Correlation to Washington Essential Academic Learning Requirements for Science, grades 7 - 10

Foundations of Physical Science Student Text and Investigation Manual

Standard #:	Component	level	GLE	student text	detail	investigation	detail
1.1.01.HS Systems: The student knows and applies scientific concepts and principles to understand the properties, structures and changes in physical, earth/space, and living systems.	Properties: Understand how properties are used to identify, describe, and categorize substances, materials, and objects; and how characteristics are used to categorize living things.	grade 10	Understand the atomic nature of matter, how it relates to physical and chemical properties, and serves as the basis for the structure and use of the Periodic Table.	311	location/size/charge of subatomic particles	132	atomic number determines what element that atom is
				311	protons/neutrons/electrons	132	building atom models
				315	atoms of same element have same atomic number	133	location of electrons in atom
				318	proton/electron attraction	133	protons and neutrons
				320	groups of elements	133	using the periodic table
				321	groups of elements and valence shells	136	model stable and neutral atoms
				321	studying the periodic table	136	building and studying the periodic table
				329	periodic table columns and valence electrons	137	importance of atomic number
				330	bonding and periodic table position	137	build atomic models
				332	periodic table and electronegativities	140	find the number of electrons in outermost level
				332	metals nonmetals and metalloids	140	review subatomic particles
				335	periodic table and oxidation numbers	141	build model of Na and Cl atoms and explain why they bond to form a molecule
				388	showing valence electrons in a diagram	142	arrangement of electrons and groups of elements

Correlation to Washington Essential Academic Learning Requirements for Science, grades 7 - 10

Foundations of Physical Science Student Text and Investigation Manual

Standard #:	Component	level	GLE	student text	detail	investigation	detail
1.1.01.MS Systems: The student knows and applies scientific concepts and principles to understand the properties, structures and changes in physical, earth/space, and living systems.	Properties: Understand how properties are used to identify, describe, and categorize substances, materials, and objects; and how characteristics are used to categorize living things.	grade 8	Understand how to use physical and chemical properties to sort and identify substances	278	mixtures can be separated by physical means	114	separating a homogeneous mixture
				281	volume and mass contrasted	116	mass and volume measurements
				284	changes of state	118	observe melting process and study quantitatively
				284	melting and boiling point explained	119	energy and phase changes
				284	melting and boiling points	119	melting point of ice
				285	characteristics of matter related to its state	124	build a density column
				285	table of melting and boiling points	126	investigating buoyancy with clay boats
				291	density is independent of amount of substance	128	use CPO viscometer to study viscosity
				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		
				294	development of Kevlar brand fiber		
				295	relationship between mass volume and density		

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Foundations of Physical Science Student Text and Investigation Manual

Standard #:	Component	level	GLE	student text	detail	investigation	detail
1.1.02.HS Systems: The student knows and applies scientific concepts and principles to understand the properties, structures and changes in physical, earth/space, and living systems.	Properties: Understand how properties are used to identify, describe, and categorize substances, materials, and objects; and how characteristics are used to categorize living things.	grade 9	Apply an understanding of direction, speed, and acceleration when describing the linear motion of objects	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	15	make a speed vs. time graph
				36	examples of acceleration	15	changes in motion can be represented graphically
				37	speed vs. time graphs	17	explore 2nd law and acceleration
				37	speed vs. time graph discussion	17	caclulate speed of car
				41	find acceleration of car	36	find speed of marble
				42	calculate speed from distance/time graph		
				49	link between force and acceleration		
				53	acceleration due to gravity		

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Foundations of Physical Science Student Text and Investigation Manual

Standard #:	Component	level	GLE	student text	detail	investigation	detail
1.1.02.MS Systems: The student knows and applies scientific concepts and principles to understand the properties, structures and changes in physical, earth/space, and living systems.	Properties: Understand how properties are used to identify, describe, and categorize substances, materials, and objects; and how characteristics are used to categorize living things.	grade 7	Understand the positions, relative speeds, and changes in speed of objects.	14	how to calculate speed	8	calculating speed
				15	compare and contrast speed and velocity	9	collect data and calculate speed of car
				20	calculate speed of car	10	calculate speed of the car
				20	find speed of bumblebee	12	find speed of car at different positions
				24	accurate speed measurements	13	make a position vs. time graph
				30	position vs. time graphs	14	calculate speed of car at two places on the ramp
				32	average speed vs. instantaneous	15	make a speed vs. time graph
				32	average speed discussed	17	caclulate speed of car
				37	speed vs. time graphs	36	find speed of marble
				42	calculate speed from distance/time graph		

Correlation to Washington Essential Academic Learning Requirements for Science, grades 7 - 10

Foundations of Physical Science Student Text and Investigation Manual

Standard #:	Component	level	GLE	student text	detail	investigation	detail
1.1.03.HS Systems: The student knows and applies scientific concepts and principles to understand the properties, structures and changes in physical, earth/space, and living systems.	Properties: Understand how properties are used to identify, describe, and categorize substances, materials, and objects; and how characteristics are used to categorize living things.	grade 10	Analyze sound waves, water waves, and light waves, using wave properties including frequency and energy. Understand wave interference	179 182 182 192 195 219 221 222 222 474	what is a cycle? concept of frequency explained concept of period explained analyze systems to find cycle/period/frequency waves transmit energy frequency of sound and pitch importance of wavelength of sound waves effect of medium on speed of sound wave effect of temperature on speed of sound wave energy and radiation relationships	83 86 90 94 101	find speed of a wave adjust frequency of a standing wave what is sound and how do we hear it? does sound behave like other waves? examine light through diffraction grating

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Foundations of Physical Science Student Text and Investigation Manual

Standard #:	Component	level	GLE	student text	detail	investigation	detail
1.1.03.MS Systems: The student knows and applies scientific concepts and principles to understand the properties, structures and changes in physical, earth/space, and living systems.	Properties: Understand how properties are used to identify, describe, and categorize substances, materials, and objects; and how characteristics are used to categorize living things.	grade 8	Understand sound waves, water waves, and light waves, using wave properties including amplitude, wavelength, and speed. Understand wave behaviors including reflection, refraction, transmission, and absorption.	197	transverse and longitudinal waves	82	study wave pulses on elastic cord
				201	waves and refraction	83	find speed of a wave
				201	reflection in water waves and light waves	84	make different types of waves in a ripple tank
				201	waves and reflection	85	observing reflection in water waves
				201	waves and absorption	86	adjust frequency of a standing wave
				202	refraction and eyeglasses	90	what is sound and how do we hear it?
				205	standing waves on a string	94	does sound behave like other waves?
				219	frequency of sound and pitch	95	interference and sound waves
				221	importance of wavelength of sound waves	101	examine light through diffraction grating
				222	effect of medium on speed of sound wave	105	explore relationship between color and wavelength
				222	effect of temperature on speed of sound wave	106	tracing incident and reflected rays
				237	light waves and the electromagnetic spectrum	107	investigate reflection of light
				242	color and frequency of light waves	107	investigate how light interacts with mirrors
				245	we see color in terms of reflected light	107	plot reflected rays from a mirror
				258	refraction in optical systems	108	investigate how light interacts with a prism
				258	forming images with lenses		
				260	reflection and mirrors		

