Project-Based Inquiry Science (PBIS) Correlations to the Next Generation Science Standards, Grades 6-8

The page numbers in this correlation represent each unit
in which students are being prepared to meet the *NGSS Performance Expectations and* the *Reading/Writing Standards for Literacy in Science and Technical Subjects*

Activate Learning

Engaged Students. Passionate Teachers.

Performance Expectations	
Physical Science	
Expectations:	PBIS Unit Location:
MS. Structures and Properties of Matter	
MS-PS1-1. Develop models to describe the atomic composition of simple molecules and extended structures.	Air Quality - pp. 69-77, 78-101, 138-143, 197-200
MS-PS1-3. Gather and make sense of information to describe that synthetic materials come from natural resources and impact society.	Air Quality - pp. 114-122, 133-138
MS-PS1-4. Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed.	Air Quality - pp. 41-54 Energy - pp. 116-118 Weather Watch - pp. 67-75, 142-155
MS. Chemical Reactions	
MS-PS1-2. Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred.	Air Quality - pp. 23-37, 60-101, 133-144, 193, 197-202, 216-234 Energy - pp.122-131
MS. PS1-5. Develop and use a model to describe how the total number of atoms does not change in a chemical reaction and thus mass is conserved.	Air Quality - pp. 139-144, 192-193, 197-200
MS-PS1-6. Undertake a design project to construct, test, modify a device that either releases or absorbs thermal energy by chemical processes.	Energy - pp. 85-97, 129-131
MS. Forces and Interactions	
MS-PS2-1. Apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects.*	Astronomy - pp. 3-12, 13-39, 57-63, 111-114, 157, 159-162, 213-220 Energy - pp. 48-50, 54-56 Moving Big Things - pp. 43-44 Vehicles In Motion - pp. 66-73, 91-92, 116-118, 122-126, 190-193
MS-PS2-2. Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object.	Astronomy - pp. 7-9 Energy - pp. 54-56 Moving Big Things - 16-34, 45-53, 52-61, 69-77, 79-92, 98-105 Vehicles In Motion - pp. 36-39, 66-85, 100-101, 121-130, 145-152
MS-PS2-3. Ask questions about data to determine the factors that affect the strength of electric and magnetic forces.	Air Quality - pp. 89-90 Energy - pp. 206-217, 223, 229-237
MS-PS2-4. Construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects.	Astronomy - pp. 15-32, 47-56, 109-110, 136-151, 165 Energy - pp. 63-68, 72 Moving Big Things - pp. 21-34, 45-53, 69-77, 79-92, 98-105 Vehicles In Motion - pp. 74-85, 115-130
MS-PS2-5. Conduct an investigation and evaluate the experimental design to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact.	Astronomy - pp. 20-26, 144-151, 165 Diving Into Science - pp. 53-67, 69-98, 103 Energy - pp. 224-229

MS. Energy	
MS-PS3-1. Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object.	Energy - pp. 63-68 Vehicles In Motion - pp. 57-60, 73-84, 145-152, 161-174
MS-PS3-2. Develop a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system.	Energy - pp. 57-59, 74-77 Vehicles In Motion - pp. 94-96, 116-127
MS-PS3-3. Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer.*	
MS-PS3-4. Plan an investigation to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample.	Energy - pp. 31-32, 85-111, 116-118 Weather Watch - pp. 67-75, 141-155, 196-200
MS-PS3-5. Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object.	Astronomy - pp. 15-28 Living Together - pp. 16-19, 21-34, 45-52, 53-61, 69-77, 79-82, 83-86, 98-105 Energy - pp. 47-55, 100-106, 129-131, 161-170, 264-276, 278 Vehicles In Motion - pp. 94-95, 117-127 Weather Watch - pp. 67-75, 196-200
MS. Waves and Electromagnetic Radiation	
MS-PS4-1. Use mathematical representations to describe a simple model for waves that includes how the amplitude of a wave is related to the energy in a wave.	Energy - pp. 162-167 Ever-Changing Earth - pp. 105-112
MS-PS4-2. Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials.	Animals In Action - pp. 124-140 Astronomy - pp. 169-198 Energy - pp. 105-155, 161-169, 191-199 Ever-Changing Earth - pp. 105-112, 114-122, 123-129 Weather Watch - pp. 72-75, 116-122
MS-PS4-3. Integrate qualitative scientific and technical information to support the claim that digitized signals (sent as wave pulses) are a more reliable way to encode and transmit information.	

Performance Expectations	
Life Science	
Expectations:	PBIS Unit Location:
MS. Structure, Function, and Information Processing	
MS-LS1-1. Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells.	Good Friends and Germs - pp. 27-34, 80-81
MS-LS1-2. Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function.	Good Friends and Germs - pp. 27-40
MS-LS1-3. Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.	Good Friends and Germs - pp. 82-103, 105-119, 124-130
MS-LS1-8. Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.	Animals In Action - pp. 61-77
MS. Matter and Energy in Organisms and Ecosystems	
MS-LS1-6. Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms.	Energy - pp. 136-140 Genetics - pp. 32-33 Living Together - pp. 99-104
MS-LS1-7. Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and/or release energy as this matter moves through an organism.	Energy - pp. 136-140 Living Together - pp. 99-104
MS-LS2-1. Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.	Genetics - pp. 95-101, 103-119 Good Friends and Germs - pp. 45-54 Living Together - pp. 56-61, 92-98, 107-132, 140-148
MS-LS2-3. Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.	Living Together - pp. 107-132 Weather Watch - pp. 10-20, 36-51, 61-66, 110-122, 127-165
MS-LS2-4. Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.	Air Quality - pp. 203-207, 221-222, 232-237 Living Together - pp. 56-61, 63-78, 92-98, 107-132, 140-148 Genetics - pp. 95-101, 103-119, 124-139 Good Friends and Germs - pp. 45-54 Weather Watch - pp. 110-122

MS. Interdependent Relationships in Ecosystems	
MS-LS2-2. Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.	Animals In Action - pp. 61-77 Living Together - pp. 92-98, 107-132, 140-148
MS-LS2-5. Evaluate competing design solutions for maintaining biodiversity and ecosystem services.*	Genetics - pp. 219-232 Living Together - pp. 35-40, 122-126, 140-148
MS. Growth, Development, and Reproduction of Organisms	
MS-LS1-4. Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively.	Animals In Action - pp. 78-81 Genetics - pp. 45-48, 103-119
MS-LS1-5. Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.	Genetics - pp.103-119, 124-139, 219-233 Good Friends and Germs - pp. 41-43, 45-49, 51-54 Living Together - pp. 56-60
MS-LS3-1. Develop and use a model to describe why structural changes to genes (mutations) located on chromosomes may affect proteins and may result in harmful, beneficial, or neutral effects to the structure and function of the organism.	Genetics - pp. 82-87, 201-211
MS-LS3-2. Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation.	Genetics - pp. 49-64, 66-71, 76-80, 168-199, 219-233
MS-LS4-5. Gather and synthesize information about the technologies that have changed the way humans influence the inheritance of desired traits in organisms.	Genetics - pp. 141-158, 212-218, 219-233
MS. Natural Selection and Adaptations	
MS-LS4-1. Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth under the assumption that natural laws operate today as in the past.	Ever-Changing Earth - pp. 249-258 Genetics - pp. 120-123, 208
MS-LS4-2. Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships.	Genetics - pp. 120-123, 208 Living Together - pp. 87-90
MS-LS4-3. Analyze displays of pictorial data to compare patterns of similarities in the embryological development across multiple species to identify relationships not evident in the fully formed anatomy.	Genetics - p. 232
MS-LS4-4. Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals; probability of surviving and reproducing in a specific environment.	Animals In Action - pp. 43-46, 82-90, 120-123, 131-140 Genetics - pp. 95-101, 103, 113, 125-139, 208 Living Together - p. 139
MS-LS4-6. Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time.	Genetics - pp. 95-101, 103-113, 124-139 Living Together - p. 90

