

# Introduction

## EL Education's 3–5 Life Science Modules

Welcome to EL Education's new 3–5 Life Science Modules. This introduction is designed to give you key information about how the curriculum is designed and built, and the principles that underlie it. It will give you a good understanding of what makes this curriculum unique and valuable.

The Life Science Module represents three additional hours per week of instruction during the eight to nine weeks covered by Module 2 of our Grades 3–5 Language Arts Curriculum. Although the Life Science Modules can stand alone, each one connects with and complements Module 2 of the grade-level language arts module lessons.

### Grades 3–5 Life Science Modules

Grade	Life Science Module
3	Diverse life cycles and inheritance of traits in aquatic plants and animals: This module extends learning about frogs from the Language Arts module lessons.
4	Ecosystems and specialized structures and their functions in terrestrial plants and animals: This module extends learning about animal defenses from the Language Arts module lessons.
5	The cycle of energy and matter in a healthy forest ecosystem: This module extends learning about rainforests from the Language Arts module lessons.

Science is about asking questions, observing carefully, investigating, reflecting, and then drawing conclusions based on evidence. Our Grades 3–5 Life Science Modules are designed to provide teachers and students with an inquiry-based approach to rigorous and authentic science instruction.

Each Life Science Module is designed to last eight weeks, with about three hours of science instruction per week. Each module addresses and assesses at least one Next Generation Science Standard (NGSS), explicitly teaches several others, and incorporates the unique features of the NGSS principles of science instruction.

The Life Science Modules have been designed for the elementary school generalist. Each module gives the regular classroom teacher the plans, the background content, and the resources she needs to provide strong, rigorous, literacy-integrated science instruction. For the classroom teacher, the goal of our science curriculum is the recognition that science can be fun—both to learn and to teach.

## Three-Dimensional Science Instruction

The Next Generation Science Standards reflect a significant shift from earlier science instruction. Each of the NGSS standards is described in terms of a *performance expectation*: What should a student know and be able to do with that particular science concept at the end of instruction? In addition to naming a specific performance expectation, each science standard is described in terms of three dimensions. These three dimensions are a key structure of the NGSS and shouldn't be confused with EL Education's Three Dimensions of Student Achievement.

## The Three Dimensions of the Next Generation Science Standards

Science and Engineering Practices	Disciplinary Core Ideas	Cross-Cutting Concepts
Students ask questions and define problems related to the topic. They make explanatory models and revise them as they learn more. They set up investigations, gather evidence, and make thoughtful claims supported by reasoning, both orally and in writing.	This is the actual content and information that students are learning about a topic. In the Life Science Modules, the content is some aspect of life science, depending on the grade. This knowledge functions as the anchor of the module.	Students learn that there are ways of thinking and underlying "big ideas" that are not specific to a topic (or even to science) that extend across and through many topics. This includes ideas like systems, patterns, and cause-effect relationships. They are the "glue" that holds ideas together.

## Key Features of the Life Science Modules

- *Science notebooks.* From the beginning of the module, each student keeps an interactive science notebook and uses it every day. Modeled after the way "real scientists" use notebooks, these are set up for students to include both a prompting question for the particular lesson sequence and space for students to think and work.
- *Scientists Meetings.* Scientists Meetings occur at least once a week. They give students the opportunity to translate their thinking into language that can be shared with others and revisited over time. Talking about ideas allows students to reconsider and revise their developing ideas as they listen to classmates.
- *Flexible time for lessons.* Unlike the Grades 3–5 Language Arts Curriculum components, which are one hour per day, the time allotted for each lesson sequence of a Life Science Module is flexible. The teacher is encouraged to plan science instruction on a weekly, not daily, basis, and adjust times for investigations as needed.
- *Self-coaching prompts for teachers.* Many elementary generalists may lack confidence in teaching science. Every lesson sequence includes questions for the teacher to consider in order to help guide student inquiry, reflect on what students know and need, and anticipate classroom management needs.
- *Common Core ELA/Literacy Standards.* The literacy standards that are so central to the module lessons are central to the Life Science Modules as well. Students engage in close reading of complex text and acquire and use key academic and domain vocabulary. They discuss and process their understanding in frequent, guided conversations in Scientists Meetings, and they write arguments and scientific explanations supported by accurate, reasoned evidence.