Standard #:	Component	level	GLE	student text	detail	investigation	detail
				261	refraction and lenses	108	explore refraction with lenses
				263	index of refraction	108	explore refraction with a prism
				263	index of refraction	108	tracing incident and refracted rays
				273	find the angle of reflection	110	finding focal point and focal length of a lens
				476	absorption and emission	111	plotting images formed when light is refracted by a lens
1.1.04.HS Systems: The student knows and applies scientific concepts and principles to understand the properties, structures and changes in physical, earth/space, and living systems.	Properties: Understand how properties are used to identify, describe, and categorize substances, materials, and objects; and how characteristics are used to categorize living things.	grade 10	Analyze the forms of energy in a system, subsystems, or parts of a system.	91	following an energy transformation	38	explore energy transformations
				91	understand basic forms of energy	39	make an energy flow chart
				91	energy conversions	39	identify type of energy involved
				457	specific heat and the heat equation	119	investigate temperature and energy transfer in melting process
				458	specific heat	147	feel the heat generated by chemical reaction
				459	specific heat of different substances		

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Standard #:	Component	level	GLE	student text	detail	investigation	detail
1.1.04.MS Systems: The student knows and applies scientific concepts and principles to understand the properties, structures and changes in physical, earth/space, and living systems.	Properties: Understand how properties are used to identify, describe, and categorize substances, materials, and objects; and how characteristics are used to categorize living things.	grade 8	Understand that energy is a property of matter, objects, and systems and comes in many forms (i.e., heat [thermal] energy, sound energy, light energy, electrical energy, kinetic energy, potential energy, and chemical energy).	87 91 91 91	concept of energy as stored work following an energy transformation following an energy transformation understand basic forms of energy	36 38 39 39	energy conservation and the roller coaster identify potential/kinetic energy conversions make an energy flow chart identify type of energy involved
1.2.01.HS Systems: The student knows and applies scientific concepts and principles to understand the properties, structures and changes in physical, earth/space, and living systems.	Structures: Understand how components, structures, organizations, and interconnections describe systems.	grades 9 and 10	Analyze how systems function; including the inputs, outputs, transfers, transformations, and feedback of a system and its subsystems.	51 84	what is equilibrium? work input and output	31	work output vs. work input

Correlation to Washington Essential Academic Learning Requirements for Science, grades 7 - 10

Foundations of Physical Science Student Text and Investigation Manual

Standard #:	Component	level	GLE	student text	detail	investigation	detail
1.2.01.MS Systems: The student knows and applies scientific concepts and principles to understand the properties, structures and changes in physical, earth/space, and living systems.	Structures: Understand how components, structures, organizations, and interconnections describe systems.	grades 7 and 8	Analyze how the parts of a system interconnect and influence each other.	51	what is equilibrium?		
1.2.02.HS Systems: The student knows and applies scientific concepts and principles to understand the properties, structures and changes in physical, earth/space, and living systems.	Structures: Understand how components, structures, organizations, and interconnections describe systems.	grades 9 and 10	Analyze energy transfers and transformations within a system including energy conservation.	88 90 91 91 92 93 96	potential and kinetic energy explained conservation of energy explained following an energy transformation energy conversions energy transformations and conservation different forms of energy described prove that energy is conserved	36 37 38 38 38 188	energy conservation and the roller coaster investigating conservation of energy with rollercoaster identify potential/kinetic energy conversions explore energy transformations conservation of energy and energy transformations specific heat and conservation of energy

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Standard #:	Component	level	GLE	student text	detail	investigation	detail
1.2.02.MS Systems: The student knows and applies scientific concepts and principles to understand the properties, structures and changes in physical, earth/space, and living systems.	Structures: Understand how components, structures, organizations, and interconnections describe systems.	grade 8	Understand how various factors affect energy transfers and that energy can be transformed from one form of energy to another.	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	190	investigate conduction through all states of matter
				468	densely packed solids are good conductors of heat	190	investigate and rank materials for thermal conductivity
				468	heat transfer through air	192	investigate convection in liquids
				469	thermal conductivity explained	194	investigate radiation emitted by solids
				470	warming hands over candle	194	investigate radiation emitted by liquids
				470	convection currents and weather		
				472	convection currents in water		
				476	solid road surface emits radiation		
				478	apply knowledge of heat transfer to different situations		
				481	global warming		

Standard #:	Component	level	GLE	student text	detail	investigation	detail
				481	global warming and heat transfer by radiation		
				491	heat generated in mechanical systems		
				493	using heat to do mechanical work		
1.2.03.HS Systems: The student knows and applies scientific concepts and principles to understand the properties, structures and changes in physical, earth/space, and living systems.	Structures: Understand how components, structures, organizations, and interconnections describe systems.	grade 10	Understand the structure of atoms, how atoms bond to form molecules, and that molecules form solutions.	324	use the periodic table to predict chemical formulas	136	ions
				324	which element is more likely to combine with other elements?	141	whan an atom ionizes
				330	Lewis Dot diagrams	141	modeling a chemical bond
				330	ionic bonds	143	ionic compounds
				331	covalent bonds	143	classify ionic compounds
				332	distinguishing between ionic and covalent bonds	162	carbon reactions and the environment
				335	chemical bonding and the periodic table		
				364	carbon chains		

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Standard #:	Component	level	GLE	student text	detail	investigation	detail
1.2.03.MS Systems: The student knows and applies scientific concepts and principles to understand the properties, structures and changes in physical, earth/space, and living systems.	Structures: Understand how components, structures, organizations, and interconnections describe systems.	grade 8	Understand that all matter is made of particles called atoms and that atoms may combine to form molecules and that atoms and molecules can form mixtures.	278	mixtures can be separated by physical means	114	separating a homogeneous mixture
				278	compounds are composed of elements	132	building atom models
				283	atoms and molecules	132	comparing atoms
				311	location/size/charge of subatomic particles	132	atomic number determines what element that atom is
				311	protons/neutrons/electrons	133	protons and neutrons
				311	all matter is formed from atoms	133	location of electrons in atom
				311	all matter is formed from atoms	136	model stable and neutral atoms
				315	atoms of same element have same atomic number	136	ions
				318	proton/electron attraction	137	build atomic models
				324	use the periodic table to predict chemical formulas	137	importance of atomic number
				324	which element is more likely to combine with other elements?	140	find the number of electrons in outermost level
				335	chemical bonding and the periodic table	140	review subatomic particles
				388	showing valence electrons in a diagram	140	why do atoms form chemical bonds?
						141	compare and contrast elements and compounds
						141	modeling a chemical bond
						141	whan an atom ionizes
						142	why do atoms combine in certain ratios?

Standard #:	Component	level	GLE	student text	detail	investigation	detail
						143	ionic compounds
1.3.01.HS Systems: The student knows and applies scientific concepts and principles to understand the properties, structures and changes in physical, earth/space, and living systems.	Changes: Understand how interactions within and among systems cause changes in matter and energy.	grade 9	Analyze the forces acting on objects.	45 45 45 46 48 49 49 59 64 69 71 78 79 79 80 80	Newton's second law summarized Newton's third law summarized Newton's first law summarized force has potential to change motion Newton's first law in detail Newton's second law in detail force is related to acceleration Newton's third law in detail solving problems using f=ma newtons and pounds pliers as an example of a lever design a toothbrush analyze pulleys with different numbers of supporting strings analyze block and tackle analyze wheelbarrow analyze the human jaw as a simple machine	14 16 16 19 19 20 22 23 24 27 30	exploring acceleration on a ramp 2nd law thinking about force discover 2nd law of motion find correct relationship between force mass and acceleration force and motion with car and ramp car and ramp and Newton' s 3rd law using 3rd law to explain common phenomena measure force in newtons changing force and distance on a lever exploring force and distance with ropes and pulleys

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Standard #:	Component	level	GLE	student text	detail	investigation	detail
1.3.01.MS Systems: The student knows and applies scientific concepts and principles to understand the properties, structures and changes in physical, earth/space, and living systems.	Changes: Understand how interactions within and among systems cause changes in matter and energy.	grade 7	Understand factors that affect the strength and direction of forces.	46	force has potential to change motion	16	unbalanced forces and acceleration of car
				49	force is related to acceleration	19	find correct relationship between force mass and acceleration
				51	balanced and unbalanced forces	20	investigate effect of gravity on motion
				51	net force explained	21	effect of friction on the car
				52	the effect of gravity	24	measure force in newtons
				56	friction explained	27	changing force and distance on a lever
				64	research effect of friction on human joints	30	exploring force and distance with ropes and pulleys
				69	newtons and pounds		
				71	the human body and simple machines		
				71	pliers as an example of a lever		
				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		
				106	electrical force is incredibly strong!		
				106	electrical forces		

Correlation to Washington Essential Academic Learning Requirements for Science, grades 7 - 10

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Standard #:	Component	level	GLE	student text	detail	investigation	detail
1.3.02.HS Systems: The student knows and applies scientific concepts and principles to understand the properties, structures and changes in physical, earth/space, and living systems.	Changes: Understand how interactions within and among systems cause changes in matter and energy.	grade 9	Analyze the effects of balanced and unbalanced forces on the motion of an object.	51 51	balanced and unbalanced forces net force explained	16	unbalanced forces and acceleration of car
1.3.02.MS Systems: The student knows and applies scientific concepts and principles to understand the properties, structures and changes in physical, earth/space, and living systems.	Changes: Understand how interactions within and among systems cause changes in matter and energy.	grade 7	Understand how balanced and unbalanced forces can change the motion of objects.	45 49 51 51	Newton's second law summarized Newton's second law in detail balanced and unbalanced forces net force explained	16 16	thinking about force unbalanced forces and acceleration of car

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Standard #:	Component	level	GLE	student text	detail	investigation	detail
1.3.03.HS Systems: The student knows and applies scientific concepts and principles to understand the properties, structures and changes in physical, earth/space, and living systems.	Changes: Understand how interactions within and among systems cause changes in matter and energy.	grade 9	Analyze the factors that affect physical, chemical, and nuclear changes and understand that matter and energy are conserved.	353 355 371 372	physical and chemical changes and digestion physical and chemical changes in tire recycling which of the equations is balanced? determine if changes are chemical or physical	146 149 150	investigate and observe chemical and physical changes in the lab balance these equations investigate conservation of mass in effervescent tablet reaction

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Foundations of Physical Science Student Text and Investigation Manual

Standard #:	Component	level	GLE	student text	detail	investigation	detail
1.3.03.MS Systems: The student knows and applies scientific concepts and principles to understand the properties, structures and changes in physical, earth/space, and living systems.	Changes: Understand how interactions within and among systems cause changes in matter and energy.	grade 7	Understand that matter is conserved during physical and chemical changes.	353	physical and chemical changes and digestion	146	investigate and observe chemical and physical changes in the lab
				354	chemical reactions and digestion	149	balance these equations
				355	physical and chemical changes in tire recycling	150	investigate conservation of mass in effervescent tablet reaction
				357	chemical reactions involve rearrangement of atoms	157	predict the products of double displacement reactions
				361	chemical reactions in living systems	162	investigating combustion reactions
				363	history of law of conservation of mass		
				371	which of the equations is balanced?		
				372	determine if changes are chemical or physical		
				378	consumer chemistry		
				378	combustion reactions		
				381	MRE ration heater reaction		
				395	chemistry of the atmosphere		
				395	chemistry of the atmosphere		
				397	carbon reactions		
				444	chemical reactions and the formation of acid rain		

Standard #:	Component	level	GLE	student text	detail	investigation	detail
				487	simple sugars are transported to cells		
				487	chemical reactions in living systems		
				489	metabolism and stored energy		
2.1.01.HS Inquiry: The student knows and applies the skills, and processes, and nature of scientific inquiry	Investigating Systems: Develop the knowledge and skills necessary to do scientific inquiry.	grades 9 and 10	Understand how to generate and evaluate questions that can be answered through scientific investigations.	7	experimentation begins with a question	6	how do we ask questions and get answers from nature?
				10	the research question and hypothesis	7	design your own experiment
				19	design your own experiment	9	design three experiments using car and ramp
				42	devise an experiment	16	decide how to vary the force on the car for this experiment
						26	what variables can be changed?
						75	design pendulum experiment
						93	decision trees and the advantage of doing multiple trials
						151	design experiment to find out if mass is conserved
						166	what three factors influence dissolving rate?

