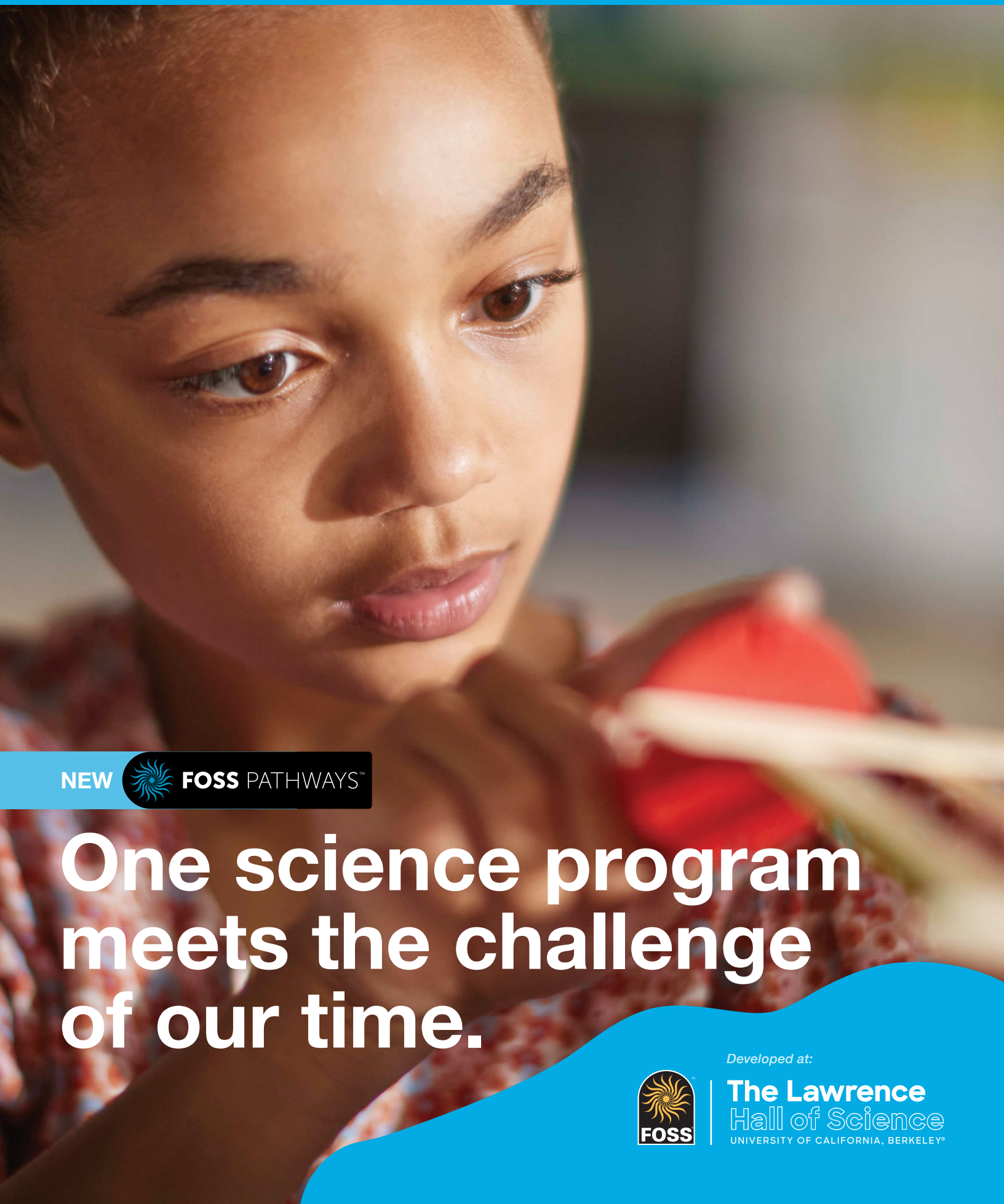


NEW FOSS PATHWAYS™

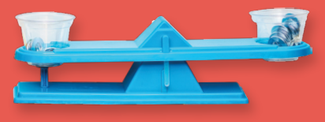
One science program meets the challenge of our time.

