



Developed at:

**The Lawrence
Hall of Science**
UNIVERSITY OF CALIFORNIA, BERKELEY®

**Science is best
learned when
it's discovered.**

Active investigation is at the heart of FOSS.

Every student deserves the benefits of science education—not just exposure to scientific phenomena, but the opportunity to understand and explain them. From its foundations, FOSS® is built to afford that opportunity to all, regardless of background, culture, language, or ability.

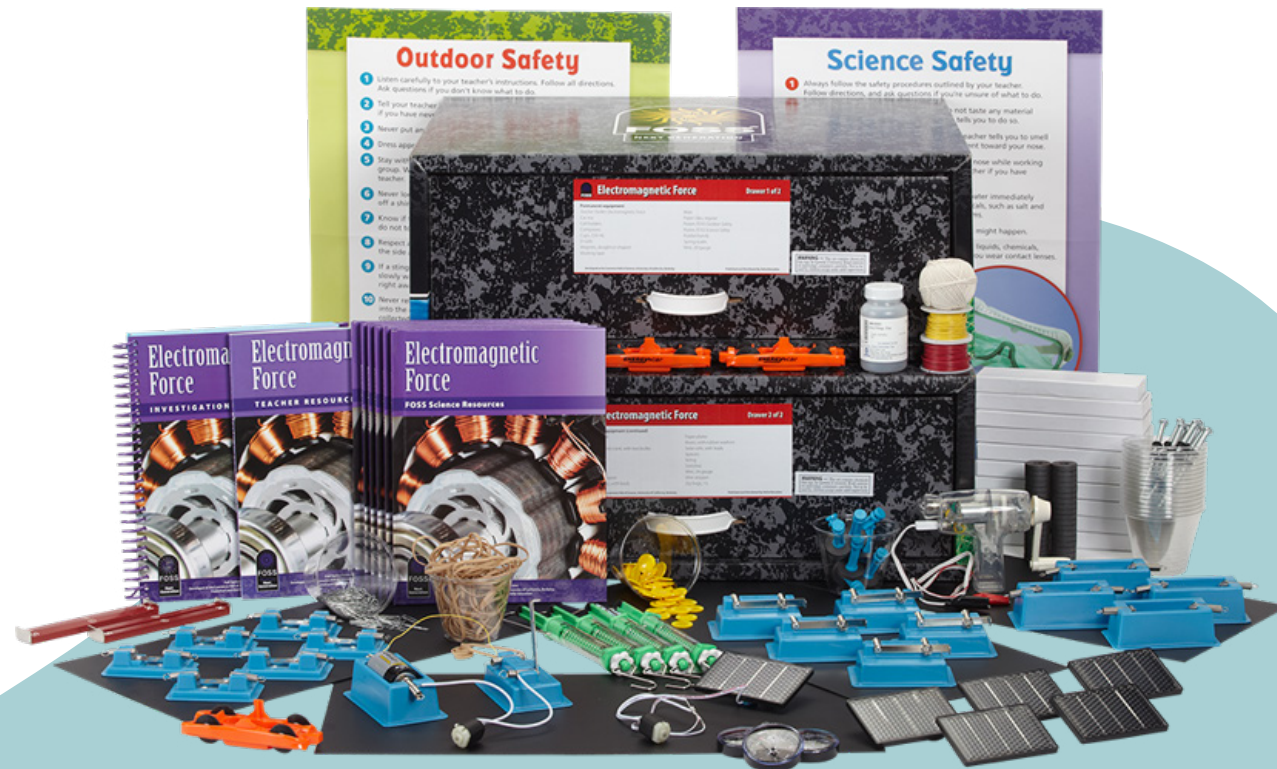
The scholars at the Lawrence Hall of Science designed FOSS around the principle of collaborative, active investigation. FOSS effectively engages all students by inviting them to interact with observable phenomena, a teaching philosophy subsequently codified with the arrival of the updated Indiana Academic Standards for science.

