The best science lessons teach more than science.
FOSS® is intentionally designed to promote connections between science and language arts and to help build critical literacy skills. Students who use FOSS view the world like scientists – they investigate, learn by processing their experiences, then use reading and language skills to think about and share what they’ve learned. As a result FOSS® develops higher-order thinking and problem-solving abilities that, in turn, support academic literacy in all subjects and help teachers realize the promise of cross-curricular teaching.

“Students absolutely love the hands-on experimentation. It makes science come alive for them. English Language Learners can easily learn the academic language of the discipline because they experience the concepts in the real world and write about their observations. Thanks to FOSS, my students love science and actually beg for more.”

Peggy S.
Educator/Gifted & Talented Education Coordinator California

In FOSS, young scientists put their ELA skills to work.

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Active investigations
FOSS gives students regular, structured opportunities to talk in pairs and small groups. The students learn to contribute accurate, relevant facts to their sense-making discussions and to argue from the evidence.

Science notebooks
Students have a place to keep an organized record of observations, questions, and conceptual understanding, building their ELA skills in the course of their work as scientists.

FOSS Science Resources readings
Readings are designed to complement and enhance active investigations. Students pose questions, support their ideas with evidence, acquire information from text and other sources, and interpret illustrations to build understanding.

Formative assessments
Students can formally practice the same communication skills they use informally in their notebooks. As they develop and use models and defend their conclusions, they exercise the language functions needed for higher-order thinking.
FOSS students learn to talk, read, and write like scientists.

FOSS students develop language the same way they learn science: by doing. FOSS naturally integrates language into the course of their scientific explorations, making it an integral part of their hands-on activities.

Speaking and listening
FOSS immerses students in a culture of speaking and listening as they process and organize their own learning, apply their knowledge, and solve problems in collaborative groups.

Sense-making discussions
Sense-making discussions help students review and confirm information from active investigations, and organize it to find connections and relationships in the data to construct conceptual knowledge. This discussion also helps students organize and communicate their thinking as they collaborate with their peers, helping them develop conceptual models about phenomena.

Writing in science notebooks
Scientists’ notebooks are detailed records of their engagement with natural phenomena. FOSS students work and think as scientists do, developing their own detailed science notebooks throughout the school year. Science notebooks help students organize observations, process data, communicate their thinking, and maintain a record of their learning. This process not only develops writing skills, but also builds science competency through the communication of evidence-based ideas.

Vocabulary with context
FOSS takes students beyond scripted definitions, so they use science vocabulary in ways that show their understanding of the concepts the words describe. Students engage with scientific concepts through their senses during their active investigations. When they connect those experiences with the relevant vocabulary words, it gives the words a context and meaning that would otherwise be missed.
Reading informational text

Reading is an integral part of science learning, and students need to know how to read informational text critically and effectively. FOSS Science Resources books help teach literacy skills through reading materials that support and enhance the concrete, personal experiences the students are gaining in their active investigations.

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English language development (ELD)

Personal experiences that are meaningful to students, and which provide shared context for developing understanding, are critical components for ELD instruction. FOSS supports teachers with helpful ELD integration strategies across four key areas: activating prior knowledge, using comprehensible input, academic language development, and oral practice.

Spanish language resources

FOSS Next Generation supports Spanish speaking students and Two Way Immersion (TWI) schools through a variety of Spanish print and digital resources for students, including:

- **FOSS Science Resources** Spanish Edition print, eBooks, and audio books
- Spanish teaching slides for classroom facilitation
- Interactive whiteboard resources
- Module vocabulary and definitions
- Focus questions
- Most K–5 streaming video
- Ancillary postcards and card sets
Every student deserves the benefits of science education—not just exposure to scientific phenomena, but the opportunity to understand and explain them. From its foundation, FOSS was built to afford that opportunity to all, regardless of background culture, language, or ability.

The scholars at the Lawrence Hall of Science designed FOSS around the principle of collaborative, active investigation. FOSS effectively engages all students by inviting them to interact with observable phenomena, a teaching philosophy subsequently codified with the arrival of NGSS. FOSS makes science accessible and equitable for every student in every classroom. This active learning philosophy has turned two million students and 100,000 teachers into hands-on active investigators of scientific phenomena. FOSS is recognized today by experts and organization across the country for its proven quality, rigor, support, and effectiveness.