

**Correlation to New Jersey Core Curriculum Content Standards for Science
 Foundations of Physical Science with Earth and Space Science
 Student Text and Investigation Manual**

Standard #: By the end of grad	Standard	Strand	Cumulative Progress Indicator	Volume 1 Student Text Page		Volume 2 Investigation Manual Page	
5.2.12.A.1 12	5.2 Physical Science	A. Properties of Matter	Use atomic models to predict the behaviors of atoms in interactions.	278	atoms are made up of protons and neutrons and electrons	67	atomic symbol and atomic number and mass number
				279	protons neutrons and electrons	67	Bohr model
				280	basic properties of an atom and the three subatomic particles	67	understand the structure of an atom based on protons and neutrons and electrons
				282	understand how atomic structure determines the identity of elements—atomic number	69	identify symbols and atomic number and mass number
				283	structure of an atom and three smaller particles	73	identify symbol and atomic number and mass number of elements
				284	three subatomic particles and their charge	76	chemical bonds and electrons
				289	electron shells	76	review subatomic particles
				291	idea of atomic mass	77	build model of Na and Cl atoms and explain why they bond to form a molecule
				293	atomic number on the periodic table	77	modeling chemical bonds and valence electrons
				294	common chemical properties of elements based on relation to periodic table	78	determining oxidation numbers
				295	explain common chemical properties in relation to placement on periodic table		
				298	how electron interactions create bonds		
				298	properties in relation to periodic table		

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				299	
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				316 periodic table and oxidation numbers 317 explain why ions are formed 322 qualitative understanding of how electron interactions create bonds 548 how ions are formed	
5.2.12.A.2 12	5.2 Physical Science	A. Properties of Matter	Account for the differences in the physical properties of solids, liquids, and gases.	116 relationship between real materials and concepts of atoms 190 physical differences between phases of matter 190 phases of matter 192 phase changes 218 physical differences between states of matter 227 explain matter states based on arrangement of atoms 297 relationship between materials and idea of atoms and molecules 300 relationship between real materials and arrangement of atoms 301 relationship between real materials and arrangements of atoms	44 phase change graphs

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5.2.12.A.3 12	5.2 Physical Science	A. Properties of Matter	Predict the placement of unknown elements on the Periodic Table based on their physical and chemical properties.	291	describe periodic table	70	periodic table
				291	recognizing groups or families on the periodic table	71	build and describe periodic table
				292	identify metals and nonmetals on the periodic table	74	identify metals and nonmetals and metalloids
				294	describing periodic table	74	recognizing groups or families
				294	recognizing metals and nonmetals and metalloids	74	periodic table
				294	recognizing groups and families of periodic table	75	periodic table
				294	common chemical properties of elements based on relation to periodic table	77	build model of Na and Cl atoms and explain why they bond to form a molecule
				295	explain common chemical properties in relation to placement on periodic table		
				296	describe periodic table		
				296	recognizing groups and families and periodic table		
				298	describe periodic table		
				298	properties in relation to periodic table		
				299	groups on periodic table		
				299	chemical properties in relation to periodic table		
				303	describe characteristics based on place in periodic table		

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				310 properties of elements in relation to the periodic table 311 explain the chemical properties of elements in relation to periodic table 312 explain chemical properties based on location in periodic table 316 periodic table and oxidation numbers	
5.2.12.A.4 12	5.2 Physical Science	A. Properties of Matter	Explain how the properties of isotopes, including half-lives, decay modes, and nuclear resonances, lead to useful applications of isotopes.	293 explain what isotopes are 355 basic concepts of radioactivity and decay of one atom into another 355 explain what isotopes are 357 radioisotopes in science and medicine	67 what isotopes are 68 radioactivity 69 radioactivity 69 what isotopes are

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5.2.12.A.5 12	5.2 Physical Science	A. Properties of Matter	Describe the process by which solutes dissolve in solvents.	530	why water is a nearly universal solvent	135	describe the dissolving process at the molecular level
				534	solvent affects solubility		
				538	factors such as particle size that influence rate of dissolving	135	how various factors influence solubility—including temperature
				538	various factors influence solubility—including temperature	136	solubility and temperature
				539	identify how factors influence solubility—including nature of solvent	137	solubility curve
				539	factors that affect solubility—including the solute		
				541	solubility curve		
				542	describe the dissolving process at the molecular level		
				542	factors that affect solubility		
				543	factors that affect solubility—solute		
				543	various factors affect solubility—including pressure		
				543	various factors affect solubility—temperature		
				545	factors that affect solubility—temperature		