Performance Expectations	
Earth and Space Science	
Expectations:	PBIS Unit Location:
MS. Space Systems	
MS-ESS1-1. Develop and use a model of the Earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons.	Astronomy - pp. 65-93, 95-110 Weather Watch - pp. 90-109
MS-ESS1-2. Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.	Astronomy - pp. 20-26, 47-56, 115-121, 133-138, 142-151, 163-164
MS-ESS1-3. Analyze and interpret data to determine scale properties of objects in the solar system.	Astronomy - pp. 47-56, 95-108, 115-119, 122-141, 169-183
MS. History of Earth	
MS-ESS1-4. Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth's 4.6-billion-year-old history.	Ever-Changing Earth - pp. 251-258
MS-ESS2-2. Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.	Astronomy - pp. 33-49 Digging In - pp. 53-63, 67-76, 82-102 Ever-Changing Earth - pp. 3-31, 34-39, 55-58, 60-66, 74-79, 83-84, 88-90, 123-144, 153-165, 171-211, 215-240 Weather Watch - pp. 157-162, 231-240
MS-ESS2-3. Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions.	Ever-Changing Earth - pp. 91-95, 123-169, 171-211, 215-240, 251-258
MS. Earth's Systems	
MS-ESS2-1. Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.	Ever-Changing Earth - pp. 153-169, 171-211, 215-240 Weather Watch - pp. 11-20, 36-51, 61-66, 79-89, 127-165, 174-240
MS-ESS2-4. Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity.	Weather Watch - pp. 127-165, 207-215
MS-ESS3-1. Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes.	Energy - pp. 282-291

MS. Weather and Climate	
MS-ESS2-5. Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions.	Air Quality - pp. 151-161, 179-202 Weather Watch - pp. 11-20, 36-58, 61-66, 79-89, 110-122, 149-164, 174-206, 218-229
MS-ESS2-6. Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.	Energy - pp. 186-188 Weather Watch - pp. 11-20, 36-58, 61-66, 79-89, 110-122, 149-165, 174-240
MS-ESS3-5. Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.	Air Quality - pp. 239-246 Weather Watch - pp. 169-173, 267-274
MS. Human Impacts	
MS-ESS3-2. Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.	Digging In - pp. 82-102 Ever-Changing Earth - pp. 105-114, 131-144, 174-188, 200-201 Weather Watch - pp. 3-8, 54, 59-60, 123-126, 166-168, 230-266
MS-ESS3-3. Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.*	Air Quality - pp. 3-18, 55-58, 102-105, 109-112, 171-176, 187-194, 234-238, 254-294, 299-306 Energy - pp. 295-304 Living Together - pp. 3-11, 14-15, 30-32, 42-44, 46-52, 79-82, 92-98
MS-ESS3-4. Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.	Air Quality - pp. 3-18, 55-58, 128-131, 145-150, 190-194, 239-246 Digging In - pp. 61-62 Genetics - pp. 219-233 Living Together - pp. 30-44, 46-50, 79-82, 83-85, 92-98, 140-148 Weather Watch - pp. 271-274

Performance Expectations	
Engineering Design	
Expectations:	PBIS Unit Location:
MS. Space Systems	
MS-ETS1-1. Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.	Air Quality - pp. 3-17, 55-58, 109-112, 171-176, 215-230, 247-252, 299-306 Animals In Action - pp. 3-10, 91-96, 142-155 Digging In - pp. 45-52, 90-101, 106-123 Diving Into Science - pp. 4-24, 69-103 Energy - pp. 4-17, 36-37, 83, 140-141, 203, 254, 295-303, 309-315 Genetics - pp. 9-12, 34-36, 66-74, 88-92, 159-163, 219-233 Good Friends and Germs - pp. 73-76, 137-149 Living Together - pp. 56-59, 114-119, 122-126, 140-148 Moving Big Things - pp. 3-11, 35-37, 62-65, 94-97, 107-114 Vehicles In Motion - pp. 5, 10-11, 13-14, 96, 101, 136, 159, 192, 197-202 Weather Watch - pp. 3-8, 59-60, 122-126
MS-ETS1-2. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.	Air Quality - pp. 171-176, 215-230, 247-252, 299-306 Animals In Action - pp. 3-10, 91-96, 102-106, 142-155 Astronomy - pp. 21-27, 121-132 Digging In - pp. 6-25, 26-38, 67-78, 90-101, 106-123 Diving Into Science - pp. 4-24, 25-34, 35-68, 69-103 Energy - pp. 15, 37, 81-84, 202-204, 254-256, 309-315 Ever-Changing Earth - pp. 52-54, 83-85, 92-95 Genetics - pp. 40-44, 66-70, 88-92, 219-233 Good Friends and Germs - pp. 11-17, 47-54, 73-76, 137-149 Living Together - pp. 35-41, 56-59, 114-119, 140-148 Moving Big Things - pp. 3-11, 35-37, 62-65, 94-97, 107-114 Vehicles In Motion - pp. 17-20, 23-24, 27-28, 30-33, 47-52, 103-108, 167-174, 197-202 Weather Watch - pp. 3-8, 21-35, 59-60, 122-126, 166-168
MS-ETS1-3. Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.	Air Quality - pp. 171-176, 215-230, 247-252, 299-306 Animals In Action - pp. 3-10, 91-96, 102-106, 142-155 Astronomy - pp. 20-27, 122-132 Digging In - pp. 6-25, 26-38, 67-78, 90-101, 106-123 Diving Into Science - pp. 4-24, 25-34, 35-68, 69-103 Energy - pp. 64-69, 81-84, 139-141, 202-204, 254-256, 309-315 Genetics - pp. 71-74, 88-92, 219-233 Good Friends and Germs - pp. 11-17, 47-54, 73-76, 120-123, 137-142 Living Together - pp. 56-59, 113-119, 122-126, 140-148 Moving Big Things - pp. 3-11, 35-37, 62-65, 94-97, 107-114 Vehicles In Motion - pp. 19-20, 23-24, 27-28, 30-33, 47-52, 60-62, 88-89, 103-108, 136-141, 161-174, 197-202

MS-ETS1-4. Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.	Air Quality - pp. 171-176, 247-252, 299-306 Animals In Action - pp. 3-10, 142-155 Digging In - pp. 6-25, 26-38, 67-78, 90-101, 106-123 Diving Into Science - pp. 4-24, 25-34, 35-68, 69-103 Energy - pp. 64-69, 81-84, 139-141, 254-256, 309-315 Genetics - pp. 66-70, 219-233 Good Friends and Germs - pp. 11-17, 47-54, 73-76, 105-109, 137-142 Living Together - pp. 17-20, 23-27, 33-41, 114-119, 122-126 Moving Big Things - pp. 3-11, 35-37, 62-65, 94-97, 107-114 Vehicles In Motion - pp. 19-20, 23-24, 47-62, 83-87, 88, 104-109, 136-141

Scientific and Engineering Practices	
Practices:	PBIS Unit Location:
1. Asking questions (for science) and defining problems (for engineering)	Air Quality - pp. 3-65, 69-101, 109-127, 133-201, 208-214, 232-257 Animals In Action - pp. 3-11, 43, 46, 59, 71, 77, 82, 90-91, 96-97, 100-101, 107, 113, 123, 141, 144 Astronomy - pp. 3-28, 33-38, 47-71, 73-102, 111-141, 152-162, 165-168, 184-190, 199-205, 213-214 Digging In - pp. 3-7, 9, 22-23, 26-29, 45-46, 48-49, 65, 89, 94, 101, 104, 115, 119, 122-123 Diving Into Science - pp. 5, 20-22, 25, 35-41, 69-74 Energy - pp. 27, 33, 40, 45-48, 61, 73, 80, 84, 90-91, 121, 128, 135, 142, 145, 156, 175, 185, 199, 201, 204, 214, 223, 240, 249, 256, 263, 271, 278, 281, 304, 308, 316 Ever-Changing Earth - pp. 30- 33, 46, 51, 56, 63, 66, 68, 72, 84, 90-91, 95, 103, 107, 116, 130, 140, 148-149, 152, 158, 170, 179, 187, 189, 206, 211, 215, 220, 248 Genetics - pp. 3, 7-11, 13, 15, 21, 26, 33, 36, 38, 44, 48, 60, 66, 75, 87, 93, 102, 119, 140, 144, 164, 166, 170, 198, 211, 224 Good Friends and Germs - pp. 3-10, 19-22, 27-36, 41-44, 62-72, 77-79, 86-91, 97-103, 105-118, 131-133, 143-149 Living Together - pp. 3, 5-8, 11-16, 33-41, 50, 53-62, 79-83, 87-88, 92-97, 99-111, 140-147 Moving Big Things - pp. 3-15, 35-37, 39-44, 62-65, 94-100, 104-105, 107-114 Vehicles In Motion - pp. 3-34, 41-55, 57-143, 153-160, 178-180, 192-195, 197-202 Weather Watch - pp. 3, 7-9, 20, 58-61, 65, 75, 109, 122, 126-127, 134, 156, 165, 168-169, 173, 182, 194, 202, 215, 229, 244, 249
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3. Planning and carrying out investigations	Air Quality - pp. 38-54, 267-276 Animals In Action - pp. 7, 15-16, 39-41, 47,80-81, 83-90, 102-104, 116, 132 Astronomy - pp. 15-28, 57-64, 169-178 Digging In - pp. 6, 9-10, 25, 30-32, 34-39, 47, 67-73, 93-95, 112-113, 122-123 Diving Into Science - pp. 7-13, 20-22, 25-30, 35-41, 43-45, 69-74, 76-80, 90-97 Energy - pp. 31-33, 36-37, 42-43, 64-65, 130-131, 207-210, 216-218, 236, 310 Ever-Changing Earth - pp. 80, 126, 242 Genetics - pp. 10-11, 36, 45-48, 67-68, 131-133, 146-156, 219-220, 226 Good Friends and Germs - pp. 27-36, 45-54, 82-85, 93-96 Living Together - pp. 12-13, 17-20, 23-26, 33-41, 56-69, 99-106, 111-119, 122-125 Moving Big Things - pp. 3-11, 69-75, 78-86, 97-100, 107-114 Vehicles In Motion - pp. 3-12, 14-34, 47-55, 57-87, 103-143, 156-160, 167-176, 192-202

