LAB-AIDS CORRELATIONS FOR THE 2009 HAWAII SCIENCE STANDARDS

GRADES 6-8

With Assessment Guidelines information

Materials from the *Science Education for Public Understanding Program* (SEPUP) are developed at the Lawrence Hall of Science, at the University of California, Berkeley, and distributed nationally by LAB-AIDS, Inc. SEPUP materials are supported by grants from the National Science Foundation. All other materials developed by LAB-AIDS. This correlation is intended to show selected locations in SEPUP 2nd Edition programs that support the Hawaii Science Standards. It is not an exhaustive list; other locations may exist that are not listed here.

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Key to SEPUP Core Science Programs:

SEPUP programs are available as full year courses, or separately, as units, each taking 3-9 weeks to complete, as listed below.

Issues and Earth Science, Second Edition (IAES)

Unit Title	**Activity Number**
Studying Soil Scientifically	1-11
Rocks and Minerals	12-23
Erosion and Deposition	24-35
Plate Tectonics	36-49
Weather and Atmosphere	50-70
The Earth in Space	71-84
Exploring Space	85-98

Issues and Life Science, Second Edition (IALS)

Unit Title	**Activity Number**
Experimental Design: Studying People Scientifically	1-10
Body Works	11-29
Cell Biology and Disease	30-53
Genetics	54-71
Ecology	72-88
Evolution	89-101
Bioengineering	102-109

Issues and Physical Science, Second Edition (IAPS)

Unit Title	**Activity Number**
Studying Materials Scientifically	1-11
The Chemistry of Materials	12-29
Water	30-52
Energy	53-72
Force and Motion	73-88
Waves	89-99

Each of the full year programs begins with a “starter” unit sequence on the scientific method in the context of each particular discipline. For example, the Issues and Life Science (IALS) course contains a ten-activity unit called “Experimental Design: Studying People Scientifically,” which uses the science behind clinical trials on human subjects, to frame the study of the life sciences. These are listed first in each course.

SEPUP Course/Activity Numbers	*Main Unit Issue*
IAES *Issues and Earth Science*	
Studying Soils Scientifically, 1-11	Why don't plants grow in the school garden?
Rocks and Minerals, 12-23	How do diamonds made in a lab compare to diamonds mined from the earth?
Erosion and Deposition, 24-35	Where should Boomtown construct the new buildings?
Plate Tectonics, 36-49	Which site would you recommend for storing nuclear waste?
Weather and Atmosphere, 50-70	Is the growth of Sunbeam City affecting its weather, atmosphere, and water availability?
The Earth in Space, 71-84	Why are there many different calendars?
Earth and the Solar System, 85-98	What kinds of future space missions should we conduct?
IALS *Issues and Life Science*	
Studying People Scientifically, 1-10	Which proposals have an experimental design worth funding?
Body Works, 11-29	How can you convince people to make choices that reduce their level of heart disease risk?
Cell Biology and Disease, 30-53	How is an emerging disease spread? What can you do to stop it?
Genetics, 54-71	What are the ethical issues involved in using genetic information?
Ecology, 72-88	What are the trade-offs of introducing a species into a new environment?
Evolution, 89-101	What are the trade-offs in deciding whether to save an endangered species or to re-create an extinct one?
Bioengineering, 102-108	How are new solutions to problems in life science developed?
IAPS *Issues and Physical Science*	
Studying Materials Scientifically, 1-11	How should unidentified materials be handled?
The Chemistry of Materials, 12-29	When you buy a new product, do you think about what materials it is made of? What will happen to it when you no longer have a use for it?
Water, 30 - 52	What does your community do to make its water safe to drink? Whose responsibility is it?
Energy, 53-72	Can you help a family decide what energy improvements they should invest in?
Force and Motion, 73-88	Should noncommercial vehicles be more alike?
Waves, 89-99	Are there situations in which some waves are harmful to your health?