FOSS lessons help teachers reach all students through phenomena that are local and relevant, and the phenomenon is framed within a logical context so that every student can recognize its significance as it is introduced. This student-centered approach ultimately honors the spirit of the standards better by ensuring that all learners can make sense of phenomena and solve problems. In this way, FOSS makes science accessible and equitable for every student in every classroom.



Comprehensive packages for complete learning.

FOSS® is more than just a science curriculum or science kit. Your investment in any FOSS course buys you all the key student and teacher components to deliver world-class science education—no minutes lost or dollars spent to provide what’s been left out. Each element is thoughtfully designed to conserve your money, space, and precious time.



“The hands-on group work is amazing. The kids get hands-on experience and can connect ideas about STEM to real-world experiences. The literacy component is great as well.”

Arielle S., 4th Grade Teacher
Tell City, IN

Equipment Kit

Durable equipment and classroom tested materials, selected and designed expressly for FOSS, lead to successful investigations for all students. Kits include permanent equipment for classes of 32 students (8 groups) with enough consumables for five (5) uses at middle school.

Investigations Guide

This is the core instructional tool that supports the teacher in facilitating student investigations. Chapters include Overview, Framework and NGSS, Materials, Technology, Assessment, and each detailed Investigation. Available in print and digital.

FOSS Science Resources

FOSS student reading materials are in-depth articles that connect students’ firsthand experiences to informational text, helping expand understanding from the concrete to the abstract. Available in print, eBook, and audiobook.

FOSS Technology

FOSSweb on ThinkLink™ offers simulations and virtual investigations. Online activities provide differentiating instruction. Student ebooks and streaming video are also included. Comprehensive teacher preparation videos and instructional slides support teachers.

Teacher Resources

Provided in print and available online, resources include grade-level chapters on sense-making and three-dimensional teaching and learning; connections to Common Core ELA and Math standards; taking FOSS outdoors; access and equity in science; science-centered language development; using science notebooks; and notebook, teacher, and assessment masters.

Spanish Resources

Spanish editions of *FOSS Science Resources* are offered both in print and eBook. FOSSweb on ThinkLink provides audio files for *FOSS Science Resources*, as well as notebook, assessment, and teacher masters, module vocabulary and definitions, teaching slides, and Focus Questions.

Materials management made easy.

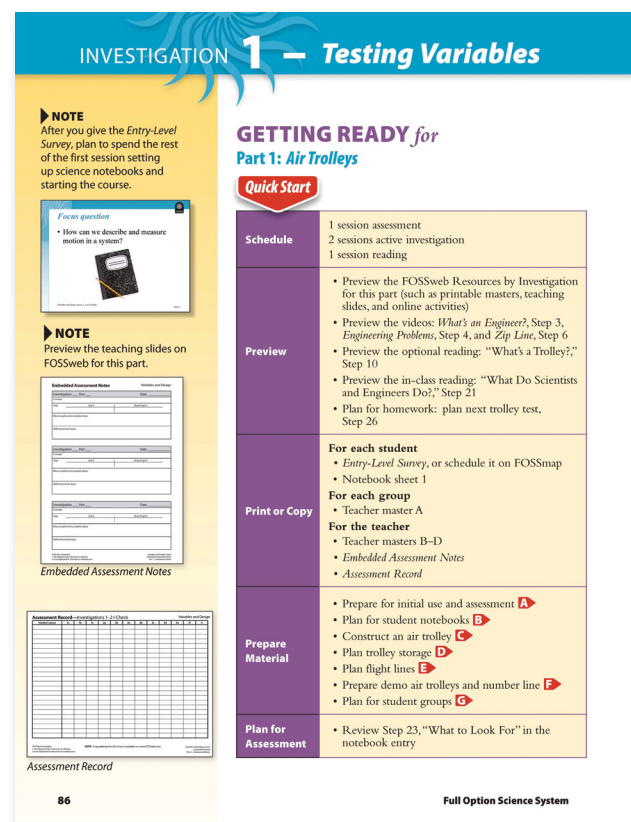
We believe that students learn science best by *doing* science. Your commitment to preparing for FOSS hands-on experiences comes to fruition when you see your students' engagement soar and their understanding grow. We've spent decades working in classrooms to provide comprehensive materials management support for teachers of all levels of experience.

