## Introductory Physical Science and Force, Motion, and Energy – Correlation with the Hawaii Grade 6-8 Science Content Standards Domain 1: How Humans think while Understanding the Natural World - Grade 6-8 Cluster Benchmarks

Domain	Content Standard	Benchmark	IPS Ch. 1	IPS	IPS	IPS Ch. 4	IPS Ch. 5	IPS	IPS	IPS	IPS Ch. 0	IPS	IPS	IPS	FM&E Ch. 1	FM&E	FM&E Ch. 3		FM&E Ch. 5	FM&E Ch. 6	FM&E Ch. 7
DOING SCIENTIFIC INQUIRY	Students demonstrate the skills necessary to engage in scientific inquiry.	Develop questions and hypotheses that can be answered through scientific investigations.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		• Design and conduct scientific investigations to answer questions or to test hypotheses.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		• Collect, organize, analyze and display data/ information, using tools, equipment, and techniques that will help in data collection, analysis, and interpretation.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		• Develop conclusions and explanations showing the relationship between evidence and results drawn.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		• Communicate and defend scientific procedure used and conclusion and explanation drawn from evidence.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		• Reflect and revise conclusion and explanation based on new evidence given from other valid points of view.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
LIVING THE VALUES, ATTITUDES, AND COMMITMENTS OF THE INQUIRING MIND	2. Students apply the values, attitudes, and commitments characteristic of an inquiring mind.	• Report observations even when they contradict a hypothesis.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		Acknowledge references, contributions, and work done by others.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		• Evaluate empirical evidence to develop reasonable conclusions and explanations and compare them to current scientific knowledge.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Domain	Content Standard	Benchmark	IPS	IPS				FM&E	FM&E	FM&E	FM&E	FM&E									
LIVING THE VALUES,	2. Students apply the values, attitudes,	ODIECTIVITY	Ch. 1	Ch. 2	Ch. 3	Ch. 4	Ch. 5	Ch. 6	Ch. 7	Ch. 8	Ch. 9	Ch. 10	Ch. 11	Ch. 12	Ch. 1	Ch. 2	Ch. 3	Ch. 4	Ch. 5	Ch. 6	Ch. 7
ATTITUDES, AND COMMITMENTS OF THE INQUIRING MIND	and commitments characteristic of an inquiring mind.	• Examine several possible options when investigating a problem.  Distinguish between facts and speculations/inferences.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		OPEN-MINDEDNESS																			
		• Evaluate all evidence that support or contradict the hypothesis.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		QUESTIONING																			
		• Ask questions to understand the multiple perspectives and interpretations of a problem, situation, or solution.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		SELF-DIRECTED																			
		• Locate, identify, and use a wide variety of appropriate information to draw conclusions in a research project.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		<u>VALUE SCIENCE</u> • Ask questions and explain findings and answers scientifically.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
USING UNIFYING CONCEPTS AND THEMES	3. Students use concepts and themes such as system, change, scale, and model to help them understand and explain the natural world.	SYSTEM • Explain how a given system works.																			
		CHANGE • Identify patterns of change and the implications on a system.																			
		SCALE  • Calculate very large or very small numbers using exponential numbers. (e.g., distances to other planets.)									X										
		MODEL																			
		• Identify several different models that could be used to represent the same thing, and evaluate their usefulness, taking into account such things as the model's purpose and complexity.								X											

