				91	motion formulas for free fall	28	were any forces acting on the car?
				92	solving problems with free fall	28	explain how Newton's first law applies
				93	acceleration of gravity does not depend on mass	29	investigate Newton's second law
				93	air resistance and terminal speed	32	investigate Newton's third law
				94	friction and traction and antilock brakes	34	draw free body diagrams and identify action-reaction pairs
				100	changes in motion only occur through force	37	investigate sliding friction
				100	force is an action that can change motion	47	analyze the motion of a marble in 2 dimensions
				101	all objects tend to resist changes in motion	49	investigate the range of a projectile
				103	force is related to acceleration	50	create and test a model to predict the landing spot of a projectile
				103	Newton's second law of motion	58	consider forces acting on the car
				105	calculation using Newton's second law	71	what effect does friction have on mechanical advantage?

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				106	
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				120	
				121	
				122	

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				122	
				the force of friction and the different types of friction	
				123	
				a model for friction	
				124	
				the normal force as the reaction in an action-reaction pair	
				124	
				calculating the force of friction	
				125	
				friction and motion	
				126	
				reducing friction force	
				127	
				friction applications	
				128	
				Newton's second law and net force	
				129	
				forces on a free-body diagram	
				130	
				equilibrium and Newton's second law	
				130	
				use equilibrium to find an unknown force	
				133	
				understanding reaction forces in terms of springs and deformation	
				134	
				analysis of forces on a bridge	
				137	
				friction of a pulled sled	
				138	
				calculate the acceleration of a toy	

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				146	
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				159	
					the vector form of Newton's second law
				163	
					effects of gravity on motion of a projectile
				164	
					effects of friction on acceleration
				170	
					direction of force determines linear or rotational motion
				170	
					centripetal force causes circular motion
				171	
					calculating centripetal force
				172	
					formula for centripetal acceleration
				174	
					law of universal gravitation and orbital motion
				176	
					orbits and gravitational force
				177	
					centripetal force and the law of universal gravitation combine to form the orbit equation
				180	
					compare projectile motion to orbital motion
				187	
					the motion of a tossed object
				188	
					centers of mass and gravity may differ

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				190	Newton's first law and rotational inertia
				191	Newton's second law applies to rotational motion
				193	Newton's second law for rotational motion variables
				205	friction and mechanical advantage of wheel and axle
				206	friction and mechanical advantage of ramps and screws
				209	work done against gravity
				213	potential energy comes from gravity
				244	Newton's first law and momentum
				246	momentum and Newton's third law
				250	Newton's second law relating force and momentum
				251	momentum form of Newton's second law
				267	friction causes damping in oscillators
				274	Newton's second law and natural frequency

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				276	
				278	
				447	
				570	
				572	
				579	

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12.D.5b Physics	Understand the fundamental concepts, principles and interconnections of the life, physical and earth/space sciences.	Know and apply concepts that describe force and motion and the principles that explain them.	Analyze the effects of gravitational, electromagnetic, and nuclear forces on a physical system.	90	free fall and acceleration due to gravity	25	investigate the effect of gravity
				91	motion formulas for free fall	47	analyze the motion of a marble in 2 dimensions
				92	solving problems with free fall	49	investigate the range of a projectile
				93	acceleration of gravity does not depend on mass	50	create and test a model to predict the landing spot of a projectile
				119	strength of gravity on Earth and Jupiter	60	calculate gravitational force of attraction
				120	gravity and acceleration and weightlessness	60	investigate law of universal gravitation
				146	projectiles and trajectories	142	study properties of the electromagnetic spectrum
				150	gravity only accelerates vertical motion	142	research medical and industrial uses of electromagnetic waves
				151	vertical motion of a projectile		
				152	projectiles launched at an angle		
				153	range of projectiles		
				156	resolving force of gravity in ramp coordinates		
				157	acceleration down an inclined plane		
				163	effects of gravity on motion of a projectile		

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				174	
					law of universal gravitation and orbital motion
				174	
					description of law of universal gravitation
				175	
					formula and calculations for law of universal gravitation
				176	
					orbits and gravitational force
				176	
					orbital motion
				176	
					satellites and orbital motion
				177	
					satellite motion application
				177	
					centripetal force and the law of universal gravitation combine to form the orbit equation
				178	
					HEO and geostationary orbit
				180	
					calculate weight and acceleration due to gravity on Pluto
				180	
					compare projectile motion to orbital motion
				187	
					the motion of a tossed object
				188	
					centers of mass and gravity may differ

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				209	
				work done against gravity	
				213	
				potential energy comes from gravity	
				238	
				tides are due to force of gravity	
				265	
				orbit is a type of cycle	
				284	
				waves are all around us	
				299	
				standing waves are used to store energy	
				333	
				fluorescent bulbs create UV light	
				342	
				the energy of IR and UV light	
				342	
				visible light has just the right energy for life	
				381	
				descriptions of radio waves and microwaves and infrared rays	
				381	
				description and examples of infrared waves	
				382	
				visible light waves	
				382	
				description and examples of ultraviolet waves	
				382	
				x-rays and gamma rays	
				441	
				differences between electric force and gravity	
				446	
				the strength of electric forces	