- Investigations Guide with step-by-step instructions to help you through lesson preparation, facilitation, and assessment.
- Teacher preparation videos to provide visuals for important investigation setups.
- Efficient equipment kits, designed for middle schools—outfit your classroom with materials to complete each investigation with five classes of students.
- Handy refill kits replace consumables so you can make the most of your time teaching science.

New equipment options for middle schools

We listened to middle school teachers from across the country when developing FOSS Next Generation Middle School and now offer greater flexibility in equipping your FOSS classroom or lab. **Ask your Regional Sales Manager** which equipment option is the best fit for you.

| | FULL KIT | LITE KIT |
|---|----------|----------|
| Consumable items (refill kits available) | X | X |
| Unique, program-specific permanent items | X | X |
| Common science lab items (beakers, graduated cylinders, etc.) or items found in multiple FOSS courses | X | |



FOSS *Investigations Guides* include a streamlined Quick Start Guide for each part of every investigation that highlights exactly what needs to be printed, set up, or prepared in advance of the lesson.

“My students loved experiencing the visuals and exploring the topics throughout the year. Materials were provided, including live animals!”

Adriana R., Teacher
Richmond, IN

Course Descriptions: The options are all yours.

Full Option Science System® courses for the middle school grades are designed for flexibility. FOSS provides a suggested Indiana scope and sequence for grades 6–8. Each course is designed to be used as part of your core curriculum for science education—no supplemental curricula needed. In addition, you can rearrange the sequence of courses if your district prefers to implement a disciplinary-focused curriculum by grade. Courses vary in length from 4 to 14 weeks.



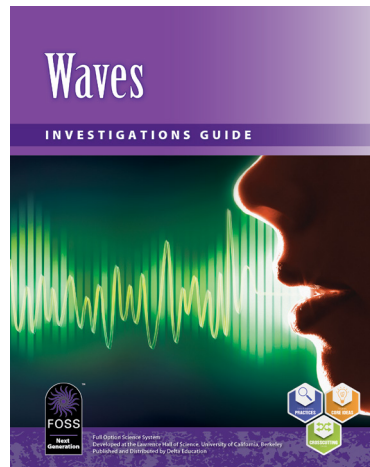
Course Descriptions for Grade 6

Waves

PHYSICAL SCIENCE, ENGINEERING

Students learn about mechanical and electromagnetic waves. They manipulate springs and lasers to determine properties of waves and how modes of modern communications work. They create designs that affect transmission of sound waves in an engineering challenge.

Course Length: 5–6 weeks



Course Driving Question:

How is energy transferred through waves?

Preview of Phenomena Investigated:

Students engage with the anchor phenomenon of energy transfer by waves to explain mechanical waves, electromagnetic waves, and communication technology.

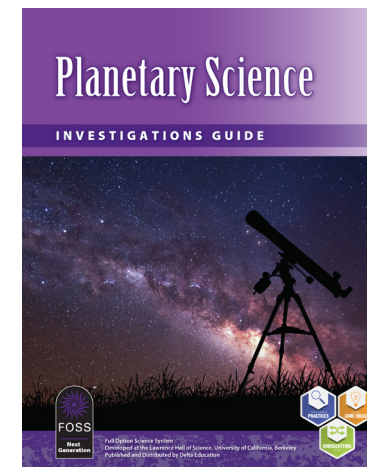
Indiana Academic Standards for Science: MS-PS4-1, MS-PS4-2, MS-PS4-3, MS-ETS1-1, MS-ETS1-2, MS-ETS1-3, MS-ETS1-4

Planetary Science

PHYSICAL SCIENCE, EARTH SCIENCE

Students develop a thorough understanding of the local cosmos — including the organization of the solar system and day/night/seasons—before turning their study to the top planetary science headlines of our times, in particular, the hunt for exoplanets. In a capstone project that completes students' middle school science careers, students use satellite images to analyze changes to Earth's systems and draw conclusions about human impact upon Earth's systems.