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5.2.12.A.6 12	5.2 Physical Science	A. Properties of Matter	Relate the pH scale to the concentrations of various acids and bases.	546 differentiate between acids and bases 547 differentiate between acids and bases 549 determine pH ranges of solutions 550 pH range 551 pH ranges 552 acids and bases 553 pH ranges 553 differentiate between acids and bases	258 create a pH scale

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5.2.12.B.1 12	5.2 Physical Science	B. Changes in Matter	Model how the outermost electrons determine the reactivity of elements and the nature of the chemical bonds they tend to form.	289	electron shells	67	Bohr model
				294	common chemical properties of elements based on relation to periodic table	76	chemical bonds and electrons
				295	explain common chemical properties in relation to placement on periodic table	77	build model of Na and Cl atoms and explain why they bond to form a molecule
				298	properties in relation to periodic table	77	modeling chemical bonds and valence electrons
				298	how electron interactions create bonds	78	determining oxidation numbers
				299	chemical properties in relation to periodic table		
				303	describe characteristics based on place in periodic table		
				308	how electrons are involved in bonds		
				309	how electrons are involved in bonds		
				309	how ions are formed		
				310	properties of elements in relation to the periodic table		
				310	how electron interactions help create chemical bonds		
				311	explain the chemical properties of elements in relation to periodic table		

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				311	how electrons are involved in bonds	
				312	explain chemical properties based on location in periodic table	
				312	how electrons are involved in bonding	
				313	know how to draw Lewis dot structures	
				313	how electrons are involved in bonding	
				314	Lewis dot structure	
				315	electron transfer and oxidation number	
				316	chemical bonding and the periodic table	
				316	periodic table and oxidation numbers	
				317	explain why ions are formed	
				317	bonding and electronegativity	
				322	qualitative understanding of how electron interactions create bonds	
				322	electronegativity	
				531	water is a polar molecule	
				532	hydrogen bonding in water	
				548	how ions are formed	

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5.2.12.B.2 12	5.2 Physical Science	B. Changes in Matter	Describe oxidation and reduction reactions, and give examples of oxidation and reduction reactions that have an impact on the environment, such as corrosion and the burning of fuel.	346 586 586	combustion reactions oxidation reactions formation of iron oxide	89	respiration and photosynthesis reactions
5.2.12.B.3 12	5.2 Physical Science	B. Changes in Matter	Balance chemical equations by applying the law of conservation of mass.	337 338 339	history of law of conservation of mass balanced chemical equations balancing chemical equations	83 84	investigate law of conservation of mass law of conservation of mass

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Standard #: By the end of grad	Standard	Strand	Cumulative Progress Indicator	Volume 1 Student Text Page	Volume 2 Investigation Manual Page
5.2.12.C.1 12	5.2 Physical Science	C. Forms of Energy	Use the kinetic molecular theory to describe and explain the properties of solids, liquids, and gases.	116 relationship between real materials and concepts of atoms 190 physical differences between phases of matter 192 heat energy and molecular motion 192 phase changes 218 physical differences between states of matter 297 relationship between materials and idea of atoms and molecules 300 relationship between real materials and arrangement of atoms 301 relationship between real materials and arrangements of atoms	44 phase change graphs

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5.2.12.C.2 12	5.2 Physical Science	C. Forms of Energy	Account for any trends in the melting points and boiling points of various compounds.	192	boiling and melting points	43	investigate melting and freezing points
				193	table of melting and boiling points	220	investigate melting point
				222	physical properties of matter		
				224	hardness is a physical property of matter		
				224	tensile strength		
				225	malleability is a physical property of matter		
				298	melting and boiling points of different materials		
				302	define and identify melting and boiling points		
5.2.12.D.1 12	5.2 Physical Science	D. Energy Transfer and Conservation	Model the relationship between the height of an object and its potential energy.	160	calculating potential energy	39	investigate energy changes with energy car system
				161	calculating kinetic energy	42	exploring energy and work in the energy car system
						217	compare potential and kinetic energy of car
5.2.12.D.2 12	5.2 Physical Science	D. Energy Transfer and Conservation	Describe the potential commercial applications of exothermic and endothermic reactions.	348	explain how energy is manifested in chemical reactions—exothermic and endothermic	235	investigating chemical reaction energy and hot packs
				349	how energy is manifested in chemical reactions	236	investigating chemical reaction energy and cold packs
						237	identifying energy in a chemical reaction

