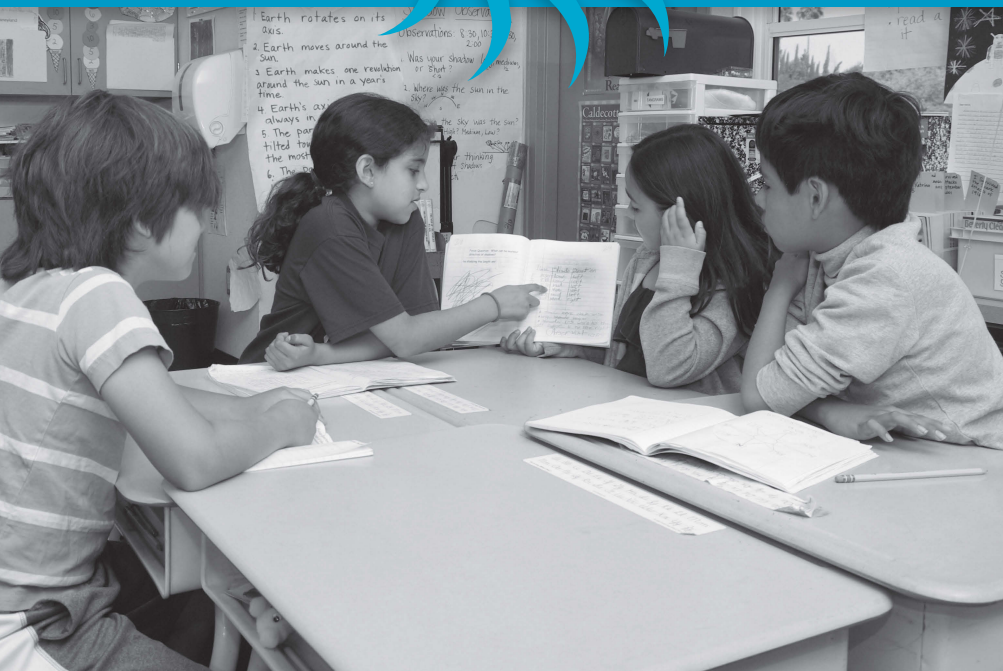


FOSS and Common Core ELA — Grade 3



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INTRODUCTION

Each FOSS investigation follows a similar design to provide multiple exposures to science concepts. The design includes these pedagogies.

- Active investigation, including outdoor experiences
- Writing in science notebooks to answer focus questions
- Reading in *FOSS Science Resources*
- Assessment to monitor progress and motivate student reflection on learning

In practice, these components are seamlessly integrated into a continuum designed to maximize every student's opportunity to learn. An instructional sequence may move from one pedagogy to another and back again to ensure adequate coverage of a concept. The FOSS instructional design recognizes the important role of language in science learning. Throughout FOSS instruction, students engage in the practices of the Common Core State Standards (CCSS) for English Language Arts (ELA). This chapter shows how FOSS provides opportunities to develop and exercise these practices through science. The following pages, have a table that identifies these opportunities in the three FOSS modules for the third grade.



Guiding Principles

When integrating language-arts instruction with FOSS, keep in mind these guiding principles:

- FOSS investigations follow a clear and coherent conceptual flow and a consistent instructional design. Students develop science knowledge by building a framework of concepts and supporting ideas.
- Common Core State Standards for ELA are introduced, developed, and practiced in the context of learning science content and engaging in the science and engineering practices. Students read and comprehend complex science texts related to their prior experience and knowledge. They write informational/explanatory texts, arguments to support claims, and narratives about experience in science. They engage in collaborative discussions about science and learn new vocabulary and language structures in context.
- The decision to use additional science texts, writing tasks, oral discourse opportunities, and vocabulary development activities is based on how well they address the science as well as the ELA standards.
- Instruction is differentiated to meet the needs of all students; the linguistic accommodations that are made for English learners support comprehensible input and accelerate academic language development. Language objectives for English learners in science instruction include the application of strategies that support construction of meaning from academic discussions and complex text, participation in productive discourse, and the ability to express ideas in writing clearly and coherently according to task, purpose, and audience.
- Formative assessment tools are used routinely to measure progress toward science understanding, use of science and engineering practices, and meeting literacy and language development goals. Assessment is viewed as a way to make student thinking visible and to determine next steps for instruction for both science and literacy. Instruction includes opportunities for students to assess themselves and peers.

Adhering to these guiding principles optimizes instructional time and, most importantly, benefits student learning by providing authentic and relevant contexts for building content knowledge, applying meaning-making strategies, and developing language and literacy skills.

Third grade is an important year as students transition from learning to read to reading to learn. They are becoming independent readers and writers and focusing on building content knowledge. They read

increasingly complex texts, expand their vocabulary, and develop their communication skills and reasoning ability. Third graders are expected to use the science and engineering practices to demonstrate their understanding of the core ideas. To accomplish this, students learn to use language structures for sequencing, comparing and contrasting, sorting, determining cause-and-effect relationships, and identifying patterns.

Instructional Flow

In almost all investigations, the instructional flow is the same and provides these opportunities for effective integration of ELA standards.

- When **setting the context** for the lesson, students activate prior knowledge through class or small-group discussions where they ask and answer questions about information, offer appropriate elaboration and detail (SL 3), or recount an experience (SL 4).
- During the **active investigation**, students are expected to work with partners and in collaborative groups, and to engage in teacher-led discussions where they build on each other's ideas and express their own clearly (SL 1).
- In the **data management** phase, students make observations, record, and organize data in their notebooks. The notebook provides a space for students to recall information from experience, take brief notes on sources, and sort evidence into provided categories (W 8) and to acquire and use general academic and domain-specific words and phrases (L 6).
- The **analysis** phase involves discussing data, constructing and writing explanations, and engaging in argumentation. Here, students are making meaning by writing explanatory texts (W 2), writing opinion pieces supporting a point of view with reasons (W 1), or conducting short research projects that build knowledge of a subject (W 8).
- **Reading** articles in *FOSS Science Resources* and other recommended readings provides a plethora of opportunities to address all the third-grade reading standards for informational text.
- Lastly, the **assessment** tools and next-step strategies for engaging students in high-level critical thinking support the development of the Common Core State Standards capacities of the literate individual: demonstrate independence, build strong content knowledge, comprehend as well as critique, and value evidence.

