



Louisiana Believes

Louisiana Guide to Piloting OpenSciEd: Biology

This document provides guidance to assist Biology teachers with the piloting of OpenSciEd units. This guidance document is considered a “living” document, as we believe that teachers and other educators will find ways to improve the document as they use it. Please send feedback to STEM@la.gov so that we may use your input when updating this guide.

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Overview of OpenSciEd

OpenSciEd is an effort among science educators, curriculum developers, teachers, and philanthropic foundations to improve the supply of and demand for high-quality K-12 science instructional materials by producing open-sourced, freely available instructional materials designed for college and career-ready science standards. OpenSciEd works with classroom educators, experienced science curriculum developers, individual school districts, education non-profits, and the science education community to create and pilot robust, research-based, open-source science instructional materials.

Field Testing and Release of Units

Ten partner states volunteered to join this effort including: California, Iowa, Louisiana, Massachusetts, Michigan, New Mexico, New Jersey, Oklahoma, Rhode Island, and Washington. After the initial development of the OpenSciEd units, the unit prototypes or **field test units** undergo rigorous external review and robust field-testing in participating classrooms across partner states. The field test units are then revised based on the feedback and data collected and submitted to NextGenScience Peer Review Panel before being made freely and openly available to the public upon earning a quality rating. Field test units for Biology, Chemistry, and Physics are available for piloting by Louisiana systems and the revised units will be released on a [rolling basis](#) for the [three-course sequence](#).

Unit Design and Sample Scope and Sequence

The units in the OpenSciEd Sample Scope and Sequence include bundles of performance expectations that are built around an anchor phenomenon. These units are intentionally designed to provide students the opportunity to incrementally make sense of phenomena to build understanding and abilities over time through a coherent storyline. Modification to the sequence or content of lessons within these units could undermine the design, and therefore is not recommended and should be approached with caution and careful consideration.

Contact

Systems interested in piloting should reach out to STEM@la.gov for access to materials and direct support. For questions or requests for additional information on the OpenSciEd initiative and/or materials, contact info@opensci.ed.org.

2023-2024 Sample Scope and Sequence Option 1

This sequence is recommended for schools and systems who want to implement all of the OpenSciEd units recommended in Louisiana for Biology regardless of field test or revised status. Note that decisions will need to be made based on kit purchase and availability along with unit release schedules. Please review the information from [ECA](#) regarding kits.

	B.1 Ecosystem Interactions & Dynamics	B.2 Ecosystems: Matter & Energy	B.3 Inheritance & Variation of Traits	B.4 Natural Selection & Evolution of Populations	B.5 Common Ancestry & Speciation
Number of Lessons <i>*lessons vary in length from 1-5 class periods</i>	11 lessons	10 lessons	TBD approximately 12 lessons	TBD approximately 9 lessons	TBD approximately 7 lessons
Anchor Phenomenon Question	How do ecosystems work, and how can understanding them help us protect them?	What causes fires in ecosystems to burn and how should we manage them?	Who gets cancer and why? Where should we focus efforts on treatment and prevention?	How is urbanization a driving force of evolution? Should we design urban spaces more hospitably for non-human species?	How did polar bears evolve and what will happen to them as their environment changes?
Louisiana Students Standards for Science²	HS-LS2-1 HS-LS2-4* HS-LS2-6 HS-LS2-7 HS-ESS3-3	HS-LS1-5 HS-LS1-6 HS-LS1-7 HS-LS2-4* HS-ESS2-6+ HS-ESS3-6+	HS-LS1-1 HS-LS1-2 HS-LS1-3 HS-LS1-4 HS-LS3-1 HS-LS3-2 HS-LS3-3	HS-LS4-2* HS-LS4-3 HS-LS4-4* HS-LS4-5*	HS-LS4-1 HS-LS4-2* HS-LS4-4* HS-LS4-5* HS-ESS2-7+
Additional Information	Complete Unit available now	Field Test Unit <i>**Contact STEM@la.gov for access**</i> <i>Complete Unit Fall 2023</i>	Field Test Unit <i>**Contact STEM@la.gov for access**</i> <i>Complete Unit Winter 2023/2024</i>	Complete Unit available now	Complete Unit Winter 2023/2024

HS-LS1-8 is not addressed

*The performance expectation is addressed across multiple units. +The performance expectation is addressed across the three-course sequence (Biology, Chemistry, Physics).

²Performance expectations which are unique to the Next Generation Science Standards for Life Science have not been included in this table.

2023-2024 Sample Scope and Sequence Option 2

Note that this sequence is designed for schools and systems that are interested in beginning to implement OpenSciEd and want to prioritize complete revised units. Kit purchases can be made through [ECA](#) or [Aquaphoenix](#) as units are publically released and kits become available for purchase. In this version, schools and systems should use portions of the inquiryHub Biology pilot materials to address standards that fall outside of the suggested OpenSciEd units. Information on inquiryHub materials can be found in the [inquiryHub Biology Materials Access and Purchasing](#).

	B.1 Ecosystem Interactions & Dynamics	inquiryHub Biology Ecosystems Bend 2: Trees	inquiryHub Biology Genetics Bend 1: DMD	B.4 Natural Selection & Evolution of Populations	B.5 Common Ancestry & Speciation
Number of Lessons <i>*lessons vary in length from 1-5 class periods</i>	11 lessons	14 lessons	15 lessons	TBD approximately 9 lessons	TBD approximately 7 lessons
Anchor Phenomenon Question	How do ecosystems work, and how can understanding them help us protect them?	How Do Small Changes Make Big Impacts on Ecosystems?	Who gets cancer and why? Where should we focus efforts on treatment and prevention?	How is urbanization a driving force of evolution? Should we design urban spaces more hospitably for non-human species?	How did polar bears evolve and what will happen to them as their environment changes?
Louisiana Students Standards for Science²	HS-LS2-1 HS-LS2-4* HS-LS2-6 HS-LS2-7 HS-LS2-8 HS-LS2-2 HS-LS4-6 HS-ESS3-3	HS-LS1-2 HS-LS1-3 HS-LS1-4* HS-LS1-5 HS-LS1-6 HS-LS1-7 HS-LS2-4* HS-LS2-6* HS-LS2-7*	HS-LS1-1 HS-LS1-4* HS-LS3-1 HS-LS3-2 HS-LS3-3	HS-LS4-2* HS-LS4-3 HS-LS4-4* HS-LS4-5*	HS-LS4-1 HS-LS4-2* HS-LS4-4* HS-LS4-5* HS-ESS2-7+
Additional Information	Complete Unit available now	Alternate Unit	Alternate Unit	Complete Unit available now	Complete Unit Winter 2023/2024

HS-LS1-8 is not addressed

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LDOE Formative Assessment Resources

Created by Louisiana educators to support formative assessment in the classroom, the Department has released a library of discrete items and item sets correlated to the Louisiana Student Standards for Science. These items, along with LEAP 2025 Practice Test Items, may be used in conjunction with guidance from high-quality curriculum as opportunities for students to demonstrate what they have learned. LDOE Formative Assessment Resources can be found on the [K-12 Science Planning](#) web page.

Unit	Discrete Items	Item Sets and Practice Test Items
B.1 Ecosystem Interactions & Dynamics	Mary's Goldfish, Nutria (HS-LS2-1) Seawater Acidity (HS-LS2-6) Salvinia (HS-LS2-7)	Carbon Dioxide (HS-LS2-6) Wolves (HS-LS2-1, HS-LS2-6) Kit Fox Ecology (HS-LS2-1, HS-LS2-7)
B.2 Ecosystems: Matter & Energy or Alternate inquiryHub Biology Unit	Elodea Lab (HS-LS1-5) Carb Loading (HS-LS1-7) Bald Eagle (HS-LS2-4)	Alaskan Salmon (HS-LS1-6, HS-LS1-4) TonewoodTrees (HS-LS1-7, HS-LS2-4)
B.3 Inheritance & Variation of Traits or Alternate inquiryHub Biology Unit	Sickle Cell Trait, Zygote (HS-LS1-1) Dolly (HS-LS1-4) Tay Sachs (HS-LS3-1) Sandra Laing (HS-LS3-2) Cystic Fibrosis (HS-LS3-3)	Primate Traits (HS-LS3-1, HS-LS3-2) Genes (HS-LS1-4, HS-LS3-1) Stem and IPS Cells
B.4 Natural Selection & Evolution of Populations	Irish Lumper, Daphne Major Finches (HS-LS4-2) Blue Gramma, Super Weeds, Elephants (HS-LS4-3) Oil Spill (HS-LS4-4)	Toad (HS-LS4-5) Adaptations I (HS-LS4-4, HS-LS4-5) Adaptations II (HS-LS4-4, HS-LS4-5)
B.5 Common Ancestry & Speciation	Arkansas Whale, Cytochrome C (HS-LS4-1) Irish Lumper, Daphne Major Finches (HS-LS4-2) Blue Gramma, Super Weeds, Elephants (HS-LS4-3) Oil Spill (HS-LS4-4)	Adaptations I (HS-LS4-4, HS-LS4-5) Adaptations II (HS-LS4-4, HS-LS4-5) Banded Snails (HS-4-5, HS-LS4-4) Scales and Feathers (HS-LS4-1, HS-LS1-1)
Other Standards	Bacteria and Penicillin (HS-LS1-8)	