

**Correlation to Pennsylvania Academic Standards for Science  
CPO Science Life Science ( Middle School)  
Student Text and Investigation Manual**

Standard #: by end of grade	Category	Standard Statement	Volume One Student Text Page	Volume Two Investigation Manual Page
3.1.7.A 7	Unifying Themes	Explain the parts of a simple system and their relationship to each other.	13 33 33 34 37 58 72 75 76 104 145 258 312 364	103 105
			concept of systems organization of everything into systems and subsystems use and understand concept of system organization into systems and subsystems organization of systems everything is organized into systems and subsystems form and function of living system interactions of matter and energy in living systems identify and describe parts of a system found in nature systems in nature form of mitochondria is linked to its function form and function—form is linked to function of systems and change in form may alter function form and function form and function of structures	identify and describe parts of a system identify and describe parts of a system

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3.1.7.B 7	Unifying Themes	Describe the use of models as an application of scientific or technological concepts.	<p>387 form and function</p> <p>408 structure and function</p> <p>13 design and test a model to solve a problem</p> <p>17 constructing a graphical model</p> <p>18 making graphical model from data</p> <p>19 creating graphical model from data</p> <p>21 constructing graphical model from data</p> <p>152 recognition that scientific knowledge can be in the form of models</p> <p>170 science can be models</p> <p>210 science—not just a collection of facts but can be a conceptual model</p> <p>300 graphs</p> <p>402 scientific knowledge in the form of models</p> <p>452 scientific knowledge can be in the form of models</p>	<p>3 constructing graphical model</p> <p>6 creating a graphical model from data</p> <p>37 making graph from data</p> <p>47 using data tables</p> <p>54 constructing graphical model from data</p> <p>57 making sketches and diagrams</p> <p>83 evaluate graphical model</p> <p>87 evaluate data from graph</p> <p>87 analyze trends from data</p> <p>107 create and analyze graphical model from data</p> <p>113 find math rule for lever equilibrium</p> <p>153 lab notebook</p> <p>154 making graphs</p>

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3.1.7.C 7	Unifying Themes	Identify patterns as repeated processes or recurring elements in science and technology.	38  44 45 46 48 48  49  50 51 51 52 54 55 57 58 59 59	13 14 15 17 18 26 48  52 88 89 99
			<p>compare Earth to Mars with respect to supporting life</p> <p>classification into kingdoms</p> <p>classification of kingdoms</p> <p>classification of kingdoms</p> <p>classification of animals</p> <p>classification of organisms into six kingdoms</p> <p>classification of living things into kingdoms</p> <p>dichotomous keys and classifying animals</p> <p>dichotomous keys</p> <p>classify living organisms into kingdoms</p> <p>classify animals using dichotomous keys</p> <p>classifying new species</p> <p>classify new species</p> <p>classifying organisms into six kingdoms</p> <p>classifying organisms into six kingdoms</p> <p>classifying organisms</p> <p>concept of kingdoms</p>	<p>classification of living things</p> <p>classify living things</p> <p>classify living things</p> <p>classification of organisms</p> <p>classifying organisms</p> <p>components of an ecosystem—interactions</p> <p>classification of organisms into six kingdoms</p> <p>classifying organisms into six kingdoms</p> <p>classification of animals</p> <p>classifying animals</p> <p>classifying animals</p>

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65			classify materials by physical and chemical properties	
112			adaptations of animals to different environments	
116			adaptations of animals to specific environments	
124			adaptations of animals to specific ecosystems	
127			adaptations of animals to certain ecosystems	
177			classification of organisms into Protista Kingdom	
178			classification into Archaeobacteria and Eubacteria kingdoms	
257			adaptations of animals to certain ecosystems	
265			adaption of animals to certain environments	
266			adaption of animals for certain environments	
273			animals are adapted to certain environments	
276			classification of animals	
291			adaptations of animals to the environment	

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305			classification of living organisms into six kingdoms	
306			classification of animals	
307			classification of animals	
308			classify organisms	
309			classification of organisms into six kingdoms	
310			classification of organisms into six kingdoms	
310			classification of animals	
311			classification of organisms into six kingdoms	
313			classifying organisms into six kingdoms	
315			classify organisms into six kingdoms	
316			classification of organisms	
352			classification of animals	
358			classification of animals	
359			classification of animals	
360			classification of animals	
361			classification of animals	
362			classification of animals	

