Louisiana Guide to Implementing BSCS Biology: Understanding for Life

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Purpose

To assist teachers with implementing the BSCS Biology: Understanding for Life curriculum, this document provides guidance on how BSCS Biology: Understanding for Life units correlate with the Louisiana Student Standards for Science (LSSS). The BSCS Biology: Understanding for Life curriculum provides ample instructional guidance for teachers. This Louisiana Guide to Implementing BSCS Biology: Understanding for Life goes a step further to point out places in which teachers may need to make strategic decisions, considering student needs.

While the BSCS Biology: Understanding for Life curriculum may include performance expectations featured in other courses, 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, should be approached with caution and careful consideration.

This guidance document is considered a 'living' document, reflecting the expectation that teachers and other educators will continue to identify opportunities for improvement as it is applied in practice. Please send feedback to STEM@la.gov so that the LDOE may incorporate your suggestions when updating this guide.

Standards by Unit[1]

	Unit 1	Unit 2	Unit 3	Unit 4
Number of Lessons (*lessons vary in length from 1-4 class periods)*	16 lessons	16 lessons	16 lessons	16 lessons
Anchor Phenomenon Question	How can bacteria make us so sick?	Why do some people get heart disease and not others, and what can we do to prevent it?	Can we use scientific and social understanding of nutrition and natural resources to improve a food system?	Why are so many species declining now while a few seem to be expanding, and why does it matter?
Louisiana Student Standards for Science	HS-LS1-1* HS-LS1-2 HS-LS1-3 HS-LS2-1* HS-LS4-2* HS-LS4-3* HS-LS4-4*	HS-LS1-1* HS-LS1-4 HS-LS3-1 HS-LS3-2 HS-LS3-3	HS-LS1-5 HS-LS1-6 HS-LS1-7 HS-LS2-1* HS-LS2-3 HS-LS2-4 HS-LS2-5 HS-ESS3-4	HS-LS2-1* HS-LS2-2 HS-LS2-6 HS-LS2-7 HS-LS2-8 HS-LS4-1 HS-LS4-2* HS-LS4-3* HS-LS4-4* HS-LS4-5 HS-LS4-6
Pacing Guidance	9-10 Weeks	8-9 Weeks	7-8 Weeks	7-8 Weeks

** The performance expectation is addressed in other units.*

[1] *Adapted from guidance developed by BSCS Biology*

This table does not include performance expectations unique to the Next Generation Science Standards for Life Science.

Investigative Phenomena by Unit[1]

Unit	Investigative Phenomena Questions
Unit 1 How can bacteria make us so sick?	**Chapter 1:** How can bacteria cause infections? **Chapter 2:** How does the body respond to infections? **Chapter 3:** What explains the increasing incidence of antibiotic-resistant infections?
Unit 2 Why do some people get heart disease and not others, and what can we do to prevent it?	**Chapter 4:** What is cholesterol, and what could cause it to be high? **Chapter 5:** What other genetic factors could contribute to our risk of heart disease, and what determines which ones we get? **Chapter 6:** What contributes to heart disease and other complex diseases, and how much influence do we have over outcomes?
Unit 3 Can we use scientific and social understanding of nutrition and natural resources to improve a food system?	**Chapter 7:** What do we need from food? **Chapter 8:** Why do some eating patterns require more land than others? **Chapter 9:** How can we design effective solutions that improve food systems?
Unit 4 Why are so many species declining now while a few seem to be expanding, and why does it matter?	**Chapter 10:** Why are some species, like coyotes, explaining while most others are contracting? **Chapter 11:** What explains why scientists are concerned we are experiencing a 6th mass extinction? **Chapter 12:** How are changes in biodiversity affecting ecosystems (and us as part of ecosystems), and why does it matter?

[1] *Adapted from guidance developed by BSCS Biology*

LDOE Formative Assessment Resources

LDOE formative assessment resources include a library of Louisiana educator-created discrete items and sets, LEAP Practice Test Items, and LEAP Assessment Guide Items correlated to the Louisiana Student Standards for Science. These resources can be used alongside guidance from a high-quality curriculum to provide opportunities for students to showcase their learning.