Course Length: 10–12 weeks



Course Driving Question:

What is my cosmic address?

Preview of Phenomena Investigated:

Students engage with the anchor phenomenon of Earth, an object in space, to explain day, night, seasons, solar system formation, and human impact to Earth's systems.

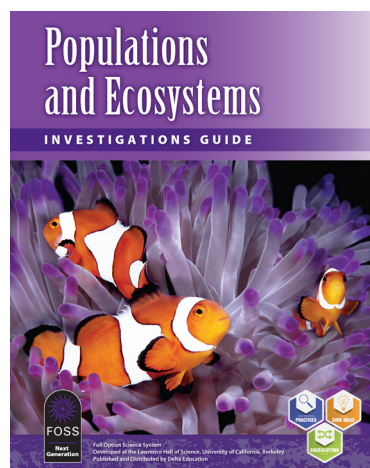
Indiana Academic Standards for Science: MS-PS2-4 (foundational), MS-PS4-2 (foundational), MS-ESS1-1, MS-ESS1-2, MS-ESS1-3, MS-ESS1-4 (foundational), MS-ESS2-2, MS-ESS2-4 (foundational), MS-ESS3-1 (foundational), MS-ESS3-2 (foundational), MS-ESS3-3, MS-ESS3-4, MS-ETS1-1 (foundational)

Populations and Ecosystems

EARTH SCIENCE, LIFE SCIENCE, ENGINEERING

Students learn that every organism has a role to play in its ecosystem. To understand how ecosystems work and what they need to remain healthy, students explore how changes to one part of the ecosystem affect others by studying ecosystem interactions of matter and energy.

Course Length: 10–12 weeks



Course Driving Question:

How do organisms, matter, and energy interact in an ecosystem?

Preview of Phenomena Investigated:

Students engage with the anchor phenomenon of population dynamics within ecosystems by studying matter and energy flow and addressing a student-chosen ecological issue.

Indiana Academic Standards for Science: MS-LS1-6, MS-LS1-7, MS-LS2-1, MS-LS2-2, MS-LS2-3, MS-LS2-4, MS-LS2-5, MS-PS3-4 (foundational), MS-ESS3-3, MS-ESS3-4, MS-ETS1-1, MS-ETS1-2

“FOSS is amazing! The hands-on activities and STEM focus have resulted in my students having the top science ISTEP scores in our state!”

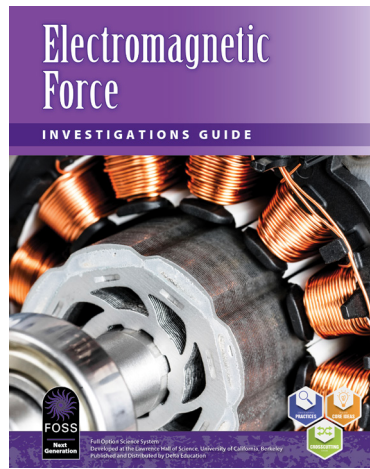
Dawn B., Teacher
Indianapolis, IN

Course Descriptions for Grade 7

Electromagnetic Force

PHYSICAL SCIENCE, EARTH SCIENCE, ENGINEERING

Students begin to explore the concept of force. They measure the force of invisible magnetic fields, learn to build a circuit, design an electromagnet, and explain the energy transfers that make it all possible. They consider energy sources for human use and limitations of renewable and nonrenewable resources. *Course Length: 5–6 weeks*



Course Driving Question:

What is the relationship between magnetic and electric forces?