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3.1.7.D 7	Unifying Themes	Explain scale as a way of relating concepts and ideas to one another by some measure.	<p>363 classification of animals</p> <p>364 classification of animals</p> <p>365 classification of animals</p> <p>366 classification of animals</p> <p>369 classification of animals</p> <p>370 classification of animals</p> <p>372 classification of animals</p> <p>373 animal systems</p> <p>373 classification of animals</p> <p>374 classification of animals</p>	<p>1 metric units (millimeters and centimeters)</p> <p>82 rulers</p> <p>99 metric rulers</p> <p>133 metric and English rulers</p> <p>134 metric rulers</p> <p>135 metric rulers</p> <p>136 metric rulers</p> <p>139 rulers</p>

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3.1.7.E 7	Unifying Themes	Identify change as a variable in describing natural and physical systems.	<p>96 identify changes that can lead to extinction of a species</p> <p>128 human actions affect resources</p> <p>129 succession</p> <p>289 theory of plate tectonics</p> <p>290 theory of plate tectonics</p> <p>291 theory of plate tectonics</p> <p>292 plate tectonics</p> <p>295 how ecosystems respond to change</p> <p>298 causes for extinction</p> <p>298 how ecosystem responds to changes</p> <p>317 how ecosystem responds to changes</p> <p>335 explain the relationship between the Sun and Earth and patterns of day and night</p>	<p>86 factors that could lead to extinction</p> <p>113 find math rule for lever equilibrium</p>

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3.2.7.A 7	Inquiry and Design	Explain and apply scientific and technological knowledge.	<p>11 ask scientific questions</p> <p>13 steps of scientific method</p> <p>13 designing scientific experiments</p> <p>14 repeatability of results</p> <p>14 steps of scientific method</p> <p>15 repeatability is necessary for verification of evidence</p> <p>15 describing steps of scientific method</p> <p>16 designing scientific experiments—including asking questions</p> <p>22 steps of scientific method</p> <p>26 steps of scientific method</p> <p>141 trace development of theory—cell theory</p> <p>376 scientific method</p>	<p>3 recognize that repeatability is necessary for verification of evidence</p> <p>5 steps of scientific method</p> <p>25 describe steps of the scientific method</p> <p>61 specify implications for further investigation</p> <p>68 trace the history of a scientific discovery</p> <p>92 specifying implications for further research</p> <p>101 design experiments</p>

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3.2.7.B 7	Inquiry and Design	Apply process knowledge to make and interpret observations.	4 5 5 6 6 7 8 8 10 10 11 11 12 12 12 13 13	1 3 3 4 4 5 5 6 6 7 7 8 8 8 8
			understanding English and metric units understanding units for length and mass understanding units for length and mass length length measure volume of regular solid know measurement of mass proposing an explanation volume measurements length measurements revising explanations testing explanations against observations proposing explanations process of scientific inquiry testable hypothesis designing scientific experiments recognize control variables	measurements and use of proper tools revising explanations based on observational evidence testing hypothesis against data recognizing and controlling variables in observation and experiments conduct scientific inquiry through laboratory experiments—asking questions and making hypothesis recognizing and controlling variables formulate testable hypothesis make prediction based on inferences from data testing hypothesis against data recognizing variables testing hypothesis against data formulate testable hypothesis

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16		designing scientific experiments—including asking questions	16	8
25		measurements in kg	25	9
25		metric and English units	25	11
26		recognizing variables in observations and experiments	26	11
30		interpreting observations and proposing explanations	30	18
96		proposing explanations	96	18
149		posing explanations	149	19
154		understand metric units	154	19
157		making predictions based on inferences from data	157	21
161		scientific method—including making hypothesis	161	21
179		use metric units of length	179	22
183		metric length units	183	22
190		construct explanations supported by evidence	190	23
300		interpret observations	300	24
376		testing explanation against observation	376	24
434		design scientific experiments	434	24
		recognizing and controlling variables		8
		make predictions based on inferences from data		9
		formulate testable hypothesis		11
		recognizing and controlling variables		11
		revise explanations		18
		design key others can follow		18
		predict		19
		explanation based on data		19
		recognizing control variables		21
		scientific inquiry		21
		testing hypothesis		21
		make predictions based on observed data		22
		recognizing variables		22
		recognizing and controlling variables in experiments		23
		recognizing and controlling variables in experiments		24
		testing hypothesis against data		24