Domain	Content Standard	Benchmark	IPS Ch. 1	IPS Ch. 2	IPS Ch. 3	IPS Ch. 4	IPS	IPS	IPS Ch. 7	IPS	IPS Ch. 0	IPS	IPS	IPS	FM&E	FM&E	FM&E Ch. 3	FM&E	FM&E	FM&E	FM&E
DOING SAFETY	4. Students demonstrate the importance of safety by applying safety skills in all activities.	Apply school, classroom, laboratory, and field trip rules, as appropriate, to maintain a safe learning environment.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Ch. 7
		Identify potentially unsafe conditions prior to the activity and explain how accidents can be prevented.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		• Use supplies, chemicals, and equipment as instructed and for the purposes they were intended under teacher supervision.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		Operate emergency equipment, such as eyewash, shower, and fire blanket when needed.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		Assist teacher as requested in case of emergency.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		• Document and apply appropriate safety protocols when conducting scientific activities in and out of the classroom.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
RELATING THE NATURE OF TECHNOLOGY TO SCIENCE	5. Students use the problem-solving process to address current issues involving human adaptation in the environment.	• Identify and elaborate on a problem or issue.																			
		• Collect and analyze information to identify alternative solutions.																			
		• Apply appropriate criteria for evaluating alternative solutions in solving a problem or issue.																			
		• Select and carry out action steps for the most suitable alternative solution.																			
		• Evaluate the effectiveness of the processes and actions used in solving the problem or issue.																			

## Introductory Physical Science and Force, Motion, and Energy – Correlation with the Hawaii Grade 6-8 Science Content Standards Domain 2: What We Know Today About the World Around Us - Grade 6-8 Cluster Benchmarks

Domain	Content Standard	Benchmark	IPS Ch. 1	IPS Ch. 2	IPS Ch. 3	IPS Ch. 4	IPS Ch. 5	IPS Ch. 6	IPS Ch. 7	IPS Ch. 8	IPS Ch. 9	IPS Ch. 10	IPS Ch. 11	IPS Ch. 12	FM&E Ch. 1	FM&E Ch. 2	FM&E Ch. 3	FM&E Ch. 4	FM&E Ch. 5	FM&E Ch. 6	FM&E Ch. 7
UNDERSTANDING SCIENTIFIC INQUIRY AND THE CHARACTER OF SCIENTIFIC KNOWLEDGE	1. Students explain the process of how scientific knowledge is generated by scientific inquiry, and be able to critique a scientific investigation.	• Describe how scientific inquiry is a way of knowing.	X		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
		• Identify good scientific explanations and justify their soundness based on evidence, logical and consistent arguments, and use of scientific principles, models, or theories.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		• Give examples where scientists used mathematics and technology to gather, quantify, and analyze results of an investigation.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		• Give examples of how science advances through legitimate questioning.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		• Describe and exemplify the nature of scientific explanations.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
INTERDEPENDENCE OF SCIENCE, TECHNOLOGY, AND SOCIETY	2. Students analyze and evaluate the interdependence of science, technology, and society.	INTERDEPENDENCE OF SCIENCE, TECHNOLOGY AND SOCIETY  • Give an example of the interdependence of science, technology, and society and how it changed the course of history.																			
		• Give examples of societal influence on the development and use of technology and peoples' responses to these developments.																			
		• Describe and exemplify how information and communication technologies affect research and work done in the field of science.																			

Domain	Content Standard	Benchmark	IPS Ch. 1	IPS	IPS	IPS Ch. 4	IPS	IPS Ch. 6	IPS	IPS	IPS Ch 0	IPS	IPS	IPS	FM&E	FM&E Ch. 2	FM&E	FM&E	FM&E	FM&E Ch. 6	FM&E Ch. 7
INTERDEPENDENCE OF SCIENCE, TECHNOLOGY, AND SOCIETY	2. Students analyze and evaluate the interdependence of science, technology, and society.	HEALTH TECHNOLOGIES     Describe and elaborate how scientific knowledge impact the monitoring of people's health and the diagnosis and treatment of illness and diseases.	Cii. 1	Cii. 2	CII. 3	CII. 4	Сп. 3	Cii. 0	Cii. 7	CII. 8	CII. 9	п. 10	Сп. 11	CII, 12	CII, I	CII, 2	CII. 3	CII. 4	CII. 3	Cii. 0	CII. 7
"MALAMA I KA 'AINA": SUSTAINABILITY	3. Students make decisions needed to sustain life on Earth now and for future generations by considering the limited resources and fragile environmental conditions.	• Give scientific inferences regarding environmental and societal issues stemming from agriculture and manufacturing technology.				X			X												
		• Explain how methods for obtaining and using resources such as water, minerals, and fossil fuel have consequences on the environment.				X															
UNITY AND DIVERSITY	4. Students examine the unity and diversity of organisms and how they can be compared scientifically.																				
INTERDEPENDENCE	5. Students describe, analyze, and give examples of how organisms are dependent on one another and their environments.																				
CYCLE OF MATTER AND ENERGY FLOW	6. Students trace the cycling of matter and the flow of energy through systems of living things.																				
BIOLOGICAL EVOLUTION	7. Students examine evidence for the evolution of life on earth and assess the arguments for natural selection as a scientific explanation of biological evolution.																				
HEREDITY	8. Students describe how variations in biological traits are passed on to successive generations.																				
CELLS, TISSUES, AND ORGANS	9. Students explain the structure, functions, and reproduction of living cells.																				