Again, we have provided you with some examples of how FOSS connects to the third-grade ELA standards; there are many more opportunities waiting to be created and explored by you and your students.

TEACHING NOTE

Throughout the third-grade FOSS modules, opportunities for addressing the ELA standards have been noted; however, these examples should not be considered the only places for integrating literacy skills.

READING STANDARDS FOR INFORMATIONAL TEXT

	Standard	Motion and Matter Module
Key Ideas and Details	1. Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.	Discuss articles in <i>FOSS Science Resources</i> Inv. 1, Part 1, Step 16; Inv. 1, Part 2, Step 13; Inv. 1, Part 3, Steps 10 and 12; Inv. 2, Part 2, Step 15; Inv. 2, Part 4, Step 17; Inv. 3, Part 1, Step 14; Inv. 3, Part 2, Step 18; Inv. 3, Part 3, Step 14; Inv. 4, Part 1, Step 16; Inv. 4, Part 2, Step 18; Inv. 4 Part 3, Step 13
	2. Determine the main idea of a text; recount the key details and explain how they support the main idea.	Discuss and review articles in <i>FOSS Science Resources</i> Inv. 1, Part 1, Step 15; Inv. 1, Part 2, Step 12; Inv. 3, Part 3, Steps 13-14; Inv. 4, Part 3, Step 13
	3. Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.	Discuss articles in <i>FOSS Science Resources</i> Inv. 1, Part1, Step 16 Inv. 2, Part 1, Step 14 Inv. 3, Part 3, Step 14 Inv. 4, Part 1, Step 15; Inv. 4, Part 2, Step 17
Craft and Structure	4. Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a <i>grade 3 topic or subject area</i> .	All investigations provide opportunities for students to determine the meaning of academic and science-specific words while reading articles in <i>FOSS Science Resources</i> . Selected examples Inv. 1, Part 1, Step 15; Inv. 4, Part 1, Step 5; Inv. 4, Part 2, Step 17
	5. Use text features and search tools (e.g., key words, sidebars, hyperlinks) to locate information relevant to a given topic efficiently.	Read articles in <i>FOSS Science Resources</i> Inv. 1, Part 1, Steps 15-16; Inv. 2, Part 2, Steps 14-15; Inv. 4, Part 2, Step 17
	6. Distinguish their own point of view from that of the author of a text.	Read articles in <i>FOSS Science Resources</i> Inv. 1, Part 3, Step 9

From Common Core State Standards for English Language Arts and Literacy in History/Social Studies, Science, and Technical Subjects (by National Governors Association Center for Best Practices and Council of Chief State School Officers, (Washington, DC: authors, 2010).

Structures of Life Module	Water and Climate Module
<p>Discuss articles in <i>FOSS Science Resources</i> Inv. 1, Part 1, Steps 18-19; Inv. 1, Part 2, Step 22; Inv. 1, Part 3, Step 19; Inv. 1, Part 4, Step 20; Inv. 2, Part 1, Step 16; Inv. 2 Part 2, Step 18; Inv. 3, Part 1, Step 22; Inv. 3, Part 2, Step 19; Inv. 3, Part 3, Step 21; Inv. 3, Part 4, Steps 19, 21; Inv. 3, Part 5, Step 19; Inv. 4, Part 1, Step 31; Inv. 4, Part 2, Step 18, 22-23; Inv. 4, Part 3, Step 11, 47; Inv. 4, Part 4, Steps 18, 20</p>	<p>Discuss articles in <i>FOSS Science Resources</i> Inv. 1, Part 1, Step 15; Inv. 1, Part 2, Steps 16, 20; Inv. 1, Part 3 Step 15; Inv. 2, Part 1, Step 19; Inv. 2, Part 2, Step 19; Inv. 2, Part 3, Step 16; Inv. 2, Part 4, Step 22; Inv. 3, Part 1, Step 19; Inv. 3, Part 2, Step 10; Inv. 3, Part 3, Step 12; Inv. 3, Part 5, Step 20 Inv. 4, Part 2, Step 12; Inv. 4, Part 3, Step 12; Inv. 5, Part 1, Steps 13, 15; Inv. 5, Part 2 Step 16; Inv. 5, Part 3, Step 23</p>
<p>Discuss and review articles in <i>FOSS Science Resources</i> Inv. 1, Part 3, Step 19; Inv. 3, Part 1, Steps 21-22; Inv. 3, Part 3, Step 20; Inv. 4, Part 1, Steps 30-31; Inv. 4, Part 2, Step 17; Inv. 4, Part 3, Steps 46-47</p>	<p>Discuss and review articles in <i>FOSS Science Resources</i> Inv. 1, Part 1, Steps 14-15; Inv. 1, Part 3, Steps 14-15; Inv. 2, Part 1, Step 19; Inv. 2, Part 3, Steps 14-16; Inv. 3, Part 1, Steps 18-19; Inv. 5, Part 1, Steps 12, 14; Inv. 5, Part 2, Step 16; Inv. 5, Part 2, Step 23</p>
<p>Discuss articles in <i>FOSS Science Resources</i> Inv. 1, Part 2, Steps 21-22 Inv. 3, Part 3, Step 20 Inv. 4, Part 2, Step 25</p>	<p>Discuss articles in <i>FOSS Science Resources</i> Inv. 1, Part 2, Steps 16, 19; Inv. 1, Part 3, Steps 13-14; Inv. 2, Part 1, Step 19, 20; Inv. 2, Part 3, Step 14; Inv. 3, Part 2, Step 10; Inv. 3, Part 3, Step 11; Inv. 3, Part 5, Step 20; Inv. 4, Part 3, Steps 11-12; Inv. 5, Part 1, Step 12; Inv. 5, Part 2, Step 18-19</p>
<p>All investigations provide opportunities for students to determine the meaning of academic and science-specific words while reading articles in <i>FOSS Science Resources</i>.</p> <p>Selected examples Inv. 2, Part 2, Step 17; Inv. 3, Part 5, Steps 17-18</p>	<p>All investigations provide opportunities for students to determine the meaning of academic and science-specific words while reading articles in <i>FOSS Science Resources</i>.</p> <p>Selected examples Inv. 1, Part 2, Step 19; Inv. 1, Part 3, Steps 13-14; Inv. 2, Part 3, Step 15; Inv. 3, Part 2, Step 10; Inv. 3, Part 5, Step 20; Inv. 4, Part 3, Steps 11, 13; Inv. 5, Part1, Steps 14, 15</p>
<p>Read articles in <i>FOSS Science Resources</i> Inv. 1, Part 1, Step 17; Inv. 3, Part 1, Step 20; Inv. 3, Part 5, Step 18; Inv. 4, Part 3, Step 10; Inv. 4, Part 4, Steps 17 and 19</p>	<p>Read articles in <i>FOSS Science Resources</i> Inv. 1, Part 1, Step 14 Inv. 2, Part 1, Step 19 Inv. 4, Part 3, Step 11</p>
<p>Read articles in <i>FOSS Science Resources</i> Inv. 3, Part 2, Step 18; Inv. 4, Part 3, Step 10</p>	<p>Read articles in <i>FOSS Science Resources</i> Inv. 3, Part 2, Step 9; Inv. 3, Part 5, Step 18; Inv. 5, Part 2, Step 15</p>