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				448	
				gravity is far weaker than electric forces	
				450	
				comparison between electric fields and gravitational fields	
				474	
				MRI uses radio waves	
				524	
				elements past #92 are radioactive and decay	
				553	
				thermal radiation and infrared light	
				590	
				forces in the atom	
				592	
				radioactive isotopes	
				595	
				fusion	
				595	
				nuclear reactions	
				614	
				radioactive decay	
				616	
				energy and radioactivity	
				624	
				UV light is ionizing radiation	
				625	
				nuclear reactions	
				625	
				energy changes in nuclear reactions	
				626	
				source of energy in nuclear reactions	
				626	
				strong force and electromagnetic force in the nucleus	
				627	
				energy of fusion reactions	

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				627 fusion reactions 628 energy of fission reactions 628 fission reactions 635 differences between fission and fusion 642 Newton's laws and gravity 649 four forces in nature	
13.A.4a Practices of Science	Understand the relationships among science, technology and society in historical and contemporary contexts.	Know and apply the accepted practices of science.	Estimate and suggest ways to reduce the degree of risk involved in science activities.	Lab safety symbols and instructions are found in the investigation manual on the page before TOC	91 safety note 150 safety precautions 152 safety precautions 176 safety note 186 safety note 187 electromagnet safety 218 safety tip 226 gas pressure safety note

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13.A.4b Practices of Science	Understand the relationships among science, technology and society in historical and contemporary contexts.	Know and apply the accepted practices of science.	Assess the validity of scientific data by analyzing the results, sample set, sample size, similar previous experimentation, possible misrepresentation of data presented and potential sources of error.	46	why accuracy and precision are important	24	compare calculation with graph estimate	
				49	controlling variables in experiments	24	how do you measured positions compare to model?	
				51	checking a graphical model's accuracy	50	discuss sources of error	
				51	using a graphical model to make a prediction and checking the model's accuracy	50	how does the measurement compare to your prediction?	
				125	evaluating perpetual motion claims	52	discuss sources of errors	
				319	frequency spectrum	110	reliability of a double-blind test	
						110	did the method give an accurate result?	
							132	are there differences between your prediction and measurement?

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13.A.4c Practices of Science	Understand the relationships among science, technology and society in historical and contemporary contexts.	Know and apply the accepted practices of science.	Describe how scientific knowledge, explanations and technological designs may change with new information over time (e.g., the understanding of DNA, the design of computers).	48	Galileo and Newton conducted experiments with balls on ramps	
				100	Newton's laws of motion	
				103	Newton's discovery of the connection between force and mass and acceleration	
				174	Sir Isaac Newton and law of universal gravitation	
				371	Galileo and telescopes	
				372	Newtonian reflecting telescope	
				404	Ben Franklin and current	
				442	Charles-Augustin de Coulomb	
				521	development of atomic theory	
				602	Newton and classical physics	
614	Marie Curie					
615	Henri Bequerel and beta rays					

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Standard #: Area	State Goal	Learning Standard	Learning Expectation	Volume One Student Text Page	Volume Two Investigation Manual Page		
13.A.4d Practices of Science	Understand the relationships among science, technology and society in historical and contemporary contexts.	Know and apply the accepted practices of science.	Explain how peer review helps to assure the accurate use of data and improves the scientific process.	17	the search for scientific knowledge	3	inquiry and optical illusions
				18	scientific theories and facts	5	scientific evidence and sound
				20	learning physics through inquiry	38	designing an experiment
				22	the nature of scientific knowledge	92	explain the physics of a diver's somersaults
				33	problems in the real world use both metric and English units	105	how does sound get through tiny cracks?
				74	strobe photography	146	explain how polarizing sunglasses work
				74	Dr. Harold Edgerton and strobe photography		
				95	antilock braking systems		
				102	applications of Newton's first law		
				112	examples of Newton's third law in the real world		
				126	reducing friction and hovercraft and maglev trains		
				127	friction is useful for brakes and tires		
				131	jack-in-the-box uses a spring		
				134	design of structures		
				140	examples of scalars		

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Standard #: Area	State Goal	Learning Standard	Learning Expectation	Volume One Student Text Page	Volume Two Investigation Manual Page
				152	
				kicked soccer ball acts as a projectile launched at an angle	
				153	
				hang time	
				155	
				example of gymnast for forces applied at an angle	
				160	
				robot navigation application	
				161	
				inertial navigation system	
				166	
				examples of objects moving in a circle	
				169	
				speedometers and odometers	
				171	
				centripetal force at the amusement park	
				177	
				first artificial human-made Earth satellite was Sputnik	
				177	
				satellite motion application	
				178	
				HEO and geostationary orbit	
				189	
				SUV rollovers and center of gravity	
				194	
				bicycle physics application	
				200	
				Great Pyramid of Giza and simple machines	
				249	
				accident reconstruction	
				254	
				angular momentum of skater spinning and diver	