Domain	Content Standard	Benchmark	IPS Ch. 1	IPS IPS Ch. 3	IPS Ch. 4	IPS Ch. 5	IPS Ch. 6	IPS Ch. 7	IPS Ch. 8	IPS Ch. 9	IPS Ch. 10	IPS Ch. 11	IPS Ch. 12	FM&E Ch. 1	FM&E Ch. 2	FM&E Ch. 3	FM&E Ch. 4	FM&E Ch. 5	FM&E Ch. 6	FM&E Ch. 7
HUMAN DEVELOPMENT	10. Students explain the important aspects of human development from fertilization to death and compare it with other organisms.											- CMV 11								
WELLNESS	11. Students appraise the relationships between their bodily functions and their physical and mental well being.																			
LEARNING AND HUMAN BEHAVIOR	12. Students explain what influences learning and human behavior.																			
NATURE OF MATTER	13. Students examine the nature of matter.	Compare and contrast the physical and chemical properties of specific substances.		X	X		X					X								
		• Explain common chemical reactions.					X					X								
ENERGY, ITS TRANSFORMATION AND MATTER	14. Students identify the different forms of energy and explain transformation of energy and its significance in understanding the structure of matter and the Universe.	Describe and explain an example of energy transfer and transformation.																	X	X
		Demonstrate how vibration in materials set up wavelike disturbances that spread away from the source.																	X	
		Compare and contrast forms and behavior of various types of energy.																	X	X
		Describe and analyze examples of conservation of energy.																		X
FORCES, MOTION, SOUND, AND LIGHT	15. Students explain the relationship between force, mass and motion of objects; they analyze the nature of sound and electromagnetic radiation.	MOTION AND FORCES  • Explain the interaction between force and matter and the relationships among force, mass and motion.														X				
		ELECTROMAGNETIC RADIATION     Explain that light from the sun is made up of a mixture of many different colors.     Explain how we detect and differentiate the range of energy in the electromagnetic spectrum.																		

Domain	Content Standard	Benchmark	IPS	IPS	S II	PS 1	IPS	IPS	IPS	IPS	IPS	II	PS IPS	IPS	IPS	FM&I	E FM&E	FM&E	FM&E	FM&E	FM&E	FM&E
			Ch. 1	Ch.	2 Cl	h. 3	Ch. 4	Ch. 5	Ch. 6	Ch. 7	Ch. 8	8 Ch	h. 9 Ch. 10	Ch. 1	Ch. 1	2 Ch. 1	Ch. 2	Ch. 3	Ch. 4	Ch. 5	Ch. 6	Ch. 7
UNIVERSE	16. Students discuss current scientific views of the Universe.																					
FORCES OF THE UNIVERSE	17. Students explain the major forces in nature: gravitational, electrical and magnetic.																					
EARTH IN THE SOLAR SYSTEM	18. Students discuss how the Earthmoon-sun system causes seasons, moon phases, climate, weather and global changes.																					
FORCES THAT SHAPE THE EARTH	19. Students analyze the scientific view of how the Earth's surface is formed.																					