SEPUP Support for Engineering Design

The Next Generation Science Standards (NGSS) note that science and engineering are somewhat parallel practices and have many similar elements. Scientists ask questions, make observations, and collect and analyze data, in an attempt to make sense of the natural world. Similarly, engineers create, test, and redesign as they respond with solutions to human needs. And just as we use scaffolds in teaching of scientific inquiry to improve student learning and practice, so do we use scaffolds in teaching about engineering for our students. The NGSS emphasize three major phases of the engineering design process.

- DESIGN: Creates design, prototype or plan, noting constraints of proposed use
- TEST: Tests design, prototype or plan, collecting qualitative or quantitative data
- REDESIGN: Evaluates prototype, design or plan, suggests further changes as needed

In addition, the NGSS emphasize the role of design in solving human problems, and of designers in developing criteria for solutions, evaluating solutions, and determining the tradeoffs involved in a design or solution.

The table below shows SEPUP activities that support major elements of engineering design. Some support the initial stages of design, criteria development, and evaluation that precede the full design cycle by suggesting or evaluating scientific or technological solutions to real-world problems. Others involve students in one or all steps of the design cycle as they build, test, and/or redesign prototypes.

Engineering and Design Practices in SEPUP

Course activity with description	**Students suggest or evaluate a solution**	**Students engage in the engineering process**		
		Design	Test	Re-design
IAES11: Recommend a soil improvement plan	X			
IAES 32: Design a coastal breakwater		X	X	X
IAES 35: Recommend a site plan for housing development		X		
IAES 49: Evaluate sites for nuclear waste disposal	X			
IAES 67: Design/build wind vane/ anemometer		X	X	X
IAES 98: Recommend a space	X			

mission				
IALS 48: Design an improved hand-washing procedure		X	X	X
IALS 88: Suggest a plan for preventing zebra mussel spread	X			
IALS 104: Design artificial heart valve		X		
IALS 105: Design an artificial bone		X	X	X
IALS 107: Design an energy bar		X	X	X
IALS 108: Design a prosthetic limb		X	X	X
IAPS 12: Recommend a material for a drink container	X			
IAPS 13: Construct a product life cycle for a drink container	X			
IAPS 29: Evaluate options to recommend a “green” computer	X			
IAPS 60: Design an ice preservation chamber		X	X	X
IAPS 63: Improve a calorimeter design			X	X
IAPS 69: Design a better solar collector		X	X	X
IAPS 70: Design a warm & cool home		X		
IAPS 72: Recommend an energy-improvement plan for a home	X	X	X	X
IAPS 73: Evaluate vehicle safety features		X		
IAPS 85: Design a crash test dummy		X		

Key to SEPUP Assessment System:

SEPUP materials include research-based assessment system developed by SEPUP and the Berkeley Evaluation and Assessment Research Group (BEAR) in the University of California Graduate School of Education. Forming the core of the SEPUP Assessment System are the **assessment variables** (content and process skills to be assessed), **assessment questions or tasks** used to gather evidence and **scoring guides** for interpreting students' responses (correspond to assessment variables).

The nine assessment variables are:

Designing Investigations (DI)
Organizing Data (OD)
Analyzing Data (AD)
Understanding Concepts (UC)
Recognizing Evidence (RE)
Evidence and Trade-offs (ET)
Communication Skills (CS)
Organizing Scientific Ideas (SI)
Group Interaction (GI)

Types of assessment:

Quick Checks (✓) present opportunities for informal formative assessment and may be used prior to instruction to find out what students know or think. They may also be used to help teachers track students' knowledge of key information or progress in understanding a concept.

Some embedded questions and tasks and all item bank questions are all suitable for summative assessment. Analysis questions are included at the end of each activity.

Citations included in the correlation document are as follows:

IAES 40, 41, 42	40 Q1, 3, 4
IALS 2, 3, 37	41 Q3 UC; [IB] D2
IAPS 1, 2, 3	42 [IB] D4, 6, 8-10, 16

IAES 40, 41, 42 **40 Q1, 3, 4**
41 Q3 UC; [IB] D2
42 [IB] D4, 6, 8-10, 16

means that the standard or benchmark may be assessed using Issues and Earth Science (IAES) Activity 40 Analysis Questions 1, 3 and 4, IAES Activity 41 Analysis Question 3 using the Understanding Concepts scoring guide and Item Bank Questions D2, 4, 6, 8-10, and 16 from Unit D Plate Tectonics.

For more information on program assessment and using SEPUP rubrics, consult the Teacher's Guide, TR part III Assessment section.

SCIENCE STANDARDS **Hawaii Grade 6**	**SEPUP**	
	LOCATION	**ASSESSMENT**
Standard 1: The Scientific Process: SCIENTIFIC INVESTIGATION Discover, invent, and investigate using the skills necessary to engage in the scientific process.	IAES 67, 71 IALS 86, 109 IAPS 28, 65	(67) Proc: DI [IB] A: 1 (86) Q1: CS (109) Proc: DI, SI [IB] A: 1-3 [IB] G: 24-25 (28) Q3: ET (65) Proc: DI [IB] A: 16,17
SCIENTIFIC INQUIRY SC.6.1.1 Formulate a testable hypothesis that can be answered through a controlled experiment.	IAES 16, 55 IALS 8, 83 IAPS 3, 38	(16) Proc: DI, Q3: RE (55) Proc: DI (8) Proc: DI, OD Quick check (83) Proc: DI, CS (3) Proc: DI (38) Proc: DI, Q1-3: AD
SCIENTIFIC INQUIRY 6.1.2 Use appropriate tools, equipment, and techniques safely to collect, display, and analyze data.	IAES 4, 55 IALS 19, 36 IAPS 9, 81 TR I: Safety Student Sheet 1 TR II: Science Skills Sheet 1, 2	(4) Quick check (55) Proc: DI (19) Q4: OD, Q3b: AD
Standard 2: The Scientific Process: NATURE OF SCIENCE Understand that science, technology, and	IAES 30, 49	(30) Quick check (49) Q2: ET [IB] C: 13 (71) Q2: ET, CS

SCIENCE STANDARDS Hawaii Grade 6	SEPUP	
	LOCATION	**ASSESSMENT**
society are interrelated.	IALS 71, 88 IAPS 29, 44	(88) Q2: AD, Q3: ET [IB] G: 1-11, 25 (29) Q1: ET (44) Q5: UC [IB] A: 17
SCIENCE, TECHNOLOGY, AND SOCIETY SC.6.2.1 Explain how technology has an impact on society and science.	IAES 23, 93 IALS 25, 108 IAPS 18, 85	(23) Q3: ET (108) Quick check Q3: ET [IB] C: 13, D: 14 (18) Q3: AD (83) Q6: AD
SCIENCE, TECHNOLOGY, AND SOCIETY SC.6.2.2 Explain how the needs of society have influenced the development and use of technologies.	IAES 9, 32 IALS 71, 103, IAPS 23, 68	[IB] G: 8 (71) Q2: ET, CS (68) Proc: DI
Standard 3: Life and Environmental Sciences: ORGANISMS AND THE ENVIRONMENT Understand the unity, diversity, and interrelationships of organisms, including their relationship to cycles of matter and energy in the environment.	IALS 76, 78, 79	(78) Quick check (79) Q2: SI [IB] E: 29-33
CYCLES OF MATTER AND ENERGY SC.6.3.1 Describe how matter and energy are transferred within and among living systems and their physical environment.	IALS 78, 79, 80	(78) Quick check (79) Q2: SI
Standard 4: Life and Environmental Sciences: STRUCTURE AND FUNCTION IN ORGANISMS Understand the structures and functions	IALS 16, 18, 76	(16) Quick check Q6: UC, Q7: UC (18) Q5b: SI [IB] E: 41,42