Unit	Discrete Items	Sets
Unit 1 How can bacteria make us so sick?	***LDOE Formative Assessment Items* (Password - Educate2020):** • Runners (HS-LS1-2) • Goldfish, Blood Sugar (HS-LS1-3) ***LEAP Practice Test Standalone Items:*** • 34, 39 (HS-LS-1-2) • 32, 38 (HS-LS1-3) ***LEAP Assessment Guide Items:*** • Rabbit Muscle (HS-LS1-2) ***LEAP Science Released Items:*** • *NA*	***LDOE Formative Assessment Items* (Password - Educate2020):** ***LEAP Practice Test Standalone Items:*** • Task Set: Banded Snails (HS-LS4-5 and HS-LS4-4) ***LEAP Assessment Guide Items:*** • *NA* ***LEAP Science Released Items:*** • *NA*
Unit 2 Why do some people get heart disease and not others, and what can we do to prevent it?	***LDOE Formative Assessment Items* (Password - Educate2020):** • Sickle Cell Trait, Zygote (HS-LS1-1) • Dolly (HS-LS1-4) • Tay-Sachs Disease (HS-LS3-1) • Sandra Laing (HS-LS3-2) ***LEAP Practice Test Standalone Items:*** • *NA* ***LEAP Assessment Guide Items:*** • *NA* ***LEAP Science Released Items:*** • Genetic Testing (HS-LS3-3)	***DOE Formative Assessment Items* (Password - Educate2020):** • Task Set: Bee Communication (HS-LS1-1 and HS-LS1-2) • Item Set: Stem and IPS Cells (HS-LS-1-4 and HS-LS3-1) ***LEAP Practice Test Standalone Items:*** • Item Set: Primate Traits (HS-LS3-1 and HS-LS3-2) ***LEAP Assessment Guide Items:*** • *NA* ***LEAP Science Released Items:*** • Task Set: Migration of Pink Salmon (HS-LS3-1 and HS-LS3-2)

Unit	Discrete Items	Sets
Unit 3 Can we use scientific and social understanding of nutrition and natural resources to improve a food system?	***LDOE Formative Assessment Items* (Password - Educate2020):** • Elodea Lab (HS-LS1-5) • Carb Loading (HS-LS1-7) • Bald Eagle (HS-LS2-4) ***LEAP Practice Test Standalone Items:*** • 14, 23 (HS-LS1-5) • 21 (HS-LS-1-7) ***LEAP Assessment Guide Items:*** • *NA* ***LEAP Science Released Items:*** • *NA*	***LDOE Formative Assessment Items* (Password - Educate2020):** • *NA* ***LEAP Practice Test Standalone Items:*** • Item Set: TonewoodTrees (HS-LS1-5 and HS-LS2-4) ***LEAP Assessment Guide Items:*** • *NA* ***LEAP Science Released Items:*** • *NA*
Unit 4 Why are so many species declining now while a few seem to be expanding, and why does it matter?	***LDOE Formative Assessment Items* (Password - Educate2020):** • Mary's Goldfish, Nutria (HS-LS2-1) • Seawater Acidity (HS-LS2-6) • Salvinia (HS-LS2-7) • 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) ***LEAP Practice Test Standalone Items:*** • 40 (HS-LS2-6) • 33, 35 (HS-LS4-2) • 37, 41 (HS-LS4-3)	***LDOE Formative Assessment Items* (Password - Educate2020):** • Item Set: Wolves (HS-LS2-1 and HS-LS2-6) • Item Set: Adaptations I (HS-LS4-4 and HS-LS4-5) • Item Set: Adaptations II (HS-LS4-4 and HS-LS4-5) ***LEAP Practice Test Standalone Items:*** • Item Set: Kit Fox Ecology (HS-LS2-1 and HS-LS2-7 • Task Set: Banded Snails (HS-LS4-5 and HS-LS4-4) • Item Set: Scales and Feathers (HS-LS4-1 and HS-LS1-1) ***LEAP Assessment Guide Items:*** • Item Set: Biodiversity in Longleaf Pine Ecosystems (HS-LS2-1 and HS-LS2-7)

Unit	Discrete Items	Sets
Unit 4 *continued*	***LEAP Assessment Guide Items:*** • Reed Grasses (HS-LS4-4) ***LEAP Science Released Items:*** • Costa Rica (HS-LS2-7) • Rainy Season (HS-LS4-4)	***LEAP Science Released Items:*** • Item Set: The Galapagos Islands (HS-LS4-5 and HS-LS4-3) • Item Set: Ebola Virus (HS-LS2-1)
Additional Standards	***LDOE Formative Assessment Items* (Password- Educate2020):** • Bacteria & Penicillin (HS-LS1-8) ***Biology LEAP Practice Test Standalone Items*:** • 15, 36 (HS-LS1-8) ***LEAP Assessment Guide Items*:** • N/A ***LEAP Science Released Items:***	***LDOE Formative Assessment Sets* (Password- Educate2020):** • N/A ***Biology LEAP Practice Test Sets*:** • N/A ***LEAP Assessment Guide Sets*:** • N/A ***LEAP Science Released Items:*** • Task Set: Viruses Attack (HS-LS1-8 and HS-LS1-4)*

**Includes a standard from a previous unit.*