READING STANDARDS FOR INFORMATIONAL TEXT *(continued)*

	Standard	Motion and Matter Module
Integration of Knowledge and Ideas	7. Use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur).	All investigations provide opportunities for students to gain information from illustrations and words in the articles in <i>FOSS Science Resources</i> . Selected examples Inv. 1, Part 1, Step 15; Inv. 1, Part 2, Step 12; Inv. 1, Part 3, Step 9; Inv. 2, Part 2, Steps 14-15; Inv. 2, Part 4, Step 14; Inv. 2, Part 4, Step 15; Inv. 4, Part 1, Step 15
	8. Describe the logical connection between particular sentences and paragraphs in a text (e.g., comparison, cause/effect, first/second/third in a sequence).	Read articles in <i>FOSS Science Resources</i> Inv. 4, Part 1, Step 15
	9. Compare and contrast the most important points and key details presented in two texts on the same topic	Students can read their <i>FOSS Science Resources</i> as well as readings suggested on FOSSweb. Using these two texts, students integrate the information when speaking and writing about science content.
Range of Reading and Level of Text Complexity	10. By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, at the high end of the grades 2–3 text complexity band independently and proficiently.	All investigations provide opportunities for students to develop their ability to read and comprehend complex informational science text such as <i>FOSS Science Resources</i> .

Structures of Life Module	Water and Climate Module
<p>All investigations provide opportunities for students to gain information from illustrations and words in the articles in <i>FOSS Science Resources</i>.</p> <p>Selected examples Inv. 1, Part 4, Steps 19-20; Inv. 3, Part 4, Step 16, 18; Inv. 4, Part 1, Step 30; Inv. 3, Part 2, Steps 12-13</p>	<p>All investigations provide opportunities for students to gain information from illustrations and words in the articles in <i>FOSS Science Resources</i>.</p> <p>Selected examples Inv. 1, Part 1, Steps 14-15; Inv. 1, Part 2, Step 19; Inv. 2, Part 1, Step 19; Inv. 2, Part 3, Steps 14-16; Inv. 3, Part 1, Step 18; Inv. 3, Part 2, Step 9; Inv. 3, Part 3, Step 11; Inv. 3, Part 5, Steps 18-19; Inv. 5, Part 2, Steps 17-18; Inv. 5, Part 3, Step 23</p>
<p>Read articles in <i>FOSS Science Resources</i> Inv. 1, Part 2, Steps 21-22; Inv. 2, Part 2, Steps 17-18; Inv. 3, Part 4, Steps 18-21; Inv. 4, Part 2, Step 25</p>	<p>Read articles in <i>FOSS Science Resources</i> Inv. 1, Part 2, Steps 16, 19; Inv. 1, Part 3, Steps 13-14; Inv. 2, Part 1, Steps 19-20; Inv. 2, Part 3, Step 14; Inv. 3, Part 2, Step 10; Inv. 3, Part 3, Step 11; Inv. 3, Part 5, Step 20; Inv. 4, Part 2, Step 12; Inv. 4, Part 3, Step 11; Inv. 5, Part 2, Steps 18-19</p>
<p>Students can read <i>FOSS Science Resources</i> as well as readings suggested on FOSSweb. Using these two texts, students integrate the information when speaking and writing about science content.</p> <p>Selected example Inv. 3, Part 4, Step 21</p>	<p>Students can read <i>FOSS Science Resources</i> as well as readings suggested on FOSSweb. Using these two texts, students integrate the information when speaking and writing about science content.</p> <p>Selected example Inv. 4, Part 3, Step 11</p>
<p>All investigations provide opportunities for students to develop their ability to read and comprehend complex informational science text such as <i>FOSS Science Resources</i>.</p>	<p>All investigations provide opportunities for students to develop their ability to read and comprehend complex informational science text such as <i>FOSS Science Resources</i>.</p>