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Foundations of Physical Science Student Text and Investigation Manual

Standard #:	Component	level	GLE	student text	detail	investigation	detail
2.1.01.MS Inquiry: The student knows and applies the skills, and processes, and nature of scientific inquiry	Investigating Systems: Develop the knowledge and skills necessary to do scientific inquiry.	grades 7 and 8	Understand how to generate a question that can be answered through scientific investigation.	7	experimentation begins with a question	6	how do we ask questions and get answers from nature?
				10	the research question and hypothesis	7	design your own experiment
				19	design your own experiment	9	design three experiments using car and ramp
				42	devise an experiment	16	decide how to vary the force on the car for this experiment
						26	what variables can be changed?
						75	design pendulum experiment
						93	decision trees and the advantage of doing multiple trials
						151	design experiment to find out if mass is conserved
						166	what three factors influence dissolving rate?

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Standard #:	Component	level	GLE	student text	detail	investigation	detail
2.1.02.HS Inquiry: The student knows and applies the skills, and processes, and nature of scientific inquiry	Investigating Systems: Develop the knowledge and skills necessary to do scientific inquiry.	grades 9 and 10	Understand how to plan and conduct systematic and complex 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	variables in an experiment
				12	writing lab procedures	7	doing a controlled experiment
				19	design your own experiment	7	compare results with hypothesis
				19	which group did the best experiment?	9	devise a hypothesis
				19	design your own experiment	9	conduct three experiments with appropriate equipment
				26	independent and dependent variables	9	design three experiments and choose equpiment
				42	devise an experiment	9	design three experiments and choose technology
				288	find the thickness of a single card	9	design three experiments using car and ramp
				500	safety rules described	10	selecting ramp and photogates
				501	safety quiz	10	conduct car/ramp experiment
						12	select equipment and set up experiment
						16	investigate Newton's 2nd law

Standard #:	Component	level	GLE	student text	detail	investigation	detail
						16	decide how to vary the force on the car for this experiment
						18	evaluate graphs as to whether or not they show relationships between variables
						20	safety tip for car/ramp setup
						21	choose independent and dependent variables for graph
						21	evaluate percent change for data collected
						24	ropes and pulley safety
						26	what variables can be changed?
						26	safety tip for hanging weights from lever
						27	recognize variables
						30	rigging block and tackle
						34	investigate motion on a rollercoaster
						34	formulate hypothesis
						40	electrical safety
						40	choose circuit parts to light a bulb
						44	short circuit safety warning
						56	short circuit safety warning

Standard #:	Component	level	GLE	student text	detail	investigation	detail
						58	short circuit safety warning
						75	evaluate statistical significance
						75	plan three experiments to determine which variable affects the period of a pendulum
						75	perform self-designed experiment
						75	design pendulum experiment
						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
						146	safety in the lab
						150	chemistry safety
						151	design experiment to find out if mass is conserved
						151	write a procedure
						151	plan procedures and select materials
						151	select materials from list
						158	wear goggles and apron
						164	safety equipment

Standard #:	Component	level	GLE	student text	detail	investigation	detail
						166	what three factors influence dissolving rate?
						166	write a procedure
						166	which method will give fastest dissolving rate?
						166	devise hypothesis and explain
						166	which factor will produce fastest dissolving rate?
						167	evaluate method based on data
						168	hot water safety
						172	safety tip for water testing
						174	visit local water supply and perform testing
						175	safety tip for testing local surface water
						178	formulate hypothesis
						180	thermometer safety
						182	heat safety
						186	thermometer safety
						192	heat safety
						198	formulate hypothesis
						198	which type of food contains the most energy?
						198	heat safety
						200	safely using rubber bands

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Standard #:	Component	level	GLE	student text	detail	investigation	detail
2.1.02.MS Inquiry: The student knows and applies the skills, and processes, and nature of scientific inquiry	Investigating Systems: Develop the knowledge and skills necessary to do scientific inquiry.	grades 7 and 8	Understand how to plan and conduct scientific investigations.	7	experimentation begins with a question	6	formulate hypothesis
				9	steps in the scientific method	7	variables in an experiment
				10	forming a hypothesis	7	perform your own experiment
				11	control and experimental variables	7	design your own experiment
				12	writing lab procedures	7	doing a controlled experiment
				19	design your own experiment	7	compare results with hypothesis
				19	design your own experiment	9	design three experiments and choose technology
				19	which group did the best experiment?	9	design three experiments using car and ramp
				26	independent and dependent variables	9	devise a hypothesis
				42	devise an experiment	9	design three experiments and choose equpiment
				288	find the thickness of a single card	9	conduct three experiments with appropriate equipment
				500	safety rules described	10	conduct car/ramp experiment
				501	safety quiz	10	selecting ramp and photogates
						12	select equipment and set up experiment
						16	investigate Newton's 2nd law

Standard #:	Component	level	GLE	student text	detail	investigation	detail
						16	decide how to vary the force on the car for this experiment
						18	evaluate graphs as to whether or not they show relationships between variables
						20	safety tip for car/ramp setup
						21	choose independent and dependent variables for graph
						21	evaluate percent change for data collected
						24	ropes and pulley safety
						26	what variables can be changed?
						26	safety tip for hanging weights from lever
						27	recognize variables
						30	rigging block and tackle
						34	formulate hypothesis
						34	investigate motion on a rollercoaster
						40	electrical safety
						40	choose circuit parts to light a bulb
						44	short circuit safety warning
						56	short circuit safety warning

Standard #:	Component	level	GLE	student text	detail	investigation	detail
						58	short circuit safety warning
						75	design pendulum experiment
						75	plan three experiments to determine which variable affects the period of a pendulum
						75	perform self-designed experiment
						75	evaluate statistical significance
						93	decision trees and the advantage of doing multiple trials
						145	carry out procedure and select equipment
						145	plan a procedure and select necessary equipment
						146	safety in the lab
						150	chemistry safety
						151	select materials from list
						151	write a procedure
						151	plan procedures and select materials
						151	design experiment to find out if mass is conserved
						158	wear goggles and apron
						164	safety equipment