Preview of Phenomena Investigated:

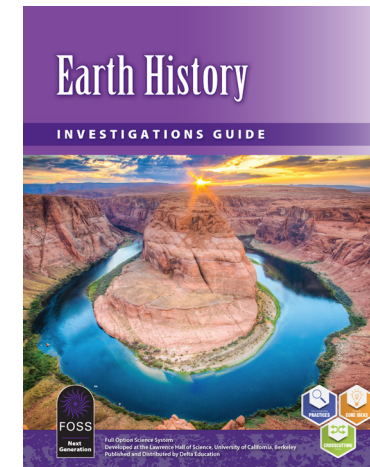
Students engage with the anchor phenomena of magnetic and electric forces by exploring their interactions and effects.

Indiana Academic Standards for Science: MS-PS2-2, MS-PS2-3, MS-PS2-5, MS-PS3-2, MS-PS3-5, MS-ESS3-4, MS-ETS1-1, MS-ETS1-2, MS-ETS1-3, MS-ETS1-4

Earth History

PHYSICAL SCIENCE, EARTH SCIENCE, LIFE SCIENCE

Students read evidence from rock, landforms, and fossils. They grapple with Earth's processes and systems that have operated over geologic time to understand the cycling of Earth's materials and the flow of energy that drives this process. They consider human interactions with natural resources and the technology that supports the geosciences. *Course Length: 10–12 weeks*



Course Driving Question:

What do we need to know to tell the geologic story of a place?

Preview of Phenomena Investigated:

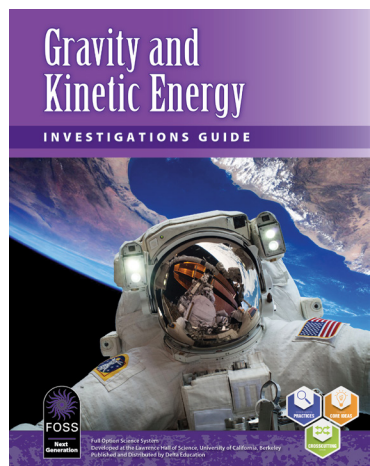
Students engage with the anchor phenomenon of how Earth's surface processes and human activities affect each other.

Indiana Academic Standards for Science: MS-ESS1-4, MS-ESS2-1, MS-ESS2-2, MS-ESS2-3, MS-ESS3-1, MS-ESS3-2, MS-ESS3-3, MS-ESS3-4, MS-ESS3-5, MS-LS4-1

Gravity and Kinetic Energy

PHYSICAL SCIENCE, EARTH SCIENCE, ENGINEERING

Students explore speed, acceleration, gravity, and collision physics. They explore how the force of gravity is related to the mass of objects and distance between them, and how this relates to gravity on various celestial objects. They learn Newton's laws and engage in an engineering challenge to design a helmet that will provide protection during impact. *Course Length: 5–6 weeks*



Course Driving Question:

How can we explain the motion of objects?

Preview of Phenomena Investigated:

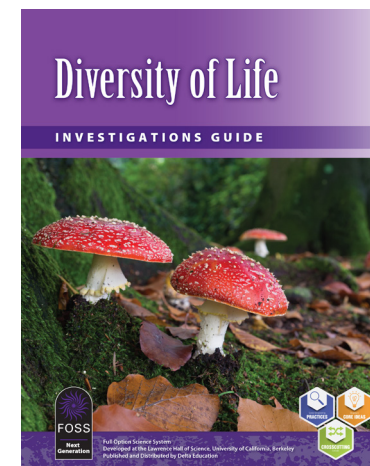
Students explore the anchor phenomena of falling objects and collisions to understand energy and forces, including gravity.

Indiana Academic Standards for Science: MS-PS2-1, MS-PS2-2, MS-PS2-4, MS-PS2-5 (foundational), MS-PS3-1, MS-PS3-2, MS-PS3-5, MS-ESS1-2 (foundational), MS-ETS1-1, MS-ETS1-2, MS-ETS1-3, MS-ETS1-4

Diversity of Life

LIFE SCIENCE

Students discover that all living things share the same basic characteristics, that all organisms are composed of cells, and that a single cell is the fundamental unit of life. Students then explore the relationship of organisms to their environment, and explore the concept of biodiversity. *Course Length: 10–12 weeks*



Course Driving Question:

How do you know something is living?