4. Analyzing and interpreting data	Air Quality - pp. 8-18, 23-54, 60-68, 78-83, 85-108, 114-127, 133-144, 151-176, 179-201, 208-230, 232-252, 259-276, 284-290 Animals In Action - pp. 12-13, 16, 23, 25-26, 40, 47-48, 84, 99, 105, 110, 116-117, 133-134 Astronomy - pp. 3-12, 18-28, 33-46, 50-56, 66-71, 80-94, 117-151, 165-178, 199-205 Digging In - pp. 6-7, 10-11, 25, 33, 37-39, 70, 83-87, 93-101, 106-110, 113-114, 122-123 Diving Into Science - pp. 20-22, 27-28, 32-33, 47-52, 76-80 Energy - pp. 22-23, 48-50, 54-55, 66-68, 75-76, 92-95, 123-126, 139-141, 146-147, 151-153, 162-164, 178-180, 191-192, 207-210, 231-232, 254-256, 260-267, 276-277, 305-306, 310-312 Ever-Changing Earth - pp. 4-27, 42, 48, 62, 68, 80, 94, 121, 126, 132, 143, 156, 177, 180, 198, 204, 218, 242 Genetics - pp. 5-6, 19-20, 22-25, 27-28, 71-73, 79, 97-100, 111, 125-127, 134-136, 171-174 Good Friends and Germs - pp. 41-54, 62-72, 82-85, 93-96, 134-139 Living Together - pp. 17-20, 28-41, 46-50, 56-74, 83-85, 92-97, 99-106, 111-119, 122-125, 127-132, 140-147 Moving Big Things - pp. 3-11, 13-27, 45-51, 69-75, 78-86, 97-100 Vehicles In Motion - pp. 3-12, 14-34, 41-55, 57-87, 97-151, 156-160, 167-180, 192-202 Weather Watch - pp. 11-16, 33-35, 41-50, 53, 62-65, 79-82, 91-93, 98, 111-113, 123-124, 129-133, 136-137, 166, 184-188, 198, 208-209
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Key Ideas and Details	
1. Cite Specific textual evidence to support analysis of science and technical texts.	The Read sections, as well as text boxes provide students practice in reading science and technical text. Following each Read and most text boxes, questions in the Stop and Think section ask students to analyze what they have learned and cite evidence from the text or their investigations when providing the answer. Air Quality - pp. 45, 88, 94, 120, 129, 131, 134, 149, 181, 193, 206, 275, 282, 286 Animals In Action - pp. 28-30, 36, 57, 58, 70, 77, 82, 86, 90, 112, 118, 122, 135, 138, 140 Astronomy - pp. 54, 55, 71, 144, 151, 156, 182, 198, 205 Digging In - pp. 63, 76-80, 88, 100, 102, 103 Diving Into Science - pp. 7, 59, 60, 64, 88, 94, 96 Energy - pp. 79, 101, 114, 169, 174, 196, 223, 229, 234, 239, 248, 280, 290, 294 Ever-Changing Earth - pp. 9, 79, 96, 99, 100, 113, 163, 191, 192, 194, 197, 199, 242 Genetics - pp. 9, 18, 21, 33, 53, 105, 117, 192 Good Friends and Germs - pp. 17, 25, 40, 43, 57, 81, 117, 136, 142 Living Together - pp. 16, 22, 24, 31, 34, 44, 46, 47, 62, 78, 94, 96, 104, 106, 112, 118, 125, 131, 132, 138 Vehicles In Motion - pp. 22, 38, 46, 54-55, 64, 77, 83, 85-86, 96, 166, 175-176, 180 Weather Watch - pp. 20, 50, 51, 59, 70, 72, 75, 85, 105, 143, 151, 158, 162, 165, 172, 173, 192, 222, 223, 274
2. Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.	Central to the Project-Based Inquiry Science program is the Project Board. Throughout each unit, students are asked to connect their learning to the Big Question or central idea of the unit. Sections of the Project Board are revisited and prior knowledge and opinions are revised or eliminated as the learning progresses. Air Quality - pp. 17-18, 22, 36, 49, 55-58, 65, 77, 83, 92, 100, 109-112, 127, 143, 150, 161, 171-175, 185, 196, 201, 214, 237, 247-252, 257, 282, 299-306 Animals In Action - pp. 14, 19, 27, 31, 37, 42, 46, 52, 60, 67, 71, 77, 90, 101, 108, 113, 119, 123, 135, 140-141, 153 Astronomy - pp. 10-12, 17, 38, 49, 54, 55, 56, 64, 71, 79, 94, 114, 121, 141, 144, 151, 156, 158, 161, 168, 182, 190, 198, 205, 214 Digging In - pp. 8, 17, 22, 25, 30, 33, 36, 38, 52, 66, 75, 81, 89, 95, 101, 105, 110, 115 Diving Into Science - pp. 38, 39, 41, 56, 65, 66, 73, 89, 98 Energy - pp. 17-18, 27, 33, 40, 45, 61, 73, 80, 84, 90, 121, 128, 135, 139, 142, 149, 156, 175, 185, 199, 201-204, 214, 223, 240, 248, 253-256, 271, 278, 280, 304, 305, 308, 316 Ever-Changing Earth - pp. 30-32, 46, 51, 58, 63, 88-90, 95, 103, 130, 139, 140, 145, 148, 152, 158, 168-170, 179, 187, 206-211, 220, 245-248, 249, 250 Genetics - pp. 9-12, 15, 21, 26, 33-36, 44, 48, 57, 75, 87-92, 102, 119, 139, 144, 159-164, 170, 183, 198, 211, 219-234 Good Friends and Germs - pp. 7-8, 15, 26, 34, 40, 44, 50, 54, 57, 61, 81, 85, 91-92, 96, 103-104, 112, 118-119, 136, 139, 142 Living Together - pp. 5, 12, 13, 16, 22, 24, 31, 34, 44, 46, 50, 52 62, 78, 80-82 94, 96, 104, 106, 112, 118, 125, 131, 132, 138 Vehicles In Motion - pp. 29, 46, 53, 54-55, 56, 64, 73, 85-86, 87, 90, 96, 102, 112, 154, 160, 166, 175-176, 180, 186, 191, 195 Weather Watch - pp. 7, 8, 20, 58, 60, 66, 75, 109, 122, 126, 134, 155, 165, 168, 173, 182, 194, 202, 215, 229, 243

3. Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.	Multiple investigations are provided in each Learning Set of every Project-Based Inquiry Science unit. Some provide multistep procedures, others are more inquiry based and require students to develop their own plan. Often, they share the plans developed by a group with the class and develop a multistep procedure that the class uses to complete the experiment. Skills developed throughout the investigations are observation, measurement, data collection, analysis of data, creation of tables and graphs, making claims and communicating findings Air Quality - pp. 23-30, 31-36, 38-41, 47-48, 51-54, 66-68, 78-83, 89-90, 99, 102-105, 123-127, 141-143, 151-161, 164-170, 189-190, 208-214, 216-218, 221-227, 242-246, 247-249, 260, 267-269 Animals In Action - pp. 20-22, 64-66, 68-69, 80-81, 102-104 Astronomy - pp. 15-16, 18-27, 33-37, 57-60, 73-75, 80-83, 95-98, 122-132, 170-178, 184-188 Digging In - pp. 6-14, 23-25, 32-38, 48, 67-71, 90-100, 106-110 Diving Into Science - pp. 7-10, 27, 28, 29, 30, 32, 33, 43-50, 76-80, 90-98 Energy - pp. 20-23, 28-29, 42-43, 47-50, 54-55, 63-67, 74-76, 86-88, 91-97, 101-103, 122-126, 129-132, 146-147, 150-154, 162-164, 176-180, 187-190, 191-192, 207-209, 215-217, 224-226, 230-232, 236, 242-246, 259-261, 265-267, 296-299 Ever-Changing Earth - pp. 36-39, 42-45, 47-50, 53, 54, 68, 69, 80-82, 92-95, 118-121, 124-128, 131-135, 137, 138, 154, 155, 173-176, 180-185, 203, 204, 242, 243 Genetics - pp. 27-30, 40-44, 67-69, 71-74, 76-81, 96-101, 103-111, 124-128, 131-137, 176, 221-223, 227-229 Good Friends and Germs - pp. 11-13, 31-32, 35-36, 45-49, 51-53, 82-84, 86-91, 93-95, 97-99, 103, 105, 137-139 Living Together - pp. 18, 24, 38, 39, 66, 67, 87, 88, 100-105, 115-118, 122-124, 127, 128 Vehicles In Motion - pp. 15-16, 19-29, 31-33, 103-108, 115-121, 128-129, 157-159, 178-180 Weather Watch - pp. 11-16, 38-49, 52-54, 62-66, 79-83, 91-100, 111-113, 129-133, 186, 187, 196-198, 208, 209
Craft and Structure	
4. Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to Grades 6-8 texts and topics.	In every Learning Set, science vocabulary is introduced in the Read section, in text boxes in an Investigate or Explore section, or at a "need-to-know" occasion. When first introduced, the new word is bolded in the text, supported in the margin with a definition and repeated in the glossary where both English and Spanish definitions are provided. Usage of the words is encouraged in written responses to question sets at the end of each Read and throughout the investigations. Air Quality - pp. 6, 7, 28, 31, 35, 41-44, 46, 61-62, 64, 66, 73, 76, 82, 87-88, 91, 93-94, 96-98, 106-107, 121, 136, 137, 145, 148, 149, 151, 156, 162, 164, 170, 190, 203-206, 208-210, 215, 219-220, 228, 231, 235, 239, 240, 242, 251, 262, 269, 270, 272, 278, 281 Animals In Action - pp. 3, 5, 7, 12, 15, 16, 18, 22, 28, 32-35, 44, 50, 54, 55, 61, 62, 69, 72-76, 78-79, 86, 87, 121, 124, 126, 127, 129, 130-131, 138, 139 Astronomy - pp. 3, 14, 18-21, 33, 37, 42, 47, 50, 52, 70, 73, 84, 85, 87, 88, 100, 103, 104, 106, 109, 111, 116, 122, 131, 134, 136, 138, 147, 157, 163, 171, 172, 179-180, 185, 186, 188, 192, 193, 196 Digging In - pp. 6, 9, 14, 18, 19, 21, 28, 31, 34, 36, 43, 44, 53, 57, 60, 61, 64, 67, 70, 72, 73 Diving Into Science - pp. 5, 8, 13, 15-18, 22, 27-29, 31, 35, 40, 43, 48, 49, 51, 54, 58 Energy - pp. 3, 16, 20, 24-25, 30, 38, 41, 44, 53, 57, 59, 60, 67, 77, 78, 88-89, 100, 104, 107, 113, 116, 117, 119, 134, 136, 138, 145, 156, 159, 160, 161, 166-168, 170-172, 182, 184, 193-196, 198, 200 212, 219-222, 226-228, 238, 247-248, 250-252, 274-275, 292-294 Ever-Changing Earth - pp. 28, 29, 34, 35, 39, 52, 55, 64, 65, 67, 71-78, 87, 88, 96, 98-101, 107, 109, 114, 122, 145, 153, 159-161, 164, 165, 168, 173, 190, 191, 193, 196, 197, 202, 207, 212-214, 222, 224, 230, 239, 245 Genetics - pp. 3-5, 7, 17, 22, 28, 32-33, 45-47, 49-51, 54, 55, 58-59, 61-62, 64, 82, 85, 86, 103-104, 106, 114-116, 118, 120-123, 135, 137, 139, 143, 179-180, 182, 184, 186, 189, 191, 195, 200-203, 205, 207, 213 Good Friends and Germs - pp. 11, 14-16, 23-30, 35, 37-39, 45, 55-56, 58-60, 69-70, 80, 86, 90, 93, 97, 100, 101, 105-108, 113-117, 124-130, 132, 134, 141 Living Together - pp. 3, 17, 18, 21-23, 25, 35, 43, 46, 47, 54, 57, 61, 63, 64, 68, 70, 71, 76, 83, 84, 86, 87, 89, 92, 97, 101-103, 109, 110, 114, 115, 122, 125, 127, 129, 130, 133-137, 139 Vehicles In Motion - pp. 13-15, 17, 19, 21, 26, 28, 36, 43, 46, 49, 50, 58, 69, 75, 78, 82, 91, 94, 104-105, 125, 152, 162, 171, 185 Weather Watch - pp. 11, 17-19, 24-26, 28, 36-37, 56, 67, 68, 72, 73, 74, 86, 90, 91, 102, 103, 115, 128, 136, 139, 143, 145, 146, 178, 190, 191, 207, 245, 270, 271

5. Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.	Each Learning Set within a Project-Based Inquiry Science unit is organized around the cycle of what scientists do: taking larger questions and breaking them down to smaller questions, discussing ideas with their peers, designing experiments, building models, explaining observations, gathering and examining large sets of data, reading, writing and communicating their results to others. Students are constantly prompted to recognize this structure. Air Quality - pp. 35, 41-44, 48-49, 61-62, 69-76, 80, 85-88, 91, 93-98, 106-108, 114-122, 128-131, 133-137, 139-141, 145-149, 158-159, 162-169, 177-180, 192-194, 199-200, 203-207, 209-211, 219-220, 228-229, 231, 234-236, 239-241, 250-251, 255-256, 259-260, 262-265, 277-281, 284-286, 296-298 Animals In Action - pp. 8-10, 38-42, 96, 46, 59, 71, 77, 90, 91-94, 101, 107, 113, 123, 141, 142-147, 153 Astronomy - pp. 31-32, 34-35, 39-43, 47-48, 50-54, 69-70, 76-77, 84-86, 91-92, 99-101, 103-104, 106-107, 109-110, 115-117, 136-140, 142-143, 147-150, 152-156, 176-177, 179-183, 188-190, 191-198, 199-204 Digging In - pp. 26, 27, 42, 50-52, 65, 88, 89, 101, 104, 115-120 Diving Into Science - pp. 38, 39, 41, 56, 65, 66, 73, 89, 98 Energy - pp. 28, 47, 53, 74, 100, 122, 150, 161, 191, 205-211, 224, 235, 241, 264, 272, 282, 295 Ever-Changing Earth - pp. 33, 34, 59, 60, 91, 92, 149, 150, 171, 172, 215, 216 Genetics - pp. 3-4, 9-12, 15, 21, 26, 33-36, 39, 44, 48, 57, 75, 87-92, 93-95, 102, 119, 139, 144, 159-164, 165, 167, 170, 183, 198, 211, 219-234 Good Friends and Germs - pp. 7-8, 10, 18-20, 22, 34, 44, 73-76, 79, 91, 103, 112, 118, 120-123, 133, 143-149 Living Together - pp. 3-13, 16, 50, 52, 55, 82, 85, 106, 132, 140, 147 Vehicles In Motion - pp. 30, 34, 40, 46, 56, 64, 87, 102, 114, 130, 144, 151, 160, 166, 177, 180, 191, 196 Weather Watch - pp. 35, 51, 58, 76, 89, 101, 109, 122, 140, 148, 156, 165, 182, 194, 202, 215, 229, 239
6. Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text.	Throughout the Project-Based Inquiry Science program, students are asked to make connections between the data they collect, the observations they make, and the content readings. The What's the Point feature at the end of each section summarizes the content of the section. When updating the Project Board and in Back to the Big Question/Challenge, students make the connection between what the authors have presented in a Learning Set and the students' challenge. Air Quality - pp. 22, 30, 36, 49, 65, 68, 77, 84, 92, 101, 105, 112, 127, 132, 144, 150, 161, 186, 196, 202, 207, 214, 230, 238, 257, 266, 276, 283, 290, 295 Animals in Action - pp. 12, 44-45, 98 Astronomy - pp. 29-30, 31-32, 34-35, 39-43, 47-48, 50-54 69-70, 76-77, 84-86, 91-92, 99-101, 103-104, 106-107, 109-110, 115-117, 136-140, 142-143, 147-150, 152-156 176-177, 179-183, 188-190, 191-198, 199-204 Digging In - pp. 8, 17, 22, 25, 30, 33, 36, 38, 52, 66, 75, 81, 89, 95, 101, 105, 110, 115 Diving Into Science - pp. 7-10, 20, 21, 27-30, 32, 33, 43-50, 76-80, 90-98 Energy - pp. 20-21, 27, 34, 42-43, 46, 52, 56, 62, 73, 80, 86, 90, 99, 111, 121, 128, 135, 144-145, 149, 156-158, 169, 175, 185, 199, 206, 214, 223, 229, 234, 240, 248, 259, 263, 271, 278, 280, 291, 304 Ever-Changing Earth - pp. 89, 90, 146-148, 169, 170, 209-211, 246-248 Genetics - pp. 3-4, 15, 21, 26, 31, 33, 39, 44, 48, 57, 65, 70, 75, 81, 87, 93-95, 102, 113, 119, 128, 133, 139, 144, 158, 165, 176, 170, 178, 183, 199, 211 Good Friends and Germs - pp. 18-20, 73-76, 120-123, 143-149 Living Together - pp. 17-20, 27, 41, 45, 50, 55, 62, 69, 74, 78, 85, 91, 98, 106, 112, 126, 132 Vehicles in Motion - pp. 30, 34, 40, 46, 56, 64, 87, 102, 114,130, 144, 151, 160, 166, 177, 180, 191, 196 Weather Watch - pp. 35, 51, 58, 78, 89, 101, 109, 122, 140, 148, 156, 165, 182, 194, 202, 215, 229, 239