Standard #:	Component	level	GLE	student text	detail	investigation	detail
						166	write a procedure
						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?
						167	evaluate method based on data
						168	hot water safety
						172	safety tip for water testing
						174	visit local water supply and perform testing
						175	safety tip for testing local surface water
						178	formulate hypothesis
						180	thermometer safety
						182	heat safety
						186	thermometer safety
						192	heat safety
						198	which type of food contains the most energy?
						198	heat safety
						198	formulate hypothesis
						200	safely using rubber bands

Correlation to Washington Essential Academic Learning Requirements for Science, grades 7 - 10

Foundations of Physical Science Student Text and Investigation Manual

Standard #:	Component	level	GLE	student text	detail	investigation	detail
2.1.03.HS Inquiry: The student knows and applies the skills, and processes, and nature of scientific inquiry	Investigating Systems: Develop the knowledge and skills necessary to do scientific inquiry.	grades 9 and 10	Apply understanding of how to construct and revise a scientific explanation using evidence and inferential logic.	20	how will speed change?	6	compare results with other groups
				24	predicting speed from a graph	11	calculate % error
				24	interpretations of patterns in data	11	analyze speed change of car
				27	reading a graph	11	graph speed vs. position
				42	predict the speed of a car	15	interpret a speed vs. time graph
				42	analyze a speed/distance graph	18	study data table for relationship between force and motion
				78	analyze lever diagram	21	construct reasonable explanation based on data
						25	analyze block and tackle data
						27	analyze lever equilibrium data
						35	study data and determine importance of height on speed of marble
						35	does data support hypothesis?
						45	did battery voltage change?
						45	analyze data and explain a rule
						76	use data to predict best string length for a pendulum clock
						76	analyze pendulum data

Correlation to Washington Essential Academic Learning Requirements for Science, grades 7 - 10

Foundations of Physical Science Student Text and Investigation Manual

Standard #:	Component	level	GLE	student text	detail	investigation	detail
						76	calculate % error
						121	use graph to predict mass of six objects
						147	students analyze chemical change lab results
						156	make predictions about solubility

Correlation to Washington Essential Academic Learning Requirements for Science, grades 7 - 10

Foundations of Physical Science Student Text and Investigation Manual

Standard #:	Component	level	GLE	student text	detail	investigation	detail
2.1.03.MS Inquiry: The student knows and applies the skills, and processes, and nature of scientific inquiry	Investigating Systems: Develop the knowledge and skills necessary to do scientific inquiry.	grades 7 and 8	Apply understanding of how to construct a scientific explanation using evidence and inferential logic.	20 24 42 42	how will speed change? predicting speed from a graph predict the speed of a car analyze a speed/distance graph	6 11 11 15 18 19 21 25 27 29 35 35 45 45	compare results with other groups analyze speed change of car graph speed vs. position discuss and test ideas with your group study data table for relationship between force and motion explain how you arrived at your answer construct reasonable explanation based on data analyze block and tackle data analyze lever equilibrium data discuss what you learned about gears does data support hypothesis? study data and determine importance of height on speed of marble did battery voltage change? analyze data and explain a rule

Standard #:	Component	level	GLE	student text	detail	investigation	detail
						47	discuss an explanation with your group
						76	use data to predict best string length for a pendulum clock
						76	analyze pendulum data
						121	use graph to predict mass of six objects
						129	explain your answer and justify
						147	students analyze chemical change lab results
						156	make predictions about solubility

Correlation to Washington Essential Academic Learning Requirements for Science, grades 7 - 10

Foundations of Physical Science Student Text and Investigation Manual

Standard #:	Component	level	GLE	student text	detail	investigation	detail
2.1.04.HS Inquiry: The student knows and applies the skills, and processes, and nature of scientific inquiry	Investigating Systems: Develop the knowledge and skills necessary to do scientific inquiry.	grades 9 and 10	Analyze how physical, conceptual, and mathematical models represent and are used to investigate objects, events, systems, and processes.	23	why make models?	11	draw best fit curve
				24	scientific models	13	draw best fit curve
				24	what is a scientific model?	13	graph distance vs. time
				24	making a graph	15	construct a quantitative graphical model
				26	drawing a best fit curve	37	organize data into a graph of speed vs. height
				26	creating graphs	51	graph voltage vs. current
				41	make a graph	121	graph mass vs. volume
						147	organize observations into a category table
						151	does your experiment agree with law of conservation of mass?
						181	construct a graphical model
						183	construct a temperature vs. time graph

Correlation to Washington Essential Academic Learning Requirements for Science, grades 7 - 10

Foundations of Physical Science Student Text and Investigation Manual

Standard #:	Component	level	GLE	student text	detail	investigation	detail
2.1.04.MS Inquiry: The student knows and applies the skills, and processes, and nature of scientific inquiry	Investigating Systems: Develop the knowledge and skills necessary to do scientific inquiry.	grades 7 and 8	Analyze how models are used to investigate objects, events, systems, and processes.	23	why make models?	13	graph distance vs. time
				24	scientific models	15	construct a quantitative graphical model
				24	what is a scientific model?	15	interpret a speed vs. time graph
				24	making a graph	25	create a mathematical model
				24	interpretations of patterns in data	27	find math rule for lever equilibrium
				26	creating graphs	28	derive a math formula
				27	reading a graph	37	organize data into a graph of speed vs. height
				41	make a graph	51	graph voltage vs. current
				42	interpreting distance/time graph	121	graph mass vs. volume
				78	analyze lever diagram	147	organize observations into a category table
						151	does your experiment agree with law of conservation of mass?
						181	construct a graphical model
						183	construct a temperature vs. time graph

Correlation to Washington Essential Academic Learning Requirements for Science, grades 7 - 10

Foundations of Physical Science Student Text and Investigation Manual

Standard #:	Component	level	GLE	student text	detail	investigation	detail
2.1.05.HS Inquiry: The student knows and applies the skills, and processes, and nature of scientific inquiry	Investigating Systems: Develop the knowledge and skills necessary to do scientific inquiry.	grades 9 and 10	Apply understanding of how to report complex scientific investigations and explanations of objects, events, systems, and processes, and how to evaluate scientific reports.	20	explain your reasoning	9	reporting on an experiment
				27	how to read a graph	9	present conclusions to the class
						15	discuss and test ideas with your group
						19	explain how you arrived at your answer
						29	discuss what you learned about gears
						37	describe the flow of energy based on experimental graph
						39	give a brief presentation to the class
						47	discuss an explanation with your group
						47	present and defend an explanation
						78	reading harmonic motion data tables and graphs
						129	explain your answer and justify
						145	present findings to the class
						145	present findings and methods used
						151	present results to the class