SCIENCE STANDARDS Hawaii Grade 6	SEPUP	
	LOCATION	**ASSESSMENT**
of living organisms and how organisms can be compared scientifically.		
No benchmark at this level		
Standard 5: Life and Environmental Sciences: DIVERSITY, GENETICS, AND EVOLUTION Understand genetics and biological evolution and their impact on the unity and diversity of organisms.	IALS 65, 97, 100	(65) Quick check (97) Q2: SI (100) Quick check [IB] F: 4,18-21
No benchmark at this level		
Standard 6: Physical, Earth, and Space Sciences: NATURE OF MATTER AND ENERGY Understand the nature of matter and energy, forms of energy (including waves) and energy transformations, and their significance in understanding the structure of the universe.	IAES 95, 96 IAPS 17, 58, 64	(95) Q4: AD (96) Quick check [IB] G: 13 (17) Q6: UC (58) Q2: UC (64) Q3: ET, Q4: AD [IB] E: 4,5,8
ENERGY AND ITS TRANSFORMATION SC.6.6.1 Compare how heat energy can be transferred through conduction, convection, and radiation	IAES 46, 77 IAPS 59, 61, 63	(77) Quick check (63) Q6: AD, Quick check [IB] E: 17
ENERGY AND ITS TRANSFORMATION SC.6.6.2 Describe the different types of energy transformations.	IAPS 58, 64, 66	(58) Q2: UC (64) Q3: ET, Q4: AD (66) Proc: DI [IB] E: 4,5,8
ENERGY AND ITS TRANSFORMATION SC.6.6.3 Explain how energy can change forms and is conserved.	IAPS 57, 58, 66	(57) Q3: UC Quick check (58) Q2: UC

SCIENCE STANDARDS Hawaii Grade 6	SEPUP	
	LOCATION	ASSESSMENT
		(66) Proc: DI [IB] E: 2, 19
ENERGY AND ITS TRANSFORMATION SC.6.6.4 Describe and give examples of different types of energy waves.	IAPS 93	
NATURE OF MATTER SC.6.6.5 Explain how matter can change physical or chemical forms, but the total amount of matter remains constant.	IAPS 64, 65, 66	(64) Q3: ET, Q4: AD (65) Proc: DI (66) Proc: DI
NATURE OF MATTER SC.6.6.6 Describe and compare the physical and chemical properties of different substances.	IAPS 6, 7, 14	(6) Q1: AD (7) Q1: AD, Q5: UC [IB] B: 20-21
NATURE OF MATTER SC.6.6.7 Describe the organization of the periodic table.	IAPS 15, 16	(15) Q5: UC (16) Quick check
NATURE OF MATTER SC.6.6.8 Recognize changes that indicate that a chemical reaction has taken place.	IAPS 17, 19, 45	(17) Q6: UC (19) Proc: OD (45) Quick check [IB] B: 12,13
NATURE OF MATTER SC.6.6.9 Describe matter using the atomic model.	IAPS 17, 36, 50	(17) Q6: UC (36) Q8: UC (50) Q5: UC
WAVES SC.6.6.10 Explain how vibrations in materials set up wavelike disturbances that spread away from the source.	IAPS 89-91	
Standard 7: Physical, Earth, and Space Sciences:	IAES 95, 96	(95) Q4: AD (96) Quick check [IB] G:

SCIENCE STANDARDS **Hawaii Grade 6**	**SEPUP**	
	LOCATION	**ASSESSMENT**
FORCE AND MOTION Understand the relationship between force, mass, and motion of objects; and know the major natural forces: gravitational, electric, and magnetic.	IAPS 66, 78, 80	10-12 (66) Proc: DI (78) Quick check
FORCE AND MOTION SC.6.7.1 Describe examples of how forces affect an object's motion.	IAPS 78, 79, 80	(78) Quick check (79) Q2: SI (80) Q2: UC, Quick check
FORCES OF THE UNIVERSE SC.6.7.2 Explain that electric currents can produce magnetic effects and that magnets can cause electric currents.	IAPS 65A	
Standard 8: Physical, Earth, and Space Sciences: EARTH AND SPACE SCIENCE Understand the Earth and its processes, the solar system, and the universe and its content.	IAES 29, 48, 88	(29) Q2: UC (48) Q4: UC (88) Q2: UC, Quick check [IB] G: 13-20
No benchmark at this level		