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5.2.12.D.3 12	5.2 Physical Science	D. Energy Transfer and Conservation	Describe the products and potential applications of fission and fusion reactions.	354 355 356 357 699 700 703	nuclear reactions basic concepts of radioactivity and decay of one atom into another fusion and fission radioisotopes in science and medicine types of nuclear reactions—fusion nuclear fusion nuclear fusion	68 69	radioactivity radioactivity
5.2.12.D.4 12	5.2 Physical Science	D. Energy Transfer and Conservation	Measure quantitatively the energy transferred between objects during a collision.	140 140	collisions explained momentum	213 215	investigate collisions relate collisions to action/reaction forces
5.2.12.D.5 12	5.2 Physical Science	D. Energy Transfer and Conservation	Model the change in rate of a reaction by changing a factor.	351	reaction rate		

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5.2.12.E.1 12	5.2 Physical Science	E. Force and Motion	Compare the calculated and measured speed, average speed, and acceleration of an object in motion, and account for differences that may exist between calculated and measured values.	76	calculating speed	19	finding speed
				76	concept of speed	21	find speed of car
				78	speed	26	calculate car's acceleration
				81	calculating speed	30	compare speeds of cars
				83	calculating speed	32	positive and negative acceleration
				85	constant velocity	32	calculate speed of car
				85	calculations for speed	35	quantitative understanding of force as a rate of change of velocity
				86	conceptual understanding of acceleration as describing change in speed	35	calculate acceleration
				93	quantitative understanding of acceleration as change in speed	35	conceptual idea of acceleration as change in speed
				114	compare and contrast constant and changing velocity	38	find speed of car
				126	compare and contrast constant and changing velocity	205	calculate speed
				131	acceleration is a rate of change of speed	207	calculate speed
				131	concept of acceleration	208	speed calculations
				135	conceptual understanding of acceleration as change in speed	231	calculate speed

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5.2.12.E.2 12	5.2 Physical Science	E. Force and Motion	Compare the translational and rotational motions of a thrown object and potential applications of this understanding.	54	coordinate systems	14	two-dimensional coordinate systems
				90	effect of gravity on motion		
				92	projectile explained	15	two-dimensional coordinate systems
				103	effect of gravity on objects		
				116	effects of gravity		
				720	effect of gravity		
5.2.12.E.3 12	5.2 Physical Science	E. Force and Motion	Create simple models to demonstrate the benefits of seatbelts using Newton's first law of motion.	87	quantitative understanding of acceleration as a rate of change of velocity	33	explore Newtons' first law of motion
				98	forces needed to change motion	34	explore the effect of inertia on a cart's motion
				109	changes in motion require application of force		
				116	change in motion require force		
				117	quantitative understanding of force changing motion		
				126	changes in motion require force		
				127	change in motion requires force		
				142	Newton's laws in terms of real situations—sports and cars		

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5.2.12.E.4 12	5.2 Physical Science	E. Force and Motion	Measure and describe the relationship between the force acting on an object and the resulting acceleration.	93	Newton's second law	33	second law of motion
				115	balanced and unbalanced forces	36	qualitative understanding of Newton's third law
				117	use concepts of balanced or unbalanced forces	37	Newton's second law
				119	unbalanced forces cause motion	216	Newton's second law
				131	Newton's second law		
				132	Newton's second law—qualitative		
				132	Newton's second law—qualitative		
				132	Newton's second law—qualitative		
				136	understand and use concept of balanced and unbalanced forces to create motion		
				137	balanced and unbalanced forces		

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5.4.12.A.1 12	5.4 Earth Systems Science	A. Objects in the Universe	Explain how new evidence obtained using telescopes (e.g., the phases of Venus or the moons of Jupiter) allowed 17th-century astronomers to displace the geocentric model of the universe.	664	relative sizes and distances within the solar system	192	measuring apparent brightness to calculate the distance to stars and galaxies
				681	how astronomical instruments help us understand the universe	278	position of Earth among planets
				712	history of the telescope		
				713	types and uses of telescopes		
				716	spacecraft as tools of astronomy		
				719	how astronomical instruments helped us learn about the universe		
				724	astronomical instruments		
				726	historical theories of universe		
				727	theories of universe origin		
5.4.12.A.2 12	5.4 Earth Systems Science	A. Objects in the Universe	Collect, analyze, and critique evidence that supports the theory that Earth and the rest of the solar system formed from a nebular cloud of dust and gas 4.6 billion years ago.	676	how the moon was formed		
				729	how the solar system was formed		