Developed at:

The Lawrence Hall of Science
UNIVERSITY OF CALIFORNIA, BERKELEY®

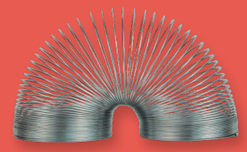
Introducing FOSS Pathways. Reimagined for the needs of today and tomorrow.

Today as never before, the world needs scientific thinkers—to view the world thoughtfully, approach challenges analytically, and embrace opportunities enthusiastically. Now FOSS®, a longtime leader in science education, has stepped forward to meet that challenge with new FOSS Pathways™. In these pages, you'll see how this elementary core science curriculum:

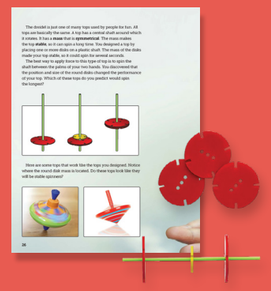


Aligns with Indiana Academic Standards for science

Incorporates the digital tools for a flexible multimedia experience



Lends flexibility to teach in the class time allotted for science



Teaches through a multimodal approach to resonate with every student

Engages students through coherent phenomenon storylines that are local and relevant

Provides unmatched educative support to teach phenomena-based science

Built on a long-standing foundation of excellence.

The FOSS Pathways program supports the science teaching and learning needed today, while building on the classroom-proven three-decade legacy of FOSS.

Built for all

The founding principle of FOSS was to enlist students not as passive recipients of information, but as active investigators of phenomena. This approach engages and advances learners of all languages and cultures, taking advantage of prior experiences so all students can reason scientifically—a goal that has only gained relevance with time.

Proven and tested

The FOSS program has been refined through three decades of field testing with 150,000 teachers and 4 million students in all 50 United States. It has empowered teachers, excited students, and elevated test scores in urban, suburban, and rural settings for students with diverse backgrounds and experiences.

Standards-aligned

FOSS has evolved over time to meet the changing science education landscape and is aligned to NGSS Performance Expectations. This newest edition of FOSS continues to meet Indiana Academic Standards, while providing the flexibility to adapt to individual teaching needs.

50 states

150,000 teachers

4 Million students

Phenomena-based science for today and tomorrow.

New FOSS Pathways incorporates phenomena in a way that not only addresses standards, but instills science literacy that will serve students and their communities well for a lifetime.

Promotes scientific thinking

FOSS Pathways empowers students to act as scientists and engineers using hands-on experiences to figure out the world around them. They explore local and relevant phenomena, encouraging them to engage with real-world issues using three-dimensional learning practices. Students are able to experience the thrill of discovery, motivating them as they become scientifically literate through active investigation.

Time-efficient, standards-aligned

FOSS Pathways gives educators the flexibility to customize instruction while still addressing standards in the time allotted to teach science. To further respect the teacher's time, all key materials for activities are included to reduce preparation time and retain focus on what matters most—providing meaningful learning experiences for students.

Multimedia experiences

FOSS Pathways provides digital resources, including simulations and videos, for students and teachers through FOSSweb on ThinkLink™. These multimedia materials are purposefully designed to enhance the learning experience, and they lend flexibility to keep active science teaching viable if classroom circumstances change.

The curriculum that puts students first.

The FOSS program was developed to engage students of all backgrounds, languages, and abilities. New FOSS Pathways advances this students-first approach, providing opportunities to differentiate and support each student experience.

Local and relevant phenomena

FOSS Pathways is built around phenomena that are local to students, so they can observe and relate the phenomena to the world they know. These phenomena are organized into coherent storylines that are explicitly identified to the teacher, empowering the teacher to engage students as they explore.

A multimodal approach

FOSS Pathways combines hands-on science experiences with accompanying rich resources. This enables differentiated instruction that helps all students explore and understand scientific concepts in a way that resonates individually with each of them, promoting access and equity. Engaging digital experiences are judiciously used to enhance the student's own firsthand investigations of phenomena. FOSS also makes reading and writing an integral part of the student's work, providing cross-curricular education in English Language Arts (ELA) and English Language Development (ELD).

Empowering educators like no other science curriculum.

New FOSS Pathways™ provides the appropriate educative support to implement phenomena-based instruction.