SCIENCE STANDARDS Hawaii Grade 7	SEPUP	
	LOCATION	**ASSESSMENT**
Standard 1: The Scientific Process: SCIENTIFIC INVESTIGATION Discover, invent, and investigate using the skills necessary to engage in the scientific process.	IAES 67, 71 IALS 86, 109 IAPS 28, 65	(67) Proc: DI [IB] A: 1 (86) Q1: CS (109) Proc: DI, SI [IB] A: 1-3 [IB] G: 24-25 (28) Q3: ET (65) Proc: DI [IB] A: 16,17
SCIENTIFIC INQUIRY SC.7.1.1 Design and safely conduct a scientific investigation to answer a question or test a hypothesis.	IAES 67, 72 IALS 5, 64 IAPS 51, 65 TR II: Science Skills Sheet 5	(67) Proc: DI (72) Proc: DI, Quick check (5) Q7: DI, SI (64) Proc: DI, Q1: AD (51) Q4: DI, SI, Q5: ET (65) Proc: DI
SCIENTIFIC INQUIRY SC.7.1.2 Explain the importance of replicable trials.	IAES 67, 72 IALS 5, 8 IAPS 74, 82	(67) Proc: DI (72) Proc: DI, Quick check (5) Q7: DI, SI (8) Proc: DI, OD Quick check (74) Proc: DI (82) Q3: RE

SCIENCE STANDARDS **Hawaii Grade 7**	**SEPUP**	
	LOCATION	**ASSESSMENT**
SCIENTIFIC KNOWLEDGE SC.7.1.3 Explain the need to revise conclusions and explanations based on new scientific evidence.	IAES 10, 31 IALS 21, 44 IAPS 37, 65	(10) Quick check (37) Q2: AD Quick check (65) Proc: DI
Standard 2: SCIENCE, TECHNOLOGY, AND SOCIETY: **NATURE OF SCIENCE** Understand that science, technology, and society are interrelated.	IAES 30, 49 IALS 71, 88 IAPS 29, 44	(30) Quick check (49) Q2: ET [IB] C: 13 (71) Q2: ET, CS (88) Q2: AD, Q3: ET [IB] G: 1-11,25 (29) Q1: ET (44) Q5: UC [IB] B: 22,23
SC.7.2.1 Explain the use of reliable print and electronic sources to provide scientific information and evidence.	IAES 15, 36 IALS 6, 73 IAPS 16, 43	(15) Quick check (36) Q3: ET (6) Quick check (73) Proc: UC, CS (16) Quick check
Standard 3: Life and Environmental Sciences: ORGANISMS AND THE ENVIRONMENT Understand the unity, diversity, and interrelationships of organisms, including their relationship to cycles of matter and energy in the environment.	IALS 76, 78, 79	(78) Quick check (79) Q2: SI [IB] E: 29-33
CYCLES OF MATTER AND ENERGY SC.7.3.1 Explain how energy moves through food webs, including the roles of photosynthesis and cellular respiration.	IALS 39, 78, 81	(39) Proc: OD, Q2: AD, SI (78) Quick check

SCIENCE STANDARDS Hawaii Grade 7	SEPUP	
	LOCATION	ASSESSMENT
		(81) Proc: DI, Q5: UC [IB] E: 6,8-11,14
INTERDEPENDENCE SC.7.3.2 Explain the interaction and dependence of organisms on one another.	IALS 78, 83, 88	(78) Quick check (83) Proc: DI, CS (88) Proc: CS, SI, Q2: AD, Q3: ET [IB] E: 11
INTERDEPENDENCE SC.7.3.3 Explain how biotic and abiotic factors affect the carrying capacity and sustainability of an ecosystem.	IALS 83, 84, 85	(83) Proc: DI, CS (84) Q1b: AD Q3b: AD (85) Q1a: AD Q1b: AD,Q1c: UC [IB] E: 20-24
Standard 4: Life and Environmental Sciences: STRUCTURE AND FUNCTION IN ORGANISMS Understand the structures and functions of living organisms and how organisms can be compared scientifically.	IALS 16, 18, 76	(16) Quick check Q6: UC, Q7: UC (18) Q5b: SI [IB] E: 41,42
CELLS, TISSUES, ORGANS, AND ORGAN SYSTEMS SC.7.4.1 Describe the cell theory.	IALS 37, 39, 40	(37) Proc: UC, CS (39) Proc: OD, Q2: AD, SI (40) Proc: OD, Q3: AD [IB] B: 6,7,23
CELLS, TISSUES, ORGANS, AND ORGAN SYSTEMS SC.7.4.2 Describe the basic structure and	IALS 38, 40, 42	(40) Proc: OD, Q3: AD (42) Quick check [IB] C: 17-20