READING STANDARDS: FOUNDATIONAL SKILLS

	Standard	Motion and Matter Module
Phonics and Word Recognition	<p>3. Know and apply grade-level phonics and word analysis skills in decoding words.</p> <ul style="list-style-type: none"> a. Identify and know the meaning of the most common prefixes and derivational suffixes. b. Decode words with common Latin suffixes. c. Decode multisyllable words. d. Read grade-appropriate irregularly spelled words. 	<p>All investigations provide opportunities for students to apply decoding skills while reading articles in <i>FOSS Science Resources</i>.</p> <p>Selected example Inv. 2, Part 2, Step 14</p>
Fluency	<p>4. Read with sufficient accuracy and fluency to support comprehension.</p> <ul style="list-style-type: none"> a. Read grade-level text with purpose and understanding. b. Read grade-level prose and poetry orally with accuracy, appropriate rate, and expression on successive readings. c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary. 	<p>All investigations provide opportunities for students to practice reading with accuracy and fluency.</p> <p>Selected example Inv. 4, Part 2, Step 17</p>

Structures of Life Module	Water and Climate Module
<p>All investigations provide opportunities for students to apply decoding skills while reading articles in <i>FOSS Science Resources</i>.</p> <p>Selected example Inv. 3, Part 5, Step 18</p>	<p>All investigations provide opportunities for students to apply decoding skills while reading articles in <i>FOSS Science Resources</i>.</p> <p>Selected examples Inv. 1, Part 2, Step 19; Inv. 5, Part 1, Step 14</p>
<p>All investigations provide opportunities for students to practice reading with accuracy and fluency.</p> <p>Selected example Inv. 2, Part 1, Step 4</p>	<p>All investigations provide opportunities for students to practice reading with accuracy and fluency.</p> <p>Selected examples Inv. 4, Part 3, Step 11; Inv. 5, Part 1, Step 12</p>

WRITING STANDARDS

Standard	Motion and Matter Module
<p>1. Write opinion pieces on topics or texts, supporting a point of view with reasons.</p> <ol style="list-style-type: none"> Introduce the topic or text they are writing about, state an opinion, and create an organizational structure that lists reasons. Provide reasons that support the opinion. Use linking words and phrases (e.g., <i>because, therefore, since, for example</i>) to connect opinion and reasons. Provide a concluding statement or section. 	<p>All investigations provide opportunities for students to write their opinion, or claim, supported by reasons. Students answer questions (focus question, response sheets, assessments) by stating their claim supported by evidence and reasoning.</p> <p>Selected examples Inv. 1, Part 3, Step 14; Inv. 1, Part 2, Step 11; Inv. 1, Part 3, Step 17; Inv. 4, Part 3, Step 12</p>
<p>2. Write informative/explanatory texts to examine a topic and convey ideas and information clearly.</p> <ol style="list-style-type: none"> Introduce a topic and group related information together; include illustrations when useful to aiding comprehension. Develop the topic with facts, definitions, and details. Use linking words and phrases (e.g., <i>also, another, and, more, but</i>) to connect ideas within categories of information. Provide a concluding statement or section. 	<p>All investigations provide opportunities for students to write explanatory texts to examine the science topic they are learning. In every part, students write an explanation as part of their answer to the focus question or the <i>response sheet</i> and in the <i>WRAP-UP Review focus questions</i> section, students write a summary paragraph.</p> <p>Selected examples Inv. 1, Part 3, Step 14 Inv. 1, Part 2, Step 11 Inv. 1, Part 3, Step 16</p>
<p>3. Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences.</p> <ol style="list-style-type: none"> Establish a situation and introduce a narrator and/or characters; organize an event sequence that unfolds naturally. Use dialogue and descriptions of actions, thoughts, and feelings to develop experiences and events or show the response of characters to situations. Use temporal words and phrases to signal event order. Provide a sense of closure. 	<p>All investigations provide opportunities for students to write narratives. Students describe their observations and experiences with the science ideas they are exploring.</p> <p>Selected examples Inv. 1, Step 2, Step 10; Inv. 1, Part 3, Step 16; Inv. 3, Part 3, Step 13; Language Extensions: Inv. 1, Language Extension. Brainstorm a list Inv. 2, Language Extension. Write poems about rolling Inv. 3, Language Extension. Write about racing</p>

Structures of Life Module	Water and Climate Module
<p>All investigations provide opportunities for students to write their opinion, or claim, supported by reasons. Students answer questions (focus question, response sheets, assessments) by stating their claim supported by evidence and reasoning.</p> <p>Selected examples Inv. 1, Part 1, Step 14; Inv. 1, Part 2, Step 18; Inv. 1, Part 2, Step 19 Inv. 1, Part 4, Step 12</p>	<p>All investigations provide opportunities for students to write their opinion, or claim, supported by reasons. Students answer questions (focus question, response sheets, assessments) by stating their claim supported by evidence and reasoning.</p> <p>Selected examples Inv. 1, Part 2, Step 15 Inv. 2, Part 4, Step 19 Inv. 1, Part 4, Step 18</p>
<p>All investigations provide opportunities for students to write explanatory texts to examine the science topic they are learning. In every part, students write an explanation as part of their answer to the focus question or the <i>response sheet</i> and in the <i>WRAP-UP Review focus questions</i> section, students write a summary paragraph.</p> <p>Selected examples Inv. 1, Part 3, Step 17; Inv. 1, Part 4, Step 18; Inv. 1, Part 2, Step 19; Inv. 1, Step 4, Step 22; Inv. 3, Part 1, Step 23 Inv. 2, Language Extension. Write a book on germination Inv. 4, Lanugage Extension. Make a bone-facts class book</p>	<p>All investigations provide opportunities for students to write explanatory texts to examine the science topic they are learning. In every part, students write an explanation as part of their answer to the focus question or the <i>response sheet</i> and in the <i>WRAP-UP Review focus questions</i> section, students write a summary paragraph.</p> <p>Selected examples Inv. 1, Part 2, Step 15; Inv. 2, Part 4, Step 19; Inv. 1, Part 4, Step 17; Inv. 1, Part 2, Step 20; Inv. 3, Part 3, Step 11</p>
<p>All investigations provide opportunities for students to write narratives. Students describe their observations and experiences with the science ideas they are exploring.</p> <p>Selected examples Inv. 1, Step 2, Step 17, Inv. 1, Part 3, Step 17; Inv. 1, Part 4 Step 18; Inv. 1, Part 2, Step 23; Inv. 3, Language Extension. Create and tell crayfish territorial stories</p>	<p>All investigations provide opportunities for students to write narratives. Students describe their observations and experiences with the science ideas they are exploring.</p> <p>Selected examples Inv. 1, Part 1, Step 12; Inv. 1, Part 3, Step 6; Language Extensions: Inv. 2, Language Extension. Describe icy worlds Inv. 4, Language Extension. Describe your local climate</p>