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27			434	make predictions based on observed data
27			434	interpret observations
29				recognizing and controlling variables
30				interpreting observations and proposing explanations
33				identify cause and effect relationship
34				cause and effect relationships
34				interpret observations
39				interpreting observations
42				interpreting observations
44				testing hypothesis with data
44				formulate testable hypothesis
44				interpreting observations and posing explanations
45				conduct scientific inquiry through laboratory experimentation
45				making predictions based on inferences from observed data
47				testing hypothesis with data

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47				posing explanations
47				recognizing and controlling variables
47				formulate a testable hypothesis
47				identifying cause and effect relationships
49				interpret observations and pose explanations
51				posing testable hypothesis
52				proposing explanations from data
58				make predictions based on inferences from data
60				testing hypothesis against data
60				make testable hypothesis
61				make predictions based on inferences from observed data
63				interpreting observations and proposing explanations
65				interpreting data and posing explanations
70				make explanations based on evidence
70				make predictions from data

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Standard #: by end of grade	Category	Standard Statement	Volume One Student Text Page	Volume Two Investigation Manual Page
75				use arguments of % to describe data
76				construct explanations backed by data
76				interpret observations
77				construct explanation based on evidence
79				explanation supported by evidence
80				develop procedures others can follow
82				measurement
84				explanations based on evidence
85				construct explanations based on evidence
90				interpreting observations and proposing explanations
91				formulate testable hypothesis
92				make predictions based on inferences from observed data
94				identify cause and effect relationships
94				proposing explanations
95				identify and control variables

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Standard #: by end of grade	Category	Standard Statement	Volume One Student Text Page	Volume Two Investigation Manual Page
97				interpret observations
97				measuring
101				design experiments
105				explanations from experiments
106				formulate hypothesis
106				recognize and control variables
110				create hypothesis
110				identify and control variables
111				interpret observations and propose explanations
112				controlling variables
113				controlling variables
115				make predictions based on data
116				interpreting observations and proposing explanations
121				making hypothesis
121				make predictions based on observations
122				posing explanations
130				design experiment that someone else can follow
133				measuring

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133				understanding length measurements
134				length measurements
134				measuring
135				length measurements
135				measuring
136				measuring
139				measure volume of regular objects
139				measuring
140				measuring
140				volume of regular objects
141				measuring
141				measure volume of regular solids
142				measure volume of regular objects
142				measuring
143				measure volume of irregular objects
145				mass in kg and gm
146				mass in kg and gm

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3.2.7.C 7	Inquiry and Design	Identify and use the elements of scientific inquiry to solve problems.	8 11 11 12 12 13 13 14 16 16 17 18 20 21 26 26	3 3 4 4 5 6 6 7 8 8 11 15 15
			proposing an explanation testing explanations against observations revising explanations proposing explanations process of scientific inquiry designing scientific experiments recognize control variables lab report designing scientific experiments—including asking questions making oral presentation of projects making graphs making graphs reading graphs and charts and tables reading graphs and charts and tables recognizing variables in observations and experiments making graphs	revising explanations based on observational evidence testing hypothesis against data conduct scientific inquiry through laboratory experiments—asking questions and making hypothesis recognizing and controlling variables in observation and experiments recognizing and controlling variables make an oral presentation of scientific results or projects testing hypothesis against data recognizing variables recognizing and controlling variables testing hypothesis against data recognizing and controlling variables writing up scientific results field notes and sketches

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			30 interpreting observations and proposing explanations	15 written communication essential to science
			82 creating pie graph	18 revise explanations
			95 reading graphs	21 scientific inquiry
			96 proposing explanations	21 recognizing control variables
			104 sketches	21 testing hypothesis
			130 oral report	22 recognizing variables
			130 communicating	23 recognizing and controlling variables in experiments
			143 reading diagrams	
			149 drawing and interpreting diagrams	24 testing hypothesis against data
			149 posing explanations	24 recognizing and controlling variables in experiments
			154 communicating scientific information in written form and explaining and discussing hard to grasp concepts	25 making an oral presentation of scientific results
			154 making an oral presentation of a project	26 sketching and drawing
			161 scientific method—including making hypothesis	27 interpret observations
			166 explaining phenomena and related ?? are made understandable through discussion	29 recognizing and controlling variables
			170 drawing diagrams	30 interpreting observations and proposing explanations
				33 identify cause and effect relationship

