

Investigating Earth Systems Correlation for Hawaii

Grade 8 Earth Systems/Environmental Science Content Standards (Domain I)

Correlation Key: “X” Coverage = Secondary concept of the activity or problem. Students gain a basic understanding or introduction of the concept. “XX” In-depth Coverage = Primary concept that is the focus of the activity or problem. Students gain thorough understanding of the concept.		Climate and Weather	Dynamic Planet	Energy Resources	Fossils	Materials and Minerals	Oceans	Rocks and Landforms	Soil	Water as a Resource
Standard 1 - DOING SCIENTIFIC INQUIRY: Students demonstrate the skills necessary to engage in scientific inquiry.										
Benchmark	Performance Indicator									
<ul style="list-style-type: none"> Develop questions and hypotheses that can be answered through scientific investigations. 	1. Identifies and elaborates on issues/problems by developing questions or hypotheses for scientific investigation in a field study.	XX	XX	XX	XX	XX	XX	XX	XX	XX
<ul style="list-style-type: none"> Design and conduct scientific investigations to answer questions or to test hypotheses. 	2. Formulates a design to test a hypothesis with an experiment, identifying the control variables. Writes procedures for investigation and conducts experiment.	XX	XX	XX	XX	XX	XX	XX	XX	XX
<ul style="list-style-type: none"> Collect, organize, analyze and display data/information, using tools, equipment and techniques that will help in data collection, analysis, and interpretation. 	3a. Collects and organizes accurate data (charts and tables) and displays appropriately (graphs) for analysis. 3b. Analyzes and interprets data (e.g., identifying trends and patterns) to explain clearly what the data suggests or infers	XX	XX	XX	XX	XX	XX	XX	XX	XX
<ul style="list-style-type: none"> Develop conclusions and explanations showing the relationship between evidence and results drawn. 	4. Draws logical conclusions and explanations showing the link between evidence and results of the investigation. Summarizes major findings and connects them with the "real world."	XX	XX	XX	XX	XX	XX	XX	XX	XX
<ul style="list-style-type: none"> Communicate and defend scientific procedure used and conclusion and explanation drawn from evidence. 	5. Explains/describes the investigation to an audience. Provides a mechanism for the audience to respond to the investigation. Defends the investigation appropriately and logically. Completes a laboratory report of a scientific investigation in written form.	XX	XX	XX	XX	XX	XX	XX	XX	XX

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<ul style="list-style-type: none"> Reflect and revise conclusion and explanation based on new evidence given from other valid points of view. 	6. Reflects on new evidence from other valid sources and revises conclusion and explanation as needed. Includes recommendations for improving the investigation.	XX	XX	XX	XX	XX	XX	XX	XX	XX
Standard 2 - LIVING THE VALUES, ATTITUDES, AND COMMITMENTS OF THE INQUIRING MIND: Students apply the values, attitudes, and commitments characteristic of an inquiring mind.										
Benchmark	Performance Indicator									
HONESTY	HONESTY									
<ul style="list-style-type: none"> Report observations even when they contradict a hypothesis. 	1. Examines the results of an investigation dealing with earth and space and reports on the results even if it does not support the hypothesis.	XX	XX	XX	XX	XX	XX	XX	XX	XX
<ul style="list-style-type: none"> Acknowledge references, contributions, and work done by others. 	2. Provides references and sources used in the literature review, data analysis and conclusions drawn.			XX	XX		XX			
CRITICAL-MINDEDNESS	CRITICAL-MINDEDNESS									
<ul style="list-style-type: none"> Evaluate empirical evidence to develop reasonable conclusions and explanations and compare them to current scientific knowledge. 	1. Evaluates empirical evidence of current scientific knowledge to develop reasonable conclusions.	XX	XX	XX	XX	XX	XX	XX	XX	XX
	2. Identifies biases in an experiment that may contribute to a flawed conclusion.	XX	XX	XX	XX	XX	XX	XX	XX	XX
OBJECTIVITY	OBJECTIVITY									
<ul style="list-style-type: none"> Εξάμινε σεπεραλ ποσσιβλε οπιονσ ωην ινωεστιγατινγ α προβλεμ. Διστινγριση βετωεεν φαχτσ ανδ σπεγλι οπιονσ/ινφερενγες 	1. Evaluates alternate ways to solve a problem and distinguishes between facts and speculation/inferences.	XX	XX	XX	XX	XX	XX	XX	XX	XX
OPEN-MINDEDNESS	OPEN-MINDEDNESS									

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<ul style="list-style-type: none"> Evaluate all evidence that support or contradict the hypothesis. 	1. Classifies all data according to those supporting and contradicting the hypothesis. Applies the same criteria in evaluating the data for clarity, accuracy and precision.	XX	XX	XX			XX			XX
QUESTIONING	QUESTIONING									
<ul style="list-style-type: none"> Ask questions to understand the multiple perspectives and interpretations of a problem, situation, or solution. 	1. Asks questions to clarify and understand all points of views to a problem. Understands implications for the consequences of alternate solutions. States clear and relevant questions to address the problem.	XX	XX	XX	XX	XX	XX	XX	XX	XX
SELF-DIRECTED	SELF-DIRECTED									
<ul style="list-style-type: none"> Locate, identify, and use a wide variety of appropriate information to draw conclusions in a research project. 	1. Pursues an investigation of a problem, situation or perspective using independent research.	XX	XX	XX	XX	XX	XX	XX	XX	XX
VALUE SCIENCE	VALUE SCIENCE									
<ul style="list-style-type: none"> Ask questions and explain findings and answers scientifically. 	1. Translates wonderings into questions that can be tested. Uses scientific knowledge to support an idea, conclusion, problem or situation.	XX	XX	XX	XX	XX	XX	XX	XX	XX

Standard 3 - USING UNIFYING CONCEPTS AND THEMES: Students use concepts and themes such as system, change, scale, and model to help them understand and explain the natural world.

