



# Louisiana Believes

## Louisiana Guide to Piloting OpenSciEd: Chemistry

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](mailto:STEM@la.gov) so that we may use your input when updating this guide.

Updated August 17, 2023

## Table of Contents

<a href="#">Overview of OpenSciEd</a>	3
<a href="#">Sample Scope and Sequence</a>	4

## 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. 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 & 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](mailto: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@openscienced.org](mailto:info@openscienced.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 information from [ECA](#) regarding kits.

	<b>C.1 Thermodynamics in Earth's Systems</b>	<b>C.2 Structure and Properties of Matter</b>	<b>C.3 Molecular Processes in Earth's Systems</b>	<b>C.4 Chemical Reactions in Our World</b>	<b>C.5 Energy from Chemical &amp; Nuclear Reactions</b>
<b>Number of Lessons</b> <i>*lessons vary in length from 1-5 class periods</i>	13 lessons	TBD approximately 14 lessons	TBD approximately 12 lessons	TBD approximately 14 lessons	TBD approximately 12 lessons
<b>Anchor Phenomenon Question</b>	How can we slow the flow of energy on Earth to protect vulnerable coastal communities?	What causes lightning and why are some places safer than others when it strikes?	How could we find and use the resources we need to live beyond Earth?	Why are oysters dying, and how can we use chemistry to protect them?	Why are oysters dying, and how can we use chemistry to protect them?
<b>Louisiana Students Standards for Science<sup>2</sup></b>	<b>HS-PS3-1+</b> <b>HS-PS3-4</b> HS-ESS2-2 HS-ESS2-4 HS-ESS2-7 HS-ESS3-1 HS-ESS3-5 HS-ESS3-6	<b>HS-PS1-1*</b> <b>HS-PS1-2*</b> <b>HS-PS1-3*</b> <b>HS-PS2-4+</b> <b>HS-PS2-6*</b> <b>HS-PS3-2+</b> <b>HS-PS3-5+</b>	<b>HS-PS1-1*</b> <b>HS-PS1-2*</b> <b>HS-PS1-3*</b> <b>HS-PS2-6*</b> HS-ESS1-2+ HS-ESS2-1+ HS-ESS1-5	<b>HS-PS1-5</b> <b>HS-PS1-6</b> <b>HS-PS1-7</b> HS-ESS2-6+ HS-ESS3-4*	<b>HS-PS1-4</b> <b>HS-PS1-8+</b> <b>HS-PS3-1+</b> <b>HS-PS3-2+</b> HS-ESS3-2+ HS-ESS3-4*
<b>Additional Information</b>	<a href="#">Complete Unit</a> available now	Field Test Unit <b>**Contact <a href="mailto:STEM@la.gov">STEM@la.gov</a> for access**</b> <i>Complete Unit Fall 2023</i>	Field Test Unit <b>**Contact <a href="mailto:STEM@la.gov">STEM@la.gov</a> for access**</b> <i>Complete Unit Winter 2023/2024</i>	<a href="#">Complete Unit</a> available now	Field Test Unit <b>**Contact <a href="mailto:STEM@la.gov">STEM@la.gov</a> for access**</b> <i>Complete Unit Summer 2024</i>

HS-PS3-6 is a Louisiana-specific standard and not addressed; HS-PS3-3 is addressed in the Physics course

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

<sup>2</sup>Performance 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 [Louisiana Chemistry Sample Scope and Sequence](#) pilot materials to address standards that fall outside of the suggested OpenSciEd units. Information on kits for alternate units can be obtained through [Carolina](#).

	C.1 Thermodynamics in Earth's Systems	LA Scope & Sequence Sample Unit: inquiryHub Search for Life	LA Scope & Sequence Sample Unit: inquiryHub Nuclear Energy	C.4 Chemical Reactions in Our World	LA Scope & Sequence Sample Unit: inquiryHub Fuels
<b>Number of Lessons</b> <i>*lessons vary in length from 1-5 class periods</i>	13 lessons	14 lessons	12 lessons	TBD approximately 14 lessons	8 lessons
<b>Anchor Phenomenon Question</b>	How can we slow the flow of energy on Earth to protect vulnerable coastal communities?	How Should We Search for Life Beyond Earth?	How could a small amount of nuclear material power an entire city but also destroy it? Should we use it?	Why are oysters dying, and how can we use chemistry to protect them?	Why Do We Use Gasoline Instead of Rocket Fuel?
<b>Louisiana Students Standards for Science<sup>2</sup></b>	HS-PS3-1+ HS-PS3-4 HS-ESS2-2 HS-ESS2-4 HS-ESS2-7 HS-ESS3-1 HS-ESS3-5 HS-ESS3-6	HS-PS1-1 HS-PS1-2 HS-PS1-3 HS-PS2-6	HS-PS1-8 HS-ESS3-2	HS-PS1-5 HS-PS1-6 HS-PS1-7 HS-ESS2-6+ HS-ESS3-4*	HS-PS1-4 HS-PS3-1
<b>Additional Information</b>	<a href="#">Complete Unit</a> available now	<a href="#">Alternate Unit</a>	<a href="#">Alternate Unit</a>	<a href="#">Complete Unit</a> available now	<a href="#">Alternate Unit</a>

HS-PS3-6 is a Louisiana-specific standard and not addressed; HS-PS3-3 is addressed in the Physics course

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

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