Correlation to Washington Essential Academic Learning Requirements for Science, grades 7 - 10

Foundations of Physical Science Student Text and Investigation Manual

Standard #:	Component	level	GLE	student text	detail	investigation	detail
						163	evaluating choice of favorite car
						173	write prargraph to explain results
						175	create water quality report
						179	write summary of findings

Correlation to Washington Essential Academic Learning Requirements for Science, grades 7 - 10

Foundations of Physical Science Student Text and Investigation Manual

Standard #:	Component	level	GLE	student text	detail	investigation	detail
2.1.05.MS Inquiry: The student knows and applies the skills, and processes, and nature of scientific inquiry	Investigating Systems: Develop the knowledge and skills necessary to do scientific inquiry.	grades 7 and 8	Apply understanding of how to report investigations and explanations of objects, events, systems, and processes.	20	explain your reasoning	9	present conclusions to the class
				27	how to read a graph	9	reporting on an experiment
						13	make a distance vs. time graph
						37	describe the flow of energy based on experimental graph
						39	give a brief presentation to the class
						47	present and defend an explanation
						78	reading harmonic motion data tables and graphs
						145	present findings and methods used
						145	present findings to the class
						151	present results to the class
						173	write prargraph to explain results
						175	create water quality report
						179	write summary of findings

Correlation to Washington Essential Academic Learning Requirements for Science, grades 7 - 10

Foundations of Physical Science Student Text and Investigation Manual

Standard #:	Component	level	GLE	student text	detail	investigation	detail
2.2.01.HS Inquiry: The student knows and applies the skills, and processes, and nature of scientific inquiry	Nature of Science: Understand the nature of scientific inquiry	grades 9 and 10	Analyze and explain why curiosity, honesty, openness, and skepticism are integral to scientific inquiry.	110 142 320 391 434	study appliance labels and instructions create pamphlet on utility's energy saver programs the quests of alchemists scientific discovery and the atomic age study claims made by bottled water companies	76 162 173	analyze watch manufacturer's claims inferences from promotional materials for vehicles study water filtration device claims
2.2.01.MS Inquiry: The student knows and applies the skills, and processes, and nature of scientific inquiry	Nature of Science: Understand the nature of scientific inquiry	grades 7 and 8	Apply curiosity, honesty, skepticism, and openness when considering explanations and conducting investigations.	34 45 54 105 107 110 312 320 321 370 391 393	Aristotle vs. Newton Newton's Laws of Motion Newton and the force of gravity Benjamin Franklin Charles-Augustin Coulomb research Franklin's electricity experiments contributions of Fermi the quests of alchemists contributions of Mendeleev research Lavoisier's contributions scientific discovery and the atomic age contributions of Marie and Pierre Curie		

Correlation to Washington Essential Academic Learning Requirements for Science, grades 7 - 10

Foundations of Physical Science Student Text and Investigation Manual

Standard #:	Component	level	GLE	student text	detail	investigation	detail
2.2.02.HS Inquiry: The student knows and applies the skills, and processes, and nature of scientific inquiry	Nature of Science: Understand the nature of scientific inquiry	grades 9 and 10	Analyze scientific theories for logic, consistency, historical and current evidence, limitations, and for capacity to be investigated and modified.			6 39 39 39 77 77	asking questions and learning about natural world 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

Correlation to Washington Essential Academic Learning Requirements for Science, grades 7 - 10

Foundations of Physical Science Student Text and Investigation Manual

Standard #:	Component	level	GLE	student text	detail	investigation	detail
2.2.02.MS Inquiry: The student knows and applies the skills, and processes, and nature of scientific inquiry	Nature of Science: Understand the nature of scientific inquiry	grades 7 and 8	Understand that scientific theories explain facts using inferential logic.			6	asking questions and learning about natural world
						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

Correlation to Washington Essential Academic Learning Requirements for Science, grades 7 - 10

Foundations of Physical Science Student Text and Investigation Manual

Standard #:	Component	level	GLE	student text	detail	investigation	detail
2.2.03.HS Inquiry: The student knows and applies the skills, and processes, and nature of scientific inquiry	Nature of Science: Understand the nature of scientific inquiry	grades 9 and 10	Evaluate inconsistent or unexpected results from scientific investigations using scientific explanations.	10	process of reviewing hypothesis explained	21 35 35 39 39 39 45 77 77 151 151 167	construct reasonable explanation based on data what evidence is there in support of your hypothesis? study data and determine importance of height on speed of marble critique group's explanation of energy transformations review energy theory in context of everyday scenarios analyze energy transformations in different scenarios analyze data and explain a rule 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?

Standard #:	Component	level	GLE	student text	detail	investigation	detail
						167	what was happening at molecular level?
2.2.03.MS Inquiry: The student knows and applies the skills, and processes, and nature of scientific inquiry	Nature of Science: Understand the nature of scientific inquiry	grades 7 and 8	Analyze inconsistent results from scientific investigations to determine how the results can be explained.	10	process of reviewing hypothesis explained	21	construct reasonable explanation based on data
						35	what evidence is there in support of your hypothesis?
						35	study data and determine importance of height on speed of marble
						39	analyze energy transformations in different scenarios
						45	analyze data and explain a rule
						77	compare law of conservation of energy to motion of pendulum
						151	review your hypothesis
						151	do the data support the hypothesis
						157	add new rules to list based on findings
						167	did you prove or disprove your hypothesis?
						167	what was happening at molecular level?

Correlation to Washington Essential Academic Learning Requirements for Science, grades 7 - 10

Foundations of Physical Science Student Text and Investigation Manual

Standard #:	Component	level	GLE	student text	detail	investigation	detail
2.2.04.HS Inquiry: The student knows and applies the skills, and processes, and nature of scientific inquiry	Nature of Science: Understand the nature of scientific inquiry	grades 9 and 10	Analyze scientific investigations for validity of method and reliability of results.	11 19 26	control and experimental variables which group did the best experiment? independent and dependent variables	7 18 21 21 27 75 167	doing a controlled experiment evaluate graphs as to whether or not they show relationships between variables evaluate percent change for data collected choose independent and dependent variables for graph recognize variables evaluate statistical significance evaluate method based on data
2.2.04.MS Inquiry: The student knows and applies the skills, and processes, and nature of scientific inquiry	Nature of Science: Understand the nature of scientific inquiry	grades 7 and 8	Understand how to make the results of scientific investigations reliable and how to make the method of investigation valid.	11 26	control and experimental variables independent and dependent variables	7 7 21 27	variables in an experiment doing a controlled experiment choose independent and dependent variables for graph recognize variables