Preview of Phenomena Investigated:

Students engage with the anchor phenomenon of life on Earth to consider what it means to be alive.

Indiana Academic Standards for Science: MS-LS1-1, MS-LS1-2, MS-LS1-3, MS-LS1-4, MS-LS1-5, MS-LS1-6 (foundational), MS-LS1-7 (foundational), MS-LS3-2

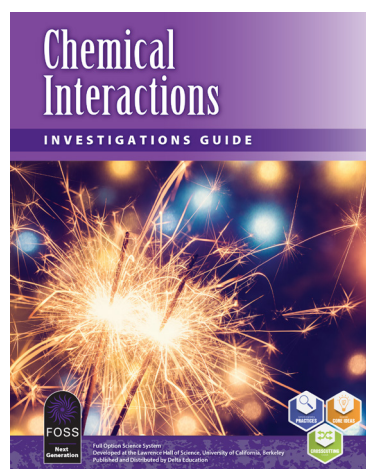
Course Descriptions for Grade 8

Chemical Interactions

PHYSICAL SCIENCE, EARTH SCIENCE, ENGINEERING

Students conduct experiments to observe macroscopic matter transformations and apply kinetic particle theory to explain those transformations at the atomic level. They explore conservation of energy and matter and use those principles to explain phase change and chemical reactions.

Course Length: 10–12 weeks



Course Driving Question:

How does matter interact?

Preview of Phenomena Investigated:

Students engage with the anchor phenomenon of interactions of matter to explain how energy and matter interact, including phase changes and chemical reactions.

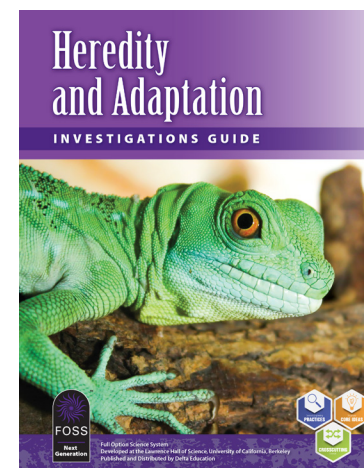
Indiana Academic Standards for Science: MS-PS1-1, MS-PS1-2, MS-PS1-3, MS-PS1-4, MS-PS1-5, MS-PS1-6, MS-PS3-3, MS-PS3-4, MS-PS3-5, MS-ETS1-1, MS-ETS1-2, MS-ETS1-3, MS-ETS1-4

Heredity and Adaptation

EARTH SCIENCE, LIFE SCIENCE

Students explore evidence for evolution, including the fossil record, the similarities between past and present organisms, the genetic principles of inheritance, and how natural selection produces adaptations that lead to changes in species and eventually the creation of new species.

Course Length: 5–6 weeks



Course Driving Question:

How can we explain the diversity of life that has lived on Earth?

Preview of Phenomena Investigated:

Students search for evidence that explains the anchor phenomenon of biodiversity on Earth.

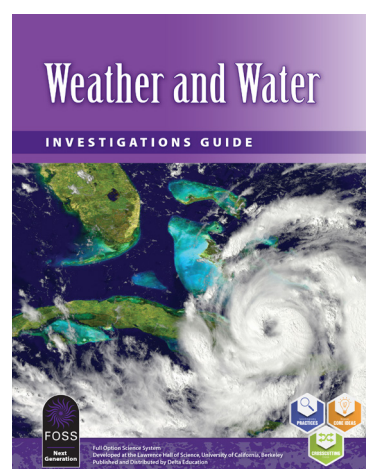
Indiana Academic Standards for Science: MS-LS3-1, MS-LS3-2, MS-LS4-1, MS-LS4-2, MS-LS4-3, MS-LS4-4, MS-LS4-5, MS-LS4-6, MS-ESS1-4 (foundational)

Weather and Water

PHYSICAL SCIENCE, EARTH SCIENCE, ENGINEERING

Students explore physical science processes to explain earth science phenomena. They learn about atoms and molecules, density, wind, and energy transfer and then investigate phase change, the water cycle, ocean currents, climate change, and meteorology.

