



SEPUP CORRELATIONS TO THE MAINE SCIENCE STANDARDS

GRADES 5-8

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 and LAB-AIDS programs that support the Maine state standards for science. It is not an exhaustive list; other locations may exist that are not listed here.

This document was prepared by Mark Koker, Ph D, Director of Curriculum and Training at LAB-AIDS, and by Donna Markey, Senior Consultant. For more information about this correlation or for questions about review copies, presentations, or any matters related to sales or service, please contact Patsy Eldridge, LAB-AIDS Regional Manager at 978.979.2534 or at peldridge@lab-aids.com. You may also visit us on the web at www.lab-aids.com.



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.

MIDDLE SCHOOL

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.

<i>SEPUP Course</i>	<i>Main Unit Issue</i>
IAES Issues and Earth Science	
Studying Soils Scientifically	Why don't plants grow in the school garden?
Rocks and Minerals	How do diamonds made in a lab compare to diamonds mined from the earth?
Erosion and Deposition	Where should Boomtown construct the new buildings?
Plate Tectonics	Which site would you recommend for storing nuclear waste?
Weather and Atmosphere	Is the growth of Sunbeam City affecting its weather, atmosphere, and water availability?
The Earth in Space	Why are there many different calendars?
Earth and the Solar System	What kinds of future space missions should we conduct?
IALS Issues and Life Science	
Studying People Scientifically	Which proposals have an experimental design worth funding?
Body Works	How can you convince people to make choices that reduce their level of heart disease risk?
Cell Biology and Disease	How is an emerging disease spread? What can you do to stop it?
Genetics	What are the ethical issues involved in using genetic information?
Ecology	What are the trade-offs of introducing a species into a new environment?
Evolution	What are the trade-offs in deciding whether to save an endangered species or to re-create an extinct one?
Bioengineering	How are new solutions to problems in life science developed?
IAPS Issues and Physical Science	
Studying Materials Scientifically	How should unidentified materials be handled?
The Chemistry of Materials	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	What does your community do to make its water safe to drink? Whose responsibility is it?
Energy	Can you help a family decide what energy improvements they should invest in?
Force and Motion	Should noncommercial vehicles be more alike?
Waves	Are there situations in which some waves are harmful to your health?

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 seven assessment variables are:

- Designing Investigations (DI)
- Organizing Data (OD)
- Analyzing Data (AD)
- Understanding Concepts (UC)
- Evidence and Trade-offs (ET)
- Communication Skills (CS)
- 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 Activity 40 Analysis Question 1, 3 and 4, IAES Activity 43 Analysis Question 3 using Understanding Concepts scoring guide and Item Bank Question D2 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.

SEPUP Support for Engineering Design

The Next Generation Science Frameworks (NGSF) notes 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 NSGF emphasizes 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 NSGF emphasizes 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 mission	X			
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		

SCIENCE STANDARDS	SEPUP	
Maine Middle Grades 5-8	LOCATION	ASSESSMENT
A. CLASSIFYING LIFE FORMS Students will understand that there are similarities within the diversity of all living things. Students will be able to:		
1. Compare systems of classifying organisms including systems used by scientists.	IALS 45, 75, 76	45 AQ5 UC, [IB] C2, C4, C29 75 [IB] E4, E36 76 AQ 1-2
2. Decipher the system for assigning a scientific name to every living thing.	IALS 75, 76	75 [IB] E4, E36 76 AQ 1-2
3. Describe some structural and behavioral adaptations that allow organisms to survive in a changing environment.	IALS 95, 96, 97	95 [IB] F18-21 96 AQ2 DCI 97 AQ2 CM, [IB] F15, F22-25, F27-28, F30-31
B. ECOLOGY Students will understand how living things depend on one another and on non-living aspects of the environment. Students will be able to:		
1. Describe in general terms the chemical processes of photosynthesis and respiration.	IALS 17, 81, 82	17 [IB] B1, B8, B21 81 AQ5 UC, [IB] E2, 3, E5, E13-14 82 [IB] E5, E13-14, E17
2. Analyze how the finite resources in an ecosystem limit the types and populations of organisms within it.	IALS 77, 84, 85	77 AQ4 DCI, AQ7 DCI 84 [IB] E19-20, E26-27, E34 85 AQ1 UC, [IB] E21-23