Benchmark	Performance Indicator									
SYSTEM	SYSTEM									
<ul style="list-style-type: none"> Explain how a given system works. 	1. Gives examples of earth or space systems as well as processes (e.g., hydrologic cycle, ecosystem, nitrogen, carbon, and phosphorus cycles).	XX	XX	XX	XX	XX	XX	XX	XX	XX
CHANGE	CHANGE									

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<ul style="list-style-type: none"> Identify patterns of change and the implications on a system. 	1. Identifies patterns of change and the implications on a system. (E.g., examples of homeostasis in physical and biological and/or earth/space systems and showing that systems change until they become stable and remain as such until the environment changes.)	XX	XX	XX	XX	XX	XX		XX	
	2. Describes how changes are kept within certain limits through feedback mechanisms.									
	3. Describes how systems may or may not change depending on the environment.			X	XX		X		X	
	4. Explains how symmetry can show the properties of a structure (e.g., in molecules, and in crystals).									
	5. Describes cycles as having length or frequency and minimum and maximum values.	X								
SCALE	SCALE									
<ul style="list-style-type: none"> Calculate very large or very small numbers using exponential numbers. (E.g., distances to other planets.) 	1. Converts large and small distances into exponential numbers.									
	2. Analyzes summaries (such as averages and ranges) to gain a simple understanding of complex earth or space-related systems.	XX	XX	XX	XX	XX	XX		XX	
MODEL	MODEL									
<ul style="list-style-type: none"> Ιδεντιφψ σεωεραλ διφφερεντ μοδελοσ τηατ χουλδ βε υσεδ το ρεπρεσεντ τηε σαμε τηινγ, ανδ εωαλυατε τηειρ υσεφυλνεσσ, τακινγ ιντο αχχουντ συχη τηινγσ ασ τηε μοδελ σ πυρποσε ανδ χομπλεξιτηψ. 	1. Explains how models are used to understand the functions and purposes of things that are too small, too vast, or too potentially dangerous. Explains how models are used to understand processes that happen too slowly or too quickly.	XX	XX	XX	XX	XX	XX	XX	XX	

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	2. Describes how mathematical models can be expressed using computers, which allow manipulations for examining various outcomes.	XX	XX							
	3. Demonstrates how more than one model can represent the same thing or process.	X	X	X	X	X	X	X	X	
Standard 4 - DOING SAFETY: Students demonstrate the importance of safety by applying safety skills in all activities.										
Benchmark	Performance Indicator									
<ul style="list-style-type: none"> Apply school, classroom, laboratory, and field trip rules, as appropriate, to maintain a safe learning environment. 	1. Applies all K–3 Performance Standards for safety. (Applies throughout K – 12.)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<ul style="list-style-type: none"> Identify potentially unsafe conditions prior to the activity and explain how accidents can be prevented. 	In addition to the K–3 Performance Standards for safety, the grade 6-8 student	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<ul style="list-style-type: none"> Use supplies, chemicals, and equipment as instructed and for the purposes they were intended under teacher supervision. 	2. Handles and uses supplies, chemicals and equipment according to the procedures and purposes discussed in class under the direct supervision of the teacher.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<ul style="list-style-type: none"> Operate emergency equipment, such as eyewash, shower, and fire blanket when needed. 	3. Demonstrates knowledge of the proper use of all emergency equipment available in the classroom.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<ul style="list-style-type: none"> Assist teacher as requested in case of emergency. 	4. Aids an injured classmate and informs the teacher of the injury. Provides help if requested in an emergency situation, including the activation of the school's emergency system. Provides accurate witness account to the injury.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<ul style="list-style-type: none"> Document and apply appropriate safety protocols when conducting scientific activities in and out of the classroom. 		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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		<p>Standard 5 - RELATING THE NATURE OF TECHNOLOGY TO SCIENCE: Students use the problem-solving process to address current issues involving human adaptation in the environment.</p>								
Benchmark	Performance Indicator									
<ul style="list-style-type: none"> Identify and elaborate on a problem or issue. 	1. Identifies and elaborates on environmental issues/problems by developing a question for scientific investigation.	XX	XX	XX	XX	XX	XX	XX	XX	XX
<ul style="list-style-type: none"> Collect and analyze information to identify alternative solutions. 	2. Collects and analyzes relevant information/research from a variety of resources to identify possible solutions.	XX	XX	XX	XX	XX	XX	XX	XX	XX
<ul style="list-style-type: none"> Apply appropriate criteria for evaluating alternative solutions in solving a problem or issue. 	3. Applies appropriate measure(s) to set up, analyze and interpret data, clearly explaining what the data suggests or infers (alternate solutions).	XX	XX	XX	XX	XX	XX	XX	XX	XX
<ul style="list-style-type: none"> Select and carry out action steps for the most suitable alternative solution. 	4. Proposes feasible solutions to the environmental problems caused by human actions.	X		XX		XX		X		XX
<ul style="list-style-type: none"> Evaluate the effectiveness of the processes and actions used in solving the problem or issue. 	5. Evaluates the effectiveness of the solution by describing the results, benefits and extent to which the issue or problem was resolved.			XX		XX		X		XX
	6. Communicates the issue investigation process effectively and understandably through written, oral and visual products.			XX		XX		XX		XX