Integration of Knowledge and Ideas	
7. Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).	The use of tables, graphs, diagrams, flowcharts, maps, and other diverse learning tools throughout the Project-Based Inquiry Science Learning Sets helps students visually and quantitatively clarify complex science content concepts. In several Communicate Your Results sections students are asked to create a diagram, chart, table, or poster to clarify their knowledge and ideas to others. Air Quality - pp. 29, 32, 39, 44-45, 49, 54, 64, 69, 70-73, 86, 90, 133, 137, 140, 146-147, 152, 158-159, 164, 171-172, 182, 187-189, 200, 208, 210, 228-229, 233, 235, 239-241, 262-265, 269-272, 287-290, 293, 298, 300 Animals in Action - pp. 49, 72, 73, 74, 79, 87-89, 125, 127, 128, 129, 130, 139 Astronomy - pp. 15, 23, 30, 35, 42, 51, 52, 56, 67, 68, 70, 76, 81, 82, 89, 92, 99, 105, 110, 111, 115, 117, 120, 123, 127, 132, 133, 139, 140, 143, 145-146, 148, 149, 166, 170, 173, 177, 185, 186, 188, 192, 193, 195, 201, 203, 211 Digging In - pp. 18, 19, 59, 62 Diving Into Science - pp. 9, 10, 17, 28 36, 38, 41, 54, 61, 62 72, 77, 78, 83-86, 91, 100, 101 Energy - pp. 9, 10-13, 30, 52, 58, 61, 72, 78, 102, 105, 108-110, 116, 133, 151-153, 159, 160, 165-168, 172-173,188, 193, 198, 200, 220-221, 238, 258, 265, 266, 296-299 Ever-Changing Earth - pp. 28, 29, 35, 41, 52, 56, 65, 78, 86, 98, 99, 103, 106, 109, 115, 125, 132, 135, 159-162, 164, 165, 191, 197, 214, 224, 226, 227, 229-234 Genetics - pp. 17, 19,32, 45-47, 50-52, 54, 56, 59, 61, 121, 168, 171, 172,173 180-181,185, 192, 194-195, 202, 206 Good Friends and Germs - pp. 28, 29, 37, 81, 87, 88, 93, 100, 101, 111, 121, 124-130 Living Together - pp. 9-13, 21, 23, 25, 26, 29, 32, 40, 46, 47, 61, 66, 68, 69, 76, 87, 89, 90, 93, 94, 101-103, 109, 111, 114, 120, 129, 130, 141-144 Vehicles in Motion - pp. 7, 26, 28, 30-31, 32, 37, 43, 50, 52, 59, 65-66, 75, 76, 77, 78-83, 117, 123, 126-127, 133, 147, 149, 169, 170, 186, 202 Weather Watch - pp. 11, 18, 40-49, 56, 57, 63-65, 68, 69, 73, 74, 79-83, 91-100, 103, 110, 131-133, 143-145, 151, 153, 161, 163, 179, 190, 191, 199, 204, 205, 210, 211, 217-221
8. Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.	Investigations are an integral part of every Project-Based Inquiry Science unit. Students are asked to gather and analyze data, reflect on the experience, distinguish between their data and information provided in expository readings, and then produce a claim based on reasoned judgment of their findings. As they problem solve, they use the iterative process (also known as the engineering design cycle) to re-examine and realign their thinking to make small changes to their solutions. Air Quality - pp. 36, 57, 111, 115-121 160-161, 195-196, 218, 224, 227, 236 Animals in Action - pp. 13, 17, 22, 27-30, 36, 41, 48, 58, 70, 81, 82, 85, 86, 90, 93, 99, 106-107, 118, 119, 122, 123, 134, 135, 140, 143, 147, 150 Astronomy - pp. 24-25, 69, 82, 83, 125, 135, 147, 174 Digging In - 33, 37, 70, 76-80, 99, 100, 102, 103 Diving Into Science - pp. 11-13, 15-18, 37, 53-55, 58, 83-88 Energy - pp. 140, 154-155, 183, 197, 202, 254 Ever-Changing Earth - pp. 28, 30, 56, 57, 62, 63, 69, 81, 84, 89, 90, 94, 95, 117, 124, 129, 141-144, 146-148, 151, 152, 156, 169, 170, 177, 186, 187, 198, 199, 205, 206, 208-211, 217, 219, 220, 235, 236, 243, 244, 246, 249, 250 Genetics - pp. 22-31, 40-44, 67-69, 71-74, 76-81, 96-101, 103-111, 124-128, 131-137, 176, 221-223, 227-229 Good Friends and Germs - pp. 11-13, 17, 31-32, 41-43, 45-49, 51-54, 73-74, 121-123, 82-84, 86-91, 93-95, 97-99, 105, 137-139, 143 Living Together - pp. 11, 15, 16, 20, 22, 24, 31, 32, 34, 39, 40, 41, 46, 49, 52, 54, 55, 58, 59, 62, 67, 72, 79-82, 84, 85, 94, 96, 104, 106, 108, 112, 114, 118, 119, 125, 128, 131, 132, 138, 143-147 Vehicles in Motion - pp. 10, 18, 20, 27, 32, 33, 34, 46, 62, 64, 73, 84, 86, 89, 96, 121, 122, 127-130, 140, 142, 143, 166, 172, 175, 180, 186, 189, 191, 195, 202 Weather Watch - pp. 88, 89, 99, 100, 106-108, 118, 119, 121, 124, 154, 155, 167, 180-182, 188, 189, 193, 200, 213, 214, 223, 228, 239, 242

9. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.	Investigations, as well as readings are integral part of every Project-Based Inquiry Science unit. Students are asked to gather and analyze their own data, reflect on their findings, compare their data with information in expository readings, and then formulate explanations about their observations. In Project-Based Inquiry Science, students read science content only after experiencing the scientific phenomenon they are reading about. Also, Project-Based Inquiry Science provides links to online sources of information, as well as short videos and electronic data, for students to compare their investigative experiences, observations, and readings within each Learning Set to other sources. Often, the same concepts are presented using different media. Air Quality - pp. 29, 32, 39, 44-45, 49, 54, 64, 69, 70-73, 86, 90, 133, 137, 140, 146-147, 152, 158-159, 164, 171-172, 182, 187-189, 200, 208, 210, 228-229, 233, 235, 239-241, 262-265, 269-272, 287-290, 293, 298, 300 Animals in Action - pp. 45, 47, 49, 72, 73, 74, 79, 83, 87-89, 110, 115, 125, 127, 128, 129, 130, 132, 139 Astronomy - pp. 30, 35, 42, 51, 52, 67, 68, 70, 76, 81, 82, 92, 99, 105, 110, 115, 117, 120, 123, 132, 133, 139, 140, 143, 146, 148, 149, 166, 177, 185, 186, 188, 192, 193, 195, 201, 203, 211 Digging In - pp. 7, 11, 13, 24, 32, 37, 49, 63, 71, 72, 76-81, 95, 99, 100, 102-104, Diving Into Science - pp. 7-10, 15-18, 20, 21, 27-30, 32, 33, 43-50, 53, 54, 76-80, 83-88, 90-98, 100, 101 Energy - pp. 32, 36, 66-69, 76, 82, 84, 87-88, 96, 110, 126, 132, 140-141, 147, 153-155, 186, 192, 199, 202-203, 210, 218, 237, 254, 262, 277, 290, 307, 314 Ever-Changing Earth - pp. 28, 30, 56, 57, 62, 63, 69, 81, 84, 89, 90, 94, 95, 117, 124, 129, 141-144, 146-148, 151, 152, 156, 169, 170, 177, 186, 187, 198, 199, 205, 206, 208-211, 216, 217, 219, 220, 235, 236, 243, 244, 246, 249, 250 Genetics - pp. 28, 31-35, 36 43, 44, 57, 74, 79, 91, 100-102, 105-113, 133, 137, 156-157, 163, 177, 197 Good Friends and Germs - pp. 28, 29, 37, 81, 87, 88, 93, 100, 101, 111, 124-130 Living Together - pp. 4-7, 11, 20, 22, 31, 32, 34, 39, 40, 41, 49, 52, 54, 55, 58, 59, 62, 67, 72, 79, 80, 82, 84, 85, 94, 96, 104, 106, 114, 118, 119, 122-125, 128, 131, 132, 138, 143-147 Vehicles in Motion - pp. 15-16, 19-20, 23-24, 27-29, 31-33, 41-43, 47-54, 57-60, 60-63, 65-73, 63, 89, 103-113, 114, 115-121, 128-129, 130, 131-143, 151, 157-159, 167-176, 178-180, 192-202 Weather Watch - pp. 13-16, 62-66, 106, 129-133
Range of Reading and Level of Text Complexity	
10. By the end of Grade 8, read and comprehend science/technical texts in the Grades 6-8 text complexity band independently and proficiently.	The Read section of every Learning Set provides students grade-level appropriate and challenging expository text designed to increase proficiency in science content topics as well as provide access to academic language development. Students reading below grade level have an opportunity to engage in and listen to the discussions and develop an understanding of the content. Air Quality - pp. 35, 41-44, 48-49, 61-62, 69-76, 80, 85-88, 91, 93-98, 106-108, 114-120, 121-122, 128-131, 133-137, 139-141, 145-149, 158-159, 162-169, 177-180, 192-194, 199-200, 203-207, 209-211, 219-220, 228-229, 231, 234-236, 239-241, 250-251, 255-256, 259-260, 262-265, 277-281, 284-286, 296-298 Animals in Action - pp. 32-35, 28, 29, 39-41, 43, 44, 50-51, 53-56, 62-63, 72-76, 78-79, 86-89 Astronomy - pp. 31-32, 34-35, 39-43, 47-48, 50-54, 69-70, 76-77, 84-86, 91-92, 99-101, 103-104, 106-107, 109-110, 115-117, 136-140, 142-143, 147-150, 152-156, 176-177, 179-183, 188-190, 191-198, 199-204 Digging In - pp. 18-21, 28, 29, 39-41, 43, 44, 53-65, 82-87 Diving Into Science - pp. 11-13, 15-18, 37, 49-55, 58, 63, 64, 83-88, 91, 92, 97 Energy - pp. 24-25, 29-30, 38-39, 43-44, 51-52, 56, 57-60, 70-71, 72, 77-79, 88-89, 98-99, 100, 104-107, 112-120, 132–134, 136-138, 156-160, 165-169, 170-172, 182, 184-185, 193-196, 197-198, 200, 210-211, 219-223, 226-228, 233, 238-239, 247-248, 250-252, 268-270, 274-275, 279-280, 282-289, 292-294 Ever-Changing Earth - pp. 29, 35, 36, 39-41, 47, 52, 64, 65, 71-78, 87, 96-102, 105-114, 122, 125, 134, 135, 153, 159-162, 164, 165, 189-197, 200-202, 212-214, 221-223, 234, 239, 240 Genetics - pp. 3-4, 7-8, 13-14, 17, 32-33, 37-38, 47-48, 49-56, 58-60, 82-86, 93-95, 103-104, 114-118, 120-123, 137-139, 141-144, 165-166, 179-182, 184-188, 191, 193-196, 200-210, 212-218 Good Friends and Germs - pp. 14-15, 16, 22-25, 27-30, 37-39, 41-42, 55-57, 58-60, 62-72, 80-81, 99-102, 109-112, 113-117, 124-130, 134-136, 140-142 Living Together - pp. 8-11, 21, 23, 25-26, 29-31, 35-38, 42-44, 48, 49, 61, 64, 65, 67-69, 75-78, 86, 89-91, 92-94, 97, 98, 101-103, 109-111, 120, 121, 129, 130, 133–137 Vehicles in Motion - pp. 17, 21-22, 26, 36-39, 43, 44-46, 48-49, 58-60, 74-77, 78-83, 94-95, 100-101, 122-126, 145-149, 152, 161-166, 168-171 Weather Watch - pp. 17-19, 22-30, 55-57, 67-75, 77, 78, 84, 86, 87, 102-105, 115-117, 120, 139, 142-148, 149-154, 157-165, 176-179, 190, 191, 199-206, 212, 213, 218-222, 225-227, 231-238, 267-274

Writing Standards for Literacy in History/Social Studies, Science, and Technical Subjects: Grades 6-8	
Standards:	PBIS Unit Location:
Text Types and Purposes	
1. Write arguments focused on discipline-specific content.	Embedded in several of the structured sections of each Project-Based Inquiry Science Learning Set are opportunities for students to make claims about what they think they know, what they have learned, or explanations of their observations and data. To promote cognitive awareness, students are asked to cite evidence of their knowledge when stating their claims. The Create Your Explanation and Revise Your Explanation features specifically focus students on the need to write well-crafted explanations. Air Quality - pp. 36, 57, 111, 160-161, 195-196, 218, 224, 227, 236 Animals in Action - pp. 28-30, 36, 58, 70, 82, 86, 90, 118, 122, 135, 140 Astronomy - pp. 44, 62-63, 77-78, 93, 113, 161, 213, 216 Digging In - pp. 76-80, 100, 102, 103 Diving Into Science - pp. 5, 9, 21, 27, 32, 37, 48, 52, 56-62, 64, 66, 67, 73, 77, 81, 89, 91, 93, 96 Energy - pp. 140, 154-155, 183, 197-199, 202, 254 Ever-Changing Earth - pp. 89, 90, 146-148, 169, 170, 209-211, 246-248 Genetics - pp. 90-91, 101-102, 136, 139, 160-162, 197-198, 222, 224, 228, 230-234 Good Friends and Germs - pp. 17, 73-74, 121-123, 143 Living Together - pp. 19, 20, 22, 31, 34, 40, 41, 44, 50, 52, 55, 59, 62, 78-80, 82, 96, 104, 105, 106, 108, 112, 118, 119, 125, 131, 132, 138, 143-147 Vehicles in Motion - pp. 24, 29, 33, 53, 54-55, 61, 63, 85-86, 89, 109, 112, 114, 130, 134, 137, 151, 171, 175-176, 193 Weather Watch - pp. 88, 89, 99, 100, 106-108, 118, 119, 121, 124, 154, 155, 167, 180-182, 188, 189, 193, 200, 213, 214, 223, 228, 239, 242
2. Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.	The Project-Based Inquiry Science program provides ample opportunity for students to create expository text as they form explanations of observations and data, create their own procedures for investigations, and provide conclusions that support their claims. Air Quality - pp. 6, 16, 22, 28, 30, 35, 36, 46, 49-50, 57, 63, 68, 76, 81, 83, 90, 92, 105, 111, 112, 126, 138, 143, 154, 158, 159, 160-161, 167, 168, 169, 175, 185, 195-196, 198, 214, 218, 224, 227, 233, 234, 236, 246, 249, 255, 257, 265, 269, 220, 273, 290, 294, 306 Animals in Action - pp. 13, 17, 28-30, 31, 36, 37, 41 51, 57, 58, 70, 82, 86, 90, 106, 118, 122, 135, 140 Astronomy - pp. 9, 10, 28, 31, 36, 38, 41, 44, 45, 48, 49, 54, 55-56, 61, 64, 69, 71,75, 77, 82, 83, 85, 86, 91, 93, 97, 98, 105, 108, 112, 114, 120, 130, 137, 140, 144, 151, 156, 157, 158, 161, 167, 171, 176, 177, 182, 183, 185, 187, 190, 198, 202, 205, 209, 211, 214 Digging In - pp. 7, 14, 22, 25, 26, 36, 38, 63, 74, 76-80, 88, 100, 102, 103, 114, 118, 122, 123 Diving Into Science - pp. 9, 10, 20, 21, 27-30, 32, 33, 43-50, 57-62, 76-80, 81, 90-98 Energy - pp. 9, 26, 33, 37, 44-45, 50, 55, 61, 71, 76, 90, 95-96, 99, 108, 118, 120, 135, 139, 140, 142, 148, 154-155, 181, 182, 183, 185, 197-199, 201, 202, 204, 210, 213, 219, 223, 226, 237, 246, 248, 254, 256, 263, 268, 270, 276, 291, 302, 305, 307, 315 Ever-Changing Earth - pp. 30, 43, 45, 46, 51, 54, 57, 58, 70, 81, 85, 89, 90, 95, 117, 121, 127, 139, 143, 144, 146, 148, 156-158, 166, 169, 178, 199, 209, 211, 220, 237, 244, 246, 247, 249, 250 Genetics - pp. 26, 44, 53, 80, 86, 90-91, 101-102, 112-113, 128, 136, 139, 143, 144, 157, 160-162, 163, 175, 178, 188, 196, 197-198, 210, 222, 224, 228, 230-234 Good Friends and Germs - pp. 13, 17 19, 43, 50, 54, 73-74, 85, 89, 96, 103, 109, 121-123, 143 Living Together - pp. 5, 19, 20, 22, 31, 38, 41, 49, 50, 56-59, 62, 72, 78, 80, 82, 84, 88, 94, 104, 106, 108, 115, 131, 132, 143-147 Vehicles in Motion - pp. 10, 18, 20, 22, 27, 29, 32, 34, 38, 39, 53, 54-55, 46, 62, 64, 73, 77, 83, 84, 85, 86, 89, 96, 112, 122, 142, 143, 165, 166, 172, 175-176, 180, 186, 189, 191, 195, 202 Weather Watch - pp. 20, 34, 50, 51, 54, 59, 70, 72, 75, 82, 85, 93, 101, 105, 106, 116, 118, 121, 124, 138, 140, 143, 148, 151, 153, 154, 158, 159, 162, 165, 166, 172, 173, 175, 176, 180, 184, 185, 187, 192, 198, 211, 222, 223, 239, 257, 266, 274
3. Not applicable as a separate requirement.	N/A