SCIENCE STANDARDS Hawaii Grade 7	SEPUP	
	LOCATION	ASSESSMENT
function of various types of cells.		
CELLS, TISSUES, ORGANS, AND ORGAN SYSTEMS SC.7.4.3 Describe the levels of organization in organisms.	IALS 12, 15, 42	(12) Quick check (45) Quick check Q3: UC (42) Quick check [IB] C: 16
CLASSIFICATION SC.7.4.4 Classify organisms according to their degree of relatedness.	IALS 45, 75, 76	(45) Q7: UC [IB] E: 41,42
Standard 5: Life and Environmental Sciences: DIVERSITY, GENETICS, AND EVOLUTION Understand genetics and biological evolution and their impact on the unity and diversity of organisms.	IALS 65, 97, 100	(65) Quick check (97) Q2: SI (100) Quick check [IB] F: 4,18-21
HEREDITY SC.7.5.1 Differentiate between sexual and asexual reproduction.	IALS 57, 63, 65	(63) Q1: UC (65) Q8: UC, Quick check
HEREDITY SC.7.5.2 Describe how an inherited trait can be determined by one or more genes which are found on chromosomes.	IALS 59, 60, 65	(59) Proc: DI, Q7: UC (65) Q8: UC, Quick check [IB] D: 8,10,11
HEREDITY SC.7.5.3 Explain that small differences between parents and offspring could produce descendants that look very different from their ancestors.	IALS 63, 65, 66	(63) Q1: UC (65) Q8: UC, Quick check (66) Q3: AD, Q4: AD [IB] D: 26
UNITY AND DIVERSITY SC.7.5.4 Analyze how organisms' body	IALS 95, 96, 97	(96) Proc: OD, Q2a: AD (97) Q2: SI [IB] E: 44,45

SCIENCE STANDARDS Hawaii Grade 7	SEPUP	
	LOCATION	**ASSESSMENT**
structures contribute to their ability to survive and reproduce.		
BIOLOGICAL EVOLUTION SC.7.5.5 Explain how fossils provide evidence that life and environmental conditions have changed over time.	IALS 90, 93, 99	(90) Q3: SI (93) Q4: UC (99) Q2: UC [IB] F: 8-10,16,17
UNITY AND DIVERSITY SC.7.5.6 Explain why variation(s) in a species' gene pool contributes to its survival in a constantly changing environment.	IALS 95, 96, 97	(96) Proc: OD, Q2a: AD (97) Q2: SI [IB] F: 18-21
Standard 6: Physical, Earth, and Space Science: NATURE OF MATTER AND ENERGY Understand the nature of matter and energy, forms of energy (including waves) and energy transformations, and their significance in understanding the structure of the universe.	IAES 95, 96 IAPS 17, 58, 64	(95) Q4: AD (96) Quick check [IB] G: 10-13 (17) Q6: UC (58) Q2: UC (64) Q3: ET, Q4: Proc: AD
No benchmark at this level		
Standard 7: Physical, Earth, and Space Science: FORCE AND MOTION Understand the relationship between force, mass, and motion of objects; and know the major natural forces: gravitational, electric, and magnetic.	IAES 95, 96 IAPS 66, 78, 80	(95) Q4: AD (96) Quick check [IB] G: 10 (66) Proc: DI (78) Quick check
No benchmark at this level		
Standard 8: Physical, Earth, and Space Science: EARTH AND SPACE SCIENCE Understand the Earth and its processes,	IAES 29, 48, 88	(29) Q2: UC (48) Q4: UC

SCIENCE STANDARDS Hawaii Grade 7	SEPUP	
	LOCATION	ASSESSMENT
the solar system, and the universe and its content.		(88) Q2: UC, Quick check [IB] G: 13-20
No benchmark at this level		