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Standard #: by end of grade	Category	Standard Statement	Volume One Student Text Page	Volume Two Investigation Manual Page
			170 present results of experiments or projects	34 cause and effect relationships
			172 reading data tables	34 interpret observations
			177 interpreting diagrams	35 field notes and sketches
			190 drawing diagrams	35 making diagrams
			192 creating charts	36 make oral presentation of results
			201 interpret diagrams	36 sketches and field notes
			207 use data tables	36 written and oral communication is important to science
			211 creating diagrams	37 communication is important to science
			229 reading and making diagrams	37 making bar graphs
			232 making and interpreting diagrams	37 field notes
			235 explaining to others	38 making sketches
			235 reading and making diagrams	39 making sketches
			241 interpreting diagrams	39 interpreting observations
			249 interpreting diagrams	41 making sketches
			275 explaining helps to understand	42 making sketches
			300 interpret observations	42 interpreting observations
			346 drawings	44 interpreting observations and posing explanations
			376 testing explanation against observation	44 testing hypothesis with data
			378 diagrams	
			402 sketches	

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			402 explaining	45 conduct scientific inquiry through laboratory experimentation
			434 interpret observation	47 identifying cause and effect relationships
			434 design scientific experiments	47 recognizing and controlling variables
				47 testing hypothesis with data
				47 posing explanations
				49 making sketches
				49 interpret observations and pose explanations
				51 making sketches
				52 proposing explanations from data
				52 making sketches
				54 making sketches
				55 interpret and make sketches and diagrams
				58 making sketches and diagrams
				60 testing hypothesis against data
				63 interpreting observations and proposing explanations

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65				interpreting data and posing explanations
67				making sketches
74				reading graphs and tables
76				creating bar graphs
76				interpret observations
77				communicating
80				communicating results
80				make argument based on evidence
86				sketches and diagrams
90				interpreting observations and proposing explanations
90				creating diagrams
92				making sketches
93				sketches
93				reading data tables
94				proposing explanations
94				identify cause and effect relationships
95				identify and control variables
95				sketches
96				sketches
97				interpret observations

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99				drawing diagrams
100				making sketches
101				design experiments
106				recognize and control variables
110				identify and control variables
111				interpret observations and propose explanations
112				controlling variables
113				controlling variables
113				drawings and diagrams
115				making sketches and diagrams
116				interpreting observations and proposing explanations
120				communicating orally is essential to science
122				posing explanations
130				formal lab report
131				lab report
131				communicating results is essential to science
132				writing up results
154				making graphs

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3.2.7.D 7	Inquiry and Design	Know and use the technological design process to solve problems.	<p>13 design and test a model to solve a problem</p> <p>152 create and interpret dimensioned sketches and drawings</p> <p>192 making drawings</p> <p>423 engineering design cycle in action</p>	<p>154 reading graphs</p> <p>155 formal lab report</p> <p>155 sketches</p>



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			126 adaptations of plants to an ecosystem	
			127 adaptations of animals to certain ecosystems	
			127 adaptations of plants to certain ecosystems	
			189 adaptations to extreme environments	
			257 adaptations of animals to certain ecosystems	
			259 branching diagrams of classification and evolution	
			260 branching diagram of evolution	
			262 branching diagrams of evolution	
			264 evolutionary history and branching	
			265 branching evolutionary diagrams	
			265 adaption of animals to certain environments	
			266 adaption of animals for certain environments	
			267 branching diagrams	
			268 branching diagrams	
			273 animals are adapted to certain environments	

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276			adaptations of animals	
277			adaptations of animals to environments	
278			adaptation of animals to different environments	
291			adaptations of animals to the environment	
307			branching diagrams of classifications	
308			branching diagram of shared characteristics	
310			branching diagrams of classification	
315			adaptations to certain environments	
318			branching diagrams of evolution	
323			branching diagrams for classification	
324			adaptations of plants to certain environments	
324			branching diagrams of evolution	
327			adaptations of plants for certain environments	
329			adaptations of plants to certain environments	
332			adaptations of plants to certain environments	

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334			structure and function	
337			adaptations of plants	
342			adaptation of plants to certain environments	
343			adaptations of plants	
345			populations	
346			adaptations of plants	
364			branching diagrams of classification and evolution	
370			adaptations of animals to specific environments	
371			adaptations of animals to certain environments	
372			animal adaptations	
373			animal systems	
375			branching diagrams of classification	
377			adaptation of animals	
378			branching diagrams of evolution	
438			adaptations	