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5.4.12.A.3 12	5.4 Earth Systems Science	A. Objects in the Universe	Analyze an H-R diagram and explain the life cycle of stars of different masses using simple stellar models.	695	how stars produce energy	179	using a spectrometer to identify elements
				695	explain how stars produce energy	180	analyzing light from different light sources
				696	brightness of a star	181	analyzing light from a star
				697	general features of the life cycle of stars	182	star life cycle and H-R diagram
				698	how stars form and how they produce energy and stars' life cycle	183	graphing star data
				699	how stars form and features of life cycle	184	groupings on the H-R diagram
				700	formation of stars		
				701	life cycle of a star		
				703	star's life cycle		
				727	how stars form		
				728	star life cycle		

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5.4.12.A.4 12	5.4 Earth Systems Science	A. Objects in the Universe	Analyze simulated and/or real data to estimate the number of stars in our galaxy and the number of galaxies in our universe.	681	how astronomical instruments help us understand the universe	192	measuring apparent brightness to calculate the distance to stars and galaxies
				709	calculating and using light years	277	use of light years
				711	light years and time	278	general characteristics of universe
				712	history of the telescope	284	light years
				713	types and uses of telescopes	284	use light years to describe distances in the universe
				716	spacecraft as tools of astronomy	284	appearance of the night sky
				718	general characteristics of universe—galaxies		
				718	light years		
				719	how astronomical instruments helped us learn about the universe		
				719	features of universe as we currently understand it		
				720	characteristics of the universe		
				721	light years		
				721	characteristics of the universe		
				724	astronomical instruments		
				724	light years		
				724	description of galaxy as we know it		
				734	research and describe astronomical objects		

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5.4.12.A.5 12	5.4 Earth Systems Science	A. Objects in the Universe	Critique evidence for the theory that the universe evolved as it expanded from a single point 13.7 billion years ago.	726	how doppler shift and cosmic background radiation are evidence for Big Bang	
				727	evidence for Big Bang	
				728	evidence for Big Bang	
				731	evidence for Big Bang	
5.4.12.A.6 12	5.4 Earth Systems Science	A. Objects in the Universe	Argue, citing evidence (e.g., Hubble Diagram), the theory of an expanding universe.	726	how doppler shift and cosmic background radiation are evidence for Big Bang	
				727	evidence for Big Bang	
				728	evidence for Big Bang	
				731	evidence for Big Bang	
5.4.12.B.1 12	5.4 Earth Systems Science	B. History of Earth	Trace the evolution of our atmosphere and relate the changes in rock types and life forms to the evolving atmosphere.	69	types of rock and how they are formed	133 how rocks are formed
				378	global climate change and you	146 types of rocks and how they are formed
				466	how rocks are formed	252 general history on Earth
				490	how rocks are formed	265 climate change over time and what it would do to currents
				702	compare Sun with other stars	
				703	compare Sun with other stars	

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5.4.12.B.2 12	5.4 Earth Systems Science	B. History of Earth	Correlate stratigraphic columns from various locations by using index fossils and other dating techniques.	452	fossil record helps to understand the history of Earth	116	determining the relative ages of rock formations
						117	sequencing events in a geologic cross-section
						253	fossils
5.4.12.B.3 12	5.4 Earth Systems Science	B. History of Earth	Account for the evolution of species by citing specific absolute-dating evidence of fossil samples.	357	radioactive dating		
				457	relative dating		
				459	Hutton, Lyell, and Darwin		
5.4.12.C.1 12	5.4 Earth Systems Science	C. Properties of Earth Materials	Model the interrelationships among the spheres in the Earth systems by creating a flow chart.	251	atmosphere structure		
				267	atmosphere		

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5.4.12.C.2 12	5.4 Earth Systems Science	C. Properties of Earth Materials	Analyze the vertical structure of Earth's atmosphere, and account for the global, regional, and local variations of these characteristics and their impact on life.	246	composition of Earth's atmosphere	50	modeling convection in Earth's atmosphere
				249	measuring atmospheric pressure with barometers	52	exploring sea and land breezes
				250	water vapor as part of the atmosphere	61	heating land and water
				253	large scale movement of air and how it affects weather	64	use techniques for atmospheric measurement
				255	how air movement affects weather	65	use techniques for atmospheric measurement
				256	water vapor as part of atmosphere	228	techniques of atmospheric measurement
				256	movement of air affects weather		
				263	large scale movement of air causes weather changes		
				264	movement of air affects weather		
				267	water vapor as part of atmosphere		
				269	movement of air affects weather		
				302	describe components of the atmosphere such as oxygen and nitrogen and water vapor		
				373	greenhouse gases		
				374	how greenhouse gases work		

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				375 greenhouse gases and the atmosphere 376 understanding global climate change 677 greenhouse conditions on Venus	

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5.4.12.D.1 12	5.4 Earth Systems Science	D. Tectonics	Explain the mechanisms for plate motions using earthquake data, mathematics, and conceptual models.	466 structures formed at types of plate boundaries 466 plate tectonics 490 structures formed at types of plate boundaries 494 types of formations found at different plate boundaries 518 types of plate boundaries	120 types of features found along plate boundaries 121 three types of plate boundaries and features associated with them 123 geologic basis for earthquakes 123 explanation for placement and properties of volcanoes 123 structures that form at certain plate boundaries 124 students know the structures that form at plate boundaries 124 types of features at plate boundaries 125 students know geologic basis for earthquakes 130 theory of plate tectonics 132 know what forms at different types of plate boundaries 132 students know structures that form at the three different plate boundaries 133 explanation of location of volcanoes 252 plate tectonics 253 plate tectonics

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5.4.12.D.2 12	5.4 Earth Systems Science	D. Tectonics	Calculate the average rate of seafloor spreading using archived geomagnetic- reversals data.	67	students know that ocean floor gives evidence for plate tectonics	
				489	plate boundaries	
				494	sea floor characteristics show evidence of plate tectonics	
5.4.12.E.1 12	5.4 Earth Systems Science	E. Energy in Earth Systems	Model and explain the physical science principles that account for the global energy budget.	157	describe forms of energy from origin-Sun to life	90 photosynthesis
				251	fate of incoming solar radiation	
				261	fate of incoming solar radiation	
				302	how carbon cycles through an ecosystem	
				643	photosynthesis	
				671	relative amount of solar radiation	

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5.4.12.E.2 12	5.4 Earth Systems Science	E. Energy in Earth Systems	Predict what the impact on biogeochemical systems would be if there were an increase or decrease in internal and external energy.	251	fate of incoming solar radiation	
				261	fate of incoming solar radiation	
				375	greenhouse gases and the atmosphere	
				376	understanding global climate change	
				671	relative amount of solar radiation	
				677	greenhouse conditions on Venus	
5.4.12.F.1 12	5.4 Earth Systems Science	F. Climate and Weather	Explain that it is warmer in summer and colder in winter for people in New Jersey because the intensity of sunlight is greater and the days are longer in summer than in winter. Connect these seasonal changes in sunlight to the tilt of Earth's axis...	666	Earth's rotation and patterns of day and night	174 modeling the reason for the seasons
				667	patterns of day and night and years	176 modeling the intensity of light that falls on Earth
				670	solar eclipses	177 comparing axial tilt with distance from energy source
				670	solar eclipses	
				671	the seasons	
				673	identify seasons	

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5.4.12.F.2 12	5.4 Earth Systems Science	F. Climate and Weather	Explain how the climate in regions throughout the world is affected by seasonal weather patterns, as well as other factors, such as the addition of greenhouse gases to the atmosphere and proximity to mountain ranges and to the ocean.	250	effect of elevation on climate	50	modeling convection in Earth's atmosphere
				253	large scale movement of air and how it affects weather	52	exploring sea and land breezes
				254	how differential heating of Earth causes air movements	61	heating land and water
				254	Coriolis effect	66	describe changes in weather
				254	know the relationship between rotation of Earth and the circular motion of air currents	229	causes for tornadoes
				255	effect of latitude on climate	231	hurricanes
				255	Coriolis effect	260	global winds and ocean currents
				255	how air movement affects weather	261	exploring salinity and temperature-dependent layering
				255	differential heating of Earth results in circulation of air	263	understanding the North Atlantic gyre
				256	movement of air affects weather	264	thermohaline currents
				257	changes in weather	264	differential heating causes circulation of currents
				259	latitudes affect where biomes occur		
				259	distribution of deserts and rain forests because of oceans		
				261	mountains affect climate		
				263	changes in weather		

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Standard #: By the end of grad	Standard	Strand	Cumulative Progress Indicator	Volume 1 Student Text Page	Volume 2 Investigation Manual Page
				263	
					large scale movement of air causes weather changes
				264	
					movement of air affects weather
				264	
					reasons for changes in weather
				264	
					things that affect climate and weather
				265	
					differential heating of Earth leads to distribution of heat
				265	
					Coriolis effect
				267	
					reasons for changes in weather
				268	
					causes of severe weather
				269	
					movement of air affects weather
				269	
					Coriolis effect
				269	
					changes in weather and causes for storms
				270	
					reasons for tornadoes
				373	
					greenhouse gases
				374	
					how greenhouse gases work
				573	
					effects of climate based on warm or cold ocean currents

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5.4.12.F.3 12	5.4 Earth Systems Science	F. Climate and Weather	Explain variations in the global energy budget and hydrologic cycle at the local, regional, and global scales.	246 256 257 267 269	nitrogen cycle water cycle related to weather types of water types of water on Earth water cycle affects weather	142 142 143 143	explain relationship between solar energy and precipitation and rivers and oceans water cycle model understand relationship between solar energy and water cycle water cycle model
5.4.12.G.1 12	5.4 Earth Systems Science	G. Biogeochemical Cycles	Analyze and explain the sources and impact of a specific industry on a large body of water (e.g., Delaware or Chesapeake Bay).	246 550 552 566 567	nitrogen cycle acid rain acid rain depleting Ogallala aquifer protecting watersheds	96 240	ocean acidification oil seeps
5.4.12.G.2 12	5.4 Earth Systems Science	G. Biogeochemical Cycles	Explain the unintended consequences of harvesting natural resources from an ecosystem.	246 436 436	nitrogen cycle how human activity affects resources—renewable and nonrenewable effects of human activity on natural resources	150 151	draw conclusions about effects of human activity on resources draw conclusions about effects of human activity on resources
5.4.12.G.3 12	5.4 Earth Systems Science	G. Biogeochemical Cycles	Demonstrate, using models, how internal and external sources of energy drive the hydrologic, carbon, nitrogen, phosphorus, sulfur, and oxygen cycles.	246 257 267 302	nitrogen cycle types of water types of water on Earth how carbon cycles through an ecosystem	142 143	water cycle model water cycle model

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5.4.12.G.4 12	5.4 Earth Systems Science	G. Biogeochemical Cycles	Compare over time the impact of human activity on the cycling of matter and energy through ecosystems.	552	effects of agriculture on ecosystems		
5.4.12.G.5 12	5.4 Earth Systems Science	G. Biogeochemical Cycles	Assess (using maps, local planning documents, and historical records) how the natural environment has changed since humans have inhabited the region.	56	reading and interpreting maps	16	topographic profiles
				57	read and interpret maps specifically latitude and longitude	18	topographic profiles
				58	interpret maps	132	know how to read and interpret latitude and longitude on maps
				61	students read and interpret maps—topographic contours	132	students know how to read maps—latitude and longitude
				62	reading topographic maps	150	draw conclusions about effects of human activity on resources
				63	students interpret topographic contours	151	draw conclusions about effects of human activity on resources
				64	topographic maps		
				65	reading and interpreting maps—contour lines and latitude and longitude		
				71	latitude and longitude and contours		
				72	interpret topographic maps		
				436	how human activity affects resources—renewable and nonrenewable		
				436	effects of human activity on natural resources		

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5.4.12.G.6 12	5.4 Earth Systems Science	G. Biogeochemical Cycles	Assess (using scientific, economic, and other data) the potential environmental impact of large-scale adoption of emerging technologies (e.g., wind farming, harnessing geothermal energy).	367	understand how waste products from technology create pollutants	241	environmental impact of using different energy sources
				369	fossil fuels and carbon dioxide emissions		
				437	environmental impact of fossil fuel use		
5.4.12.G.7 12	5.4 Earth Systems Science	G. Biogeochemical Cycles	Relate information to detailed models of the hydrologic, carbon, nitrogen, phosphorus, sulfur, and oxygen cycles, identifying major sources, sinks, fluxes, and residence times.	257	types of water	142	water cycle model
				267	types of water on Earth	143	water cycle model
				302	how carbon cycles through an ecosystem		
				566	groundwater		