

Louisiana Believes

LEAP 2025 and Inquiry Hub

2019 Teacher Leader Summit

Purpose

Quality science instruction requires that teachers

- understand the standards and the shifts called for by the standards,
- have access to a high quality curriculum, and
- understand what students will be held accountable for on the assessment.

This segment of the session will help you understand the connections between the standards, instruction, and assessment.

Instructional Shifts

In the classroom, students

On the test, students

Apply Content Knowledge (DCI)

- develop skills and content knowledge
- investigate and apply content knowledge to scientific phenomena

- answer questions that require skills and content knowledge
- use stimulus materials connected to a scientific phenomenon

Investigate, Evaluate, and Reason Scientifically (SEP)

- do more than learn about science concepts
- model and apply the practices of scientists and engineers
- investigate real-world phenomena and solve design problems

- do more than answer recall questions about science
- apply the practices of scientists and engineers
- investigate each real-world phenomenon and design solutions to given problems

Connect Ideas Across Disciplines (CCC)

- make connections across the domains of science: life science; physical science; earth and space science; environmental science; and engineering, technology, and applications of science

- respond to sets of questions that assess application of knowledge across the domains of science for a comprehensive picture of student readiness for their next grade or course in science

Inquiry Hub and Assessment

The IHub unit assessments and LEAP 2025 Biology assessment align to the instructional shifts inherent in the LSSSS.

Students will **apply content knowledge and skills** as they **investigate, evaluate, and reason scientifically about a given phenomenon** that may require **connecting ideas across disciplines**.

Let's compare the "Evolution of Swallows" assessment item set from the IHub unit on evolution and the extended-response task set "Banded Snails" from the [LEAP 2025 Biology practice test](#).

Inquiry Hub and Assessment: Read the Stimuli for Each Set

“Evolution of Swallows” item set from Inquiry Hub Evolution Unit

Evolution of Swallows

In the 1970's along the I-80 highway in Keith County, Nebraska, drivers started noticing large numbers of dead swallows on the road. This led to a 45-year long study on swallow roadkill to figure out why this was happening.

Cliff Swallows traditionally built their nests on vertical cliff faces. However, with the expansion of roads, they have adopted many bridges, overpasses, and culverts as their colonial nesting sites. Their nests are grey or brown with openings at one end. Cliff Swallows zoom around in complicated aerial patterns to catch insects for food.



Image source: http://www.cell.com/cms/attachment/2021743115/2041577164/gr1_lrg.jpg

Source of data: Brown, C. R., & Brown, M. B. (2013). [Where has all the road kill gone?](#) Current Biology, 23(6), 233-234.

“Banded Snails” item set from LEAP 2025 Biology Practice Test

Banded Snails

Banded snails, found in Central Europe, are small- to medium-sized snails that are members of the *Helicidae* family. Their shells are found in a range of colors and patterns, from yellow to dark brown and from no bands (or stripes) to five bands. Image 1 shows an example of a banded snail with five bands.

Image 1. Banded Snail with Five Bands



Banded snails are prey to several bird species, including the song thrush. The color and pattern of the bands are based on genetics and heredity, and follow the Mendelian rules of inheritance. In addition, snails with lighter-colored shells have a lower body temperature than those with darker-colored shells. In some areas, snails with many different colors and band patterns are found. In other areas, certain shell colors or patterns are more common.

Inquiry Hub and Assessment: Compare the Stimuli for Each Set

**“Evolution of Swallows” item set from
Inquiry Hub Evolution Unit**

**“Banded Snails” item set from LEAP
2025 Biology Practice Test**

In the Inquiry Hub unit on evolution, students engage in science and engineering practices to make sense of evolution-related phenomena.

LEAP 2025 test items and sets, the questions and tasks in the curriculum assessments are anchored with a phenomenon specifically chosen to require student investigation, evaluation, and reasoning.

Sets are anchored in a phenomenon and students need to use content knowledge, SEPs, and CCCs to make sense of the phenomenon and successfully answer assessment questions.

You may notice the phenomenon for the IHub unit set is much shorter than the one for the practice test task set. The practice test task set is modeled on the structure of summative task set which assesses the culmination of student learning for the year. This unit item set is one of four from the unit and it assesses a snapshot of student learning within that one unit.

Inquiry Hub and Assessment: Compare Question 1 from “Evolution of Swallows” and Question 16 from “Banded Snails”

“Evolution of Swallows” item set from Inquiry Hub Evolution Unit

Question 1.

What do you think are some of the challenges for cliff swallows living in this environment that did not exist before the highway was built?

“Banded Snails” item set from LEAP 2025 Biology Practice Test

16. Which claim is supported by evidence from Graph 1?

- A. Snails with yellow shells live in all three habitats, but those with banding have a survival advantage in hedge habitats.
- B. Snails with yellow shells and banding are less able to survive in wood habitats.
- C. Snails with brown shells live in all three habitats, but they have a survival advantage in meadow habitats.
- D. Snails with brown shells and no banding are most often found in meadow habitats.

Like LEAP 2025 test items and sets, the questions and tasks in the IHub unit assessments require students to determine *what* of the content knowledge and skills they’ve acquired through their course of study *can and should* be used to answer questions and solve problems about the phenomenon.

Both sets include questions that have students use information from the phenomenon and their own Biology knowledge to produce valid lines of reasoning/explanation supported with evidence.

What content knowledge and skills do students need to have to answer these questions?