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3.3.7.B 7	Biological Sciences	Describe the cell as the basic structural and functional unit of living things.	<p>28 basic life processes</p> <p>29 life processes</p> <p>29 concept of cells</p> <p>32 life processes</p> <p>33 concept of cells</p> <p>33 difference between single and multicellular organisms</p> <p>34 different kinds and functions of cells</p> <p>37 concept of a cell</p> <p>41 life processes</p> <p>44 multi vs. single celled</p> <p>135 concept of cells</p> <p>136 basic concept of cells</p> <p>136 different function of cells</p> <p>137 difference between multi and single cellular organism</p> <p>137 concept of cells—discovery of</p> <p>137 difference between plant and animal cells</p> <p>138 cell</p> <p>138 processes—reproduction</p> <p>138 how cells reproduce</p>	<p>19 cellular respiration</p> <p>22 cellular respiration</p> <p>38 plant tissues and organs</p> <p>38 concept of cells</p> <p>39 cell structure and function</p> <p>40 differences in plant and animal cells</p> <p>41 plant vs. animal cells</p> <p>41 structure of a cell</p> <p>42 plant vs. animal cells</p> <p>42 classify cells by their organelles</p> <p>42 structure of a cell</p> <p>43 life processes of a cell—osmosis and diffusion</p> <p>45 life processes of a cell</p> <p>48 life processes of cells—food</p> <p>49 life processes of cells</p> <p>49 classification of cells based on organelles</p> <p>50 classify cells based on structures</p> <p>53 mitosis and cell cycle</p>

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139			differences between multi and single celled organisms	54 differences in plant and animal cells
139			understand specialized plant and animal cells	56 mitosis and cell division
139			cell structures and functions of structures	56 haploid vs. diploid
140			concept of nucleus	101 sexual vs. asexual reproduction
141			specialized cells	
141			concept of cells	
142			structure and function of cell parts	
142			mitochondria and chloroplasts	
142			concept of nucleus	
143			structure and function of cell organelles	
143			mitochondria and what they do	
143			classification of cells based on organelles	
144			cell structures and what they do	
144			concept of nucleus	
145			mitochondria and their function	

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145			cell differentiation (liver and muscle cells are different than others)	
145			cell structures and what they do	
146			cell structures and their functions	
146			cell differentiation—why cells have more or less Golgi bodies	
147			concept of chloroplasts	
147			classification of plant cell based on organelles present	
147			different kinds of cells and their functions	
148			classification of cells based on structures	
148			concept of chloroplast and what it does	
153			structure and function of a cell	
153			concept of nucleus	
154			classifying cells based on organelles	
154			differences in plant and animal cells	
155			concept of cells	

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156			structure of the cell membrane	
157			cellular processes—diffusion	
158			life processes of cells—osmosis	
159			differentiation of cells	
159			life processes of cells—active and passive transport	
159			structure of a cell—membrane	
160			cell processes	
161			life processes of cells	
164			concept of chloroplast	
165			concept of mitochondria	
165			life processes—respiration	
166			life processes respiration and photosynthesis	
167			concept of chloroplasts	
167			life processes of cells	
168			cell differentiation	
169			understand functions of specialized animal cells	
169			cell differentiation	
171			structures and function of cell parts	

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171			cell life processes	
172			concept of the mitochondria	
172			life functions of cells—diffusion and osmosis	
173			differences between a single-celled organisms and multi-celled organisms	
174			life processes of cells—food	
174			difference between multi-celled organisms and single-celled organisms	
175			structure of protozoan cells and their functions	
175			understand functions of specialized cells	
175			life processes of cells	
176			life processes of cells	
176			classification of protozoans based on organelles	
178			structure of a cell and function of organelles	
180			life processes of cells	
181			concept of mitochondria	
181			life processes of cells—respiration	

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183			processes of cells—respiration	
185			structures of cells and their functions—membrane	
189			single celled organism	
192			life processes of cells	
196			basic cell processes—reproduction	
196			describe how multi-celled organisms grow by how cells reproduce	
198			mitochondria	
198			asexual reproduction	
198			basic life function of cells—reproduction and growth	
198			nucleus	
199			asexual reproduction of cells	
199			mitosis	
199			basic cell functions—reproduction	
200			asexual reproduction	
200			how multi-cellular organisms grow based on cell reproduction	
200			concept of nucleus	