Helps teachers connect with students

FOSS Pathways modules present scientific concepts cohesively. Phenomenon storylines are called out to the teacher clearly and explicitly. Teaching materials give direction to ask probing questions and deepen students' understanding as they progress through the module.

Illuminates concepts in a coherent progression

In every module, core ideas build upon each other in a logical sequence. Teacher support spells out an explicit connection between the anchor phenomenon being investigated and the core ideas being exposed. This background information helps teachers understand how students develop ideas related to the phenomenon during the investigation.

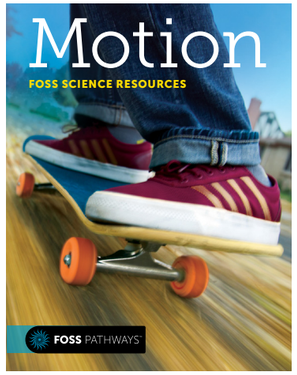
Affords flexibility in science instruction

FOSS Pathways provides opportunities to customize instruction to meet local educational goals. Pathways provides Side Trip opportunities as optional activities that can be used with the whole class or as student choice activities. Educators can customize the provided instructional resources to create learning experiences that make science relevant to their students' lives.

Provides field-tested assessment

Assessments are research-based and field-tested. They accurately measure student learning and progress. A variety of formative assessment tools provide evidence of students' use of the three dimensions and their knowledge of phenomena.

Module Descriptions for Grade 3

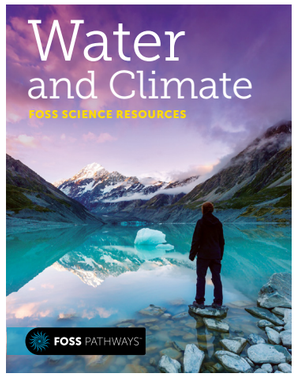


Motion

PHYSICAL SCIENCE

In the Motion Module, students engage in science and engineering practices as they investigate phenomena and collect data to answer questions about the effects of magnetic force and the force of gravity on objects. Students explore the crosscutting concepts of patterns, cause and effect, and systems and system models as they define problems in order to develop solutions. Students reflect on their own use of science and engineering practices and find out how others use these practices in their careers.

Indiana Academic Standards for Science: *3-PS2-1, 3-PS2-2, 3-PS2-3, 3-PS2-4, 3-5 ETS1-1, 3-5 ETS1-2, 3-5 ETS1-3*

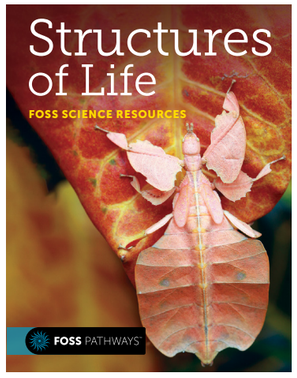


Water and Climate

EARTH SCIENCE

In the Water and Climate Module, students engage in science and engineering practices as they investigate the role of water in weather and how weather conditions change around the world and throughout the year. They explore the crosscutting concepts of patterns; cause and effect; and scale, proportion, and quantity. They are introduced to the nature of science, how science affects everyday life, and the influence of engineering, technology, and science on society and the natural world.

Indiana Academic Standards for Science: *3-ESS2-1, 3-ESS2-2, 3-ESS3-1, 3-5 ETS1-1, 3-5 ETS1-2, 3-5 ETS1-3*



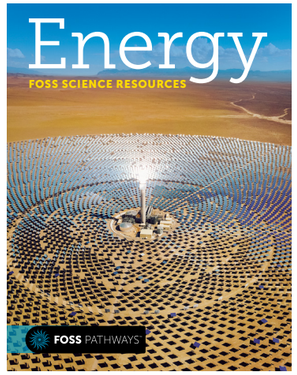
Structures of Life

LIFE SCIENCE

In this module, students observe, compare, categorize, and care for organisms. Students engage in science and engineering practices to investigate the structures and behaviors of organisms and learn how the structures function in growth, survival, and reproduction. Students look at the interactions between organisms of the same kind, among organisms of different kinds, and between the environment and populations of organisms over time. Students focus on these crosscutting concepts—patterns; cause and effect; scale, proportion, and quantity; systems and system models; and structure and function—to develop understandings about organisms and population survival.