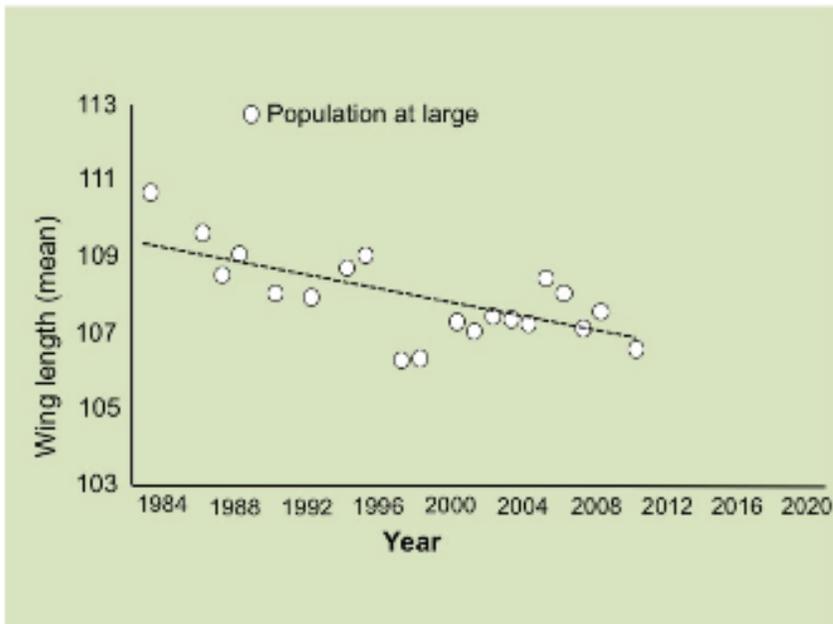
Inquiry Hub and Assessment: Compare Question 4 from “Evolution of Swallows” and Question 18 from “Banded Snails”

“Evolution of Swallows” item set from Inquiry Hub Evolution Unit

“Banded Snails” item set from LEAP 2025 Biology Practice Test

Question 4.

Draw a dot on the chart below to indicate what you predict the average wing length will be in 2020. How did you estimate where to place the dot? What do you assume in the environment was changing or staying the same in the future?



Select the correct answer from **each** drop-down menu to complete the sentence.

As the climate in northern regions changes, the population of snails with darker-colored shells will likely because they have than snails with lighter-colored shells.

Like LEAP 2025 test items and sets, the questions and tasks in the IHub unit assessments allow students to pull in Crosscutting Concepts like pattern recognition and draw upon their proficiency with Practices such as utilizing mathematics and computational thinking to apply their skills and knowledge.

Both sets include questions that have students recognize and apply patterns reflected in cause and effect data

Resources

[LEAP 2025 Assessment Guide for Biology](#)

[LEAP 2025 Biology Practice Test](#)

- **Teacher Access:**
 - Google Chrome browser: <https://wbte.drcedirect.com/LA/#portal/la/510848/ott/8/username/password/false>
 - Teacher Access paper version in [eDIRECT](#)
- **Student Access** (available Fall 2019): requires INSIGHT; available online or braille
- **Materials** for administering, scoring, and using
 - [Practice Test Quickstart Guide](#)
 - [LEAP 2025 Biology Practice Test Answer Key](#)
 - [LEAP 2025 Science Practice Test Guidance](#)
 - [LEAP 2025 Practice Test Webinar for Teachers](#)
 - Annotated Student Responses for Practice Test Extended-Response Tasks (available Fall 2019)

Questions about Assessment?

- What questions do you have concerning the instructional shifts in assessment?
- What questions do you have about the LEAP 2025 Biology assessment or the resources?
- What other assessment-related questions do you have?

EAGLE and Practice Test Items

Inquiry Hub Unit	EAGLE and Practice Test Items	
Evolution	<ul style="list-style-type: none"> ● 998030 (HS-LS4-1) ● 998021 (HS-LS4-2) ● 998023 (HS-LS4-3) 	<ul style="list-style-type: none"> ● Toad (HS-LS4-5) ● Adaptations I (HS-LS4-4, HS-LS4-5) ● Adaptations II (HS-LS4-4, HS-LS4-5)
Genetics	<ul style="list-style-type: none"> ● Sickle Cell Trait (HS-LS1-1) ● 998029 (HS-LS1-4) ● 1014817 (HS-LS3-3) 	<ul style="list-style-type: none"> ● Genes (HS-LS1-4, HS-LS3-1) ● Scales and Feathers (HS-LS4-1, HS-LS1-1) ● Primate Traits (HS-LS3-1, HS-LS3-2)
Ecosystems	<ul style="list-style-type: none"> ● 1014809 (HS-LS1-2) ● 998022 (HS-LS1-3) ● Blood Sugar Levels (HS-LS1-3) ● 1014813 (HS-LS1-5) ● 1014814 (HS-LS1-7) ● Goldfish (HS-LS2-1) 	<ul style="list-style-type: none"> ● Carbon Dioxide (HS-LS2-6) ● Wolves (HS-LS2-1, HS-LS2-6) ● Alaskan Salmon (HS-LS1-6, HS-LS1-4) ● Tonewood Trees (HS-LS1-7, HS-LS2-4) ● Banded Snails (HS-4-5, HS-LS4-4) ● Kit Fox Ecology (HS-LS2-1, HS-LS2-7)

Next Steps

- Dig into your curriculum and the built-in assessments.
- Examine how the science instructional shifts are evidenced throughout.
- Discuss these findings with teachers in your school and school system.

Email assessment@la.gov with any assessment and/or accountability questions.

Email Lydia.Hill@la.gov with content questions.

Thank you!