WRITING STANDARDS (*continued*)

Standard	Motion and Matter Module
<p>4. With guidance and support from adults, produce writing in which the development and organization are appropriate to task and purpose.</p>	<p>All investigations provide opportunities for students to make entries in their science notebooks. The teacher provides guidance and support as needed for students to record and organize their data in their science notebooks.</p> <p>Selected examples Inv. 1, Part 1, Steps 3 and 10; Inv. 1, Part 2, Step 10</p>
<p>5. With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing.</p>	<p>The Wrap-Up/Warm-Up section of each investigation part, provides the opportunity for students to strengthen their notebook entries by revising and adding in new information.</p> <p>The <i>WRAP-UP Review focus question</i> section at the end of each investigation and next-step strategies after answering the response sheets or taking the I-Check serve as a method for strengthening writing.</p>
<p>6. With guidance and support from adults, use technology to produce and publish writing (using keyboarding skills) as well as to interact and collaborate with others.</p>	<p>Inv. 4, Science Extension: Separate a mixture.</p>

Structures of Life Module	Water and Climate Module
<p>All investigations provide opportunities for students to make entries in their science notebooks. The teacher provides guidance and support as needed for students to record and organize their data in their science notebooks.</p> <p>Selected examples Inv. 1, Part 2, Step 4; Inv. 1, Part 3, Step 16</p>	<p>All investigations provide opportunities for students to make entries in their science notebooks. The teacher provides guidance and support as needed for students to record and organize their data in their science notebooks.</p> <p>Selected examples Inv. 1, Part 1, Step 4; Inv. 1, Part 2, Step 2; Inv. 1, Part 3, Step 8</p>
<p>The Wrap-Up/Warm-Up section of each investigation part, provides the opportunity for students to strengthen their notebook entries by revising and adding in new information.</p> <p>The <i>WRAP-UP Review focus question</i> section at the end of each investigation and next-step strategies after answering the response sheets or taking the I-Check serve as a method for strengthening writing.</p>	<p>The Wrap-Up/Warm-Up section of each investigation part, provides the opportunity for students to strengthen their notebook entries by revising and adding in new information.</p> <p>The <i>WRAP-UP Review focus question</i> section at the end of each investigation and next-step strategies after answering the response sheets or taking the I-Check serve as a method for strengthening writing.</p>

WRITING STANDARDS (*continued*)

	Standard	Motion and Matter Module
Research to Build and Present Knowledge	7. Conduct short research projects that build knowledge about a topic.	Science Extensions: Inv. 1, Conduct more force investigations Inv. 4, Demonstrate conservation of matter Inv. 4, Separate a mixture
	8. Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories.	All investigations provide students with the opportunity to write about their science experiences and record their observations in their science notebooks. Students also take notes and organize information when reading articles in <i>FOSS Science Resources</i> . Selected examples Inv. 1, Part 3, Step 16; Inv. 1, Part 2, Step 12; Inv. 2, Part 4, Step 16
Range of Writing	10. Write routinely over extended time frames (time for research, 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.	All investigations provide opportunities for students to record their observations, inferences, and experiences in their science notebooks. Students also demonstrate their understanding of science concepts and practices when answering questions on the response sheets and I-Checks. Selected examples Inv. 1, Part 1, Steps 8, 10; Inv. 1, Part 2, Step 10; Inv. 1, Part 2, Step 11; Inv. 1, Part 3, Step 17