Course Length: 10–12 weeks



Course Driving Question:

What makes weather happen?

Preview of Phenomena Investigated:

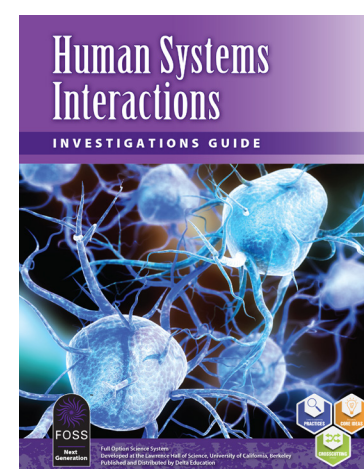
Students engage with the anchor phenomenon of observable local weather conditions to make sense of why weather changes and explore climate patterns.

Indiana Academic Standards for Science: MS-PS1-4, MS-PS3-3, MS-PS3-4, MS-PS3-5, MS-ESS1-1, MS-ESS2-4, MS-ESS2-5, MS-ESS2-6, MS-ESS3-2, MS-ESS3-3, MS-ESS3-4, MS-ESS3-5, MS-ETS1-1, MS-ETS1-2, MS-ETS1-3, MS-ETS1-4

Human Systems Interactions

LIFE SCIENCE

Students tackle big questions about body systems and the factors that affect them. They learn about what happens when the body is attacked by an invader or an organ system malfunctions, how cells get the resources they need to live, and how systems support the human organism as it senses and interacts with the environment. *Course Length: 5–6 weeks*



Course Driving Question:

How do humans live, grow, and respond to their environment?

Preview of Phenomena Investigated:

Students engage with the anchor phenomenon of the human body by exploring how organ systems interact to support each and every cell.

Indiana Academic Standards for Science: MS-LS1-1 (foundational), MS-LS1-3, MS-LS1-7, MS-LS1-8

FOSS: INDIANA 6–8 COURSE DESCRIPTIONS

FOSS® 6–8 Recommended Scope & Sequence for Indiana

| Grade | Integrated Middle Grades | | | |
|-------|-------------------------------------|------------------------------------|---|-----------------------------------|
| 8 | Chemical Interactions PS, ES, E | Weather and Water PS, ES, E | Heredity & Adaptation* ES, LS | Human Systems Interactions* LS |
| 7 | Electromagnetic Force* PS, ES, E | Gravity & Kinetic Energy* PS, E | Earth History PS, ES, LS | Diversity of Life LS |
| 6 | Waves* PS, E | Planetary Science PS, ES | Populations and Ecosystems ES, LS, E | |

PS: Physical Science content, ES: Earth Science content, LS: Life Science content, E: Engineering content *Half-length courses

Your partners in supporting quality science education.

At School Specialty, providing science curriculum is our specialty, every day of every year. We'll be right there with you, from purchase through implementation and ongoing annual professional development. Our team is supported by experienced FOSS consultants and by the program authors themselves at the Lawrence Hall of Science. We go beyond the ordinary to ensure that you have all you need to ignite your students' curiosity. With decades of combined FOSS experience, we stand ready to support your success.

Learn more.

Go to FOSSNextGeneration.com/Indiana or contact your local FOSS representatives:

KATHLEEN SCHUTTER

Sales Representative

Phone: 859-404-3870

Email: kathleen.schutter@schoolspecialty.com

KATHY LAROUSHI

Inside Sales

Phone: 800-225-3739 x3431

Email: kathleen.laroussi@schoolspecialty.com



Developed at:

**The Lawrence
Hall of Science**
UNIVERSITY OF CALIFORNIA, BERKELEY*

Published & distributed by:

