Proven Science Programs

LAB-AIDS CORRELATIONS FOR

THE FLORIDA NEXT GENERATION SUNSHINE STATE STANDARDS[1]

MIDDLE SCHOOL LEVEL - GRADES 6-8

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This document is intended to show how the SEPUP 3rd edition materials[2] align with the Next Generation Sunshine State Standards for the following Florida courses: 2000010 (life science), 2001010 (earth/space science), and 2003010 (physical science)

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[1] https://www.fldoe.org/academics/standards/subject-areas/math-science/science/
[2] https://www.lab-aids.com/third-edition

COURSE TITLE: Earth/Space Science
COURSE CODE: 2001010

BENCHMARK CODE	EARTH/SPACE SCIENCE BENCHMARK	LESSON(S) WHERE BENCHMARK IS DIRECTLY ADDRESSED IN-DEPTH IN MAJOR TOOL Please see the Student Edition, Teacher Edition, and Teacher Resources books.
SC.6.E.6.1	Describe and give examples of ways in which Earth's surface is built up and torn down by physical and chemical weathering, erosion, and deposition.[3]	Land, Water, and Human Interactions 7, 12, 13
SC.6.E.6.2	Recognize that there are a variety of different landformson Earth's surface such a coastlines, dunes, rivers, mountains, glaciers, deltas, and lakes and relate these landforms as they apply to Florida.	Land, Water, and Human Interactions 1, 10, 11, 12, 13, 14, 15, 16 Geological Processes 5, 10, 11
SC.6.E.7.1	Differentiate among radiation, conduction, and convection, the three mechanisms by which heat is transferred through Earth's system.	Geological Processes 14 Energy 12 (covered in Grade 8)
SC.6.E.7.2	Investigate and apply how the cycling of water betweenthe atmosphere an hydrosphere has an effect on weather patterns and climate.	Weather and Climate 10 Land, Water, and Human Interactions 8
SC.6.E.7.3	Describe how global patterns such as the jet stream andocean currents influence local weather in measurable terms such as temperature, air pressure, wind direction and speed, and humidity and precipitation.	Weather and Climate 9, 10
SC.6.E.7.4	Differentiate and show interactions among the geosphere, hydrosphere, cryosphere, atmosphere, andbiosphere.	Geological Processes 8 Weather and Climate 9, 14 Land, Water, and Human Interactions 8
SC.6.E.7.5	Explain how energy provided by the sun influences global patterns of atmospheric movement and the temperature differences between air, water, and land.	Weather and Climate 6, 7, 9, 10 Land, Water, and Human Interactions 8
SC.6.E.7.6	Differentiate between weather and climate.	Weather and Climate 3, 14
SC.6.E.7.7	Investigate how natural disasters have affected human life in Florida.	Land, Water, and Human Interactions 14 Weather and Climate 3 (Note: not specific to Florida)
SC.6.E.7.8	Describe ways human beings protect themselves from hazardous weather and sun exposure.	Land, Water, and Human Interactions 14 Weather and Climate 3 Waves 14, 15
SC.6.E.7.9	Describe how the composition and structure of the atmosphere protects life and insulates	Weather and Climate 15

[3] Activity references are linked to the *Teacher's Edition* unless otherwise specified. While specific evidence of alignment may be *within* the activity, links are connected to the first page of the lesson to provide context. Reviewers may find it helpful to simultaneously reference the same activity number in the Student Book.

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	the planet.	
SC.6.N.1.1	Define a problem from the sixth grade curriculum, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigationof various types, such as systematic observations or experiments, identify variables, collect and organize data, interpret data in charts, tables, and graphics, analyze information, make predictions, and defend conclusions.	SEPUP "Planning and Carrying Out Investigations (PCI)" activity types call for students to state hypotheses or predictions clearly, design aprocedure, collect and analyze data, identify variables, stateand defend conclusions. See for example Earth's Resources 3; Geological Processes 9; Weather and Climate 6, 12. Note: PCI activities can be found throughout the IAS course. This citation mentions only a few examples.
SC.6.N.1.2	Explain why scientific investigations should bereplicable.	Weather and Climate 6 Science Skills Student Sheet 8, "What is Science?" and "Measures of Central Tendency" both found on the Lab-Aids online portal.
SC.6.N.1.3	Explain the difference between an experiment and othertypes of scientific investigation, and explain the relative benefits and limitations of each.	Weather and Climate 3, 11 Science Skills Student Sheet 8, "What is Science?" found on the Lab-Aids online portal.
SC.6.N.1.4	Discuss, compare, and negotiate methods used, results obtained, and explanations among groups of students conducting the same investigation.	SEPUP "Planning and Carrying Out Investigations (PCI)" activity types call for students to design a procedure, collect and analyze data, identify variables, state and defend explanations and conclusions. See for example Earth's Resources 3; Geological Processes 9; Weather and Climate 6, 12.
SC.6.N.1.5	Recognize that science involves creativity, not just in designing experiments, but also in creating explanations that fit evidence.	Weather and Climate 2, 3, 6, 12 Land, Water, and Human Interactions 8 Geological Processes 13
SC.6.N.2.1	Distinguish science from other activities involving thought.	Geological Processes 13 Science Skills Student Sheet 8, "What is Science?" found on the Lab-Aids online portal.
SC.6.N.2.2	Explain that scientific knowledge is durable because it is open to change as new evidence or interpretations areencountered.	Geological Processes 13 Solar System and Beyond 1

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SC.6.N.2.3	Recognize that scientists who make contributions to scientific knowledge come from all kinds of backgrounds and possess varied talents, interests, and goals.	Geological Processes 12, 13 Weather and Climate 9 Solar System and Beyond 1 See "Science as a Human Endeavor," found on the SEPUPlhs.org website.
SC.6.N.3.1	Recognize and explain that a scientific theory is a well-supported and widely accepted explanation of nature and is not simply a claim posed by an individual. Thus,the use of the term theory in science is very different than how it is used in everyday life.	Geological Processes 13 Solar System and Beyond 1 Science Skills Student Sheet 8, "What is Science?" found on the Lab-Aids online portal.
SC.6.N.3.2	Recognize and explain that a scientific law is a description of a specific relationship under given conditions in the natural world. Thus, scientific laws are different from societal laws.	Solar System and Beyond 14, 15 Science Skills Student Sheet 8, "What is Science?" found on the Lab-Aids online portal.
SC.6.N.3.3	Give several examples of scientific laws.	Solar System and Beyond 14, 15 Science Skills Student Sheet 8, "What is Science?" found on the Lab-Aids online portal.
SC.6.N.3.4	Identify the role of models in the context of the sixth grade science benchmarks.	Modeling and the use and construction of models are keycomponents to all SEPUP curricula. One of SEPUP's 12 different activity types is "Modeling" and another is "Computer Simulation." Both focus on the use of differenttypes of models in the science classroom. See, for example, Land, Water, and Human Interactions 7, 8, 12; Geological Processes 5, 9, 10; Solar System and Beyond 3, 4, 7, 8, 11. In addition, other activities also involve the use of models and "Talking Drawings." See Earth's Resources 7; Land, Water, and Human Interactions 8
SC.7.E.6.1	Describe the layers of the solid Earth, including the lithosphere, the hot convecting mantle, and the densemetallic liquid and solid cores.	Geological Processes 8, 14
SC.7.E.6.2	Identify the patterns within the rock cycle and relatethem to surface events (weathering and erosion) andsub-surface events (plate tectonics and mountain	Geological Processes 5, 15 Land, Water, and Human Interactions 13

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	building).	
SC.7.E.6.3	Identify current methods for measuring the age of Earth and its parts, including the law of superposition and radioactive dating.	Earth's Resources 9
SC.7.E.6.4	Explain and give examples of how physical evidence supports scientific theories that Earth has evolved over geologic time due to natural processes.	Geological Processes 13, 10
SC.7.E.6.5	Explore the scientific theory of plate tectonics by describing how the movement of Earth's crustal plates causes both slow and rapid changes in Earth's surface, including volcanic eruptions, earthquakes, and mountain building.	Geological Processes 5, 9, 10, 11
SC.7.E.6.6	Identify the impact that humans have had on Earth, such as deforestation, urbanization, desertification, erosion, air and water quality, changing the flow of water.	Land, Water, and Human Interactions 14 Geological Processes 1, 18
SC.7.E.6.7	Recognize that heat flow and movement of material within Earth causes earthquakes and volcanic eruptions, and create mountains and ocean basins.	Geological Processes 5, 8, 9, 10, 11, 14
SC.8.E.5.1	Recognize that there are enormous distances betweenobjects in space and apply our knowledge of light and space travel to understand this distance.	Solar System and Beyond 11
SC.8.E.5.2	Recognize that the universe contains many billions of galaxies and that each galaxy contains many billions of stars.	Solar System and Beyond 10
SC.8.E.5.3	Distinguish the hierarchical relationships between planets and other astronomical bodies relative to solarsystem, galaxy, and universe, including distance, size, and composition.	Solar System and Beyond 10, 11
SC.8.E.5.4	Explore the Law of Universal Gravitation by explainingthe role that gravity plays in the formation of planets,stars, and solar systems and in determining their motions.	Solar System and Beyond 14, 15
SC.8.E.5.5	Describe and classify specific physical properties of stars: apparent magnitude (brightness), temperature (color), size, and luminosity (absolute brightness).	Solar System and Beyond 10
SC.8.E.5.6	Create models of solar properties including: rotation, structure of the Sun, convection, sunspots, solar flares, and prominences.	Not covered in current edition

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SC.8.E.5.7	Compare and contrast the properties of objects in the Solar System including the Sun, planets, and moons to those of Earth, such as gravitational force, distance fromthe Sun, speed, movement, temperature, and atmospheric conditions.	Solar System and Beyond 11, 12
SC.8.E.5.8	Compare various historical models of the Solar System, including geocentric and heliocentric.	Not covered in current edition
SC.8.E.5.9	Explain the impact of objects in space on each other including: the Sun on the Earth including seasons andgravitational attraction, and the Moon on the Earth, including phases, tides, and eclipses, and the relative position of each body.	Solar System and Beyond 6, 7, 8, 15
SC.8.E.5.10	Assess how technology is essential to science for such purposes as access to outer space and other remotelocations, sample collection, measurement, data collection and storage, computation, and communication of information.	Solar System and Beyond 1 Geological Processes 6
SC.8.E.5.11	Identify and compare characteristics of the electromagnetic spectrum such as wavelength, frequency, use, and hazards and recognize its application to an understanding of planetary images and satellite photographs.	Solar System and Beyond 10 Waves 12
SC.8.E.5.12	Summarize the effects of space exploration on the economy and culture of Florida.	Solar System and Beyond 1, 17
LAFS.6.SL.1.1	Engage effectively in a range of collaborative discussions(one-on-one, in groups, and teacher-led) with diverse partners on grade 6 topics, texts, and issues, building onothers' ideas and expressing their own clearly. Come to discussions prepared, having read or studied required material; explicitly draw on that preparation by referringto evidence on the topic, text, or issue to probe and reflect on ideas under discussion. Follow rules for collegial discussions, set specific goals and deadlines, and define individual roles as needed. Pose and respondto specific questions with elaboration and detail by making comments that contribute to the topic, text, or issue under discussion. Review the key ideas expressed and demonstrate	SEPUP supports discussion in the science classroom, see forexample ● Supporting Students' Oral Communication Skills, TR pg. 55-58 ● "Talking it Over" activities, Solar System and Beyond 1, 17; Geological Processes 1, 18; Weather and Climate 1, 17; Earth's Resources 4, 14 ● Discussion Web Student Sheets (SS): Geological Processes SS 18. ● Intra-Act Student Sheets: Weather and Climate SS9.1, 17.5; Land, Water, and Human Interactions SS 14.1 ● "Walking Debates" in activities, Earth's Resources 14 ● Communicating Concepts and Ideas for assessment on TR pg. 388.

BENCHMARK CODE	EARTH/SPACE SCIENCE BENCHMARK	LESSON(S) WHERE BENCHMARK IS DIRECTLY ADDRESSED IN-DEPTH IN MAJOR TOOL Please see the Student Edition, Teacher Edition, and Teacher Resources books.
	understanding of multiple perspectives through reflection and paraphrasing.	
LAFS.6.SL.1.2	Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study.	SEPUP has twelve distinct and different activity types including labs, readings, view and reflect, talking it over, modeling, and more that call for students to process information in different primary formats. See, for example, the SEPUP Literacy Strategies starting on TR pg. 45 which provides an overview of diverse media and formats such as media viewing strategies, talking drawings) and uses a variety of formats such as print based (with literacy supports as noted here), role plays (Land, Water, and Human Interactions 14; Weather and Climate 9, 17), media viewing and computer simulations (Geological Processes 3, 10, 13; Solar System and Beyond 7, 16), and Talking It Over activities (Solar System and Beyond 1, 17; Geological Processes 1, 18; Weather and Climate 1, 17; Earth's Resources 4, 14)
LAFS.6.SL.1.3	Delineate a speaker's argument and specific claims, distinguishing claims that are supported by reasons andevidence from claims that are not.	Student progress in this area is assessed using the Engaging in Argument from Evidence scoring guide on TR pg. 391. Activities that show this skill include Earth's Resources 2, 4, 13; Geological Processes 4, 11, 12; Land, Water, and Human Interactions 4, 9, 16; Weather and Climate 4, 13, 16. See also Appendix F: Media Literacy in the TR pgs. 471-474.
LAFS.6.SL.2.4	Present claims and findings, sequencing ideas logicallyand using pertinent descriptions, facts, and details to accentuate main ideas or themes; use appropriate eye contact, adequate volume, and clear pronunciation.	SEPUP has activities and assessment scoring guides designed to support communicating scientific information, including oral speaking skills such as enunciation, projection, and eye contact, as well as the ability to logically organize argumentsand evidence related to a problem. See: ● Guidelines for Oral Presentations, TR pg. 464. ● "Talking it Over" activities, Solar System and Beyond 1, 17; Geological Processes 1, 18; Weather and Climate 1, 17; Earth's Resources 4, 14 ● Discussion Web Student Sheets (SS): Geological Processes SS 18. ● Communicating Concepts and Ideas

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		(COM) for assessment on TR pg. 388. Examples of activities that use the COM scoring guide are Solar System and Beyond 12 and 17.
LAFS.6.SL.2.5	Include multimedia components (e.g., graphics, images, music, sound) and visual displays in presentations to clarify information.	Besides using print-based sources, SEPUP uses nontraditional formats such as media viewing and computer simulations (see for example Geological Processes 3, 10, 13; Solar System and Beyond 7, 16). We also have many online videos of the labs themselves using our online LABsent® program. See for example, LABsent videos for Land, Water, and Human Interactions Act. 7: Cutting Canyons and Building Deltas and Act. 12: Modeling Erosion, which are all found on the Lab-Aids portal.
LAFS.68.RST.1.1	Cite specific textual evidence to support analysis ofscience and technical texts.	SEPUP has a well-developed approach to supporting literacy that includes analysis of technical texts. See, for example, theSEPUP approach to literacy, especially Directed Activities Related to Text (DART), TR pg. 46-47, and the following strategies: ● *DART Table:* Earth's Resources 7.2; Geological Processes 4.1, 11.1, 16.1; Land, Water, and Human Interactions 15.1; Weather and Climate 4.1 ● *Readings with embedded "Stopping-to-Think" (STT) strategy:* Land, Water, and Human Interactions 13; Solar System and Beyond 15; Weather and Climate 10 ● *Three-level reading guides:* Earth's Resources SS 2.2; Land, Water, and Human Interactions 9.1; Solar System and Beyond 9.1 ● *Anticipation guides:* Earth's Resources SS 13.1; Geological Processes 3.1; Land, Water, and Human Interactions 6.1; Solar System and Beyond 1.1, 6.1, 9.1; Weather and Climate 6.1
LAFS.68.RST.1.2	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct fromprior knowledge or opinions.	SEPUP has a well-developed approach to supporting literacy that includes determining central ideas and conclusions, as well as summarizing informational texts. See, for example, the SEPUP approach to literacy, especially Strategies for Supporting Reading Comprehension, TR pg. 45-51, and the following strategies below.

BENCHMARK CODE	EARTH/SPACE SCIENCE BENCHMARK	LESSON(S) WHERE BENCHMARK IS DIRECTLY ADDRESSED IN-DEPTH IN MAJOR TOOL Please see the Student Edition, Teacher Edition, and Teacher Resources books.
		• *Readings with embedded "stop-to think" (STT) strategy:* Land, Water, and Human Interactions 13; Solar System and Beyond 15; Weather and Climate 10 • *Three-level Reading Guides are used to analyze literal, interpretive, and applied levels of understanding of texts: See for example,* Earth's Resources SS 2.2; Land, Water, and Human Interactions 9.1; Solar System and Beyond 9.1 • *Directed Activities Related to Text:* Earth's Resources 7.2; Geological Processes 4.1, 11.1, 16.1; Land, Water, and Human Interactions 15.1; Weather and Climate 4.1
LAFS.68.RST.1.3	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performingtechnical tasks.	SEPUP has twelve distinct and different activity types, including labs and investigations (similar approaches but using less "wet" equipment). Many of the 17 units have at least 3-4 "laboratory" type activities that call for students to follow a multistep procedure precisely. See, for example Earth's Resources: 3, 6, 8; Geological Processes 14; Land, Water, and Human Interactions: 2, 5; Weather and Climate 6 See also the PCI-type (planning and carrying out investigations) scoring guides used in Resources 3; Geo Processes 9; Weather 6, 12.
LAFS.68.RST.2.4	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevantto grades 6-8 texts and topics.	Key terms and vocabulary words and phrases are introduced in context as described in the Teacher's Resources for Literacy Support (see for example, TR pg. 44-45). Weather map symbols are introduced in Weather and Climate 13 (see for example, AQ 2) and the use of standard weather symbols in the Weather and Climate *Student Book*, pg. 69-74. Each student book contains a glossary of key terms and vocabulary words. Symbols for elements are used throughout the Chemical Reactions and Chemistry of Materials units and simple mathematical symbols indicating a ratio relationship such as density (d = m/v) and acceleration (a = f / m) can be found in the Chemistry of Materials and Force and Motion units, respectively. See the Common Core State Standards Correlations (TR 364-

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		486; Reading in Science and Technical Subjects) for a unit-by-unit list of lessons that address this standard.
LAFS.68.RST.2.5	Analyze the structure an author uses to organize a text,including how the major sections contribute to the whole and to an understanding of the topic.	SEPUP has a well-developed approach to supporting literacy that includes analysis of text. See, for example, the SEPUP approach to Literacy, especially the Directed Activities Relatedto Text (DART), TR pg. 46-47, and the following strategies: The Three-level Reading Guide (TLRG) is a built-in literacy strategy in SEPUP that helps student analyze the author's intent The guide contains a series of statements from the three levels of understanding, listed here from lower to higher: *literal, interpretive,* and *applied*. Literal statements guide the student to look for ideas that are explicitly presented in the reading, in some cases using identical words or phrases. Interpretive statements require students to process information and recognize ideas that are often implicit. Applied statements do not have a single correct response, but are there for students to support or dispute based on information found in the reading as well as their own ideas. These applied statements sometimes relate the factual information in the reading to everyday life and may beused as the basis of a class discussion. An explanation for this strategy can be found in TR pg. 49-50. Examples can be found here: Earth's Resources SS 2.2; Land, Water, and Human Interactions SS 9.1; Solar System and Beyond SS 9.1.
LAFS.68.RST.2.6	Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text.	Three-level Reading Guides are used to infer the author'spurpose and to predict meanings not stated explicitly. See Student Sheets Earth's Resources 2.2; Land, Water, and Human Interactions 9.1; Solar System and Beyond 9.1.
LAFS.68.RST.3.7	Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart,diagram, model, graph, or table).	SEPUP has a well-developed approach to supporting literacy that includes communicating scientific information with supplementary visual formats. See, for example, the SEPUP approach to Literacy Support on *Supporting Students'*

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		Understanding of Science Concepts TR pg. 58-61, and the following strategies below. ● Concept Maps: Earth's Resources 2, 7; Land, Water, and Human Interactions 9, 13; ● Venn Diagrams: Geological Processes 13 ● Talking Drawings: Earth's Resources 7; Land, Water, and Human Interactions 8 ● Makes/interprets graphs: Land, Water, and Human Interactions 3; Geological Processes 17; Solar System and Beyond 6, 14; Weather and Climate 2, 3, 17
LAFS.68.RST.3.8	Distinguish among facts, reasoned judgment based onresearch findings, and speculation in a text.	*Discussion Webs* are graphic organizers that help students arrange evidence they have gathered primarily from readings.Discussion webs support students in engaging with information from text and other sources and then with each other to come to an evidence-based conclusion. Any question or issue that involves two viewpointsor more than one potentially acceptable answer can be explored using this strategy. See for example TR pg. 55-56 andGeological Processes Student Sheet 18.3. See also the Common Core State Standards Correlations, found on TR pg. 364-486, (Reading in Science and Technical Subjects RST 6-8.2) for a unit-by-unit list of lessons that address this standard.
LAFS.68.RST.3.9	Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.	SEPUP features twelve different activity types to support different student learning styles. Some of these are text- based, such as readings and role plays, and some involve direct experience/hands on learning such as labs, and still others involve other modalities, such as view/reflect or discussions. All provide support for students to experiencemore than one way to learn. See for example, *SEPUP Supports Multiple Learning Styles*, TR pg. 40-41**.** Each unit typically features at least 5-6 activity types such as Laboratory, View and Reflect (multimedia and video), and Readings, and there are more than 40 online simulations distributed over 17 units that provide information and content that can be evaluated and contrasted. See the Common

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		Core State Standards Correlations, found on TR pg. 364-486, (Reading in Science and Technical Subjects; RST6-8.9) for a unit-by-unit list of lessons that address this standard.
LAFS.68.WHST.1.1	Write arguments focused on discipline-specific content.Introduce claim(s) about a topic or issue, acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically.Support claim(s) with logical reasoning and relevant, accurate data and evidence that demonstrate an understanding of the topic or text, using credible sources. Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence. Establish and maintain a formal style. Provide a concluding statementor section that follows from and supports the argument presented.	SEPUP has activities and assessment procedures that supportclaims w/evidence arguments, recognizing evidence versus opinion and using evidence to make educated decisions that require trade-offs. These are described in more detail on TR pg. 76-89, the ARG (engaging in argument from evidence) and ET (evidence and tradeoffs) scoring guides can be found on TR pg. 391 and 393. The following activities call for students to produce writingsamples scored with the ARG and ET scoring guides: ARG: Earth's Resources 2 (AQ3), 4 (AQ 4), 13 (AQ3); Geological Processes 4 (AQ 1), 11 (AQ 3), 12 (AQ 3); Land, Water, and Human Interactions 4 (AQ 2), 9 (AQ 6), 16 (Procedure); Weather and Climate 4 (AQ 5), 13 (Procedure), 16 (AQ 2) ET: Earth's Resources 2 (AQ 4), 6 (AQ 3), 13 (AQ 2), 14 (AQ 1); Geological Processes 1 (AQ 1), 18 (AQ 3); Land, Water, and Human Interactions 5 (AQ 5), 14 (AQ 4), 15 (AQ 1); Solar System and Beyond 1 (AQ 2), 10 (AQ 6), 17 (AQ 3); Weather and Climate 16 (AQ 5), 17 (AQ 3)
LAFS.68.WHST.1.2	Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories asappropriate to achieving purpose; include formatting(e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples. Use appropriate	The SEPUP program requires daily writing in the student science notebook for the purpose of documenting scientific procedures and experiments. See TR pg. 35 and 66 and Keeping a Science Notebook, TR pg. 466. This writing is assessed from time to time using the Communicating Concepts and Ideas (COM) scoring guide, described on TR pg. 388. Planning and Carrying Out Investigation (PCI) activities call for students to write their own procedures.

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	and varied transitions to create cohesion and clarify the relationships among ideas and concepts. Use precise language and domain-specific vocabulary to inform about or explain the topic. Establish and maintain a formal style and objective tone. Provide a concluding statement or section that follows from and supports theinformation or explanation presented.	Examples of COM prompts: Land, Water, and Human Interactions 8 (AQ 5), 12 (AQ 7), 15 (Procedure), and 16 (Procedure). Four types of Writing Frames are provided, see the discussion on TR pg. 53-54 and pg. 483-486. Note the SEPUP Vocabulary Approach, TR pg. 44-45. See also the Common Core State Standards Correlations, found on TR pg. 364-486, (Writing in History/Social Studies, Science and Technical Subject, WHST 6-8.1 and 6-8.2) for a unit-by-unit list of lessons that address this standard. See for example, Earth's Resources 14.
LAFS.68.WHST.2.4	Produce clear and coherent writing in which the development, organization, and style are appropriate totask, purpose, and audience.	The SEPUP program requires daily writing in the student science notebook for the purpose of documenting scientific procedures and experiments. See TR pg. 35 and 66, and Keeping a Science Notebook, TR pg. 466. This writing is assessed from time to time using the Communicating Concepts and Ideas (COM) scoring guide, described on TR pg. 388. Planning and Carrying Out Investigation (PCI) Activity types call for students to write their own procedures. Examples of COM prompts: Land, Water, and Human Interactions 8 (AQ 5), 12 (AQ 7), 15 (Procedure), and 16 (Procedure). Four types of Writing Frames are provided, see the discussion on TR pg. 53-54 and pg. 483-486. Note the SEPUP Vocabulary Approach, TR pg. 44-45.
LAFS.68.WHST.2.5	With some guidance and support from peers and adults,develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.	SEPUP has a well-developed approach to supporting literacy that includes analysis of text. See, for example, Literacy Strategies, TR pg. 45, and the following strategies below. *Writing Frame*- Weather and Climate SS 6.2; Geological Processes SS 13.2, SS 16.2; Earth's

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		Resources SS 2.3, SS 3.1, SS 4.3, SS 6.2, SS 13.2; Solar System and Beyond SS 17.2. *Writing Review (used for peer review of writing samples)* – please see TR pg. 487 and Solar System and Beyond SS 17.3. See also Earth's Resources 14.
LAFS.68.WHST.2.6	Use technology, including the Internet, to produce andpublish writing and present the relationships betweeninformation and ideas clearly and efficiently.	SEPUP has a well-developed approach to supporting literacy that includes supporting student writing including revision ofexisting drafts. See, for example, Literacy Strategies, TR pg. 45, and the following strategies below. *Writing Frame*- Weather and Climate SS 6.2; Geological Processes SS 13.2, SS 16.2; Earth's Resources SS 2.3, SS 3.1, SS 4.3, SS 6.2, SS 13.2; Solar System and Beyond SS 17.2. *Writing Review (used for peer review of writing samples)* – please see TR pg. 487 and Solar System and Beyond SS 17.3. See also Geological Processes 13, Weather and Climate 2; see also Appendix F, Media Literacy
LAFS.68.WHST.3.7	Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.	Weather and Climate 3 Land, Water, and Human Interactions 16 Ecology 2, covered in Grade 7 standards Evolution 17, covered in Grade 7 standards
LAFS.68.WHST.3.8	Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.	Literacy Student Sheets 1d, "Guidelines for Using and Citing Information from Internet Sources," found on the online Lab-Aids portal, and Media Literacy, found in Appendix F TR pg. 471-474. See also Geological Processes 13, Weather and Climate 2
LAFS.68.WHST.3.9	Draw evidence from informational texts to supportanalysis reflection, and research.	Two of the distinct SEPUP activity types involve gathering information from informational texts: ● In "Reading" type activities, students extract important science content from passages of formalscience writing. The concluding analysis items ask students to

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		describe, explain, and reflect upon the information presented. See for example, Earth's Resources 2, 7, 13; Geological Processes 4, 8, 16. ● In "Talking It Over" type activities, students read less formal text related to, and extending, topics covered by and observations made in, preceding labs and investigations. Students use this additional information and the accompanying analysis items to reflect upon and help analyze their previously acquired data. See for example, Solar System and Beyond 1, 17; Geological Processes 1, 18; Weather and Climate 1, 17; Earth's Resources 4, 14 ● *Three Level Reading Guides* call for students to further analyze informational text, see for example Student Sheets Earth's Resources 2.2; Land, Water, and Human Interactions 9.1; Solar System and Beyond 9.1. Additionally, several activities include Discussion Sheets which present a shorter text passage with concluding questions designed for small and large group discussion. See, for example, ● *Intra-Act* Student Sheets*:* Land, Water, and Human Interactions 14.1; Weather and Climate 9.1, 17.5 ● *Discussion Web* Student Sheets: Geological Processes 18.3 See also Resources 2, 4, 7, 11, 12, 13, 14
LAFS.68.WHST.4.10	Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.	The built-in support for literacy (TR pg. 45-60) supports short- and long-form student writing in a variety of contexts, from daily entries in the student lab notebook, to long form report writing. A short summary of these strategies are provided here, and more information can be found in the Comprehensive Teacher Support section of the TR. Science Notebook Writing Guidelines (TR pg. 66 and 466). As with most science classes, students keep a science notebook throughout the IAS course, making entries per the instructions in the Student Book that

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		ask themto record data, observations, hypotheses, conclusions, and other information. Keeping a notebook helps students process ideas, keep track of data, and build scientific observation and scientific writing skills. *Writing Frame*- Weather and Climate SS 6.2; Geological Processes SS 13.2, SS 16.2; Earth's Resources SS 2.3, SS 3.1, SS 4.3, SS 6.2, SS 13.2; Solar System and Beyond SS 17.2. *Writing Review (used for peer review of writing samples)* – please see TR pg. 487 and Solar System and Beyond SS 17.3. See also Geological Processes 11, 12, 16
MAFS.6.EE.3.9	Use variables to represent two quantities in a real-worldproblem that change in relationship to one another; write an equation to express one quantity, thought of asthe dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation d = 65t to represent the relationship between distance and time.	Solar System and Beyond 14 See also "Bar Graphing Checklist," TR pg. 452-453, "Scatterplot and Line Graphing Checklist" TR pg. 454-455, and "Interpreting Graphs" TR pg. 456-457.
MAFS.6.SP.2.4	Display numerical data in plots on a number line, including dot plots, histograms, and box plots.	SEPUP supports working with data sets generated by students and from other sources. See, for example, Weather and Climate 2, 17; Geological Processes 17; Solar System and Beyond 6, 14. See also "Bar Graphing Checklist," TR pg. 452-453, "Scatterplot and Line Graphing Checklist" TR pg. 454-455, and "Interpreting Graphs" TR pg. 456-457.
MAFS.6.SP.2.5	Summarize numerical data sets in relation to their context, such as by: Reporting the number of observations. Describing the nature of the attribute under investigation, including how it was measured andits units	SEPUP provides support for students working with numericaldata sets, including reporting nominal information such as nature and units of measurement, and which measure of central tendency is best used. See, for

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	of measurement. Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), aswell as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered. Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.	example, Weather and Climate 2, 17; Geological Processes 17; Solar System and Beyond 6, 14. Support for calculating the interquartile range (IQR) and boxplots with sample and student-generated data can be found in the Measures of Central Tendency Resource, found on the Lab-Aids online portal.
ELD.K12.ELL.SC.1	English language learners communicate information, ideas and concepts necessary for academic success inthe content area of Science.	SEPUP provides ELL students with rich opportunities for written and oral communication for social and instructional purposes at school. Student Book units have glossaries, and the TR has a compiled glossary showing where words are used over all units, useful for seeing the frequency of word use. This is accomplished through the use of the following strategies: ● All Student Book units are also presented in Spanish language format. Vocabulary is introduced with operational definitions that connect concepts to learning experiences. (See TR pg. 44-45) ● 4-2-1 cooperative groupings encourage student interactions in an unthreatening environment (see TRpg. 36). ● Strategies for facilitating Group Discussion (see TR pg.66-67). This includes informal, pair talk and formal presentations. ● Discussion Webs (TR pg. 55-56), graphic organizers that help students think ahead about what they want to say about what they have done or read. As seen in Geological Processes Student Sheet 18.3. ● Oral Presentation (TR pg. 57, 464), guidelines for formaloral communication. ● Walking Debates (TR pg. 57-58), tools that allow students to express their opinions about issues by moving from one area of the room to another. This can be used with Discussion Webformats as well as other opportunities for students to share opinions or ideas.

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ELD.K12.ELL.SI.1	English language learners communicate for social andinstructional purposes within the school setting.	Some units contain resources useful for EL, such as trade books for EL and low readers as can be found in the Energy Resources, TR-563, and Force and Motion, TR-569, both for eighth grade; see also inclusion supports, TR-34; and specific EL strategies, TR-42. SEPUP provides EL students with rich opportunities for written and oral communication for social and instructionalpurposes at school. This is accomplished through the use ofthe following strategies: ● All Student Book units are also presented in Spanish language format. Vocabulary is introduced with operational definitions that connect concepts to learning experiences. (See TR pg. 44-45) ● 4-2-1 cooperative groupings encourage student interactions in an unthreatening environment (see TRpg. 36). ● Strategies for facilitating Group Discussion (see TR pg.66-67). This includes informal, pair talk and formal presentations. ● Discussion Webs (TR pg. 55-56), graphic organizers that help students think ahead about what they wantto say about what they have done or read. As seen in Geological Processes SS 18.3. ● Oral Presentation (TR pg. 57, 464), guidelines for formaloral communication. ● Walking Debates (TR pg. 57-58), tools that allow students to express their opinions about issues by moving from one area of the room to another. This can be used with Discussion Webformats as well as other opportunities for students to share opinions or ideas.
HE.6.C.1.3	Identify environmental factors that affect personal health.	Land, Water, and Human Interactions 14 Geological Processes 1
SC.7.N.1.1	Define a problem from the seventh grade curriculum, use appropriate reference materials to support scientificunderstanding, plan and carry out scientific investigationof various types, such as systematic observations or experiments, identify variables, collect and organize data, interpret data in charts, tables, and graphics,	SEPUP Planning and Carrying Out Investigations (PCI) activity types call for students to state hypotheses or predictions clearly, design aprocedure, collect and analyze data, identify variables, stateand defend conclusions. While all units contain PCI activities, this citation names a few examples: Earth's Resources 3; Geological

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	analyze information, make predictions, and defend conclusions.	Processes 9; Weather and Climate 6, 12. 7th Grade examples include: Body Systems 7; Reproduction 7; From Cells to Organisms 3, 9, 13; Ecology 4, 5
SC.7.N.1.2	Differentiate replication (by others) from repetition(multiple trials).	Geological Processes 9, 10 Weather and Climate 6 "Elements of Good Experimental Design," in the Student Book appendices and on TR-458 Science Skills Student Sheet 8, "What is Science?" found on the Lab-Aids online portal.
SC.7.N.1.3	Distinguish between an experiment (which must involve the identification and control of variables) and other forms of scientific investigation and explain that not all scientific knowledge is derived from experimentation.	Students have multiple experiences with designing laboratory investigations and with using other learning modes, such as computer-based simulations. See for example, Weather and Climate 6, 11, 12; Earth's Resources 3; Solar System and Beyond 4; Geological Processes 9 See also Science Skills Student Sheet 8, "What isScience?" found on the Lab-Aids online portal.
SC.7.N.1.4	Identify test variables (independent variables) andoutcome variables (dependent variables) in an experiment.	Weather and Climate 6, 12 See Science Skills Student Sheet 8, "What is Science?" found on the Lab-Aids online portal.
SC.7.N.1.5	Describe the methods used in the pursuit of a scientific explanation as seen in different fields of science such as biology, geology, and physics.	Geological Processes 12, 10 See Science Skills Student Sheet 8, "What is Science?" found on the Lab-Aids online portal.
SC.7.N.1.6	Explain that empirical evidence is the cumulative body of observations of a natural phenomenon on which scientific explanations are based.	See Science Skills Student Sheet 8, "What is Science?" found on the Lab-Aids online portal.
SC.7.N.1.7	Explain that scientific knowledge is the result of a greatdeal of debate and confirmation within the science community.	Geological Processes 12, 13 See also Science Skills Student Sheet 8, "What is Science?" found on the Lab-Aids online portal.
	Identify an instance from the history of science in which scientific knowledge has	Geological Processes 12, 13 Solar System and Beyond 1

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SC.7.N.2.1	changed when new evidence ornew interpretations are encountered.	See also Science Skills Student Sheet 8, "What is Science?" found on the Lab-Aids online portal.
SC.7.N.3.1	Recognize and explain the difference between theories and laws and give several examples of scientific theoriesand the evidence that supports them.	Solar System and Beyond 1, 14 See also Science Skills Student Sheet 8, "What is Science?" found on the Lab-Aids online portal.
SC.7.N.3.2	Identify the benefits and limitations of the use of scientificmodels.	All SEPUP modeling activities ask students to consider limits of the model and how it can be improved. See for example Earth's Resources 9; Land, Water and Human Interactions 12; Geological Processes 5; Solar System and Beyond 8
SC.8.N.1.1	Define a problem from the eighth grade curriculum using appropriate reference materials to support scientific understanding, plan and carry out scientific investigationsof various types, such as systematic observations or experiments, identify variables, collect and organize data, interpret data in charts, tables, and graphics, analyze information, make predictions, and defend conclusions.	SEPUP "Planning and Carrying Out Investigations (PCI)" activity types call for students to state hypotheses or predictions clearly, design aprocedure, collect and analyze data, identify variables, stateand defend conclusions. See for example Earth's Resources 3; Geological Processes 9; Weather and Climate 6, 12. Examples from the 8th curriculum include: Fields and Interactions 9; Force and Motion 4, 13; Waves 8, 9, 14; Energy 2, 8
SC.8.N.1.2	Design and conduct a study using repeated trials andreplication.	SEPUP "Planning and Carrying Out Investigations (PCI)" activity types call for students to design a procedure, collect and analyze data usingmultiple trials, and identify variables, where appropriate. See for example Earth's Resources 3; Geological Processes 9; Weather and Climate 6, 12.
SC.8.N.1.3	Use phrases such as "results support" or "fail to support"in science, understanding that science does not offer conclusive 'proof' of a knowledge claim.	See "Developing Communication Skills" Student Sheet, found in the TR, which contains examples and prompts of these and other types of statements designed to encourage more scientific communication in

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		class and can be used with such activities as Land, Water, and Human Interactions 1 and 16, and Weather and Climate 16. See also Science Skills Student Sheet 8, "What is Science?" found on the Lab-Aids online portal.
SC.8.N.1.4	Explain how hypotheses are valuable if they lead to further investigations, even if they turn out not to besupported by the data.	Solar System and Beyond 7 See also Science Skills Student Sheet 8, "What is Science?" found on the Lab-Aids online portal. See also, "Scientific Inquiry," TR pg. 444
SC.8.N.1.5	Analyze the methods used to develop a scientificexplanation as seen in different fields of science.	See Science Skills Student Sheet 8, "What is Science?" found on the Lab-Aids online portal.
SC.8.N.1.6	Understand that scientific investigations involve the collection of relevant empirical evidence, the use of logical reasoning, and the application of imagination indevising hypotheses, predictions, explanations and models to make sense of the collected evidence.	SEPUP "Planning and Carrying Out Investigations (PCI)" and "Modeling" activity types call for students to state hypotheses or predictions clearly, design a procedure, collect and analyze data, identify variables, state and defend conclusions. See for example Earth's Resources 3; Geological Processes 9; Weather and Climate 6, 12. See Science Skills Student Sheet 8, ""What is Science?" found on the Lab-Aids online portal.
SC.8.N.2.1	Distinguish between scientific and pseudoscientific ideas	See Science Skills Student Sheet 8, "What is Science?" found on the Lab-Aids online portal.
SC.8.N.2.2	Discuss what characterizes science and its methods.	See Science Skills Student Sheet 8, ""What is Science?" found on the Lab-Aids online portal.
SC.8.N.3.1	Select models useful in relating the results of their owninvestigations	SEPUP modeling activities ask students to develop their ownmodel to represent their results and reflect on how it can beimproved. See for example Earth's Resources 5, 9; Geological Processes 5, 9; Land, Water, and Human Interactions 7, 12; Solar System and

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		Beyond 3, 5, 8, 11; Weather and Climate 8.
SC.8.N.3.2	Explain why theories may be modified but are rarely discarded	Geological Processes 13 Solar System and Beyond 14 Earth's Resources 7 See also Appendix A, "The Nature of Science and Engineering,"TR-443-445
SC.8.N.4.1	Explain that science is one of the processes that can be used to inform decision making at the community, state,national, and international levels.	Land, Water, and Human Interactions 14 Geological Processes 1 This can be explored using the "Evidence and Tradeoffs" (ET) scoring guide, see Geological Processes 1, 18, and Land, Water, and Human Interactions 5, 14, 15. See also Appendix A, "The Nature of Science and Engineering," TR pg. 443-445. See also the discussion in "Evidence and Decision Making," found in the TR pg. 4, 44, and 78; and Solar System and Beyond 17 and Earth's Resources 6
SC.8.N.4.2	Explain how political, social, and economic concerns canaffect science, and vice versa.	Land, Water, and Human Interactions 14 Geological Processes 1 Students' ideas about tradeoffs – in this case the political andsocial implications of science-related policies -- are explored and can be assessed using the ET scoring guide. See also Appendix A, "The Nature of Science and Engineering," found in the TR pg. 443-445; See also the discussion in "Evidence and Decision Making," TR pg. 4, 44, 78; see also Solar System and Beyond 17; Earth's Resources 6.

COURSE TITLE: Life Science
COURSE CODE: 2000010

BENCHMARK CODE	LIFE SCIENCE BENCHMARK	LESSON(S) WHERE BENCHMARK IS DIRECTLY ADDRESSED IN-DEPTH IN MAJOR TOOL Please see the Student Edition, Teacher Edition, and Teacher Resources books.
SC.6.L.14.1	Describe and identify patterns in the hierarchical organization of organisms from atoms to molecules andcells to tissues to organs to organ systems to organisms.	Body Systems 2, 3 From Cells to Organisms 6
SC.6.L.14.2	Investigate and explain the components of the scientifictheory of cells (cell theory): all organisms are composedof cells (single-celled or multicellular), all cells come from preexisting cells, and cells are the basic unit of life.	From Cells to Organisms 4, 6
SC.6.L.14.3	Recognize and explore how cells of all organisms undergo similar processes to maintain homeostasis,including extracting energy from food, getting rid of waste, and reproducing.	From Cells to Organisms 5, 6
SC.6.L.14.4	Compare and contrast the structure and function of major organelles of plant and animal cells, including cellwall, cell membrane, nucleus, cytoplasm, chloroplasts, mitochondria, and vacuoles.	From Cells to Organisms 6, 7
SC.6.L.14.5	Identify and investigate the general functions of the major systems of the human body (digestive, respiratory, circulatory, reproductive, excretory, immune, nervous, and musculoskeletal) and describeways these systems interact with each other to maintain homeostasis.	Body Systems 2, 3, 4, 7, 8, 10, 12
SC.6.L.14.6	Compare and contrast types of infectious agents that may infect the human body, including viruses, bacteria,fungi, and parasites.	From Cells to Organisms 1, 2, 3, 4, 9, 14
SC.6.L.15.1	Analyze and describe how and why organisms are classified according to shared characteristics with emphasis on the Linnaean system combined with theconcept of Domains.	Ecology 5
SC.7.L.15.1	Recognize that fossil evidence is consistent with the scientific theory of evolution that living things evolved from earlier species.	Evolution 11, 12
SC.7.L.15.2	Explore the scientific theory of evolution by recognizingand explaining ways in which genetic variation and environmental factors contribute to evolution by natural selection	Evolution 2, 3, 4, 7

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	and diversity of organisms.	
SC.7.L.15.3	Explore the scientific theory of evolution by relating how the inability of a species to adapt within a changing environment may contribute to the extinction of that species.	Evolution 11, 12
SC.7.L.16.1	Understand and explain that every organism requires aset of instructions that specifies its traits, that this hereditary information (DNA) contains genes located in the chromosomes of each cell, and that heredity is the passage of these instructions from one generation to another.	Reproduction 2, 4, 6, 7, 8, 9
SC.7.L.16.2	Determine the probabilities for genotype and phenotype combinations using Punnett Squares and pedigrees.	Reproduction 4, 5
SC.7.L.16.3	Compare and contrast the general processes of sexualreproduction requiring meiosis and asexual reproduction requiring mitosis.	Reproduction 3
SC.7.L.16.4	Recognize and explore the impact of biotechnology (cloning, genetic engineering, artificial selection) on theindividual, society, and the environment.	Reproduction 1, 3, 7
SC.7.L.17.1	Explain and illustrate the roles of and relationships among producers, consumers, and decomposers in theprocess of energy transfer in a food web.	Ecology 7, 8, 11, 13
SC.7.L.17.2	Compare and contrast the relationships among organisms such as mutualism, predation, parasitism, competition, and commensalism.	Ecology 1, 2, 6, 11
SC.7.L.17.3	Describe and investigate various limiting factors in the local ecosystem and their impact on native populations,including food, shelter, water, space, disease, parasitism, predation, and nesting sites.	Ecology 1, 2, 15
SC.8.L.18.1	Describe and investigate the process of photosynthesis,such as the roles of light, carbon dioxide, water and chlorophyll; production of food; release of oxygen.	From Cells to Organisms 6, 12, 13
SC.8.L.18.2	Describe and investigate how cellular respiration breaksdown food to provide energy and releases carbon dioxide.	From Cells to Organisms 5

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SC.8.L.18.3	Construct a scientific model of the carbon cycle to showhow matter and energy are continuously transferred within and between organisms and their physical environment.	Ecology 8, 11
SC.8.L.18.4	Cite evidence that living systems follow the Law of Conservation of Mass and Energy.	Ecology 8, 11
SC.7.N.1.1	Define a problem from the seventh grade curriculum, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigation of various types, such as systematic observations or experiments, identify variables, collectand organize data, interpret data in charts, tables, and graphics, analyze information, make predictions, and defend conclusions.	SEPUP Planning and Carrying Out Investigations (PCI) activity types call for students to state hypotheses or predictions clearly, design a procedure, collect and analyze data, identify variables, stateand defend conclusions. While all units contain PCI activities, this citation names a few examples: Body Systems 7 Reproduction 7 From Cells to Organisms 3, 9, 13 Ecology 4, 5
SC.7.N.1.2	Differentiate replication (by others) from repetition (multiple trials).	Body Systems 7, 13 Reproduction 4, 7
SC.7.N.1.3	Distinguish between an experiment (which must involve the identification and control of variables) andother forms of scientific investigation and explain thatnot all scientific knowledge is derived from experimentation.	From Cells to Organisms 4, 7 Reproduction 2 Body Systems 7 See Science Skills Student Sheet 8, “What is Science?” found on the Lab-Aids online portal See for example, “Elements of Good Experimental Design,” TR pg. 458; “Keeping a Science Notebook,” TR pg. 467
SC.7.N.1.4	Identify test variables (independent variables) andoutcome variables (dependent variables) in an experiment.	Body Systems 7, 13 From Cells to Organisms 4 Reproduction 7 Ecology 1, 6, 10 Evolution 4 See also TR pg. 456-457, “Interpreting Graphs,” and “Keeping a Science Notebook” found in the TR pg. 467.
SC.7.N.1.5	Describe the methods used in the pursuit of a scientific explanation as seen in different fields of science such as biology, geology, and physics.	From Cells to Organisms 4, 14 Evolution 3

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		See also Science Skills Student Sheet 8, "What is Science?" found on the Lab-Aids online portal See Appendix A, "The Nature of Science and Engineering" (TR pg. 443-445) and Appendix G, "Crosscutting Concepts," (TR pg. 475)
SC.7.N.1.6	Explain that empirical evidence is the cumulative bodyof observations of a natural phenomenon on which scientific explanations are based.	From Cells to Organisms 4, 14 Evolution 3 See Science Skills Student Sheet 8, "What is Science?" found on the Lab-Aids online portal
SC.7.N.1.7	Explain that scientific knowledge is the result of a great deal of debate and confirmation within the science community.	From Cells to Organisms 4 Reproduction 6 Evolution 3, 7 See Appendix A, "The Nature of Science and Engineering?" found in the TR pg. 443-445
SC.7.N.2.1	Identify an instance from the history of science in whichscientific knowledge has changed when new evidence or new interpretations are encountered.	From Cells to Organisms 4 Reproduction 6 Evolution 3, 7
SC.7.N.3.1	Recognize and explain the difference between theories and laws and give several examples of scientifictheories and the evidence that supports them.	From Cells to Organisms 4 Evolution 3 See Science Skills Student Sheet 8, "What is Science?" found on the Lab-Aids online portal See Appendix A, "The Nature of Science and Engineering" found in the TR pg. 443-445
SC.7.N.3.2	Identify the benefits and limitations of the use ofscientific models.	SEPUP has several modeling type activities in IAS, most ofwhich call for students to evaluate the use of the model in terms of its strengths and weaknesses. See for example Body Systems 2,4, 5, 12; Ecology 8, 11, 12; Evolution 2, 4, 5; From Cells to Organisms 8, 11; Reproduction 2, 12; Biomedical Engineering 8
LAFS.6.SL.1.2	Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study.	See "View and Reflect" activities: Body Systems 1; Evolution 7; From Cells to Organisms 2, 14; Reproduction 1. Information provided to be interpreted quantitatively can be found throughout all Life Science units. Also see Media Literacy, found in Appendix F TR pg. 471-474.

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LAFS.6.SL.1.3	Delineate a speaker's argument and specific claims, distinguishing claims that are supported by reasons and evidence from claims that are not.	Student progress in this area is assessed using the Engaging in Argument from Evidence (ARG) scoring guide found in the TR pg. 391. Example activities that show this skill are Biomedical Engineering 7 and Body Systems 12 Students are also assessed using the Evidence and Trade-offs (ET) scoring guide found in the TR pg. 393. Example activities that show this skill are Biomedical Engineering 5, 6; Body Systems 1, 13; Ecology 1, 15; Evolution 14, 16; From Cells to Organisms 1, 2, 15 Also see Media Literacy, found in Appendix F TR pg. 471-474.
LAFS.6.SL.1.1a	Come to discussions prepared, having read or studiedrequired material; explicitly draw on that preparationby referring to evidence on the topic, text, or issue toprobe and reflect on ideas under discussion.	SEPUP supports these student behaviors with activities and assessment procedures that support claims w/evidence arguments, recognizing evidence versus opinion and using evidence to make educated decisions that require trade-offs.These are described in more detail in TR pg. 76-89, the ARG (engaging in argument from evidence) and ET (evidence and tradeoffs) scoring guides can be found on TR pg. 391 and 393. Analysis questions(AQ) for each lesson begin with lower level cognitive demanditems (recall, comprehend) and move to higher levels (analyze, synthesize, evaluate). The following activities call for students to produce writing samples scored with the ARG and ET scoring guides: ARG: Biomedical Engineering 7 (Procedure); Body Systems 12 (AQ 4), 14 (AQ 1); Ecology 1 (AQ 6), 5 (AQ 2), 6 (AQ 1), 14 (AQ 1, 2) 15 (AQ 1a); Evolution 10 (Procedure); Reproduction 4 (AQ 6), 10 (AQ 1), 11 (AQ 1) ET: Biomedical Engineering 5 (AQ 5), 6 (AQ 4); Body Systems 1 (AQ 3), 13 (AQ 4); Ecology 1 (AQ 7), 15 (AQ 1b); Evolution 14 (AQ 4), 16 (AQ 3); From Cells to Organisms 1 (AQ 2b), 2 (AQ 3), 15 (AQ 3); Reproduction 1 (AQ 7), 14 (AQ 2)

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		See also 4-2-1 Cooperative Learning Model TR pg. 36, and Facilitating Group Work and Interaction, TR pg. 66-67
LAFS.6.SL.1.1b	Follow rules for collegial discussions, set specific goals and deadlines, and define individual roles as needed.	SEPUP supports these student and teacher behaviors with clear expectations for students using the program, see for example the "4-2-1 Cooperative Learning Model," TR pg. 36, and "Facilitating Group Work," TR pg. 66-67.
LAFS.6.SL.1.1c	Pose and respond to specific questions with elaborationand detail by making comments that contribute to the topic, text, or issue under discussion.	SEPUP's "Talking It Over" type activities call for students to discuss the outcomes and meaning of information gained frompreceding labs and investigations; see for example: ● Body Systems 14; Ecology 1, 15; Reproduction 14 ● Activities using "Elicit, Probe, and Challenge" strategy: Reproduction 12; Ecology 4, 10 ● "4-2-1 Cooperative Learning Model," TR pg. 36, "Discussion Starters," TR pg. 63; "Facilitating Group Work," TR pg. 66-67; and "Intra-Act" discussion strategy, TR Pg. 56. These strategies can be found throughout the *Issues and Science* units.
LAFS.6.SL.1.1d	Review the key ideas expressed and demonstrateunderstanding of multiple perspectives through reflection and paraphrasing.	SEPUP's "Listen, Stop Write" activities (see for example Ecology 1 gives students practice in paraphrasing. Intra-Acts (Ecology Student Sheet 1.1) and most Role-Play activity types have instances of paraphrasing in the scripts; see for example Evolution 3). See also *Walking Debates* for the following Activities: Body Systems 14; Evolution 14. See also "Talking It Over" type activities, which typically call for students to review the same article, video, or other presentation, and analyze and discuss the key ideas; see for example Body Systems 14; Ecology 1, 15; Evolution 14;
LAFS.6.SL.2.4	Present claims and findings, sequencing ideas logicallyand using pertinent descriptions, facts, and details to accentuate main ideas or themes; use appropriate eyecontact, adequate volume, and clear pronunciation.	SEPUP has activities and assessment scoring guides designedto support communicating scientific information, including oral speaking skills such as enunciation, projection, and eye contact, as well as the ability to logically organize argumentsand evidence related to a problem.

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		• Guidelines for Oral Presentations (TR pg. 57, 464), • "Talking it Over" activities, Body Systems 14; Ecology 1, 15; Evolution 14; Reproduction 14 • Walking Debates, Body Systems 14; Evolution 14 Communication Skills support for assessment on TR pg. 388. Examples of Communication Concepts and Ideas (COM) prompts: Biomedical Engineering 2 (AQ 5), 3 (AQ 5); Ecology 2 and 16 (Project); Evolution 8 (AQ 4), 16 (AQ 2), 17 (Procedure); Reproduction 14 (Procedure)
LAFS.6.SL.2.5	Include multimedia components (e.g., graphics, images,music, sound) and visual displays in presentations to clarify information.	Besides using print-based sources, SEPUP uses nontraditional formats such as media viewing and computer simulations (seefor example Body Systems 1; Evolution 6, 7; From Cells to Organisms 2, 14; Reproduction 1). We also have many online videos of the labs themselves using our online LABsent® program. See for example, LABsent Body Systems 6, Ecology 9, and Evolution 4.
LAFS.68.RST.1.1	Cite specific textual evidence to support analysis ofscience and technical texts.	SEPUP has a well-developed approach to supporting literacy that includes analysis of technical texts. See, for example, theLiteracy and Scientific Literacy in the TR pg. 44, and the following strategies: • *Readings with embedded "Stop-to Think" (STT) strategy:* Reproduction 2, 3, 6, 8; From Cells to Organisms 6, 10; Ecology 8; Body Systems 4, 8, 11; Evolution 8 • *Three level reading guides (found in the TR pg. 48-50)*: Student Sheets Reproduction 3.1; Biomedical Engineering 3.1 • *Anticipation guides (found in the TR pg. 46):* Student Sheets Body Systems 10.1
LAFS.68.RST.1.2	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct fromprior knowledge or opinions.	SEPUP has a well-developed approach to supporting literacy that includes determining central ideas and conclusions, as well as summarizing informational texts. See, for example, theLiteracy and Scientific Literacy (TR pg. 44), and the following strategies: • *Readings with embedded "Stop-to-Think" (STT) strategy:* Reproduction 2, 3, 6, 8; From

BENCHMARK CODE	LIFE SCIENCE BENCHMARK	LESSON(S) WHERE BENCHMARK IS DIRECTLY ADDRESSED IN-DEPTH IN MAJOR TOOL Please see the Student Edition, Teacher Edition, and Teacher Resources books.
		Cells to Organisms 6, 10; Ecology 8; Body Systems 4, 8, 11; Evolution 8 • *Three-level Reading Guides* are used to analyze literal, interpretive, and applied levels of understanding of texts: Seefor example, Student Sheets Reproduction 3.1; Biomedical Engineering 3.1 • *Directed Activities Related to Text* Student Sheets*: E*volution 15.1; Body Systems 3.1; From Cells to Organisms 4.1, 11.3, 15.1
LAFS.68.RST.1.3	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performingtechnical tasks.	SEPUP has twelve distinct and different activity types, includinglabs and investigations (similar approaches but using less "wet" equipment). Most units contain 4-6 laboratory or investigation type experiments that ask students to follow a multistep procedure, take measurements, or perform technical tasks. See for example all "laboratory" type activities: Biomedical Engineering 8; Body Systems 6, 7, 9, 10; Ecology 5, 7, 9, 11; Evolution 9; From Cells to Organisms 3, 5, 9, 12, 13; Reproduction 7 See also where these are assessed: Ecology 4, 5; From Cells to Organisms 3, 9, 13; Reproduction 7
LAFS.68.RST.2.4	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevantto grades 6-8 texts and topics.	Key terms and vocabulary words and phrases are introduced in context as described in the TR pg. 44, and in the Literacy Strategies, found in the TR pg. 45-60. See for example Body Systems 4, 8; Reproduction 3, 4, 5, 8, 9
LAFS.68.RST.2.5	Analyze the structure an author uses to organize a text,including how the major sections contribute to the whole and to an understanding of the topic.	SEPUP has a well-developed approach to supporting literacy that includes analysis of text. See, for example, the Literacy and Scientific Literacy (TR pg. 44-45), and the following strategies: The Three-level Reading Guide (TLRG) is a built-in literacy strategy in SEPUP that helps students analyze the author's intent. The Guide contains a series of statements from the three levels of understanding: *literal, interpretive,* and *applied.*Literal statements guide the student to look for ideas that are explicitly presented in the reading, in some

BENCHMARK CODE	LIFE SCIENCE BENCHMARK	LESSON(S) WHERE BENCHMARK IS DIRECTLY ADDRESSED IN-DEPTH IN MAJOR TOOL Please see the Student Edition, Teacher Edition, and Teacher Resources books.
		cases using identical words or phrases. Interpretive statements require students to process information and recognize ideas that are often implicit. Applied statements have multiple correct interpretations and often relate the factual information in the reading to everyday life and may be used as the basis of a classdiscussion. A full explanation for this strategy can be found in the TR pg. 49-50, and TLRG examples can be found on the following Student Sheets Reproduction 3.1; Biomedical Engineering 3.1.
LAFS.68.RST.2.6	Analyze the author's purpose in providing an explanation, describing a procedure, or discussing anexperiment in a text.	Three-Level Reading Guides (TR pg. 49-50) are used to infer the author's purpose and to predict meanings not stated explicitly.See for example: Student Sheets Reproduction 3.1; Biomedical Engineering 3.1. See also Writing Review (TR pg. 54-55) Body Systems 4.2.
LAFS.68.RST.3.7	Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart,diagram, model, graph, or table).	SEPUP has a well-developed approach to supporting literacy that includes communicating scientific information with supplementary visual formats. See, for example, the Literacy and Scientific Literacy (TR pg. 44-45), and the following strategies: ● Concept Maps: Ecology 5 ● Venn Diagrams: From Cells to Organisms 4, 6; Evolution 12 ● Talking Drawing Student Sheets: From Cells to Organisms 6.1, 6.2 ● Makes/interprets graphs: Ecology 6, 10
LAFS.68.RST.3.8	Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.	See for example Intra-Acts, found on TR page 56. An example of an Intra-Act can be found in Ecology 1, Student Sheet 1.1. Role-Play activities, which are explained on TR pg. 23, also help students to distinguish among facts and speculation in a text. An example of a Life Science role play is Evolution 3.
LAFS.68.RST.39	Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.	SEPUP features twelve different activity types to support different student learning styles. Some of these are text-based, such as readings and role plays, and some involve direct experience/hands-on learning such as labs, and still others involve other modalities, such as

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		view/reflect or discussions. All provide support for students to experience more than one way to learn. See for example, Intentional Activity Design, TR pg. 23. For additional examples, see: Biomedical Engineering 3, 6 Body Systems 1, 5 Evolution 7 From Cells to Organisms 2, 4, 6, 10, 11, 14 Reproduction 6
LAFS.68.WHST.1.1	Write arguments focused on discipline-specific content. Introduce claim(s) about a topic or issue, acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically.Support claim(s) with logical reasoning and relevant, accurate data and evidence that demonstrate an understanding of the topic or text, using credible sources. Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence. Establish and maintain a formal style. Provide a concluding statementor section that follows from and supports the argument presented.	SEPUP has activities and assessment procedures that support claims w/evidence arguments, recognizing evidence versus opinion and using evidence to make educated decisions that require trade-offs. These are described in more detail in TR pg.76-89, the Engaging in Argument from Evidence (ARG) and Evidence and Trade-offs (ET) scoring guides can be found on TR pg. 391 and 393. The following activities call for students to produce writingsamples scored with the ARG and ET scoring guides: ARG: Biomedical Engineering 7 (Procedure); Body Systems 12 (AQ 4), 14 (AQ 1); Ecology 1 (AQ 6), 5 (AQ 2), 6 (AQ 1), 14 (AQ 1, 2) 15 (AQ 1a); Evolution 10 (Procedure); Reproduction 4 (AQ 6), 10 (AQ 1), 11 (AQ 1) ET: Biomedical Engineering 5 (AQ 5), 6 (AQ 4); Body Systems 1 (AQ 3), 13 (AQ 4); Ecology 1 (AQ 7), 15 (AQ 1b); Evolution 14 (AQ 4), 16 (AQ 3); From Cells to Organisms 1 (AQ 2b), 2 (AQ 3), 15 (AQ 3); Reproduction 1 (AQ 7), 14 (AQ 2)
LAFS.68.WHST.1.2	Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension.	The SEPUP program requires daily writing in the student science notebook for the purpose of documenting scientificprocedures and experiments. See TR pg. 35 and 66, and Keeping a Science Notebook, TR pg. 466. This writing is assessed from time to time using the Communicating Concepts and Ideas (COM) scoring guide, described on TR pg. 388. Planning and Carrying Out Investigation (PCI) Activity types call for students to write their own

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	Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples. Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts. Use precise language and domain-specific vocabulary to inform about or explain the topic. Establish and maintain a formal style and objective tone. Provide a concluding statement or section that follows from and supports the information or explanation presented.	procedures. ● Examples of COM prompts: Biomedical Engineering 2 (AQ 5), 3 (AQ 5); Ecology 2 and 16 (Project); Evolution 8 (AQ 4), 16 (AQ 2), 17 (Procedure); Reproduction 14 (Procedure) ● Examples of PCI prompts can be seen in the Proceduresfor Ecology 4, 5; From Cells to Organisms 3, 9, 13; Reproduction 7 Three types of Writing Frames are provided, see the discussionon on TR pg. 53-54. Note the SEPUP Vocabulary Approach on TR pg. 44. See also: Body Systems 12, 13, 14 Ecology 1, 5, 9, 10, 12, 13, 14, 15 From Cells to Organisms 15 Reproduction 10, 11
LAFS.68.WHST.2.4	Produce clear and coherent writing in which the development, organization, and style are appropriateto task, purpose, and audience.	The SEPUP program requires daily writing in the student science notebook for the purpose of documenting scientificprocedures and experiments. See TR pg. 35 and 66, and Keeping a Science Notebook, TR pg. 466. This writing is assessed from time to time using the Communicating Concepts and Ideas (COM) scoring guide, described on TR pg. 388. Planning and Carrying Out Investigation (PCI) Activity types call for students to write their own procedures. ● Examples of COM prompts: Biomedical Engineering 2 (AQ 5), 3 (AQ 5); Ecology 2 and 16 (Project); Evolution 8 (AQ 4), 16 (AQ 2), 17 (Procedure); Reproduction 14 (Procedure) ● Examples of PCI prompts can be seen in the Proceduresfor Ecology 4, 5; From Cells to Organisms 3, 9, 13; Reproduction 7 Three types of Writing Frames are provided, see the discussionon pp. TR pg. 53-54. Note the SEPUP Vocabulary Approach on TR pg. 44.
LAFS.68.WHST.2.5	With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising,	SEPUP has a well-developed approach to supporting literacythat includes analysis of text. See, for example, the Literacy and Scientific

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	editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.	Literacy (TR pg. 44-45), and the following strategies: • *Writing Frame* Student Sheets: From Cells to Organisms 2.1, 4.2, 9.1, 10.1; Reproduction 10.1, 11.1; Ecology 1.2, 5.1; Body Systems 1.5, 12.1; Biomedical Engineering 6.2 • *Writing Review Student Sheets (used for peer review of writing samples)* – Body Systems 4.2
LAFS.68.WHST.2.6	Use technology, including the Internet, to produce andpublish writing and present the relationships between information and ideas clearly and efficiently.	See for example, Student Literacy Sheet 12, "Implementing a Classroom Blog," found on the Lab-aids online portal.
LAFS.68.WHST.3.7	Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.	See for example Ecology 2, 14; Evolution 6, 16; From Cells to Organisms 8; and Appendix F, "Media Literacy" in each unit Student Book.
LAFS.68.WHST.3.8	Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others whileavoiding plagiarism and following a standard format for citation.	See for example Literacy Student Sheets 1d, "Guidelines for Using and Citing Information from Internet Sources," found on the Lab-aids online portal. Also see Media Literacy, found in Appendix F TR pg. 471-474.
LAFS.68.WHST.3.9	Draw evidence from informational texts to supportanalysis reflection, and research.	Two of the distinct SEPUP activity types involve gathering information from informational texts: In "Reading" type activities, students extract important science content from passages of formal science writing. Theconcluding analysis items ask students to describe, explain, and reflect upon the information presented. See for example,Biomedical Engineering 3, 6; Body Systems 4, 8, 11; Ecology 8; Evolution 8, 15; From Cells to Organisms 4, 6, 10; Reproduction 3, 6, 8 In "Talking It Over" type activities, students read less formaltext related to, and extending, topics covered by and observations made in, preceding labs and investigations. Students use this additional information and the accompanying analysis items to reflect upon and help analyzetheir previously acquired data.

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		See for example, Body Systems 14; Ecology 1, 15; Reproduction 14. Additionally, Three-level Reading Guides call for students to further analyze informational text, see, for example, Student Sheets Reproduction 3.1; Biomedical Engineering 3.1. See also Evolution 16
LAFS.68.WHST.4.10	Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.	The built-in literacy support in SEPUP supports short- and long-form student writing. A short summary of these strategies are provided here, and more information can befound in the Teacher's Resources. Science Notebook Writing Guidelines. See TR pg. 35 and 66, and Keeping a Science Notebook, TR pg. 466. As with most science classes, students keep a science notebook throughoutthe IAS course, making entries per the instructions inthe Student Book that ask them to record data, observations, hypotheses, conclusions, and other information. Keeping a notebook helps students process ideas, keep track of data, and build scientific observation and scientific writing skills. *Writing Frame* Student Sheets: From Cells to Organisms 2.1, 4.2, 9.1, 10.1; Reproduction 10.1, 11.1; Ecology 1.2, 5.1; Body Systems 1.5, 12.1; Biomedical Engineering 6.2 *Writing Review Student Sheets (used for peer review of writing samples)* – Body Systems 4.2
HE.6.C.1.8	Examine the likelihood of injury or illness if engaging in unhealthy/risky behaviors.	Waves 1, 4, 14, 15

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MAFS.6.EE.3.9	Use variables to represent two quantities in a real- world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable.Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. For example, in a probleminvolving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation d = 65t to represent the relationship between distance and time.	See also “Bar Graphing Checklist," TR pg. 452-453, “Scatterplot and Line Graphing Checklist” TR pg. 454-455, and “Interpreting Graphs” TR pg. 456-457. See, for example, Evolution 1 and Ecology 6.
MAFS.6.SP.2.4	Display numerical data in plots on a number line,including dot plots, histograms, and box plots.	The *Issues and Science* program calls for students to use bar, histogram, scatterplot, and line graphs; see for example Body Systems 9, 10, From Cells to Organisms 1; Evolution 1, 2, 4; Ecology 6, 10; Reproduction 10 See also “Bar Graphing Checklist," TR pg. 452-453, “Scatterplot and Line Graphing Checklist” TR pg. 454-455, and “Interpreting Graphs” TR pg. 456-457.
MAFS.6.SP.2.5	Summarize numerical data sets in relation to their context, such as by: Reporting the number of observations. Describing the nature of the attribute under investigation, including how it was measured andits units of measurement. Giving quantitative measuresof center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered. Relating the choice of measures of center and variability to the shape of the data distribution andthe context in which the data were gathered.	Body Systems 10; Ecology 6 See “Measures of Central Tendency,” found on the Lab-aids online portal.
HE.7.C.1.3	Analyze how environmental factors affect personal health.	Reproduction 7 Evolution 6

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HE.7.C.1.7	Describe how heredity can affect personal health.	Reproduction 1 Evolution 6
ELD.K12.ELL.SC.1	English language learners communicate information, ideas and concepts necessary for academic success inthe content area of Science.	SEPUP provides EL students with rich opportunities for written and oral communication for social and instructional purposes at school. This is accomplished through the use ofthe following strategies: ● The Student Books for all units are also presented in Spanish language format. ● Vocabulary is introduced with operational definitions that connect concepts to learning experiences (see TR pg. 44-45). ● 4-2-1 cooperative groupings encourage student interactions in an unthreatening environment (see TRpg. 36). ● Strategies for facilitating Group Discussion (see TR pg.66-67). This includes informal, pair talk and formal presentations. ● Discussion Webs (TR pg. 55-56), graphic organizers that help students think ahead about what they wantto say about what they have done or read. ● Oral Presentation (TR pg. 57, 464), guidelines for formal oral communication. ● Walking Debates (TR pg. 57-58), tools that allow students to express their opinions about issues by moving from one area of the room to another. As seen in Evolution 14.

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ELD.K12.ELL.SI.1	English language learners communicate for social andinstructional purposes within the school setting.	SEPUP provides ELL students with rich opportunities for written and oral communication for social and instructional purposes at school. This is accomplished through the use ofthe following strategies: ● The Student Books for all units are also presented in Spanish language format. ● Vocabulary is introduced with operational definitions that connect concepts to learning experiences (see TR pg. 44-45). ● 4-2-1 cooperative groupings encourage student interactions in an unthreatening environment (see TRpg. 36). ● Strategies for facilitating Group Discussion (see TR pg.66-67). This includes informal, pair talk and formal presentations. ● Discussion Webs (TR pg. 55-56), graphic organizers that help students think ahead about what they wantto say about what they have done or read. ● Oral Presentation (TR pg. 57, 464), guidelines for formal oral communication. ● Walking Debates (TR pg. 57-58), tools that allow students to express their opinions about issues by moving from one area of the room to another, as seen in Evolution 14.
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COURSE TITLE: Physical Science
COURSE CODE: 2003010

BENCHMARK CODE	PHYSICAL SCIENCE BENCHMARK	LESSON(S) WHERE BENCHMARK IS DIRECTLY ADDRESSED IN-DEPTH IN MAJOR TOOL Please see the Student Edition, Teacher Edition, and Teacher Resources books.
SC.6.P.11.1	Explore the Law of Conservation of Energy by differentiating between potential and kinetic energy.Identify situations where kinetic energy is transformed into potential energy and vice versa.	Energy 2, 3, 5, 6
SC.6.P.12.1	Measure and graph distance versus time for an object moving at a constant speed. Interpret this relationship.	Force and Motion 2, 3
SC.6.P.13.1	Investigate and describe types of forces including contact forces and forces acting at a distance, such aselectrical, magnetic, and gravitational.	Force and Motion 3, 4, 9, 10, 11, 12 Fields and Interactions 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15
SC.6.P.13.2	Explore the Law of Gravity by recognizing that every object exerts gravitational force on every other objectand that the force depends on how much mass the objects have and how far apart they are.	Fields and Interactions 3, 4 Solar System and Beyond 14, 15, 16
SC.6.P.13.3	Investigate and describe that an unbalanced force acting on an object changes its speed, or direction ofmotion, or both.	Force and Motion 7, 8, 9, 10, 11
SC.7.P.10.1	Illustrate that the sun's energy arrives as radiation with a wide range of wavelengths, including infrared, visible, and ultraviolet, and that white light is made upof a spectrum of many different colors.	Waves 12
SC.7.P.10.2	Observe and explain that light can be reflected,refracted, and/or absorbed.	Energy 15 Waves 11
SC.7.P.10.3	Recognize that light waves, sound waves, and other waves move at different speeds in different materials.	Waves 3, 9
SC.7.P.11.1	Recognize that adding heat to or removing heat froma system may result in a temperature change and possibly a change of state.	Energy 7, 10
SC.7.P.11.2	Investigate and describe the transformation of energyfrom one form to another.	Energy 2, 3, 4
SC.7.P.11.3	Cite evidence to explain that energy cannot be created nor destroyed, only changed from one formto another.	Energy 5

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SC.7.P.11.4	Observe and describe that heat flows in predictableways, moving from warmer objects to cooler ones until they reach the same temperature.	Energy 10
SC.8.P.8.1	Explore the scientific theory of atoms (also known as atomic theory) by using models to explain the motionof particles in solids, liquids, and gases.	Chemistry of Materials 8, 10
SC.8.P.8.2	Differentiate between weight and mass recognizingthat weight is the amount of gravitational pull on anobject and is distinct from, though proportional to mass.	Fields and Interactions 7, partially covered
SC.8.P.8.3	Explore and describe the densities of various materialsthrough measurement of their masses and volumes.	Chemistry of Materials 4
SC.8.P.8.4	Classify and compare substances on the basis of characteristic physical properties that can be demonstrated or measured; for example, density, thermal or electrical conductivity, solubility, magneticproperties, melting and boiling points, and know that these properties are independent of the amount of the sample.	Chemistry of Materials **1, 3**
SC.8.P.8.5	Recognize that there are a finite number of elementsand that their atoms combine in a multitude of waysto produce compounds that make up all of the living and nonliving things that we encounter.	Chemistry of Materials **6**
SC.8.P.8.6	Recognize that elements are grouped in the periodictable according to similarities of their properties.	Not covered
SC.8.P.8.7	Explore the scientific theory of atoms (also known as atomic theory) by recognizing that atoms are the smallest unit of an element and are composed of subatomic particles (electrons surrounding a nucleuscontaining protons and neutrons).	Chemistry of Materials 2, 7
SC.8.P.8.8	Identify basic examples of and compare and classify the properties of compounds, including acids, bases,and salts.	Chemistry of Materials 3
SC.8.P.8.9	Distinguish among mixtures (including solutions) and pure substances.	Not covered.
SC.8.P.9.1	Explore the Law of Conservation of Mass by demonstrating and concluding that mass is conservedwhen substances undergo physical and chemical changes.	Chemical Reactions 6, 7, 12

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SC.8.P.9.2	Differentiate between physical changes and chemicalchanges.	Chemistry of Materials 3, 10, 11 Chemical Reactions 2, 3, 5
SC.8.P.9.3	Investigate and describe how temperature influences chemical changes.	Chemistry of Materials 3 Chemical Reactions 9
SC.8.N.1.1	Define a problem from the eighth grade curriculum using appropriate reference materials to support scientific understanding, plan and carry out scientific investigations of various types, such as systematic observations or experiments, identify variables, collect and organize data, interpret data in charts, tables, and graphics, analyze information, make predictions, and defend conclusions.	SEPUP "Planning and Carrying Out Investigations (PCI)" activity types call for students to state hypotheses or predictions clearly,design a procedure, collect and analyze data, identify variables, state and defend conclusions. See for example Fields and Interactions 9, Force and Motion 4, 13; Waves 8, 9, 14; Energy 2, 8 See also "Keeping a Science Notebook," TR pg. 467; Writing Frame for PCI, TR pg. 486; See also Fields and Interactions 6; Energy 4, 7
SC.8.N.1.2	Design and conduct a study using repeated trials and replication.	As seen in "Planning and Carrying Out Investigations" (PCI) type activities such as Force and Motion 3 and 4 See also Energy 10, 13; Fields and Interactions 3, 6, 13
SC.8.N.1.3	Use phrases such as "results support" or "fail to support" in science, understanding that science doesnot offer conclusive 'proof' of a knowledge claim.	See Science Skills Student Sheet 8, "What is Science?" found on the Lab-Aids online portal.
SC.8.N.1.4	Explain how hypotheses are valuable if they lead to further investigations, even if they turn out not to be supported by the data.	See "The Nature of Science and Engineering," found in Appendix A of all unit Student Books, and found in the TR pg. 443-445
SC.8.N.1.5	Analyze the methods used to develop a scientific explanation as seen in different fields of science.	See Science Skills Student Sheet 8, "What is Science?" found on the Lab-Aids online portal. See Appendix G "Crosscutting Concepts," found in the TR pg. and pg. 10-11. Crosscutting Concept are intentionally embedded in all units as a means to help students connect the different disciplines and to bridge phenomena across disciplines.

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SC.8.N.1.6	Understand that scientific investigations involve the collection of relevant empirical evidence, the use of logical reasoning, and the application of imagination in devising hypotheses, predictions, explanations and models to make sense of the collected evidence.	Chemical Reactions 1, 2, 3, 5, 6, 7 Waves9, 10, 12 Force and Motion 6, 7, 13 Fields and Interactions 3, 4, 7, 14 See "The Nature of Science and Engineering," found in Appendix A of all unit Student Books and found in the TR pg. 443-445.
SC.8.N.2.1	Distinguish between scientific and pseudoscientificideas.	See Science Skills Student Sheet 8, "What is Science?" found on the Lab-Aids online portal.
SC.8.N.2.2	Discuss what characterizes science and its methods.	See Science Skills Student Sheet 8, "What is Science?" found on the Lab-Aids online portal. See "The Nature of Science and Engineering," found in Appendix A of all unit Student Books, and found in the TR pg. 443-445.
SC.8.N.3.1	Select models useful in relating the results of theirown investigations.	Chemistry of Materials 6, 7, 8, 9, 10, 12 Chemical Reactions 4, 7 Waves 2, 12, 13 Fields and Interactions 3, 6, 11 Force and Motion 10, 11
SC.8.N.3.2	Explain why theories may be modified but are rarely discarded.	Force and Motion 9 Chemical Reactions 9 See Science Skills Student Sheet 8, "What is Science?" found on the Lab-Aids online portal. See "The Nature of Science and Engineering," found in Appendix A of all unit Student Books, and found in the TR pg. 443-445.
SC.8.N.4.1	Explain that science is one of the processes that can be used to inform decision making at the community,state, national, and international levels.	Energy 15 Waves 14 Force and Motion 15 Chemistry of Materials 13

BENCHMARK CODE	PHYSICAL SCIENCE BENCHMARK	LESSON(S) WHERE BENCHMARK IS DIRECTLY ADDRESSED IN-DEPTH IN MAJOR TOOL Please see the Student Edition, Teacher Edition, and Teacher Resources books.
SC.8.N.4.2	Explain how political, social, and economic concernscan affect science, and vice versa.	Energy 1, 14, 15 Chemical Reactions 12, 13 Chemistry of Materials 1, 13 Fields and Interactions 2, 14, 15 Force and Motion 1, 12, 15 Waves 10, 15 See "Science as a Human Endeavor" found in Appendix A of all Student Books, and "The Nature of Science and Engineering," found on TR pg. 445.
LAFS.68.RST.1.1	Cite specific textual evidence to support analysis ofscience and technical texts.	SEPUP has a well-developed approach to supporting literacy that includes analysis of technical texts. See, for example, the Literacy and Scientific Literacy in the TR pg. 44, and the following strategies: *Readings with embedded "Stop-to Think" (STT) strategy:* Fields and Interactions 7; Waves 3; Chemical Reactions 3 *Three level reading guide student sheets:* Energy 5.1; Chemical Reactions 1.1 *Anticipation guides student sheets:* Energy 1.1; Fields and Interactions 1.1, 8.1; Force and Motion 9.1; Waves 12.1; Chemical Reactions 3.1
LAFS.68.RST.1.2	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct fromprior knowledge or opinions.	SEPUP has a well-developed approach to supporting literacy that includes determining central ideas and conclusions, as well as summarizing informational texts. See, for example, the "Literacy and Scientific Literacy" section in the TR pg. 44, and the following strategies: *Readings with embedded "Stop-to Think" (STT) strategy:* Fields and Interactions 7; Waves 3; Chemical Reactions 3 *Three Level Reading Guides are used to analyze literal, interpretive, and applied levels of*

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		understanding of texts: See for example, Student Sheets Energy 5.1; Chemical Reactions 1.1 See also Waves 3; Reactions 3, 5; Energy 9; Fields 2, 3, 14, 15; Forces 9, 11
LAFS.68.RST.1.3	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.	SEPUP has twelve distinct and different activity types, including labs and investigations (similar approaches but using less "wet" equipment). See for example all "laboratory" type activities: Chemistry of Materials 2, 6, 9, 12, 13; Chemical Reactions 2, 3, 4, 9, 10, 11; Energy 2, 7, 8, 11, 14; Fields and Interactions 9; Force and Motion 2, 3, 4, 6, 7, 13; Waves 8, 9, 10, 11, 13, 14
LAFS.68.RST.2.4	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they areused in a specific scientific or technical context relevant to grades 6-8 texts and topics.	Key terms and vocabulary words and phrases are introduced in context as described in the TR pg. 44, and in the Literacy Strategies in TR, pg. 45-60. Chemical symbols are introduced in Chemistry of Materials 6 and 7, and followed up in Chemical Reactions, e.g., Activity 4. Mathematical symbols indicating a ratio relationship such as density (d = m/v) and acceleration (a = f / m) can be found in the Chemistry of Materials and Force and Motion units, respectively. See also Force and Motion 9.
LAFS.68.RST.2.5	Analyze the structure an author uses to organize a text, including how the major sections contribute tothe whole and to an understanding of the topic.	SEPUP has a well-developed approach to supporting literacy that includes analysis of text. See, for example, the Literacy and Scientific Literacy (TR pg. 44-45), and the following strategies: The Three-level Reading Guide (TLRG) is a built-in literacy strategy in SEPUP that helps students analyze the author's intent. The guide contains a series of statements from the three levels of understanding, listed here from lower to higher: *literal, interpretive,* and*applied*. Literal statements guide the student to look for ideas that are explicitly presented in the reading, in some cases using identical words or phrases. Interpretive statements require students to process information and recognize ideas that are often implicit.Applied statements do not have a single correct response, but are there for students to support or dispute based on

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		information found in the reading as well as their own ideas. These applied statements sometimes relate the factual information in the readingto everyday life and may be used as the basis of a class discussion. An explanation for this strategy can be found in the TR pg. 49-50, and TLRG examples can be found in Student Sheets Energy 5.1; Chemical Reactions 1.1
LAFS.68.RST.2.6	Analyze the author's purpose in providing an explanation, describing a procedure, or discussing anexperiment in a text.	Three-Level Reading Guides are used to infer the author's purpose and to predict meanings not statedexplicitly. See for example: Student Sheets Energy 5.1; Chemical Reactions 1.1.
LAFS.68.RST.3.7	Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart,diagram, model, graph, or table).	SEPUP has a well-developed approach to supporting literacy that includes communicating scientific information with supplementary visual formats. See, for example, the Literacy and Scientific Literacy (TR pg. 44-45), and the following strategies: • Venn Diagrams: Waves 7; Fields and Interactions 7; Energy 12 • Talking Drawing Student Sheets: Chemistry of Materials 8.1; Fields and Interactions 5, 10 • Makes/interprets graphs: Waves 3, 4, 7; Force and Motion 2, 5, 8, 14 See also Chemical Reactions 3; Chemistry of Materials 7, 13; Fields and Interactions 6; Force and Motion 1, 2, 5, 7, 8, 15
LAFS.68.RST.3.8	Distinguish among facts, reasoned judgment based onresearch findings, and speculation in a text.	*Discussion Webs* are graphic organizer that help students arrange evidence they have gathered primarily from readings. TR pg. 55-56 provides a full explanation for this strategy. Discussion webs support students in engaging with information from text and other sources and then with each other to come to an evidence-based conclusion. Any question or issue that involves two viewpoints or more than one potentially acceptable answer can be explored using this strategy. See also "Media Literacy," found in Appendix F of all unit Student Books and found in the TR pg. 471-474.

BENCHMARK CODE	PHYSICAL SCIENCE BENCHMARK	LESSON(S) WHERE BENCHMARK IS DIRECTLY ADDRESSED IN-DEPTH IN MAJOR TOOL Please see the Student Edition, Teacher Edition, and Teacher Resources books.
LAFS.68.RST.3.9	Compare and contrast the information gained fromexperiments, simulations, video, or multimedia sources with that gained from reading a text on thesame topic.	SEPUP features twelve different activity types to support different student learning styles. Some of these are text-based, such as readings and role plays, and some involvedirect experience/hands on learning such as labs. Still others involve other modalities, such as view/reflect or discussions. All provide support for students to experience more than one way to learn. See for example, Intentional Activity Design, TR pg. 23. Each unit typically features at least 5-6 activity types such as Laboratory, View and Reflect (multimedia and video), and Readings, and there are more than 40 online simulations distributed over 17 units that provide information and content that can be evaluated and contrasted. For example, in the Force and Motion unit, students can complete labs 2, 3, 4, 6 to directly measure speed and the effect of mass on collisions; they can read lessons 8, 9 to understand Newton's Laws of Motion; and they can complete unit online simulations to also investigate these topics.
LAFS.68.RST.4.10	By the end of grade 8, read and comprehend science/technical texts in the grades 6-8 text complexity band independently and proficiently.	SEPUP course materials are supported by numerous literacy support for reading comprehension, designed tohelp all students read grade-appropriate texts independently and proficiently. The SEPUP approach tosupporting reading comprehension acquisition is outlined on TR pg. 45-50 and a list of all literacy supports for Anticipation Guides, DART, Listen-Stop-Write, and Three Level Reading Guides can be found on TR pg. 45-50. See for example Student Sheets Energy 1.1, 5.1. See all Reading type activities, for example Chemical Reactions 3; Chemistry of Materials 7; Energy 3 (Role Play), 5, 9, 11; Fields and Interactions 2, 7, 14; Waves 3, 6, 12
LAFS.68.WHST.1.1	Write arguments focused on discipline-specific content. Introduce claim(s) about a topic or issue, acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically. Support	SEPUP has activities and assessment procedures that support claims w/evidence arguments, recognizing evidence versus opinion and using evidence to make educated decisions that require trade-offs**.** These aredescribed in more detail in TR pg.76-89; the Engaging in

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	claim(s) with logical reasoning and relevant, accurate data and evidence that demonstrate an understanding of the topic or text, using credible sources. Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence. Establish and maintain a formal style. Provide a concluding statement or section that followsfrom and supports the argument presented.	Argument from Evidence (ARG) and Evidence and Trade-offs (ET) scoring guides can be found on TR pg. 391 and 393. The following activities call for students to producewriting samples scored with the ARG and ET scoring guides: ARG: Energy 5 (AQ 3), 6 (AQ 3); Fields and Interactions 4 (AQ 4), 7 (AQ 4), 15 (Procedure and AQ 1); Force and Motion 6 (AQ 1), 13 (AQ 4 and 5); ET: Chemical Reactions 12 (AQ 3), 13 (AQ 2); Chemistry of Materials 1 (AQ 2), 13 (AQ 2); Energy 1 (AQ 5), 14 (AQ 4), 15 (AQ 2); Fields and Interactions 1 (AQ 5), 14 (AQ 4), 15 (AQ 3); Force and Motion 1 (AQ 3), 12 (AQ 4), 15 (AQ 1); Waves 10 (AQ 6b), 15 (AQ 5)
LAFS.68.WHST .1.2	Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples. Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts. Use preciselanguage and domain-specific vocabulary to inform about or explain the topic. Establish and maintain a formal style and objective tone. Provide a concludingstatement or section that follows from and supports the information or explanation presented.	The SEPUP program requires daily writing in the studentscience notebook for the purpose of documenting scientific procedures and experiments. See TR pg. 35 and 66, and Keeping a Science Notebook, TR pg. 466. This writing is assessed from time to time using the Communicating Concepts and Ideas (COM) scoring guide, described on TR pg. 388. Planning and Carrying Out Investigation (PCI) Activity types call for students to write their own procedures. Examples of COM prompts: Waves 5 (AQ 3), 6 (AQ 2), 7 (AQ 8), 12 (AQ 5), 13 (AQ 5); Force and Motion 9 (AQ 4), 15 (AQ 3); Fields and Interactions 5 (AQ 2), 6 (AQ 4), 8 (AQ 1), 9 (AQ 2), 12 (AQ 3), 13 (AQ 3); Energy 9 (AQ 2), 15 (AQ 2) Examples of PCI prompts can be seen in the Procedures for Waves 8, 9, 14; Force and Motion 4, 13; Fields and Interactions 9; Energy 2, 8. Four types of Writing Frames are provided, see the discussion on TR pg. 53-54 and pg. 483-486. Note the SEPUP Vocabulary Approach, TR pg.

BENCHMARK CODE	PHYSICAL SCIENCE BENCHMARK	LESSON(S) WHERE BENCHMARK IS DIRECTLY ADDRESSED IN-DEPTH IN MAJOR TOOL Please see the Student Edition, Teacher Edition, and Teacher Resources books.
		44-45.
LAFS.68.WHST .2.4	Produce clear and coherent writing in which the development, organization, and style are appropriateto task, purpose, and audience.	The SEPUP program requires daily writing in the studentscience notebook for the purpose of documenting scientific procedures and experiments. See TR pg. 35 and 66, and Keeping a Science Notebook, TR pg. 466. This writing is assessed from time to time using the Communicating Concepts and Ideas (COM) scoring guide, described on TR pg. 388. Planning and Carrying Out Investigation (PCI) Activity types call for students to write their own procedures. Examples of COM prompts: Waves 5 (AQ 3), 6 (AQ 2), 7 (AQ 8), 12 (AQ 5), 13 (AQ 5); Force and Motion 9 (AQ 4), 15 (AQ 3); Fields and Interactions 5 (AQ 2), 6 (AQ 4), 8 (AQ 1), 9 (AQ 2), 12 (AQ 3), 13 (AQ 3); Energy 9 (AQ 2), 15 (AQ 2) Examples of PCI prompts can be seen in the Procedures for Waves 8, 9, 14; Force and Motion 4, 13; Fields and Interactions 9; Energy 2, 8. Four types of Writing Frames are provided, see the discussion on TR pg. 53-54 and pg. 483-486. Note the SEPUP Vocabulary Approach, TR pg. 44-45.
LAFS.68.WHST .2.5	With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audiencehave been addressed.	SEPUP has a well-developed approach to supporting literacy that includes supporting student writing including revision of existing drafts. See, for example, Literacy Strategies, TR pg. 45, and the following strategies below. *Writing Frame Student Sheets:* Chemical Reactions 5.3, 11.2, 12.2, 13.2; Chemistry of Materials 1.1, 13.2; Fields and Interactions 15.1 a-d. *Writing Review (used for peer review of writing samples).* See full explanation in TR pg. 54-55.

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LAFS.68.WHST .2.6	Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.	SEPUP has a well-developed approach to supporting literacy that includes supporting student writing including revision of existing drafts. See, for example, Literacy Strategies, TR pg. 45, and the following strategies below. *Writing Frame Student Sheets:* Chemical Reactions 5.3, 11.2, 12.2, 13.2; Chemistry of Materials 1.1, 13.2; Fields and Interactions 15.1 a-d. *Writing Review (used for peer review of writing samples).* See full explanation in TR pg. 54-55. Using these supports in conjunction with a classroomscience blog can be a great asset for helping increaseyour students' literacy skills. A brief blog tutorial is included on the Lab-aids online portal, Literacy Student Sheet 12 "Implementing a Classroom Blog," found on the Lab-Aids online portal.
LAFS.68.WHST .3.7	Conduct short research projects to answer a question(including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.	Throughout the Energy unit as students work to develop a Home Energy-Efficiency Plan. See also Fields 9 and 10
LAFS.68.WHST .3.8	Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quoteor paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.	Fields and Interactions 9, 10 Energy 1, 3, 5, 6, 9, 12, 15 Waves 5, 6, 15 See for example Literacy Student Sheet 1d, "Guidelines for Using and Citing Information from Internet Sources," found on the Lab-aids online portal. Also see Media Literacy, found in Appendix F TR pg. 471-474.
LAFS.68.WHST .3.9	Draw evidence from informational texts to supportanalysis reflection, and research.	Two of the distinct SEPUP activity types involvegathering information from informational texts: In "Reading" type activities, students extract important science content from passages of formal science writing.The concluding analysis items ask students to describe, explain, and reflect upon the information presented. See for example, Chemical Reactions 3;

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		Chemistry of Materials 7; Energy 5, 9, 12; Fields and Interactions 7, 14; Force and Motion 9; Waves 3, 6, 12 In "Talking It Over" type activities, students read less formal text related to, and extending, topics covered by and observations made in, preceding labs and investigations. Students use this additional informationand the accompanying analysis items to reflect upon and help analyze their previously acquired data. See forexample, Chemical Reactions 5; Chemistry of Materials 1, 5, 8, 13; Fields and Interactions 15; Force and Motion 1, Waves 15 Additionally, Three Level Reading Guides call for students to further analyze informational text, see for example Student Sheets Energy 5.1; Chemical Reactions 1.1. See also Fields and Interactions 9, 10; Energy 1, 3, 6, 15 Waves 5
LAFS.68.WHST .4.10	Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.	The built-in literacy support in SEPUP supports short andlong-form student writing. A short summary of these strategies are provided here, and more information can be found in the Comprehensive Teacher Support section of the TR. • *Listen, Stop, Write.* (TR pg. 47). In this strategy,the teacher reads a section of text aloud, and stops for students to write down what they understood from the passage. As seen in Energy 12. • *Science Notebook Writing Guidelines.* ((TR pg. 66 and 466). As with most science classes, students keep a science notebook throughout the *Issues and Science* course, making entries per the instructions in the Student Book that ask them to record data, observations, hypotheses, conclusions, and other information.Keeping a notebook helps students process ideas, keep track of data, and build scientific observation and scientific writing skills.