**Correlation to Pennsylvania Academic Standards for Science  
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Standard #: by end of grade	Category	Standard Statement	Volume One Student Text Page	Volume Two Investigation Manual Page
201			asexual reproduction	
201			how multi-celled organisms grow because of cell reproduction	
202			sexual reproduction	
203			sexual reproduction—meiosis	
204			sexual reproduction—meiosis	
206			cell differentiation	
206			specialized animal cells	
206			sexual reproduction	
207			sexual and asexual reproduction	
208			sexual reproduction	
211			asexual vs. sexual reproduction	
212			sexual vs. asexual reproduction	
239			mitosis	
244			sexual reproduction	
248			mitochondria	
248			nucleus	
249			mitochondria	
259			all organisms are made of cells	

**Correlation to Pennsylvania Academic Standards for Science  
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Standard #: by end of grade	Category	Standard Statement	Volume One Student Text Page	Volume Two Investigation Manual Page
277			different kind of cells—plants and animals	
277			different kinds and functions of cells	
308			mammalian reproductive strategies	
311			sexual vs. asexual reproduction	
311			concept of cells	
313			different kinds of cells	
314			nucleus	
314			sexual and asexual reproduction	
315			sexual and asexual reproduction	
322			concept of cells	
322			nucleus	
325			sexual reproduction	
326			sexual reproduction	
327			sexual reproduction	
337			sexual reproduction	
338			sexual reproduction	
339			sexual reproduction	
340			sexual reproduction	
343			sexual reproduction	
344			types of reproduction	

**Correlation to Pennsylvania Academic Standards for Science  
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Standard #: by end of grade	Category	Standard Statement	Volume One Student Text Page	Volume Two Investigation Manual Page
353			structure of cells	
353			multi-celled organisms made up of cells	
354			multi-celled organisms grow when cells divide	
357			sexual reproduction vs. asexual reproduction	
358			complex organisms are made of cells	
359			sexual and asexual reproduction	
360			sexual and asexual reproduction	
361			sexual and asexual reproduction	
363			sexual and asexual reproduction	
368			multi-cellular organisms are made up of cells	
368			understand specialized functions of animal cells	
369			sexual and asexual reproduction	
371			sexual and asexual reproduction	
372			sexual vs. asexual reproduction	
373			sexual reproduction	

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Standard #: by end of grade	Category	Standard Statement	Volume One Student Text Page	Volume Two Investigation Manual Page
386		life processes of cells	386	
412		mitochondria	412	

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Standard #: by end of grade	Category	Standard Statement	Volume One Student Text Page	Volume Two Investigation Manual Page
3.3.7.C 7	Biological Sciences	Know that every organism has a set of genetic instructions that determines its inherited traits.	36 47 70 71 84 139 140 140 144 150 168 174 181 183 185 188	54 59 61 62 63 66 66 67 68 69 71 72 73 73 74 74 74 76 81 101
			organism's response to external stimuli theory of evolution DNA make up and nucleic acids DNA make up and nucleic acids structure including organs and organ systems concept of DNA fossils and how they relate to evolution of species concept of DNA DNA genes and how they interact with immune system DNA organisms (protozoans) response to dry environment evolution based on fossils evolution of cells concept of DNA genes and genetic make-up	DNA forms genes and inherited traits dominant vs. recessive traits genes and inherited traits dominance vs. recessive DNA structure genes and inherited traits DNA DNA structure DNA evolution genetics and environmental factors inherited traits inherited traits evolution of traits and environmental factors inherited traits evolution natural selection inherited traits evolution sexual vs. asexual reproduction

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Standard #: by end of grade	Category	Standard Statement	Volume One Student Text Page	Volume Two Investigation Manual Page
196			DNA	
197			concept of DNA	
198			asexual reproduction	
199			asexual reproduction of cells	
200			asexual reproduction	
201			DNA	
201			asexual reproduction	
202			DNA	
202			sexual reproduction	
203			sexual reproduction—meiosis	
204			sexual reproduction—meiosis	
204			DNA and chromosomes	
206			sexual reproduction	
207			sexual and asexual reproduction	
208			sexual reproduction	
208			concept of genes and heredity	
209			environmental influence on genes	
209			traits that are inherited vs. those that are from the interaction with the environment	

**Correlation to Pennsylvania Academic Standards for Science  
CPO Science Life Science ( Middle School)  
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Standard #: by end of grade	Category	Standard Statement	Volume One Student Text Page	Volume Two Investigation Manual Page
211			asexual vs. sexual reproduction	
211			DNA	
212			sexual vs. asexual reproduction	
214			general idea of traits	
216			inherited traits	
217			make predictions about possible outcomes of genetic combinations	
218			concept of genes that are dominant and recessive	
219			dominant vs. recessive and how genes affect outward appearance	
219			make predictions of outcomes of genetic crosses	
220			predicting outcomes of genetic crosses	
220			dominant vs. recessive genes	
221			genes and inherited traits	
221			DNA	
222			genes and how they are passed on	