Indiana Academic Standards for Science: *3-LS1-1, 3-LS2-1, 3-LS3-1, 3-LS3-2, 3-LS4-1, 3-LS4-2, 3-LS4-3, 3-LS4-4*

Module Descriptions for Grade 4

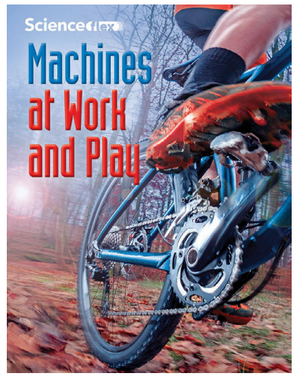


Energy

PHYSICAL SCIENCE

Energy and its different forms take center stage as students investigate electricity, motion, and waves. Students engage in a variety of hands-on experiences that allow them to make observations and provide evidence that energy can be transferred from place to place by electric currents, heat, light and sound. They ask questions related to the interaction of spheres on ramps relating the speed of the sphere to its energy, and predict outcomes when those spheres collide. Finally, students create a model of a wave and develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen. Students make sense of these ideas to figure out why some of the new solar-powered parking meters in a town are not working properly.

Indiana Academic Standards for Science: *4-PS3-1, 4-PS3-2, 4-PS3-3, 4-PS3-4, 4-PS4-1, 4-PS4-2, 4-PS4-3, 3-5 ETS1-1, 3-5 ETS1-2, 3-5 ETS1-3*



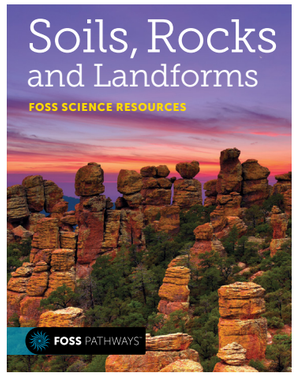
Machines at Work and Play

PHYSICAL SCIENCE

A “problem” might seem like something bad is about to happen, but often a problem is a puzzle waiting for a solution. Guide students through an exciting exploration of simple machines wrapped up in 5E lesson plans where students investigate simple machines through active learning, then apply their new knowledge to collaborate in designing playground equipment.

Indiana Academic Standards for Science: *4-PS2-1, 4-PS2-2*

ScienceFLEX Modules are provided by Delta Education®.



Soils, Rocks, and Landforms

EARTH SCIENCE

In this module, students plan and carry out investigations by incrementally changing specific environmental conditions to determine the impact of changing the variables of slope and amount of water in stream tables. Students analyze and interpret data from diagrams and visual representations to build explanations from evidence and make predictions of future events. They develop model mountains and represent the landforms from different perspectives to look for change. Students gain experiences that will contribute to understanding of the crosscutting concepts of patterns; cause and effect; scale, proportion, and quantity; systems and system models; and stability and change.

Indiana Academic Standards for Science: *4-ESS1-1, 4-ESS2-1, 4-ESS2-2, 4-ESS3-1, 4-ESS3-2, 3-5 ETS1-1, 3-5 ETS1-2*

Module Descriptions for Grade 4
continued

Senses and Survival
LIFE SCIENCE

How do plants and animals, including humans, use senses to survive? In this module, students investigate how owls are able to hunt prey in the darkness of night. Students make observations and conduct investigations related to internal and external structures of plants and animals that serve various functions needed for survival. They explore major life systems through hands-on activities and simulations, and use a model to describe how animals receive different types of information and process that information in the brain.

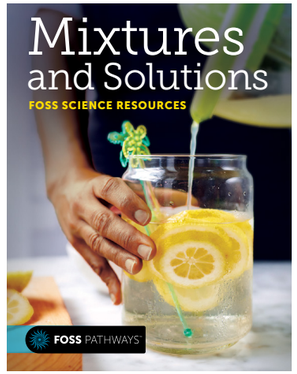
Indiana Academic Standards for Science: *4-LS 1-1, 4-LS 1-2*

Unmatched curriculum. Unequaled support.