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		• *Writing Frame Student Sheets:* Chemical Reactions 5.3, 11.2, 12.2, 13.2; Chemistry of Materials 1.1, 13.2; Fields and Interactions 15.1 a-d. *Writing Review (used for peer review of writingsamples).* See full explanation in TR pg. 54-55.
LAFS.8.SL.1.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others ideas and expressing their own clearly. Come to discussions prepared, having read or researched material under study; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion. Follow rules for collegial discussionsand decision-making, track progress toward specific goals and deadlines, and define individual roles as needed. Pose questions that connect the ideas of several speakers and respond to others questions andcomments with relevant evidence, observations, and ideas. Acknowledge new information expressed by others, and, when warranted, qualify or justify their own views in light of the evidence presented.	SEPUP supports discussion in the science classroom, seefor example: ● Strategies for Facilitating Group Discussion (TRpg. 66-67). ● Guidelines for Oral Presentations (TR pg. 57, 464) ● "Talking it Over" activities, Chemical Reactions 5; Chemistry of Materials 1, 5, 8, 13; Fields and Interactions 15; Force and Motion 1, Waves 15 ● Discussion Starters: Force and Motion 1; Waves 12 ● Walking Debates, Chemistry of Materials 5, 13 ● The Communication Skills support for assessment on TR pg. 388. ● Examples of COM prompts: Waves 5 (AQ 3), 6 (AQ 2), 7 (AQ 8), 12 (AQ 5), 13 (AQ 5); Force and Motion 9 (AQ 4), 15 (AQ 3); Fields and Interactions 5 (AQ 2), 6 (AQ 4), 8 (AQ 1), 9 (AQ 2), 12 (AQ 3), 13 (AQ 3); Energy 9 (AQ 2), 15 (AQ 2)
LAFS.8.SL.1.2	Analyze the purpose of information presented in diverse media and formats (e.g., visually, quantitatively, orally) and evaluate the motives (e.g.,social, commercial, political) behind its presentation.	See Media Literacy, found in Appendix F TR pg. 471-474.
LAFS.8.SL.1.3	Delineate a speaker's' argument and specific claims,evaluating the soundness of the reasoning and relevance and sufficiency of the evidence and identifying when irrelevant evidence is introduced.	Student progress in this area is assessed using the Engaging in Argument from Evidence (ARG) scoring guide (TR pg. 391). Activities that show this skill include Energy 5 (AQ 3), 6 (AQ 3); Fields and Interactions 4 (AQ 4), 7 (AQ 4); Force and Motion 13 (AQ 4 and 5)
LAFS.8.SL.2.4	Present claims and findings, emphasizing salient points in a focused, coherent manner	SEPUP has activities and assessment scoring guides designed to support communicating

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	with relevantevidence, sound valid reasoning, and well-chosen details; use appropriate eye contact, adequate volume, and clear pronunciation.	scientific information, including oral speaking skills such as enunciation, projection, and eye contact, as well as theability to logically organize arguments and evidence related to a problem. See: ● Guidelines for Oral Presentations (TR pg. 57, 464) ● "Talking it Over" activities, Chemical Reactions 5; Chemistry of Materials 1, 5, 8, 13; Fields and Interactions 15; Force and Motion 1, Waves 15 ● Discussion Starters: Force and Motion 1; Waves 12 ● Walking Debates, Chemistry of Materials 5, 13 ● The Communication Skills support forassessment on TR pg. 388. Examples of COM prompts: Waves 5 (AQ 3), 6 (AQ 2), 7 (AQ 8), 12 (AQ 5), 13 (AQ 5); Force and Motion 9 (AQ 4), 15 (AQ 3); Fields and Interactions 5 (AQ 2), 6 (AQ 4), 8 (AQ 1), 9 (AQ 2), 12 (AQ 3), 13 (AQ 3); Energy 9 (AQ 2), 15 (AQ 2)
LAFS.8.SL.2.5	Integrate multimedia and visual displays into presentations to clarify information, strengthen claimsand evidence, and add interest.	Besides using print-based sources, SEPUP uses nontraditional formats such as media viewing and computer simulations. We also have many online videos of the labs themselves using our online LABsent® program. See for example, LABsent Chemistry of Materials 1, 2, 4, 6, 7, 8, 9, 10, 11, 12, and 13. See also Chemical Reactions 1; Fields and Interactions 1, 2, 3, 4, 6; Waves 3, 6, 2
MAFS.6.SP.2.5	Summarize numerical data sets in relation to their context, such as by: Reporting the number of observations. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement. Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolutedeviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered. Relating the choice of measures of	See for example "Measures of Central Tendency," found on the Lab-Aids online portal.

BENCHMARK CODE	PHYSICAL SCIENCE BENCHMARK	LESSON(S) WHERE BENCHMARK IS DIRECTLY ADDRESSED IN-DEPTH IN MAJOR TOOL Please see the Student Edition, Teacher Edition, and Teacher Resources books.
	center and variability to the shape of the data distribution and the context in which the data were gathered.	
MAFS.7.SP.3.5	Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihoodof the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around ½ indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.	Not covered
MAFS.8.F.2.5	Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linearor nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.	See for example Force and Motion 2, "Measuring and Graphing Speed," and Student Sheet 2.1 and 2.2. See also Force and Motion 5, 8
MAFS.8.G.3.9	Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.	See "Calculating the Volume of Cones and Spheres" found on the Lab-Aids online portal.
ELD.K12.ELL.SC.1	English language learners communicate information, ideas and concepts necessary for academic success inthe content area of Science.	SEPUP provides ELL students with rich opportunities forwritten and oral communication for social and instructional purposes at school. This is accomplished through the use of the following strategies: • All Student Book units are also presented in Spanish language format. • Vocabulary is introduced with operational definitions that connect concepts to learning experiences. (See TR pg. 44-45) • 4-2-1 cooperative groupings encourage student interactions in an unthreatening environment (see TRpg. 36). • Strategies for facilitating Group Discussion (see TR pg.66-67). This includes informal, pair talk and formal presentations. • Discussion Webs (TR pg. 55-56), graphic organizers that help students think ahead about what they wantto say about what they have done or read. • Oral Presentation (TR pg. 57, 464), guidelines for formaloral communication.

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		Walking Debates (TR pg. 57-58), tools that allow studentsto express their opinions about issues by moving fromone area of the room to another. As seen in Chemistry of Materials 5 and 13.
ELD.K12.ELL.SI.1	English language learners communicate for social andinstructional purposes within the school setting.	SEPUP provides ELL students with rich opportunities forwritten and oral communication for social and instructional purposes at school. This is accomplished through the use of the following strategies: • All Student Book units are also presented in Spanish language format. • Vocabulary is introduced with operational definitions that connect concepts to learning experiences. (See TR pg. 44-45) • 4-2-1 cooperative groupings encourage student interactions in an unthreatening environment (see TRpg. 36). • Strategies for facilitating Group Discussion (see TR pg.66-67). This includes informal, pair talk and formal presentations. • Discussion Webs (TR pg. 55-56), graphic organizers that help students think ahead about what they wantto say about what they have done or read. • Oral Presentation (TR pg. 57, 464), guidelines for formaloral communication. Walking Debates (TR pg. 57-58), tools that allow studentsto express their opinions about issues by moving fromone area of the room to another. As seen in Chemistry of Materials 5 and 13.
ELD.K12.ELL.SI.1	English language learners communicate for social andinstructional purposes within the school setting.	SEPUP provides ELL students with rich opportunities forwritten and oral communication for social and instructional purposes at school. This is accomplished through the use of the following strategies: • All Student Book units are also presented in Spanish language format. • Vocabulary is introduced with operational definitions that connect concepts to learning experiences. (See TR pg. 44-45) • 4-2-1 cooperative groupings encourage student interactions in an unthreatening

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		environment (see TRpg. 36). • Strategies for facilitating Group Discussion (see TR pg.66-67). This includes informal, pair talk and formal presentations. • Discussion Webs (TR pg. 55-56), graphic organizers that help students think ahead about what they wantto say about what they have done or read. • Oral Presentation (TR pg. 57, 464), guidelines for formaloral communication. Walking Debates (TR pg. 57-58), tools that allow studentsto express their opinions about issues by moving fromone area of the room to another. As seen in Chemistry of Materials 5 and 13.
SC.6.N.1.1	Define a problem from the sixth grade curriculum, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigation of various types, such as systematic observations or experiments, identify variables, collectand organize data, interpret data in charts, tables, andgraphics, analyze information, make predictions, and defend conclusions.	SEPUP "Planning and Carrying Out Investigations (PCI)" activity types call for students to state hypotheses or predictions clearly,design a procedure, collect and analyze data, identify variables, state and defend conclusions. Examples of PCI prompts can be seen in the Procedures for Waves 8, 9, 14; Force and Motion 4, 13; Fields and Interactions 9; Energy 2, 8. Examples can also be found in the 6th grade curriculum in Earth's Resources 3; Geological Processes 9; Weather and Climate 6, 12. Note: PCI activities can be found throughout the IAS course. This citation mentions only a few examples.
SC.6.N.1.2	Explain why scientific investigations should be replicable.	Energy 2 Waves 10 Science Skills Student Sheet 8, "What is Science?" found on the Lab-Aids online portal
SC.6.N.1.3	Explain the difference between an experiment and other types of scientific investigation, and explain therelative benefits and limitations of each.	SEPUP has laboratory type (Chemical Reactions 2, 6, 9, 12, 13, etc) as well as investigation (Fields and Interactions 4, 5, 8, 12, etc) and problem solving (Force and Motion 12, 14) activities that highlight the differences in each line of inquiry. Science Skills Student Sheet 8, "What is Science?" found on the Lab-Aids online portal

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		See "The Nature of Science and Engineering," found in Appendix A of all unit Student Books, and found in the TR pg. 443-445
SC.6.N.1.4	Discuss, compare, and negotiate methods used, resultsobtained, and explanations among groups of students conducting the same investigation.	SEPUP "Planning and Carrying Out Investigations (PCI)" activity types callfor students to design a procedure, collect and analyzedata, identify variables, state and defend conclusions. Examples of PCI prompts can be seen in the Procedures for Waves 8, 9, 14; Force and Motion 4, 13; Fields and Interactions 9; Energy 2, 8.
SC.6.N.1.5	Recognize that science involves creativity, not just in designing experiments, but also in creating explanations that fit evidence.	Chemistry of Materials 8, 9, 12 Chemical Reactions 3, 4, 7, 10, 11 Fields and Interactions 6, 13 Energy 10, 13 See Science Skills Student Sheet 8, "What is Science?" found on the Lab-Aids online portal.
SC.6.N.2.1	Distinguish science from other activities involving thought.	Science Skills Student Sheet 8, "What is Science?" found on the Lab-Aids online portal. See "The Nature of Science and Engineering," found in Appendix A of all unit Student Books, and found in the TR pg. 443-445
SC.6.N.2.2	Explain that scientific knowledge is durable because itis open to change as new evidence or interpretations are encountered.	Science Skills Student Sheet 8, "What is Science?" found on the Lab-Aids online portal Force and Motion 9
SC.6.N.2.3	Recognize that scientists who make contributions to scientific knowledge come from all kinds of backgrounds and possess varied talents, interests, and goals.	Force and Motion 9, 11 Fields and Interactions 2
SC.6.N.3.1	Recognize and explain that a scientific theory is a well-supported and widely accepted explanation of nature and is not simply a claim posed by an individual. Thus,the use of the term theory in science is very different than how it is used in everyday life.	Energy 5 Waves 12 See "The Nature of Science and Engineering," found in Appendix A of all unit Student Books, and found in the TR pg. 443-445
SC.6.N.3.2	Recognize and explain that a scientific law is a description of a specific relationship under given conditions in the natural world. Thus,	Energy 3, 5 Force and Motion 9, 11

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	scientific lawsare different from societal laws.	Waves 13
SC.6.N.3.3	Give several examples of scientific laws.	Energy 3, 5 Force and Motion 9, 11 Waves 13
SC.6.N.3.4	Identify the role of models in the context of the sixth grade science benchmarks.	Modeling, and the use and development of models, are key components to all SEPUP curricula. One of SEPUP's 12 different activity types is "Modeling" and another is "Computer Simulation." Both focus on the use of different types of models in the science classroom. 8th grade examples: Chemical Reactions 4, 7; Chemistry of Materials 6, 12; Fields and Interactions 11; Force and Motion 11 6th grade examples: Land, Water, and Human Interactions 7, 8, 12; Geological Processes 5, 9, 10; Solar System and Beyond 3, 4, 7, 8, 11. In addition, other activities also involve the use of models and "Talking Drawings." See Earth's Resources 7; Land, Water, and Human Interactions 8
SC.7.N.1.1	Define a problem from the seventh grade curriculum, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigation of various types, such as systematic observations or experiments, identify variables, collectand organize data, interpret data in charts, tables, andgraphics, analyze information, make predictions, and defend conclusions.	SEPUP "Planning and Carrying Out Investigations (PCI)" activity types callfor students to state hypotheses or predictions clearly,design a procedure, collect and analyze data, identify variables, state and defend conclusions. Examples of PCI prompts can be seen in the Procedures for Waves 8, 9, 14; Force and Motion 4, 13; Fields and Interactions 9; Energy 2, 8. 7th grade examples include: Body Systems 7 Reproduction 7 From Cells to Organisms 3, 9, 13 Ecology 4, 5
SC.7.N.1.2	Differentiate replication (by others) from repetition (multiple trials).	Repetition/multiple trials: Force and Motion 2, 3, 4, 13; Energy 2

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SC.7.N.1.3	Distinguish between an experiment (which must involve the identification and control of variables) andother forms of scientific investigation and explain thatnot all scientific knowledge is derived from experimentation.	Contrast laboratory-type investigations, such as Force and Motion 2, 3, 4, with investigations, such as Force and Motion 8 and Waves 15, which present more as "thought experiments" and theory-building exercises. Science Skills Student Sheet 8, "What is Science?" found on the Lab-Aids online portal
SC.7.N.1.4	Identify test variables (independent variables) andoutcome variables (dependent variables) in an experiment.	Force and Motion 3, 5, 6, 7, 8, 9, 11, 13 Energy 2, 7, 8
SC.7.N.1.5	Describe the methods used in the pursuit of a scientificexplanation as seen in different fields of science such as biology, geology, and physics.	Science Skills Student Sheet 8, "What is Science?" found on the Lab-Aids online portal See "The Nature of Science and Engineering," found in Appendix A of all unit Student Books, and found in the TR pg. 443-445; and "Crosscutting Concepts" found in Appendix G of all unknit Student Books.
SC.7.N.1.6	Explain that empirical evidence is the cumulative bodyof observations of a natural phenomenon on which scientific explanations are based.	Science Skills Student Sheet 8, "What is Science?" found on the Lab-Aids online portal
SC.7.N.1.7	Explain that scientific knowledge is the result of a greatdeal of debate and confirmation within the science community.	Force and Motion 9 Science Skills Student Sheet 8, "What is Science?" found on the Lab-Aids online portal See "The Nature of Science and Engineering," found in Appendix A of all unit Student Books, and found in the TR pg. 443-445
SC.7.N.3.1	Recognize and explain the difference between theoriesand laws and give several examples of scientific theories and the evidence that supports them.	Theories: Waves 12 Laws**:** Force and Motion 9, 11; Chemical Reactions 7, Energy 5 Science Skills Student Sheet 8, "What is Science?" found on the Lab-Aids online portal
SC.7.N.3.2	Identify the benefits and limitations of the use ofscientific models.	SEPUP has specific activity types dealing with development and use of models, and each time students create or use a model they are encouraged to consider the benefits and limitations of the models. See for example: Chemistry of Materials 6, 12; Force and Motion 11; Chemical Reactions 4, 7; Fields and Interactions 11