**Correlation to Pennsylvania Academic Standards for Science  
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Standard #: by end of grade	Category	Standard Statement	Volume One Student Text Page	Volume Two Investigation Manual Page
223			making predictions about genetic combinations—punnett squares	
224			making predictions about genetic combinations	
225			dominant vs. recessive traits	
225			making predictions about genetic crosses	
225			DNA	
226			making predictions about possible outcomes of genetic crosses	
227			general patterns of inheritance	
228			patterns of genetic inheritance	
228			distinguish between inherited traits and those influenced by environment	
229			genes and inherited traits—modes of inheritance	
229			make predictions of possible outcomes of genetic crosses	
230			genes and inherited traits	
231			natural selection	

**Correlation to Pennsylvania Academic Standards for Science  
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Standard #: by end of grade	Category	Standard Statement	Volume One Student Text Page	Volume Two Investigation Manual Page
232			making predictions for genetic crosses	
233			traits and genes	
234			predicting possible outcomes from genetic crosses	
234			traits and genes	
235			genes and inherited traits	
235			making predictions of possible outcomes of genetic crosses	
236			making predictions of possible outcomes of genetic crosses	
237			DNA and its function	
238			structure of DNA	
239			genes and heredity	
239			DNA replication	
240			DNA make-up	
240			concept of genes and how they relate to DNA and heredity	
241			DNA	
242			DNA replication and errors	
242			distinguish between inherited and environmentally influenced traits	

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Standard #: by end of grade	Category	Standard Statement	Volume One Student Text Page	Volume Two Investigation Manual Page
243			genes and their link to heredity	
243			how new traits may become established in a population	
244			sexual reproduction	
244			DNA structure and function	
246			DNA recombination	
247			DNA	
248			human evolution	
248			DNA	
249			DNA	
250			DNA	
250			human heredity	
251			genes and inherited traits	
252			DNA	
257			concept of natural selection	
258			theory of evolution and evidence for it	
258			evolution based on genetics	
259			evolution based on cell evidence and fossils	
259			DNA	

**Correlation to Pennsylvania Academic Standards for Science  
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Standard #: by end of grade	Category	Standard Statement	Volume One Student Text Page	Volume Two Investigation Manual Page
260			theory of evolution	
261			evidence for theory of evolution	
261			evolution evidence based on anatomy—analogous structures	
262			human evolution in relationship to other organisms	
262			DNA	
262			inherited traits and ones that are acquired	
262			evidence for evolution	
263			evidence for evolution—fossils	
264			evidence for evolution	
265			DNA	
265			evidence for evolution	
266			evidence for evolution	
266			natural selection	
267			natural selection	
268			inherited traits	
268			natural selection	
269			genetic inheritance	
269			natural selection	

**Correlation to Pennsylvania Academic Standards for Science  
CPO Science Life Science ( Middle School)  
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Standard #: by end of grade	Category	Standard Statement	Volume One Student Text Page	Volume Two Investigation Manual Page
269			evolution and genetic variation	
270			catastrophic events and how they relate to species	
270			natural selection	
270			evolution and environmental factors	
271			natural selection	
271			genes and inherited traits	
271			explain how new traits might get established in a population	
271			genetic variation and environmental factors	
272			natural selection	
272			genes and inherited traits	
272			genetic variation	
273			genes and inherited traits	
273			genetic variation	
273			natural selection	
274			genetic variation	
275			natural selection	
275			genetic variation	
275			genes and inherited traits	
291			natural selection	
293			theory of evolution	

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Standard #: by end of grade	Category	Standard Statement	Volume One Student Text Page	Volume Two Investigation Manual Page
307			theory of evolution	
308			mammalian reproductive strategies	
311			genetic variation	
311			sexual vs. asexual reproduction	
311			genes and traits/dominant and recessive	
311			natural selection	
314			genetic variation	
314			sexual and asexual reproduction	
315			sexual and asexual reproduction	
315			genetic variation	
318			evolution	
324			theory of evolution	
325			sexual reproduction	
326			sexual reproduction	
327			sexual reproduction	
329			evolution	
334			structure and function	
335			identify responses to external stimuli	