Active science that puts students at the center of instruction requires a teacher who's fully supported. No other curriculum delivers that direct support, in person and virtually, with as much experience and commitment as FOSS Pathways.

School Specialty and Delta Education, in partnership with the FOSS team at the Lawrence Hall of Science, will work hand-in-hand with your district to design a multi-year implementation plan that meets your specific needs and goals. When you join the FOSS community of educators, we help you design the optimum mix of ongoing support for your district, including workshops, institutes, and other forums for development of teachers and teacher-leaders. This support helps teachers get the most out of FOSS Pathways materials and guides them in how to best instruct their students.

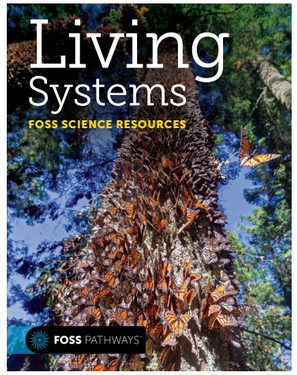
Module Descriptions for Grade 5



Mixtures and Solutions
PHYSICAL SCIENCE

Students investigate changes in a puddle near a construction site and are surprised by the change in appearance to the water and surrounding plants. They design and construct investigations to make sense of the particles in mixtures and solutions, and they measure and graph materials to provide evidence for the conservation of matter. Student develop models to describe that matter is made of particles too small to be seen. Finally, they conduct investigations to determine whether the mixing of two or more substances results in new substances.

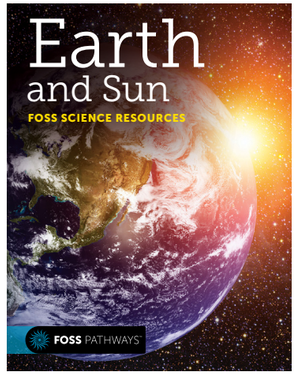
Indiana Academic Standards for Science: *5-PS1-1, 5-PS1-2, 5-PS1-3, 5-PS1-4, 3-5 ETS1-1, 3-5 ETS1-2, 3-5 ETS1-3*



Living Systems
LIFE SCIENCE

Students learn about Dr. Salina Bryan, who has been studying a population of brine shrimp that live in Mono Lake, a large salt lake. Dr. Bryan has noticed that the size of the brine shrimp population and the amount of water in the lake has been decreasing in the last few years. Students design and conduct investigations and analyze data to figure out causes of the decrease in the number of brine shrimp, and what is the effect on the ecosystem. They explore the flow of matter and energy in ecosystems and develop models to describe how elements of the Earth's major systems support life.

Indiana Academic Standards for Science: *5-LS1-1, 5-LS2-1, 5-PS3-1, 5-ESS2-1, 5-ESS3-1*



Earth and Sun
EARTH SCIENCE

Why do shadows change throughout the day? Why does the sky appear different to people located in different regions of the Earth? Students make observations and reveal patterns of Earth's position in the universe and the motion of the earth, moon, and stars to explain the brightness of stars and patterns of daily, monthly, and yearly changes in the sky. Students develop models of interactions between the atmosphere, hydrosphere, and geosphere and apply the ideas to construct an explanation of why sand is hot and the water cool at a beach on a sunny day.

Indiana Academic Standards for Science: *5-ESS1-1, 5-ESS1-2, 5-ESS2-1, 5-ESS2-2, 5-ESS3-1, 5-PS1-1, 5-PS2-1 ETAS: 3-5 ETS1-2, 3-5 ETS1-3*

"Hands-on learning is engaging for students. Most materials are provided in FOSS kits. Lesson plans are detailed and easy to follow. Students are able to complete investigations and draw conclusions based on STEAM standards."

Jennifer S., Teacher
MSD Washington Township

FOSS® & DELTA EDUCATION® 3–5

Recommended Scope & Sequence for Indiana

Grade	Physical Science		Earth Science	Life Science
3	Motion		Water and Climate	Structures of Life
4	Energy	ScienceFLEX Machines at Work and Play*	Soils, Rocks, and Landforms	Senses and Survival
5	Mixtures and Solutions		Earth and Sun	Living Systems

*ScienceFLEX modules are provided by Delta Education®.

Learn more.

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

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