SCIENCE STANDARDS	SEPUP	
Maine Middle Grades 5-8	LOCATION	ASSESSMENT
3. Describe succession and other ways that ecosystems can change over time.	IALS 72, 84, 85	72 AQ5 UC, [IB] E2, 3, E5, E13-14 84 [IB] E19-20, E26-27, E34 85 AQ1 UC, [IB] E21-23
4. Generate examples of the variety of ways that organisms interact (e.g., competition, predator/prey, parasitism/mutualism).	IALS 78, 83 (Extension), 84	78 [IB] E7-10, E16 83 AQ3 DCI 84 [IB] E19-20, E26-27, E34
5. Describe various mechanisms found in the natural world for transporting living and non-living matter and the results of such movements.	IALS 78, 80, 88	78 [IB] E7-10, E16 80 [IB] E2-3, E7-10, E15, E16, E25 88 AQ3 ET, [IB] E28-32
C. CELLS Students will understand that cells are the basic units of life. Students will be able to:		
1. Compare and contrast human organ systems with those of other species.	IALS 23	23 AQ3 UC, [IB] B2
2. Prepare and examine microscope slides of single-celled and multi-celled organisms.	IALS 36, 38, 39	36 AQ3 CM, [IB] C24 38 Q1-6 39 AQ2 DCI, [IB] C6
3. Describe the structure and function of major organs in human systems.	IALS 12, 15, 18	12 [IB] B12, B15 15 AQ3 UC, [IB] B2, B5, B25-28 18 [IB] B9, B17-18, B29
4. Identify the causes and effects of diseases, explain their transmission, and identify prevention strategies.	IALS 30, 31, 49	30 AQ 1a DCI, [IB] C1, C30-31

SCIENCE STANDARDS	SEPUP	
Maine Middle Grades 5-8	LOCATION	ASSESSMENT
		31 [IB] C8 49 AQ4 ET, [IB] D26
5. Describe how body systems work together.	IALS 11, 12, 18	11 AQ2 ET 12 [IB] B12, B15 18 [IB] B9, B17-18, B29
D. CONTINUITY AND CHANGE Students will understand the basis for all life and that all living things change over time. Students will be able to:		
1. Describe how fossils can be used by scientists to trace the history of a species.	IALS 90, 91, 99	90 AQ3 CM, [IB] F5 91 AQ4 UC, [IB] F12-14 99 AQ2 UC, [IB] 434-36
2. Explain how scientists use fossils to prove that life forms, climate, environment, and geologic features in a certain location are not the same now as they were in the past.	IALS 93, 99 IAES 40, 41	93 AQ4 UC, [IB] F8-11 99 AQ2 UC, [IB] 434-36 40 Q1, 3, 4 41 AQ3 UC; [IB] D2
3. Provide examples of the concept of natural and artificial selection and its role in species changes over time.	IALS 96, 97, 101	96 AQ2 DCI 97 AQ2 CM, [IB] F15, F22-25, F27-28, F30-31
4. Compare how sexually and asexually reproducing species transfer genetic information to offspring.	IALS 57, 63, 65	57 Q1-2 63 [IB] D1, D2-5, D8-11, D18, D22-24 65 AQ8 UC
E. STRUCTURE OF MATTER Students will understand the structure of matter and the changes it can		

SCIENCE STANDARDS Maine Middle Grades 5-8	SEPUP	
	LOCATION	ASSESSMENT
undergo. Students will be able to:		
1. Predict and test whether objects will float or sink based on a qualitative and quantitative understanding of the concepts of density and buoyancy.	IAPS 9, 10, 18	9 AQ3 UC, [IB] A10-12 10 AQ1 AD, Proc DI; [IB] A10-12 18 AQ3 AD, [IB] B19-21
2. Describe the evidence that all matter consists of particles called atoms that are made up of certain smaller particles.	IAPS 17, 49, 50	17 AQ6 UC 49 [IB] C14-18, C21 50 AQ5 UC, [IB] C23
3. Use the Periodic Table to group elements based on their characteristics.	IAPS 15, 16	15 AQ5 UC [IB] B7-11 16 [IB] B7-11
4. Describe how a substance can combine with different substances in different ways, depending on the conditions and the properties of each substance.	IAPS 17, 36, 38	17 AQ6 UC 36 AQ8 UC 38 AQ 1-3 AD [IB] C2
5. Describe how the motion of the particles of matter determines the state of that matter (e.g., solid, liquid, gas, plasma) and vice versa.	IAPS 35	35 AQ1 AD
6. Explain how the relatively small number of naturally occurring elements can result in the large variety of substances found in the world.	IAPS 15, 16, 17	15 AQ5 UC [IB] B7-11 16 [IB] B7-11 17 AQ6 UC
7. Investigate the similarities and differences between elements, compounds, and mixtures.	IAPS 3, 16, 28,	3 Proc DI; [IB] A16 16 [IB] B7-11 28 AQ3 ET
F. THE EARTH Students will gain knowledge about the earth and the processes that change it.		

SCIENCE STANDARDS Maine Middle Grades 5-8	SEPUP	
	LOCATION	ASSESSMENT
Students will be able to:		
1. Demonstrate how the earth's tilt on its axis results in the seasons.	IAES 76, 77, 78	76 AQ4 AD 77 [IB] F10-12 78 AQ2 UC
2. Describe how soils are formed and why soils differ from one place to another.	IAES 3, 5, 7	3 [IB] A2 5 AQ5 UC; [IB] A3-4 7 [IB] A9
3. Explain the evidence scientists use when they give the age of the earth.	IAES 39, 40	39 [IB] D5, D13 40 Q1, 3, 4
4. Describe factors that can cause short-term and long-term changes to the earth.	IAES 28, 29, 48	28 Proc GI; [IB] C2, C7 29 AQ2 UC; [IB] C1, C3 48 AQ4 UC; [IB] D14, D16
5. Classify and identify rocks and minerals based on their physical and chemical properties, their composition, and the processes which formed them.	IAES 16, 19, 20	16 AQ3 RE; [IB] B7-10 19 Q1, 4, 5 20 Proc GI; [IB] B6
6. Describe the many products used by humans that are derived from materials in the earth's crust.	IAES 12, 15	12 Q3-4 15 [IB] B1-3
7. Demonstrate factors affecting the flow of groundwater.	IAES 60, 61, 62	60 [IB] E3, E8-9 61 Q1-3 62 AQ4 SI; [IB] E3, 9, 11, 15
G. THE UNIVERSE Students will gain knowledge about the universe and how humans have learned about it, and about the principles upon		

SCIENCE STANDARDS	SEPUP	
Maine Middle Grades 5-8	LOCATION	ASSESSMENT
which it operates. Students will be able to:		
1. Compare past and present knowledge about characteristics of stars (e.g., composition, location, life-cycles) and explain how people have learned about them.	IAES 92 (the Sun is covered in depth)	92 [IB] G2, G11
2. Describe the concept of galaxies, including size and number of stars.	IAES 86, 88, website	
3. Compare and contrast distances and the time required to travel those distances on earth, in the solar system, in the galaxy, and between galaxies.	IAES 90, 97	90 [IB] G9, 16, 18 97 AQ1 RE
4. Describe scientists' exploration of space and the objects they have found (e.g., comets, asteroids, pulsars).	IAES 86, 87, 88	86 Q3 87 [IB] G8, G15 88 AQ2 UC, [IB] G3, G13, G17
5. Describe the motions of moons, planets, stars, solar systems, and galaxies.	IAES 73, 81, 84	73 AQ1 UC 81 AQ5 UC; [IB] F5, F8 84 [IB] F13
H. ENERGY Students will understand concepts of energy. Students will be able to:		
1. Analyze the benefits and drawbacks of energy conversions (e.g., in electricity generation).	IAPS 57, 58, 64	57 AQ3 UC, [IB] D2-3 58 AQ2 UC, [IB] D4-5, D8 64 AQ3 ET, AQ4 AD, [IB] D7
2. Demonstrate that energy cannot be created or destroyed but only changed from one form to another.	IAPS 56, 57, 58	56 AQ3 57 AQ3 UC, [IB] D2-3 58 AQ2 UC, [IB] D4-5,

SCIENCE STANDARDS Maine Middle Grades 5-8	SEPUP	
	LOCATION	ASSESSMENT
		D8
3. Compare and contrast the ways energy travels (e.g., waves, conduction, convection, radiation).	IAPS 58, 65, 66	58 AQ2 UC, [IB] D4-5, D8 65 Proc DI; D13 66 Proc DI; [IB] D16
4. Describe the characteristics of static and current electricity.	IAPS 58	
5. Categorize energy sources as renewable or non-renewable and compare how these sources are used by humans.	IAPS 64	64 AQ3 ET, AQ4 AD, [IB] D7
6. Describe how energy put into or taken out of a system can cause changes in the motion of particles in matter.	IAPS 56, 57, 58	56 AQ3 57 AQ3 UC, [IB] D2-3 58 AQ2 UC, [IB] D4-5, D8
I. MOTION Students will understand the motion of objects and how forces can change that motion. Students will be able to:		
1. Describe the motion of objects using knowledge of Newton's Laws.	IAPS 78, 79, 80	78 [IB] E2, 3, 8 79 [IB] E10 80 AQ2; [IB] E2, 3, 11, 20
2. Use mathematics to describe the motion of objects (e.g., speed, distance, time, acceleration).	IAPS 74, 75, 78	74 Proc DI; [IB] E1-2, 5-6 75 AQ2 UC, [IB] E2, 4-6, 7, 14 78 [IB] E2, 3, 8
3. Describe and quantify the ways machines can provide mechanical		

SCIENCE STANDARDS	SEPUP	
Maine Middle Grades 5-8	LOCATION	ASSESSMENT
advantages in producing motion.		
J. INQUIRY AND PROBLEM SOLVING Students will apply inquiry and problem-solving approaches in science and technology. Students will be able to:		
1. Make accurate observations using appropriate tools and units of measure.	IAES 3, 67 IALS 38, 54 IAPS 56, 81 Teacher Resources: Science Skills Transparencies 1,2 Science Skills Student Sheets 1-7	3 [IB] A2 67 Proc DI 38 Q1-6 54 Act DCI, [IB] D2 56 AQ3 81 [IB] E3, 13, 15
2. Design and conduct scientific investigations which include controlled experiments and systematic observations. Collect and analyze data, and draw conclusions fairly.	IAES 16, 67 IALS 8, 83 IAPS 10, 51	16 AQ3 RE; [IB] B7-10 8 [IB] A11-16 10 AQ1 AD, Proc DI; [IB] A10-12
3. Verify and evaluate scientific investigations and use the results in a purposeful way.	IAES 31, 72 IALS 14, 40 IAPS 7, 27	31 [IB] C12 14 [IB] B16 7 AQ 1 AD, AQ1 UC, [IB] A5, A7, A8
4. Compare and contrast the processes of scientific inquiry and the technological method.	IAES 67, 93 IALS 104, 109 IAPS 45, 69	67 Proc DI 45 [IB] C8, C20 69 [IB] D11, D15, D18
5. Explain how personal bias can affect observations.	IAES 31, 72	31 [IB] C12

SCIENCE STANDARDS	SEPUP	
Maine Middle Grades 5-8	LOCATION	ASSESSMENT
	IALS 5, 19 IAPS 30, 33	5 [IB] A11-14 30 Q4
6. Design, construct, and test a device (invention) that solves a special problem.	IAES 67, 71 IALS 107, 109 IAPS 60, 70	67 Proc DI 71 [IB] F17 60 Q3-4 70 Proc GI; [IB] D12, D-15
K. SCIENTIFIC REASONING Students will learn to formulate and justify ideas and to make informed decisions. Students will be able to:		
1. Examine the ways people form generalizations.	IAES 35, 49 IALS 3, 71 IAPS 11, 29	35 AQ1 ET; [IB] C13 49 AQ2 ET 3 AQ1 ET, AQ4 UC, [IB] A3, A7, A17 71 AQ1 GI, AQ2 ET 11 AQ1 ET, [IB] A17 29 AQ 2 ET
2. Identify exceptions to proposed generalizations.	IAES 27, 49 IALS 10, 29 IAPS 24, 51	27 Proc OD; [IB] C8 10 Act UC, AQ 3 ET, [IB] A18-20 24 [IB] B14-16
3. Identify basic informal fallacies in arguments.	IAES 11, 23 IALS 34, 71 IAPS 29, 52	11 AQ2 RE, ET; [IB] A11-14 34 AQ4 ET 29 AQ1 ET; [IB] B22-23

SCIENCE STANDARDS	SEPUP	
Maine Middle Grades 5-8	LOCATION	ASSESSMENT
4. Analyze means of slanting information.	IAES 2, 14 IALS 2, 70 IAPS 13, 33	2 AQ3 RE 2 AQ2b ET, AQ4 UC, AQ5 ET 13 Proc RE, GI; [IB] B2-3
5. Identify stereotypes.	IAES 12, 24 IALS 11, 56 IAPS 12, 73	12 Q3-4 11 AQ2 ET 12 AQ5 ET; [IB] B1
6. Support reasoning by using a variety of evidence.	IAES 11, 23 IALS 9, 53 IAPS 27, 88	11 AQ2 RE, ET; [IB] A11-14 9 Act DCI & GI, [IB] A4-6, A8-10, A15-16 27 AQ2 CS, AQ3 ET
7. Show that proving a hypothesis false is easier than proving it true, and explain why.	IAES 13, 74 IALS 66, 91 IAPS 25, 65	13 Q2 68 Q1-2 25 Q2-3
8. Construct logical arguments.	IAES 35, 49 IALS 32, 72 IAPS 12, 72	35 AQ1 ET; [IB] C13 32 AQ4 ET, [IB] C9 12 AQ5 ET; [IB] B1
9. Apply analogous reasoning.	IAES 20, 57 IALS 41, 91 IAPS 46, 66	20 Proc GI; [IB] B6 41 Q1-2 46 Proc OD, GI; [IB] C9
L. COMMUNICATION Students will communicate effectively in the application of science and technology. Students will be able to:		

SCIENCE STANDARDS	SEPUP	
Maine Middle Grades 5-8	LOCATION	ASSESSMENT
1. Discuss scientific and technological ideas and make conjectures and convincing arguments.	IAES 24, 83 IALS 87, 108 IAPS 29, 52	24 Q2, 4, 5 87 AQ1 ET 29 AQ1 ET; [IB] B22-23
2. Defend problem-solving strategies and solutions.	IAES 35, 65 IALS 10, 109 IAPS 13, 52	35 AQ1 ET; [IB] C13 10 Act UC, AQ 3 ET, [IB] A18-20 13 Proc RE, GI; [IB] B2-3
3. Evaluate individual and group communication for clarity, and work to improve communication.	IAES 10, 43 IALS 5, 24 IAPS 5, 29 TR 2: Group Interaction Student Sheets 1 and 2 TR 3: GI Assessment	10 Proc GI 5 [IB] A11-14 5 Proc GI
4. Make and use scale drawings, maps, and three-dimensional models to represent real objects, find locations, and describe relationships.	IAES 7, 21 IALS 18, 40 IAPS 17, 33	7 [IB] A9 18 [IB] B9, B17-18, B29 17 AQ6 UC
5. Access information at remote sites using telecommunications.	IAES 27, 68 IALS 3, 73 IAPS 71, 74	27 Proc OD; [IB] C8 3 AQ1 ET, AQ4 UC, [IB] A3, A7, A17 71 AQ1 UC
6. Identify and perform roles necessary to accomplish group tasks.	IAES 28, 72 IALS 27, 37 IAPS 32, 70 TR 2: Group Interaction Student	28 Proc GI; [IB] C2, C7 27 [IB] B32 32 Proc GI

SCIENCE STANDARDS Maine Middle Grades 5-8	SEPUP	
	LOCATION	ASSESSMENT
	Sheet 1	
M. IMPLICATIONS OF SCIENCE AND TECHNOLOGY Students will understand the historical, social, economic, environmental, and ethical implications of science and technology. Students will be able to:		
1. Research and evaluate the social and environmental impacts of scientific and technological developments.	IAES 35, 98 IALS 71, 87 IAPS 11, 29	35 AQ1 ET; [IB] C13 71 AQ1 GI, AQ2 ET 11 AQ1 ET, [IB] A17
2. Describe the historical and cultural conditions at the time of an invention or discovery, and analyze the societal impacts of that invention.	IAES 8, 94 IALS 25, 37 IAPS 16, 32	8 [IB] A5 25 Q1-5 16 [IB] B7-11
3. Discuss the ethical issues surrounding a specific scientific or technological development.	IAES 23, 97 IALS 10, 71 IAPS 52, 88	23 AQ3 ET 10 Act UC, AQ 3 ET, [IB] A18-20 52 AQ1 ET
4. Describe an individual's biological and other impacts on an environmental system.	IAES 9, 33 IALS 53, 88 IAPS 29, 39	9 [IB] A6 53 AQ2-3 ET 29 AQ1 ET; [IB] B22-23
5. Identify factors that have caused some countries to become leaders in science and technology.	IALS 103, 108	
6. Give examples of actions which may have expected or unexpected consequences that may be positive, negative, or both.	IAES 35, 49 IALS 10, 89 IAPS 12, 52	35 AQ1 ET; [IB] C13 10 Act UC, AQ 3 ET, [IB] A18-20 12 AQ5 ET; [IB] B1

SCIENCE STANDARDS	SEPUP	
Maine Middle Grades 5-8	LOCATION	ASSESSMENT
7. Explain the connections between industry, natural resources, population, and economic development.	IAES 35, 70 IALS 29, 88 IAPS 29, 72	35 AQ1 ET; [IB] C13 29 AQ 2 ET 29 AQ1 ET; [IB] B22-23
8. Recognize scientific and technological contributions of diverse people including women, different ethnic groups, races, and physically disabled.	IAES 42, 85 IALS 25, 108	42 [IB] D4, 6, 8-10, 16 85 [IB] G1 25 Q1-5