SCIENCE STANDARDS **Hawaii Grade 8**	**SEPUP**	
	LOCATION	**ASSESSMENT**
Standard 1: The Scientific Process: SCIENTIFIC INVESTIGATION Discover, invent, and investigate using the skills necessary to engage in the scientific process.	IAES 67, 71 IALS 86, 109 IAPS 28, 65	(67) Proc: DI, [IB] A: 1 (86) Q1: CS (109) Proc: DI, SI, [IB] A: 1-3 [IB] G: 24-25 (28) Q3: ET (65) Proc: DI
SCIENTIFIC INQUIRY SC.8.1.1 Determine the link(s) between evidence and the conclusion(s) of an investigation.	IAES 4, 59 IALS 14, 64 IAPS 7, 32	(4) Quick check, [IB] A: 13,14,C: 8,9 (14) DI, Q4: AD (64) DI, Q1: AD, [IB] E: 46c (7) Q1: AD, Q5: UC [IB] B: 22
SCIENTIFIC INQUIRY SC.8.1.2 Communicate the significant components of the experimental design and results of a scientific investigation	IAES 30, 70 IALS 21, 95 IAPS 33, 63	(30) Quick check [IB] B: 45 (33) Q3: RE, SI (63) Q6: AD, [IB] A: 16
Standard 2: The Scientific Process: NATURE OF SCIENCE Understand that science, technology, and society are interrelated.	IAES 30, 49 IALS 71, 88	(30) Quick check (49) Q2: ET [IB] C: 13 (71) Q2: ET, CS (88) Q2: AD, Q3: ET [IB] G: 1-11,25 (29) Q1: ET

SCIENCE STANDARDS **Hawaii Grade 8**	**SEPUP**	
	LOCATION	**ASSESSMENT**
	IAPS 29, 44	(44) Q5: UC [IB] B: 22,23
SCIENCE, TECHNOLOGY, AND SOCIETY SC.8.2.1 Describe significant relationships among society, science, and technology and how one impacts the other.	IAES 35, 98 IALS 71, 87 IAPS 29, 52	(35) Q1: AD (98) Q2: ET, CS [IB] C: 13, D: 14 (71) Q2: ET, CS [IB] G: 1-11,25 (87) Q1: ET (29) Q1: ET (52) Proc: CS, Q1: ET [IB] C: 24
UNIFYING CONCEPTS AND THEMES SC.8.2.2 Describe how scale and mathematical models can be used to support and explain scientific data.	IAES 21, 43 IALS 18, 51, IAPS 17, 40	(18) Q5b: SI (51) Proc: OD, Q1: AD, Q4: UC (17) Q6: UC (40) Q1: ET
Standard 3: Life and Environmental Sciences: ORGANISMS AND THE ENVIRONMENT Understand the unity, diversity, and interrelationships of organisms, including their relationship to cycles of matter and energy in the environment.	IALS 76, 78, 79	(78)Quick check (79) Q2: SI [IB] E: 29-33
No benchmark at this level		
Standard 4: Life and Environmental Sciences: STRUCTURE AND FUNCTION IN ORGANISMS Understand the structures and functions of living organisms and how organisms can be compared scientifically.	IALS 16, 18, 76	(16) Quick check Q6: UC, Q7: UC (18) Q5b: SI [IB] E: 41,42

SCIENCE STANDARDS Hawaii Grade 8	SEPUP	
	LOCATION	**ASSESSMENT**
No benchmark at this level		
Standard 5: Life and Environmental Sciences: DIVERSITY, GENETICS, AND EVOLUTION Understand genetics and biological evolution and their impact on the unity and diversity of organisms.	IALS 65, 97, 100	(65) Quick check (97) Q2: SI (100) Quick check [IB] F: 4,18-21
BIOLOGICAL EVOLUTION SC.8.5.1 Describe how changes in the physical environment affect the survival of organisms.	IALS 95, 97, 101	(95) Q4: AD (97) Q2: SI (101) Q5b: ET, Quick check [IB] F: 18-21
Standard 6: Physical, Earth, and Space Science: NATURE OF MATTER AND ENERGY Understand the nature of matter and energy, forms of energy (including waves) and energy transformations, and their significance in understanding the structure of the universe.	IAES 95, 96 IAPS 17, 58, 64	(95) Q4: AD (96) Quick check [IB] G: 10-13 (17) Q6: UC (58) Q2: UC (64) Q3: ET, Q4: AD
WAVES SC.8.6.1 Explain the relationship between the color of light and wavelength within the electromagnetic spectrum.	IAPS 94-96	(94) Q2
WAVES SC.8.6.2 Explain how seismic waves provide scientists with information about the structure of Earth's interior.	IAES 37, 38	(38) Q5: UC, Quick check
WAVES SC.8.6.3 Identify the characteristics and properties of mechanical and	IAPS 93	(93) Q1