Structures of Life Module	Water and Climate Module
<p>Write about articles in <i>FOSS Science Resources</i> Inv. 3, Part 1, Step 23</p> <p>Language Extensions: Inv. 2, Research staple crops around the world Inv. 4, Research other skeletons Inv. 4, Research artificial joints and limbs Inv. 4, Research muscles in space</p> <p>Science Extension: Inv. 4, Research articulated machines</p>	<p>Write about articles in <i>FOSS Science Resources</i> Inv. 5, Part 1, Step 13</p> <p>Language Extensions: Inv. 1, Look for Waterproof materials Inv. 1, Discuss using water Inv. 3, Research recycling water Inv. 5, Investigate local water</p> <p>Social Studies Extensions: Inv. 2, Research ice in warm climates Inv. 2, Research ice in cold climates Inv. 3, Research water storage and delivery systems</p> <p>Science Extensions: Inv. 4, Search for severe weather Inv. 4, Review the USDA plant hardiness zone map</p>
<p>All investigations provide students with the opportunity to write about their science experiences and record their observations in their science notebooks. Students also take notes and organize information when reading articles in <i>FOSS Science Resources</i>.</p> <p>Selected examples Inv. 1, Part 1, Step 7; Inv. 1, Part 3, Steps 16-17; Inv. 1, Part 4, Step 18; Inv. 3, Part 1, Step 21</p>	<p>All investigations provide students with the opportunity to write about their science experiences and record their observations in their science notebooks. Students also take notes and organize information when reading articles in <i>FOSS Science Resources</i>.</p> <p>Selected examples Inv. 1, Part 1, Step 12; Inv. 1, Part 2, Step 15; Inv. 1, Part 3, Step 8; Inv. 1, Part 3, Step 16; Inv. 2, Part 4, Step 21; Inv. 3, Part 1, Step 18; Inv. 5, Part 1, Step 14; Inv. 5, Part 2, Step 16</p>
<p>All investigations provide opportunities for students to record their observations, inferences, and experiences in their science notebooks. Students also demonstrate their understanding of science concepts and practices when answering questions on the response sheets and I-Checks.</p> <p>Selected examples Inv. 1, Part 2, Step 17; Inv. 1, Part 2, Step 19; Inv. 1, Part 4, Step 23</p>	<p>All investigations provide opportunities for students to record their observations, inferences, and experiences in their science notebooks. Students also demonstrate their understanding of science concepts and practices when answering questions on the response sheets and I-Checks.</p> <p>Selected examples Inv. 1, Part 1, Step 12; Inv. 1, Part 2, Step 15; Inv. 1, Part 3, Steps 6, 8; Inv. 2, Part 4, Step 19; Inv. 1, Part 4, Step 18</p>

SPEAKING AND LISTENING STANDARDS

Comprehension and Collaboration

Standard	Motion and Matter Module
<p>1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on <i>grade 3 topics and texts</i>, building on others' ideas and expressing their own clearly.</p> <p>a. Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.</p> <p>b. Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).</p> <p>c. Ask questions to check understanding of information presented, stay on topic, and link their comments to the remarks of others.</p> <p>d. Explain their own ideas and understanding in light of the discussion.</p>	<p>All investigations provide students ample opportunities to engage in a range of collaborative discussions. Students discuss before, during, and after the active investigation and during the <i>Wrap-Up/Warm-Up</i> section.</p> <p>Selected examples Inv. 1, Part 1, Step 7, 18; Inv. 1, Part 2, Steps 6, 8; Inv. 1, Part 3, Steps 1, 4, 6, 15-16</p> <p>Discuss articles in <i>FOSS Science Resources</i> All investigations provide students with the opportunity to discuss the readings in pairs, small groups, and whole class.</p> <p>Selected example Inv. 4, Part 3, Step 13</p>
<p>2. Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.</p>	<p>Read articles in <i>FOSS Science Resources</i> Inv. 1, Part 1, Step 15 Video discussions Inv. 1, Part 3, Step 7</p>
<p>3. Ask and answer questions about information from a speaker, offering appropriate elaboration and detail.</p>	<p>All investigations provide students with the opportunity to ask and answer questions about how they answered the focus question or the response sheets during the <i>Wrap-Up/Warm-Up</i> section.</p> <p>Selected examples Inv. 1, Part 1, Step 18; Inv. 1, Part 2, Step 14</p> <p>Other opportunities arise when students present information to their group or the whole class.</p> <p>Selected examples Inv. 1, Part 1, Steps 2, 7, 11, 12; Inv. 1, Part 2, Steps 3, 4, 8; Inv. 1, Part 3, Steps 1, 3-6</p>

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<p>All investigations provide students ample opportunities to engage in a range of collaborative discussions. Students discuss before, during, and after the active investigation and during the <i>Wrap-Up/Warm-Up</i> section.</p> <p>Selected examples Inv. 1, Part 1, Steps 1, 5, 6, 11, 14, 20; Inv. 1, Part 3, Steps 1, 4, 9, 13, 20, 21; Inv. 1, Part 4, Steps 10, 12, 13</p> <p>Discuss articles in <i>FOSS Science Resources</i> All investigations provide students with the opportunity to discuss the readings in pairs, small groups, and whole class.</p> <p>Selected examples Inv. 3, Part 3, Step 20; Inv. 4, Part 2, Step 23</p>	<p>All investigations provide students ample opportunities to engage in a range of collaborative discussions. Students discuss before, during, and after the active investigation and during the <i>Wrap-Up/Warm-Up</i> section.</p> <p>Selected examples Inv. 1, Part 1, Steps 1, 10, 16; Inv. 1, Part 2, Steps 5, 6, 10, 11, 13, 21; Inv. 1, Part 3, Steps 1, 3, 7, 8, 16; Inv. 1, Part 4, Steps 6, 10, 16, 17</p> <p>Discuss articles in <i>FOSS Science Resources</i> All investigations provide students with the opportunity to discuss the readings in pairs, small groups, and whole class.</p> <p>Selected examples Inv. 2, Part 1, Steps 19, 20; Inv. 4, Part 3, Step 12; Inv. 5, Part 1, Step 12; Inv. 5, Part 3, Step 24</p>
<p>Read articles in <i>FOSS Science Resources</i> Inv. 2, Part 1, Steps 15-16; Inv. 3, Part 1, Step 20 Video discussions Inv. 1, Part 4, Step 4; Inv. 2, Part 2, Steps 4, 20</p>	<p>Read articles in <i>FOSS Science Resources</i> Inv. 2, Part 3, Step 14; Inv. 4 Part 2, Step 11 Video/online discussions Inv. 1, Part 3, Steps 17-18</p>
<p>All investigations provide students with the opportunity to ask and answer questions about how they answered the focus question or the response sheets during the <i>Wrap-Up/Warm-Up</i> section.</p> <p>Selected examples Inv. 1, Part 1, Step 20; Inv. 1, Part 2, Step 23; Inv. 1, Part 3, Step 20</p> <p>Other opportunities arise when students present information to their group or the whole class.</p> <p>Selected examples Inv. 1, Part 4, Steps 9, 12, 13, 17</p>	<p>All investigations provide students with the opportunity to ask and answer questions about how they answered the focus question or the response sheets during the <i>Wrap-Up/Warm-Up</i> section.</p> <p>Selected examples Inv. 1, Part 1, Step 16; Inv. 1, Part 2, Step 21; Inv. 1, Part 3, Step 16; Inv. 1, Part 4, Step 17</p> <p>Other opportunities arise when students present information to their group or the whole class.</p> <p>Selected examples Inv. 1, Part 1, Step 10; Inv. 1, Part 2, Steps 5, 6, 10, 11, 13</p>