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Standard #: by end of grade	Category	Standard Statement	Volume One Student Text Page	Volume Two Investigation Manual Page
336			identify organism's response to external stimuli	
337			genetic variation and evolution	
337			sexual reproduction	
338			sexual reproduction	
339			sexual reproduction	
340			sexual reproduction	
343			sexual reproduction	
344			types of reproduction	
345			how organisms respond to stimuli	
345			populations	
353			theory of evolution	
354			how organisms respond to external stimuli	
356			evolution	
357			sexual reproduction vs. asexual reproduction	
357			identify an organisms to external stimuli	
359			sexual and asexual reproduction	
360			sexual and asexual reproduction	

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Standard #: by end of grade	Category	Standard Statement	Volume One Student Text Page	Volume Two Investigation Manual Page
361			sexual and asexual reproduction	
362			theory of evolution	
363			sexual and asexual reproduction	
363			fossils	
363			identify an organism's responses to external stimuli	
364			identify an organism's external response to stimuli	
365			fossils	
369			sexual and asexual reproduction	
369			an organism's response to external environments	
370			how organisms respond to environment	
371			sexual and asexual reproduction	
371			theory of evolution	
372			sexual vs. asexual reproduction	
373			sexual reproduction	
373			evolution	
376			evolution	
377			evolution	

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Standard #: by end of grade	Category	Standard Statement	Volume One Student Text Page	Volume Two Investigation Manual Page
394			how organisms respond to environment	
396			organism's response to internal stimuli	
430			organism's response to external stimuli	
431			organism's response to external stimuli	
432			how organisms respond to external stimuli	
433			organism's response to external stimuli	
433			organism's response to internal stimuli	
438			genes and inherited traits	
439			genes and inherited traits	

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Standard #: by end of grade	Category	Standard Statement	Volume One Student Text Page	Volume Two Investigation Manual Page
3.3.7.D 7	Biological Sciences	Explain basic concepts of natural selection.	<p>47 theory of evolution</p> <p>73 main factors that regulate populations in an ecosystem</p> <p>74 factors that regulate populations in an ecosystem</p> <p>76 general factors that affect populations in the ocean</p> <p>77 describe general factors regulating population in an ecosystem</p> <p>84 structure including organs and organ systems</p> <p>89 how matter and energy flow in an ecosystem</p> <p>94 describe general factors that control population size</p> <p>95 general factors that regulate populations</p> <p>96 identify changes that can lead to extinction of a species</p> <p>140 fossils and how they relate to evolution of species</p> <p>181 evolution based on fossils</p> <p>183 evolution of cells</p> <p>231 natural selection</p>	<p>74 natural selection</p> <p>74 evolution</p> <p>81 evolution</p> <p>86 factors that could lead to extinction</p>

**Correlation to Pennsylvania Academic Standards for Science  
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Standard #: by end of grade	Category	Standard Statement	Volume One Student Text Page	Volume Two Investigation Manual Page
243			how new traits may become established in a population	
248			human evolution	
257			concept of natural selection	
258			theory of evolution and evidence for it	
259			evolution based on cell evidence and fossils	
260			theory of evolution	
261			evolution evidence based on anatomy—analogue structures	
261			evidence for theory of evolution	
262			human evolution in relationship to other organisms	
262			evidence for evolution	
263			evidence for evolution—fossils	
264			evidence for evolution	
265			evidence for evolution	
266			evidence for evolution	
266			natural selection	
267			natural selection	

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Standard #: by end of grade	Category	Standard Statement	Volume One Student Text Page	Volume Two Investigation Manual Page
268			natural selection	
269			natural selection	
270			natural selection	
270			general factors regulating populations in an area	
271			explain how new traits might get established in a population	
271			natural selection	
272			natural selection	
273			natural selection	
274			extinctions	
275			natural selection	
275			extinctions	
291			natural selection	
293			theory of evolution	
295			extinctions	
298			causes for extinction	
299			extinction of species	
307			theory of evolution	
311			natural selection	
317			factors that regulate populations	
318			evolution	
324			theory of evolution	

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Standard #: by end of grade	Category	Standard Statement	Volume One Student Text Page	Volume Two Investigation Manual Page
			329 evolution	
			334 structure and function	
			345 populations	
			353 theory of evolution	
			356 evolution	
			362 theory of evolution	
			363 fossils	
			365 fossils	
			371 theory of evolution	
			373 evolution	
			376 evolution	
			377 evolution	