SCIENCE STANDARDS Hawaii Grade 8	SEPUP	
	LOCATION	ASSESSMENT
electromagnetic waves.		
Standard 7: Physical, Earth, and Space Sciences: FORCE AND MOTION Understand the relationship between force, mass, and motion of objects; and know the major natural forces: gravitational, electric, and magnetic.	IAES 95, 96 IAPS 66, 78, 80	(95) Q4: AD (96) Quick check [IB] G: 10 (66) Proc: DI (78) Quick check
FORCES OF THE UNIVERSE SC.8.7.1. Explain that every object has mass and therefore exerts a gravitational force on other objects.	IAES 95, 96	(95) Q4: AD (96) Quick check [IB] G: 10, 12, 19
Standard 8: Physical, Earth, and Space Sciences: EARTH AND SPACE SCIENCE Understand the Earth and its processes, the solar system, and the universe and its content.	IAES 29, 48, 88	(29) Q2: UC (48) Q4: UC (88) Q2: UC, Quick check [IB] G: 13-20
EARTH MATERIALS SC.8.8.1 Compare the characteristics of the three main types of rocks.	IAES 19, 20	(19) Quick check [IB] B: 4, 11
EARTH MATERIALS SC.8.8.2 Illustrate the rock cycle and explain how igneous, metamorphic, and sedimentary rocks are formed.	IAES 19, 21, 22	(19) Quick check (22) Q7: UC [IB] B: 11
EARTH IN THE SOLAR SYSTEM SC.8.8.3 Describe how the Earth's motions and tilt on its axis affect the seasons and weather patterns.	IAES 76, 77, 78	(76) Q4: AD (77) Quick check (78) Q2: UC [IB] F: 10-15
FORCES THAT SHAPE THE EARTH SC.8.8.4 Explain how the sun is the major	IAES 53, 55, 58	(53) Quick check

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source of energy influencing climate and weather on Earth.		(55) Quick check (58) Quick check [IB] E: 6
FORCES THAT SHAPE THE EARTH SC.8.8.5 Explain the concepts of continental drift and plate tectonics.	IAES 41, 42, 45	(41) Quick check. Q3: UC (45) Quick check [IB] D: 2,4, G: 11
FORCES THAT SHAPE THE EARTH SC.8.8.6 Explain the relationship between density and convection currents in the ocean and atmosphere.	IAES 46, 56, 58	(58) Quick check
FORCES THAT SHAPE THE EARTH SC.8.8.7 Describe the physical characteristics of oceans.	IAES 54, 56, 57	(57) Quick check
THE UNIVERSE SC.8.8.8 Describe the composition of objects in the galaxy.	IAES 86, 88, 89	(88) Quick check, Q2: UC (89) RE
THE UNIVERSE SC.8.8.9 Explain the predictable motions of the Earth and moon.	IAES 73, 74, 79	(73) Quick check, Q1: UC [IB] F: 5-7
THE UNIVERSE SC.8.8.10 Compare the characteristics and movement patterns of the planets in our solar system.	IAES 89, 90, 91	(89) Proc: RE (90) Quick check (91) Q4: UC [IB] G: 5,6,14
THE UNIVERSE SC.8.8.11 Describe the major components of the universe.	IAES 86, 88, 89	(88) Quick check, Q2: UC (89) Proc: RE
THE UNIVERSE SC.8.8.12 Describe the role of gravitational force in the motions of planetary systems.	IAES 95, 96	(95) Q4: AD [IB] G: 3,19