Operation Montserrat
Science Standard Articulated by Grade Level

Strand 1: Inquiry Process			
Concept 1: Observations, Predictions and Hypotheses Observe, ask questions, and make predictions			
Grade 5	**Grade 6**	**Grade 7**	**Grade 8**
PO 2. Formulate predictions in the realm of science based on observed cause and effect relationships.			
PO 3. Locate information (e.g., book, article, website) related to an investigation.			
Concept 2: Scientific Testing (Investigating and Modeling) Design and conduct controlled investigations.			
Grade 5	**Grade 6**	**Grade 7**	**Grade 8**
PO 1. Demonstrate safe behavior and appropriate procedures (e.g., use and care of technology, materials, organisms) in all science inquiry.	PO 1. Demonstrate safe behavior and appropriate procedures (e.g., use and care of technology, materials, organisms) in all science inquiry.	PO 1. Demonstrate safe behavior and appropriate procedures (e.g., use and care of technology, materials, organisms) in all science inquiry.	PO 1. Demonstrate safe behavior and appropriate procedures (e.g., use and care of technology, materials, organisms) in all science inquiry.
PO 4. Measure using appropriate tools (e.g., ruler, scale, balance) and units of measure (i.e., metric, U.S. customary).	PO 4. Perform measurements using appropriate scientific tools (e.g., balances, microscopes, probes, micrometers).	PO 4. Perform measurements using appropriate scientific tools (e.g., balances, microscopes, probes, micrometers).	PO 4. Perform measurements using appropriate scientific tools (e.g., balances, microscopes, probes, micrometers).
PO 5. Record data in an organized and appropriate format (e.g., t-chart, table, list, written log).	PO 5. Keep a record of observations, notes, sketches, questions, and ideas using tools such as written and/or computer logs.	PO 5. Keep a record of observations, notes, sketches, questions, and ideas using tools such as written and/or computer logs.	PO 5. Keep a record of observations, notes, sketches, questions, and ideas using tools such as written and/or computer logs.
Concept 3: Analysis and Conclusions			

Analyze and interpret data to explain correlations and results: formulate new questions.			
Grade 5	**Grade 6**	**Grade 7**	**Grade 8**
PO 1. Analyze data obtained in a scientific investigation to identify trends and form conclusions.	PO 1. Analyze data obtained in a scientific investigation to identify trends.	PO 1. Analyze data obtained in a scientific investigation to identify trends.	PO 1. Analyze data obtained in a scientific investigation to identify trends.
PO 3. Evaluate the reasonableness of the outcome of an investigation.	PO 3. Evaluate the observations and data reported by others.	PO 3. Analyze results of data collection in order to accept or reject the hypothesis	PO 3. Interpret data that show a variety of possible relationships between two variables, including: • Positive relationship • Negative relationship • No relationship
	PO 3. Evaluate the observations and data reported by others		
	PO 4. Interpret simple tables and graphs produced by others		
PO 5. Identify possible relationships between variables in simple investigations (e.g., time and distance; incline and mass of object	PO 5. Analyze the results from previous and/or similar investigations to verify the results of the current investigation.	PO 5. Formulate a conclusion based on data analysis.	PO 5. Explain how evidence supports the validity and reliability of a conclusion.
Concept 4: Communication Communicate Results of Investigations			
Grade 5	**Grade 6**	**Grade 7**	**Grade 8**
PO 1. Communicate verbally or in writing the results of an inquiry.	PO1. Choose an appropriate graphic representation for collected data: • line graph • double bar graph • stem and leaf plot • histogram	PO1. Choose an appropriate graphic representation for collected data: • line graph • double bar graph • stem and leaf plot • histogram	PO 1. Communicate the results of an investigation
PO 2. Choose an appropriate graphic representation for collected	PO 2. Display data collected from a controlled investigation.	PO 2. Display data collected from a controlled investigation.	PO1. Choose an appropriate graphic representation for collected

data: • bar graph • line graph • Venn diagram • model			data: • line graph • double bar graph • stem and leaf plot • histogram
PO 3. Communicate with other groups or individuals to compare the results of a common investigation.	PO 3. Communicate the results of an investigation with appropriate use of qualitative and quantitative information.	PO 3. Communicate the results of an investigation with appropriate use of qualitative and quantitative information.	PO 3. Present analyses and conclusions in clear, concise formats.
	PO 5. Communicate the results and conclusion of the investigation.	PO 5. Communicate the results and conclusion of the investigation.	PO 5. Communicate the results and conclusion of the investigation.
Strand 2: History and Nature of Science			
Concept 2: Nature of Scientific Knowledge Understand how science is a process for generating knowledge.			
Grade 5	**Grade 6**	**Grade 7**	**Grade 8**
			PO 1. Apply the following scientific processes to other problem solving or decision making situations: observing; questioning; communicating; comparing; measuring; classifying; predicting; organizing data; inferring; generating hypotheses; identifying variables.
	PO 3. Apply the following scientific processes to other problem solving or decision making situations: observing; questioning; communicating; comparing; measuring; classifying; predicting; organizing data; inferring; generating	PO 3. Apply the following scientific processes to other problem solving or decision making situations: observing; questioning; communicating; comparing; measuring; classifying; predicting;	

	hypotheses; identifying variables.	organizing data; inferring; generating hypotheses; identifying variables.	
Strand 3: Science in Personal and Social Perspectives			
Concept 1. Describe the interactions between human populations, natural hazards, and the environment.			
Grade 5	**Grade 6**	**Grade 7**	**Grade 8**
PO 1. Explain the impacts of natural hazards on habitats (e.g., global warming, floods, asteroid or large meteor impacts).	PO 1. Evaluate the effects of the following natural hazards: • sandstorm • hurricane • tornado • ultraviolet light • lightning-caused fire	PO 1. Analyze environmental risks (e.g., pollution, destruction of habitat) caused by human interaction with biological or geological systems.	PO 1. Analyze the risk factors associated with natural, human induced, and/or biological hazards, including: • waste disposal of industrial chemicals • greenhouse gases
PO 2. Propose a solution, resource, or product that addresses a specific human, animal, or habitat need.	PO 2. Describe how people plan for, and respond to, the following natural disasters: • drought • flooding • tornadoes		
PO 3. Evaluate the possible strengths and weaknesses of a proposed solution to a specific problem relevant to human, animal, or habitat needs.		PO 3. Propose possible solutions to address the environmental risks in biological or geological systems.	
Concept 2: Science and Technology Develop viable solutions to a need or problem.			
Grade 5	**Grade 6**	**Grade 7**	**Grade 8**
	PO 1. Propose viable methods of responding to an identified need or	PO 1. Propose viable methods of responding to an identified need	PO 1. Propose viable methods of responding to an identified need or

	problem.	or problem.	problem.
	PO 2. Compare possible solutions to best address an identified need or problem.	PO 2. Compare possible solutions to best address an identified need or problem.	PO 2. Compare possible solutions to best address an identified need or problem.
Strand 4: Life Science			
Concept 3: Populations of Organisms in an Ecosystem Analyze the relationship among various organisms and their environment.			
Grade 5	**Grade 6**	**Grade 7**	**Grade 8**
		PO 5. Predict how environmental factors (e.g., floods, droughts, temperature changes) affect survival rates in living organisms.	
Strand 6: Earth and Space Science			
Concept 2: Earth's Processes and Systems Understand the processes acting on the Earth and their interaction with the Earth systems.			
Grade 5	**Grade 6**	**Grade 7**	**Grade 8**
	PO 5. Analyze the impact of large-scale weather systems on the local weather.		