Production and Distribution of Writing	
4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.	Throughout the program, Project-Based Inquiry Science learners are asked to communicate their findings from hands-on investigations, readings, and discussions with others in the form of writing. The Stop and Think, Update the Project Board, Reflect, Create Your Explanation, and Communicate Your Ideas features ask students to use academic vocabulary to organize thoughts and communicate with their peers. Create Your Explanation, Experiment Planning, Idea-Briefing Notes, and other similar pages help students learn the writing that is required for a given task. Air Quality - pp. 6, 16, 22, 28, 30, 35, 36, 46, 49-50, 57, 63, 68, 76, 81, 83, 90, 92, 105, 111, 112, 126, 138, 143, 154, 158, 159, 160-161, 167, 168, 169, 175, 185, 195-196, 198, 214, 218, 224, 227, 233, 234, 236, 246, 249, 255, 257, 265, 269, 220, 273, 290, 294, 306 Animals in Action - pp. 13, 17, 24, 27, 31, 36, 37, 41, 51, 57, 67, 68, 70, 77, 90, 106, 112, 122, 138 Astronomy - pp. 9, 10, 28, 31,36, 38, 41, 44, 45, 48, 49, 54, 55-56, 61, 64, 69, 71,75, 77, 82, 83, 85, 86, 91, 93, 97, 98, 105, 108, 112, 114, 120, 130, 137, 140, 144, 151, 156, 157, 158, 161, 167, 171, 176, 177, 182, 183, 185, 187, 190, 198, 202, 205, 209, 211, 214 Digging In - pp. 7, 14, 22, 25, 26, 36, 38, 63, 74, 76-80, 88, 100, 102, 103, 114, 118, 122, 123 Diving Into Science - pp. 12, 18, 22, 30, 33, 44, 52, 55, 61, 65, 67, 76-81, 96, 101, 102 Energy - pp. 9, 26, 33, 37, 44-45, 50, 55, 61, 64, 71, 76, 79, 90, 95-96, 99, 101, 108, 114, 118, 120, 131, 135, 139, 142, 148, 154-155, 169, 174, 181, 182, 185, 196, 201, 204, 208, 210, 213, 217, 218, 219, 223, 226, 229, 234, 237, 239, 242, 246, 248, 256, 263, 268, 270, 276, 280, 290, 291, 294, 302, 305, 307, 315 Ever-Changing Earth - pp. 9, 30, 39, 43, 45, 46, 48, 51, 54, 57, 58, 66, 70, 79, 81, 85, 90, 95, 96, 99, 100, 103, 113, 117, 120, 121, 124, 127, 139, 143, 144, 148, 155, 157, 158, 163, 166, 178, 186, 190, 192, 193, 196, 211, 237, 242, 244, 247 Genetics - pp. 26, 44, 53, 80, 86, 90-91, 101-102, 112-113, 128, 136, 139, 143, 144, 157, 160-162, 163, 175, 178, 188, 196, 197-198, 210-211, 222, 224, 228, 230-234 Good Friends and Germs - pp. 5, 13, 17, 19, 25-26, 32-33, 40, 43, 50, 54, 57, 81, 83, 85, 89, 91, 96, 103, 109, 111-112, 117, 136, 142 Living Together - pp. 19, 20, 31, 39, 40, 41, 44, 55, 62, 64, 67, 72, 78, 79, 80, 82, 84, 85, 106, 112, 132, 143-147 Vehicles in Motion - pp. 10, 18, 20, 22, 27, 29, 32, 34, 38, 39, 53, 54-55, 46, 62, 64, 73, 77, 83, 84, 85, 86, 89, 96, 112, 122, 142, 143, 165, 166, 172, 175-176, 180, 186, 189, 191, 195, 202 Weather Watch - pp. 20, 34, 50, 51, 54, 59, 70, 72, 75, 82, 85, 93, 101, 105, 106, 116, 118, 121, 124, 138, 140, 143, 148, 151, 153, 154, 158, 159, 162, 165, 166, 172, 173, 175, 176, 180, 184, 185, 187, 192, 198, 211, 222, 223, 239, 257, 266, 274
5. With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.	Central to the Project-Based Inquiry Science program is the Project Board. As each unit progresses, student groups, under the direction of the teacher, are asked to revise, update, edit, rewrite, and review what they know, what they have learned, new questions they formulated, evidence of their knowledge, and how it all relates to the unit challenge. In Project-Based Inquiry Science, students often present results of investigations, design plans, idea briefing, etc. to an audience of other students. Other students are encouraged to provide constructive and respectful feedback to the materials presented. Air Quality - pp. 17-18, 22, 36, 49, 55-58, 65, 77, 83, 92, 100, 109-112, 127, 143, 150, 161, 171-175, 185, 196, 201, 214, 236-237, 247-252, 257, 282, 299-306 Animals in Action - pp. 8-10, 38-42, 46, 59, 70, 77, 90, 91-96, 101, 107, 113, 123, 141, 142-147, 153 Astronomy - pp. 44, 57, 62-63, 77-78, 93, 111, 113, 159, 161, 213, 216 Digging In - pp. 26, 27, 42, 50-52, 65, 89, 101, 104, 115-120 Diving Into Science - pp. 9, 10, 38, 39, 41, 44, 45, 56, 61, 65, 66, 73, 89, 98 Energy - pp. 17-18, 27, 33, 40, 45, 61, 73, 80, 81, 84, 90, 121, 128, 135, 139, 142, 149, 156, 175, 185, 199,201-204, 214, 223, 240, 248, 253-256, 256, 271, 278, 280, 304-305, 308, 316 Ever-Changing Earth - pp. 30-33, 46, 51, 58, 63, 88-90, 95, 103, 130, 139, 140, 145, 148, 152, 158, 168, 170, 179, 187, 204-211, 220, 245-249 Genetics - pp. 9-12, 15, 21, 26, 33-36, 44, 48, 57, 75, 87-92, 102, 119, 139, 144, 159-164, 170, 183, 198, 211, 219-234 Good Friends and Germs - pp. 7-8, 10, 18-20, 22, 34, 44, 73-76, 79, 91, 103, 112, 118, 120-123, 133, 143-149 Living Together - pp. 12, 16, 50, 52, 55, 79, 82, 112, 140-147 Vehicles in Motion - pp. 11-12, 18, 56, 73, 87, 90, 96, 102, 154, 160 Weather Watch - pp. 88, 89, 99, 100, 106-108, 118, 119, 121, 124, 154, 155, 167, 180-182, 188, 189, 193, 200, 213, 214, 223, 228, 239, 242

6. Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.	Although Internet access is not required for completion of the Project-Based Inquiry Science program, classrooms with computers and online capabilities will be able to provide students with more in-depth information about the science topics relevant to the Big Question or Big Challenge of each unit. Ever-Changing Earth - pp. 36-39, 42-45, 47-50, 124-128, 137, 138, 173-176, 242, 243
Research to Build and Present Knowledge	
7. Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.	In Project-Based Inquiry Science, students answer Big Questions or address Big Challenges. Each unit is broken down into Learning Sets that address a smaller question. To answer these smaller questions students engage in investigative research and readings. At the end of each Learning Set, students return to the Project Board to discuss not only what they have learned, but also what questions they still need to investigate. Air Quality - pp. 47-48, 242-246, 247-249, 267-269 Animals in Action - pp. 8-10, 12-20, 46, 59, 70, 77, 90, 96, 101, 107, 113, 123, 141, 144, 153 Astronomy - pp. 15-16, 18-27, 33-37, 57-60, 73-75, 80-83, 95-98, 122-132, 170-178, 184-188 Digging In - pp. 6, 9-11, 23, 24, 31-38, 90-100, 106-110 Diving Into Science - pp. 7-10, 20, 21, 27-30, 32, 33, 43-50, 76-80, 90-98 Energy - pp. 42-43, 54-55, 63-68, 74-76, 122-126, 146-147, 176-180, 230-232, 265-267 Ever-Changing Earth - pp. 36-39, 42-45, 47-50, 53, 54, 68, 69, 80–83, 92, 93, 118-121, 124-128, 131-135, 137-143, 154, 155, 173-176, 180-185, 203, 204, 242, 243 Genetics - pp. 67-74 96-101,131-133, 176, 221-223, 227-229 Good Friends and Germs - pp. 47-49, 51-53, 87-91, 98-99, 103, 106-107 Living Together - pp. 31, 40, 56-62, 115, 124, 99-101 Vehicles in Motion - pp. 15-16, 19-29, 31-33, 103-108, 115-121, 128-129, 157-159, 178-180 Weather Watch - pp. 22-30, 52-55, 79-85, 111-113, 174, 175, 196-198
8. Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusion of others while avoiding plagiarism and following a standard format for citation.	Internet access is not required for completion of the Project-Based Inquiry Science program, and therefore not directly aligned with this standard. However, classrooms with computers and online capabilities will be able to provide students with more in-depth information about the science topics relevant to the Big Question of each unit.

9. Draw evidence from informational texts to support analysis, reflection, and research.	Stop and Think and Reflect questions that offer students an opportunity to reflect on their reading, analyze what they have learned, and organize their thinking in a written response are provided throughout each Learning Set. Specifically, the Reflect questions are used to help students make connections to things they've done to what they read. Air Quality - pp. 36, 57, 68, 80-82, 89-90, 104, 111, 124-126, 155-158, 161, 163, 190-191, 195, 212-213, 218, 222, 224, 227, 236, 245-246, 248-249, 261, 289 Animals in Action - pp. 13, 16-17, 23, 31, 37, 40-41, 47-48, 51, 57, 70, 84, 105-106, 110, 116, 133 Astronomy - pp. 9-10, 28, 31, 36, 38, 41, 44-45, 48-49, 54-56, 61, 64, 69, 71, 75, 77, 82-83, 85-86, 91, 93, 97-98, 105, 108, 112, 114, 120, 130, 137, 140, 144, 151, 156-158, 161, 167, 171, 176-177, 182-183, 185, 187, 190, 198, 202, 205, 209, 211, 214 Digging In - pp. 7, 14, 22, 25, 36, 38, 63, 74, 76-80, 88, 100-103, 114, 115, 118, 122, 123 Diving Into Science - pp. 12, 18, 22, 30, 33, 52, 55, 65, 80, 89, 101, 102 Energy - pp. 22, 23, 29, 49, 66-67, 88, 94, 103, 126, 153, 176, 180, 189, 192, 232, 262, 267, 273, 305-306 Ever-Changing Earth - pp. 30, 43, 45, 46, 51, 54, 57, 58, 70, 81, 85, 90, 95, 117, 120, 121, 127, 139, 143, 144, 148, 155, 157, 158, 166, 178, 211, 237, 244, 247 Genetics - pp. 25, 28, 71-74, 62-65, 79, 90-91, 97, 101-102, 111, 126, 127, 134-140, 139, 156, 160-162, 174, 197, 198, 222, 224, 228, 230-234 Good Friends and Germs - pp. 13, 17, 19, 43, 49, 50, 52, 54, 73, 74, 84, 89, 94, 95, 96, 103, 109, 121-123, 143 Living Together - pp. 31, 40, 41, 44, 45, 49, 50, 62, 78, 112, 132, 143-147 Vehicles in Motion - pp. 10, 18, 20, 22, 27, 29, 32, 34, 38, 39, 46, 53, 54-55, 62, 64, 73, 77, 83, 84, 85, 86, 89, 96, 112, 122, 142, 143, 165, 166, 172, 175-176, 180, 186, 189, 191, 195, 202 Weather Watch - pp. 20, 34, 50, 51, 54, 59, 70, 72, 75, 82, 85, 93, 101, 105-106, 116, 118, 121, 124, 138, 140, 143, 148, 151, 153, 154, 158-159, 162, 165-168, 172-173, 175, 176, 180, 184, 185, 187, 192, 198, 211, 222, 223, 239, 257, 266, 274
Range of Writing	
10. Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.	The Project Board is an integral part of the Project-Based Inquiry Science program and provides students long-term reflection on the progress of their learning. The Project Board at the beginning of Learning Set 1 of each unit is used to organize what the students think they know and what they need to investigate to answer the Big Question or address the Big Challenge. At the end of Learning Set 1, the Project Board is revisited and students add what they have learned. In subsequent learning sets, the Project Board is again revisited, reviewed, revised, and rewritten. The Create/Revise Your Explanation features also provide opportunities for students to write over extended periods of time. Preparing posters for classroom presentations are examples of writing for shorter time frames. Air Quality - pp. 17-18, 22, 36, 49, 55-58, 65, 77, 83, 92, 100, 109-112, 127, 143, 150, 161, 171-175, 185, 196, 201, 214, 237, 247-252, 257, 282, 299-306 Animals in Action - pp. 8-10, 38-42, 46, 59, 70, 77, 90, 91-96, 101, 107, 113, 123, 141, 142-147, 153 Astronomy - pp. 10-13, 17, 38, 49, 56, 64, 71, 79, 94, 114, 121, 141, 158, 161, 168, 190, 205, 214 Digging In - pp. 26, 27, 42, 50-52, 65, 89, 101, 104, 115-120 Diving Into Science - pp. 9, 10, 38, 39, 41, 44, 45, 56, 61, 65, 67, 73, 89, 98 Energy - pp. 17-18, 27, 33, 40, 45, 61, 73, 80-81, 84, 90, 121, 128, 135, 139, 142, 149, 156, 175, 185, 199, 201-204, 213-214, 223, 240, 248, 253-256, 271, 278, 280, 304-305, 308, 316 Ever-Changing Earth - pp. 30-33, 46, 51, 58, 63, 88-90, 95, 103, 130, 139, 140, 145, 148, 152, 158, 168-170, 179, 187, 204-211, 220, 245-249 Genetics - pp. 9-12, 15, 21, 26, 33-36, 44, 48, 57, 75, 87-92, 102, 119, 139, 144, 159-164, 170, 183, 198, 211, 219-234 Good Friends and Germs - pp. 7-8, 10, 18-20, 22, 34, 44, 73-76, 79, 91, 103, 112, 118, 120-123, 133, 143-149 Living Together - pp. 5, 12, 16, 19, 20, 22, 31, 34, 38, 40-41, 44, 49-50, 52, 55-56, 62, 72, 78-80, 82, 85, 88, 94, 96, 104-106, 108, 112, 115, 118-119, 125, 131-132, 138, 143, 147 Vehicles in Motion - pp. 10, 18, 20, 22, 27, 29, 32, 34, 38-39, 46, 53-55, 62, 64, 73, 77, 83-86, 89, 96, 112, 122, 130, 142-143, 165-166, 172, 175-176, 180, 186, 189, 191, 195, 202 Weather Watch - pp. 7-8, 20, 58, 60, 66, 75, 109, 122, 126, 134, 155, 165, 168, 173, 182, 194, 202, 215, 229, 243