Correlation to Washington Essential Academic Learning Requirements for Science, grades 7 - 10

Foundations of Physical Science Student Text and Investigation Manual

Standard #:	Component	level	GLE	student text	detail	investigation	detail
2.2.05.HS Inquiry: The student knows and applies the skills, and processes, and nature of scientific inquiry	Nature of Science: Understand the nature of scientific inquiry	grades 9 and 10	Understand how scientific knowledge evolves.	312	history of atomic theory	7	variables in an experiment
				313	development of atomic theory	101	how could you extend the investigation to explore materials that give off light when heated?
				324	research and create a poster to illustrate development of atomic model	117	how could you find the volume of one drop of water?
				343	Avogadro's number	130	investigate Rutherford's gold foil experiment
				363	history of law of conservation of mass		
				393	history of nuclear chemistry		
				464	research the history of heat and temperature		

Correlation to Washington Essential Academic Learning Requirements for Science, grades 7 - 10

Foundations of Physical Science Student Text and Investigation Manual

Standard #:	Component	level	GLE	student text	detail	investigation	detail
2.2.05.MS Inquiry: The student knows and applies the skills, and processes, and nature of scientific inquiry	Nature of Science: Understand the nature of scientific inquiry	grades 7 and 8	Understand that increased comprehension of systems leads to new inquiry.	34	Aristotle vs. Newton	130	investigate Rutherford's gold foil experiment
				45	Newton's Laws of Motion		
				54	Newton and the force of gravity		
				105	Benjamin Franklin		
				107	Charles-Augustin Coulomb		
				312	contributions of Fermi		
				313	development of atomic theory		
				321	contributions of Mendeleev		
				324	research and create a poster to illustrate development of atomic model		
				393	contributions of Marie and Pierre Curie		

Correlation to Washington Essential Academic Learning Requirements for Science, grades 7 - 10

Foundations of Physical Science Student Text and Investigation Manual

Standard #:	Component	level	GLE	student text	detail	investigation	detail
3.1.01.HS Application: The student knows and applies science concepts and skills to develop solutions to human problems in societal contexts.	Designing Solutions: Apply knowledge and skills of science and technology to design solutions to human problems or meet challenges.	grades 9 and 10	Analyze local, regional, national, or global problems or challenges in which scientific design can be or has been used to design a solution.	333	problems with disposing of plastics	163	economic impact of end-product of combustion reaction
				355	recycling tires	163	too much CO2
				356	recycling discarded tires	163	consider a vehicle's fuel economy
				364	petroleum	163	research how trees offset accumulation of CO2
				368	limiting reactants	163	can trees compensate for manmade CO2 from vehicles and industry?
				379	research economic impact of fuel cells	172	save water for houseplants
				379	research environmental impact of fuel cells	172	perform water quality tests
				379	research fuel cells	174	wise use of water supply
				379	hydrogen-powered cars and the environment	175	maintaining water supply quality
				379	research fuel cells	178	investigate effect of acid rain on microorganisms
				392	storage of nuclear waste		
				395	fossil fuels		
				400	economic impact of reducing air pollution		
				400	problems caused by airborne pollutants		
				400	economic impact of pollution		
				421	wise use of water		
				425	water cycle and conservation		
				430	water usage and quality		
				444	acid rain explained		

Standard #:	Component	level	GLE	student text	detail	investigation	detail
				448	research the issue of acid rain 448 research economic impact of producing gases that cause acid rain		
3.1.01.MS Application: The student knows and applies science concepts and skills to develop solutions to human problems in societal contexts.	Designing Solutions: Apply knowledge and skills of science and technology to design solutions to human problems or meet challenges.	grades 7 and 8	Analyze common problems or challenges in which scientific design can be or has been used to design solutions.	73 172	relationship between science and technology generating electric power	70	using engineering design cycle
3.1.02.HS Application: The student knows and applies science concepts and skills to develop solutions to human problems in societal contexts.	Designing Solutions: Apply knowledge and skills of science and technology to design solutions to human problems or meet challenges.	grades 9 and 10	Evaluate the scientific design process used to develop and implement solutions to problems or challenges.	74	sample engineering problem	70 70 71 71	designing and testing different electric motors proposing and comparing different electric motor designs did draining the batteries affect motor speed? which motor gave the highest speed and why?

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Foundations of Physical Science Student Text and Investigation Manual

Standard #:	Component	level	GLE	student text	detail	investigation	detail
3.1.02.MS Application: The student knows and applies science concepts and skills to develop solutions to human problems in societal contexts.	Designing Solutions: Apply knowledge and skills of science and technology to design solutions to human problems or meet challenges.	grades 7 and 8	Apply the scientific design process to develop and implement solutions to problems or challenges.	74	sample engineering problem	70 70 71 71	designing and testing different electric motors proposing and comparing different electric motor designs did draining the batteries affect motor speed? which motor gave the highest speed and why?
3.1.03.HS Application: The student knows and applies science concepts and skills to develop solutions to human problems in societal contexts.	Designing Solutions: Apply knowledge and skills of science and technology to design solutions to human problems or meet challenges.	grades 9 and 10	Evaluate consequences, constraints, and applications of solutions to a problem or challenge.	172 333 379 379 379 391 395 400 400 408 444 448	generating electric power plastics hydrogen-powered cars and the environment research fuel cells research environmental impact of fuel cells impact of nuclear energy fossil fuels reducing pollution problems caused by airborne pollutants capsule coating acid rain explained research the issue of acid rain	52 163 163 178 201	the cost of using electrical appliances too much CO2 research how trees offset accumulation of CO2 investigate effect of acid rain on microorganisms investigate different methods of generating electricity

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Foundations of Physical Science Student Text and Investigation Manual

Standard #:	Component	level	GLE	student text	detail	investigation	detail
3.1.03.MS Application: The student knows and applies science concepts and skills to develop solutions to human problems in societal contexts.	Designing Solutions: Apply knowledge and skills of science and technology to design solutions to human problems or meet challenges.	grades 7 and 8	Analyze multiple solutions to a problem or challenge.			70 71	proposing and comparing different electric motor designs testing a motor for performance

Correlation to Washington Essential Academic Learning Requirements for Science, grades 7 - 10

