



Teaching and Learning

Louisiana Guide to Piloting OpenSciEd: Biology

This document provides guidance to assist Biology teachers with the piloting of OpenSciEd Biology 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. All revised units are available for Biology. Chemistry and Physics revised units will be released on a [rolling basis](#) until the entire [three-course sequence](#) is published by Fall of 2024.

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 direct support. For questions or requests for additional information on the OpenSciEd initiative and/or materials, contact info@openscienced.org.

2024-2025 Sample Scope and Sequence Option 1 - Full Implementation

| | B.1 Ecosystem Interactions & Dynamics | B.2 Ecosystems: Matter & Energy | B.3 Inheritance & Variation of Traits | OpenSciEd B.4 Natural Selection & Evolution of Populations | OpenSciEd B.5 Common Ancestry & Speciation |
|---|--|---|---|--|---|
| Number of Lessons <i>*lessons vary in length from 1-5 class periods</i> | 11 lessons | 12 lessons | 12 lessons | 11 lessons | 9 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-LS1-4* 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+ |
| Unit Resources | Unit materials | Unit Materials | Unit Materials | Unit Materials | Unit Materials |

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.

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 Resources](#) 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.3 Inheritance & Variation of Traits | 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.4 Natural Selection & Evolution of Populations | 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) |