SPEAKING AND LISTENING STANDARDS (*continued*)

Presentation of Knowledge and Ideas

Standard	Motion and Matter Module
<p>4. Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.</p>	<p>All investigations provide students with the opportunity to report on their results. In the <i>Wrap-Up/Warm-Up</i> section students recount what they did in the investigation and share their answers to the focus question. Students report on what they learn from the text when discussing the articles in <i>FOSS Science Resources</i>.</p> <p>Selected examples Inv. 1, Part 1, Steps 12, 18; Inv. 1, Part 2, Steps 1,8,14; Inv. 3, Part 2, Step 15; Inv. 4, Part 3, Step 13</p>
<p>5. Create engaging audio recordings of stories or poems that demonstrate fluid reading at an understandable pace; add visual displays when appropriate to emphasize or enhance certain facts or details.</p>	<p>Inv. 2, Language Extension. Write poems about rolling</p>
<p>6. Speak in complete sentences when appropriate to task and situation in order to provide requested detail or clarification.</p>	<p>All investigations provide students with the opportunity to speak in complete sentences to provide details or clarification about their science learning. Sentence frames are provided for those students that need scaffolding.</p> <p>Selected examples Inv. 1, Part 1, Step 11 EL Note; Inv. 1, Part 2, Step 10; Inv. 1, Part 3, Step 13 EL Note</p>

Structures of Life Module	Water and Climate Module
<p>All investigations provide students with the opportunity to report on their results. In the <i>Wrap-Up/Warm-Up</i> section students recount what they did in the investigation and share their answers to the focus question. Students report on what they learn from the text when discussing the articles in <i>FOSS Science Resources</i>.</p> <p>Selected examples Inv. 1, Part 1, Step 20; Inv. 3, Part 3, Step 20. Inv. 3, Language Extension. Plan crayfish presentations</p>	<p>All investigations provide students with the opportunity to report on their results. In the <i>Wrap-Up/Warm-Up</i> section students recount what they did in the investigation and share their answers to the focus question. Students report on what they learn from the text when discussing the articles in <i>FOSS Science Resources</i>.</p> <p>Selected examples Inv. 1, Part 1, Step 16; Inv. 1, Part 2, Step 21; Inv. 1, Part 3, Step 16; Inv. 1, Part 4, Step 17; Inv. 4, Part 2, Steps 11-12; Inv. 5, Part 1, Step 12</p>
<p>All investigations provide students with the opportunity to speak in complete sentences to provide details or clarification about their science learning. Sentence frames are provided for those students that need scaffolding.</p> <p>Selected example Inv. 1, Part 1, Step 20</p>	<p>All investigations provide students with the opportunity to speak in complete sentences to provide details or clarification about their science learning. Sentence frames are provided for those students that need scaffolding.</p> <p>Selected example Inv. 1, Part 2, Step 15</p>

LANGUAGE STANDARDS

	Standard	Motion and Matter Module
Conventions of Standard English	<p>1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.</p> <ul style="list-style-type: none"> a. Explain the function of nouns, pronouns, verbs, adjectives, and adverbs in general and their functions in particular sentences. b. Form and use regular and irregular plural nouns. c. Use abstract nouns (e.g., <i>childhood</i>). d. Form and use regular and irregular verbs. e. Form and use the simple (e.g., <i>I walked; I walk; I will walk</i>) verb tenses. f. Ensure subject-verb and pronoun-antecedent agreement. g. Form and use comparative and superlative adjectives and adverbs, and choose between them depending on what is to be modified. h. Use coordinating and subordinating conjunctions. i. Produce simple, compound, and complex sentences. 	<p>All investigations provide opportunities for students to apply the conventions of English grammar when writing and speaking.</p> <p>Selected example Inv. 1, Part 1, Steps 8, 10</p>
	<p>2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.</p> <ul style="list-style-type: none"> a. Capitalize appropriate words in titles. b. Use commas in addresses. c. Use commas and quotation marks in dialogue. d. Form and use possessives. e. Use conventional spelling for high-frequency and other studied words and for adding suffixes to base words (e.g., <i>sitting, smiled, cries, happiness</i>). f. Use spelling patterns and generalizations (e.g., word families, position-based spellings, syllable patterns, ending rules, meaningful word parts) in writing words. g. Consult reference materials, including beginning dictionaries, as needed to check and correct spellings. 	<p>All investigations provide opportunities for students to demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing in their science notebooks, response sheets, and the I-Checks.</p>
Knowledge of Language	<p>3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.</p> <ul style="list-style-type: none"> a. Choose words and phrases for effect. b. Recognize and observe differences between the conventions of spoken and written standard English. 	<p>All investigations provide opportunities for students to use their knowledge of language and its conventions when writing in their science notebooks, discussing the investigation, and reading the articles in <i>FOSS Science Resources</i>.</p>

Structures of Life Module
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All investigations provide opportunities for students to apply the conventions of English grammar when writing and speaking.

Selected example
Inv. 4, Part 3, Step 48

All investigations provide opportunities for students to apply the conventions of English grammar when writing and speaking.

Selected example
Inv. 1, Part 2, Step 15

All investigations provide opportunities for students to demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing in their science notebooks, response sheets, and the I-Checks.