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Standard #: Area	State Goal	Learning Standard	Learning Expectation	Volume One Student Text Page	Volume Two Investigation Manual Page
				256	
				gyroscopes and angular momentum	
				272	
				why airplanes have tails	
				279	
				Pierre and Jacques Curie and the piezoelectric effect	
				284	
				examples of waves	
				291	
				wave motion and equilibrium	
				312	
				stereo sound	
				312	
				technological breakthrough of sound recording	
				321	
				understanding human hearing	
				332	
				past theories of light	
				345	
				glow-in-the-dark plastic	
				347	
				history of printing	
				359	
				rainbows are an example of dispersion	
				369	
				the compound microscope	
				370	
				the usefulness of recorded images	
				371	
				the telescope	
				383	
				Young's double-slit experiment	

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				387	
				polarized sunglasses and LCD computer screens	
				390	
				Einstein's thinking revolutionized physics	
				412	
				breakdown voltage and lightning	
				420	
				holiday lights wired in series	
				423	
				why aren't birds electrocuted?	
				432	
				paying for electricity	
				435	
				wiring application	
				435	
				circuits in your house	
				440	
				charge of everyday objects	
				452	
				almost all electric appliances use capacitors	
				455	
				cameras use capacitors to supply energy for flash bulbs	
				469	
				discovering and using magnetism	
				470	
				how does a compass work?	
				480	
				where coils are used	
				484	
				electromagnet in a toaster	
				523	
				search for elements and alchemy	

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				549	
				582	
				583	
				597	
				621	
				625	
				641	
				644	
				645	

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Standard #: Area	State Goal	Learning Standard	Learning Expectation	Volume One Student Text Page	Volume Two Investigation Manual Page
13.B.4a Science, Technology, and Society	Understand the relationships among science, technology and society in historical and contemporary contexts.	Know and apply concepts that describe the interaction between science, technology and society.	Compare and contrast scientific inquiry and technological design as pure and applied sciences.	53	use of nanotechnology
				94	antilock brakes application
				134	designing a bridge
				160	use of robots
				177	geostationary satellites
				218	hydroelectric power application
				231	range of power for common devices
				238	energy from ocean tides
				239	research into tidal power
				250	seat belts and air bags
				257	jet engines application
				279	quartz crystals application
				315	uses of Doppler radar
				333	invention of electric light
				347	the printing press
				371	the telescope
				400	importance of electricity
				414	hybrid gas/electric cars application
435	wiring application				
473	MRI application				
512	why computers are useful				

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Standard #: Area	State Goal	Learning Standard	Learning Expectation	Volume One Student Text Page	Volume Two Investigation Manual Page
				556 623 631	energy-efficient building application creation of CAT scans nuclear power application
13.B.4b Science, Technology, and Society	Understand the relationships among science, technology and society in historical and contemporary contexts.	Know and apply concepts that describe the interaction between science, technology and society.	Analyze a particular occupation to identify decisions that may be influenced by a knowledge of science.	53 73 74 113 113 114 134 239 249 303 311 394 426 520 582 650	nanotechnology is a new area of science and engineering slow motion photography strobe photography biomechanical engineer careers in biomechanics biomechanist mechanical engineer engineering research police forensic scientists wave mathematician careers in acoustics artist and holography electrical engineers search for answers in physics and chemistry marine scientists and deepwater submersible scientists and the Large Hadron Collider

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Standard #: Area	State Goal	Learning Standard	Learning Expectation	Volume One Student Text Page	Volume Two Investigation Manual Page	
13.B.4c Science, Technology, and Society	Understand the relationships among science, technology and society in historical and contemporary contexts.	Know and apply concepts that describe the interaction between science, technology and society.	Analyze ways that resource management and technology can be used to accommodate population trends.	241	using energy efficient products	167 find power rating of appliances and estimate cost 243 research energy used per person
				414	hybrid cars combine advantages of gasoline fuel and electric power	
				414	environmental impact of auto pollution	
				556	energy-efficient building application	
				621	human technology contributes to radiation in environment	
				628	nuclear waste	
13.B.4d Science, Technology, and Society	Understand the relationships among science, technology and society in historical and contemporary contexts.	Know and apply concepts that describe the interaction between science, technology and society.	Analyze local examples of resource use, technology use or conservation programs; document findings; and make recommendations for improvements.	241	using energy efficient products	167 find power rating of appliances and estimate cost 243 research energy used per person
				414	hybrid cars combine advantages of gasoline fuel and electric power	
				556	energy-efficient building application	

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Standard #: Area	State Goal	Learning Standard	Learning Expectation	Volume One Student Text Page		Volume Two Investigation Manual Page	
13.B.4e Science, Technology, and Society	Understand the relationships among science, technology and society in historical and contemporary contexts.	Know and apply concepts that describe the interaction between science, technology and society.	Evaluate claims derived from purported scientific studies used in advertising and marketing strategies.	84	acceleration of cars	167	analyze electric appliance labels
				210	perpetual motion machines		
				314	sound in space		
				394	holograms and science fiction special effects		
				598	transporter beams		