Foundations of Physical Science Student Text and Investigation Manual

Standard #:	Component	level	GLE	student text	detail	investigation	detail
3.2.01.HS Application: The student knows and applies science concepts and skills to develop solutions to human problems in societal contexts.	Science, Technology and Society: Analyze how science and technology are human endeavors, interrelated to each other, to society, and to the workplace and the environment.	grades 9 and 10	Analyze how scientific knowledge and technological advances discovered and developed by individuals and communities in all cultures of the world contribute to changes in societies.	45	Newton's Principia		
				55	Newton and the apple legend		
				73	Leonardo DaVinci		
				86	James Watt		
				110	research Franklin's electricity experiments		
				115	Volta's batteries		
				131	Georg Ohm's work with circuits		
				160	Faraday's contributions		
				312	Dalton's contributions		
				321	Mendeleev's periodic table		
				332	Linus Pauling and electronegativities		
				363	Antoine Lavoisier		
				370	research Lavoisier's contributions		
				393	accomplishments of Marie Curie		
				393	Marie and Pierre Curie		
				456	contributions of Joule		

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Foundations of Physical Science Student Text and Investigation Manual

Standard #:	Component	level	GLE	student text	detail	investigation	detail
3.2.01.MS Application: The student knows and applies science concepts and skills to develop solutions to human problems in societal contexts.	Science, Technology and Society: Analyze how science and technology are human endeavors, interrelated to each other, to society, and to the workplace and the environment.	grades 7 and 8	Analyze how science and technology have been developed, used, and affected by many diverse individuals, cultures, and societies throughout human history.	45	Newton's Principia		
				55	Newton and the apple legend		
				73	Leonardo DaVinci		
				86	James Watt		
				110	research Franklin's electricity experiments		
				115	Volta's batteries		
				131	Georg Ohm's work with circuits		
				160	Faraday's contributions		
				312	Dalton's contributions		
				321	Mendeleev's periodic table		
				332	Linus Pauling and electronegativities		
				363	Antoine Lavoisier		
				370	research Lavoisier's contributions		
				393	accomplishments of Marie Curie		
				393	Marie and Pierre Curie		
				456	contributions of Joule		

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Foundations of Physical Science Student Text and Investigation Manual

Standard #:	Component	level	GLE	student text	detail	investigation	detail
3.2.02.HS Application: The student knows and applies science concepts and skills to develop solutions to human problems in societal contexts.	Science, Technology and Society: Analyze how science and technology are human endeavors, interrelated to each other, to society, and to the workplace and the environment.	grades 9 and 10	Analyze how the scientific enterprise and technological advances influence and are influenced by human activity.	34 73 214 220 294 320 391 400	Newton's research impacted mathematics impact of technology ultrasound technology voice recognition technology invention of Kevlar the quests of alchemists scientific discovery and the atomic age clean air act of 1970		
3.2.02.MS Application: The student knows and applies science concepts and skills to develop solutions to human problems in societal contexts.	Science, Technology and Society: Analyze how science and technology are human endeavors, interrelated to each other, to society, and to the workplace and the environment.	grades 7 and 8	Analyze scientific inquiry and scientific design and understand how science supports technological development and vice versa.	73 73	relationship between science and technology impact of Da Vinci's work	70	using engineering design cycle

Correlation to Washington Essential Academic Learning Requirements for Science, grades 7 - 10

Foundations of Physical Science Student Text and Investigation Manual

Standard #:	Component	level	GLE	student text	detail	investigation	detail
3.2.03.HS Application: The student knows and applies science concepts and skills to develop solutions to human problems in societal contexts.	Science, Technology and Society: Analyze how science and technology are human endeavors, interrelated to each other, to society, and to the workplace and the environment.	grades 9 and 10	Analyze the scientific, mathematical, and technological knowledge, training, and experience needed for occupational/career areas of interest.			174 177	water quality testing chemistry and photography

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Foundations of Physical Science Student Text and Investigation Manual

Standard #:	Component	level	GLE	student text	detail	investigation	detail
3.2.03.MS Application: The student knows and applies science concepts and skills to develop solutions to human problems in societal contexts.	Science, Technology and Society: Analyze how science and technology are human endeavors, interrelated to each other, to society, and to the workplace and the environment.	grades 7 and 8	Analyze the use of science, mathematics, and technology within occupational/career areas of interest.	45	Newton's Principia		
				55	Newton and the apple legend		
				73	Leonardo DaVinci		
				86	James Watt		
				115	Volta's batteries		
				131	Georg Ohm's work with circuits		
				160	Faraday's contributions		
				312	Dalton's contributions		
				321	Mendeleev's periodic table		
				332	Linus Pauling and electronegativities		
				363	Antoine Lavoisier		
				393	accomplishments of Marie Curie		
				393	Marie and Pierre Curie		
				456	contributions of Joule		

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Foundations of Physical Science Student Text and Investigation Manual

Standard #:	Component	level	GLE	student text	detail	investigation	detail
3.2.04.HS Application: The student knows and applies science concepts and skills to develop solutions to human problems in societal contexts.	Science, Technology and Society: Analyze how science and technology are human endeavors, interrelated to each other, to society, and to the workplace and the environment.	grades 9 and 10	Analyze the effects human activities have on Earth's capacity to sustain biological diversity.	391 444	nuclear vs. fossil fuels impact of using fossil fuels		

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Foundations of Physical Science Student Text and Investigation Manual

Standard #:	Component	level	GLE	student text	detail	investigation	detail
3.2.04.MS Application: The student knows and applies science concepts and skills to develop solutions to human problems in societal contexts.	Science, Technology and Society: Analyze how science and technology are human endeavors, interrelated to each other, to society, and to the workplace and the environment.	grades 7 and 8	Analyze how human societies' use of natural resources affects the quality of life and the health of ecosystems.	364	petroleum	163	economic impact of end-product of combustion reaction
				368	limiting reactants	163	too much CO2
				379	research environmental impact of fuel cells	163	consider a vehicle's fuel economy
				379	research fuel cells	163	research how trees offset accumulation of CO2
				379	hydrogen-powered cars and the environment	163	can trees compensate for manmade CO2 from vehicles and industry?
				379	research economic impact of fuel cells	172	save water for houseplants
				379	research fuel cells	172	perform water quality tests
				395	fossil fuels	174	wise use of water supply
				400	economic impact of reducing air pollution	175	maintaining water supply quality
				400	problems caused by airborne pollutants	178	investigate effect of acid rain on microorganisms
				400	economic impact of pollution		
				421	wise use of water		
				425	water cycle and conservation		
				430	water usage and quality		
				444	acid rain explained		
				448	research the issue of acid rain		
				448	research economic impact of producing gases that cause acid rain		