All investigations provide opportunities for students to demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing in their science notebooks, response sheets, and the I-Checks.

All investigations provide opportunities for students to use their knowledge of language and its conventions when writing in their science notebooks, discussing the investigation, and reading the articles in *FOSS Science Resources*.

All investigations provide opportunities for students to use their knowledge of language and its conventions when writing in their science notebooks, discussing the investigation, and reading the articles in *FOSS Science Resources*.

LANGUAGE STANDARDS (continued)

Standard	Motion and Matter Module
<p>4. Determine or clarify the meaning of unknown and multiple-meaning word and phrases based on <i>grade 3 reading and content</i>, choosing flexibly from a range of strategies.</p> <ul style="list-style-type: none"> a. Use sentence-level context as a clue to the meaning of a word or phrase. b. Determine the meaning of the new word formed when a known affix is added to a known word (e.g., <i>agreeable/disagreeable, comfortable/uncomfortable, care/careless, heat/preheat</i>). c. Use a known root word as a clue to the meaning of an unknown word with the same root (e.g., <i>company, companion</i>). d. Use glossaries or beginning dictionaries, both print and digital, to determine or clarify the precise meaning of key words and phrases. 	<p>All investigations provide opportunities for students to determine or clarify meaning of academic and science-specific words and phrases while reading and discussing articles in <i>FOSS Science Resources</i>.</p> <p>Selected example Inv. 2, Part 4, Step 14</p>
<p>5. Demonstrate understanding of word relationships and nuances in word meanings.</p> <ul style="list-style-type: none"> a. Distinguish the literal and nonliteral meanings of words and phrases in context (e.g., <i>take steps</i>). b. Identify real-life connections between words and their use (e.g., describe people who are <i>friendly or helpful</i>). c. Distinguish shades of meaning among related words that describe states of mind or degrees of certainty (e.g., <i>knew, believed, suspected, heard, wondered</i>). 	<p>Students learn the word relationships (e.g., concept maps) and nuances of certain words that have a specific meaning in science, such as force, attract, and repel, model, balance, domes, and relationship.</p> <p>Selected examples Inv. 1, Part 1, Steps 2, 10, 12; Inv. 1, Part 2, Steps 7, 13; Inv. 1, Part 3, Step 15</p>
<p>6. Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and phrases, including those that signal spatial and temporal relationships (e.g., <i>After dinner that night we went looking for them</i>).</p>	<p>All investigations provide opportunities for students to acquire and use conversational, academic, and science-specific words and phrases. Science vocabulary words are in bold when they are first introduced to students in <i>FOSS Science Resources</i>. Students also review the vocabulary in the <i>Review vocabulary</i> section for each part and the <i>WRAP-UP Review vocabulary</i> section of each investigation.</p> <p>Selected examples Inv. 1, Part 1, Steps 2, 8, 10, 12, 13, 15; Inv. 1, Part 2, Steps 2, 4, 9; Inv. 1, Part 3, Step 4, 1, 13, 15</p>

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<p>All investigations provide opportunities for students to determine or clarify meaning of academic and science-specific words and phrases while reading and discussing articles in <i>FOSS Science Resources</i>.</p> <p>Selected examples Inv. 1, Part 2, Step 20; Inv. 3, Part 2, Step 18; Inv. 3, Part 5, Step 18</p>	<p>All investigations provide opportunities for students to determine or clarify meaning of academic and science-specific words and phrases while reading and discussing articles in <i>FOSS Science Resources</i>.</p> <p>Selected examples Inv. 1, Part 2, Step 19; Inv. 1 Part 3, Step 13-15; Inv. 5, Part 2, Step 15</p>
<p>Students learn the word relationships and nuances of certain words that have a specific meaning in science, such as property, functions, reproduce, compete, and physical model.</p> <p>Selected examples Inv. 1, Part 1, Step 1; Inv. 1, Part 3, Step 15; Inv. 1, Part 4, Steps 2, 6 Inv. 4, Language Extension. Discuss plant idioms</p>	<p>Students learn the word relationships (e.g., concept maps) and nuances of certain words that have a specific meaning in science, such as material, beads up, repel, and natural.</p> <p>Selected examples Inv. 1, Part 1, Step 10; Inv. 1, Step 4, Steps 9, 10,16</p>
<p>All investigations provide opportunities for students to acquire and use conversational, academic, and science-specific words and phrases. Science vocabulary words are in bold when they are first introduced to students in <i>FOSS Science Resources</i>. Students also review the vocabulary in the <i>Review vocabulary</i> section for each part and the <i>WRAP-UP Review vocabulary</i> section of each investigation.</p> <p>Selected examples Inv. 1, Part 1, Steps 4, 6, 9, 13; Inv. 1, Part 2, Step 2; Inv. 1, Part 3, Steps 13, 15, 16; Inv. 1, Part 4, Steps 1-4, 6, 16, 21; Inv. 4, Language Extension. Practice using scientific bone names</p>	<p>All investigations provide opportunities for students to acquire and use conversational, academic, and science-specific words and phrases. Science vocabulary words are in bold when they are first introduced to students in <i>FOSS Science Resources</i>. Students also review the vocabulary in the <i>Review vocabulary</i> section for each part and the <i>WRAP-UP Review vocabulary</i> section of each investigation.</p> <p>Selected examples Inv. 1, Part 1, Steps 1, 10, 11; Inv. 1, Part 2, Steps 3, 7, 11, 13, 14, 19-20; Inv. 1, Part 3, Step 15 Inv. 1, Part 4, Steps 9, 10, 12, 16; Inv. 3, Part 2, Step10; Inv. 2, Language Extension. Explore vocabulary; Inv. 5, Part 1, Steps 14-15; Inv. 5, Language Extension. Research soil words</p>

