

Louisiana Believes

Science Standards

March 2017

Schedule

- Framework of LSS for science
- Instructional shifts
- Implementation

Framework of LSS for Science

Coding and Descriptor

Performance Expectation: States what students should be able to do to demonstrate that they have met the standard. Performance expectations are built on the foundation of the science and engineering practices, disciplinary core ideas, and crosscutting concepts.

Clarification Statement: Provides examples or additional clarification of the performance expectation.

Science and Engineering Practices: Detail the behaviors that students should engage in that mimic those of scientists and engineers.	Disciplinary Core Ideas: Describe the most essential ideas (content) in the major science disciplines.	Crosscutting Concepts: Ideas that have applications across all areas of science.
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Framework of LSS for Science

Standards identify key student knowledge and skills that students should demonstrate by the end of the year.

7-MS-LS2-4 Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.

CS: Emphasis is on recognizing patterns in data, making inferences about changes in populations, and on evaluating empirical evidence supporting arguments about changes in ecosystems.

SEP: 7. Engaging in argument from evidence: Construct, use, and/or present an oral and written argument supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for a phenomenon or a solution to a problem.

DCI: Ecosystem Dynamics, Functioning, and Resilience
Ecosystems are dynamic in nature; their characteristics can vary over time. Disruptions to any physical or biological component of an ecosystem can lead to shifts in all its populations.

CC: Stability and Change: Small changes in one part of a system might cause large changes in another part.

Performance Expectations

Performance expectations state what students should be able to do to demonstrate that they have met the standard.

- do not specify every intermediate piece of knowledge needed to demonstrate the performance expectation
- leave room for teachers and curriculum writers to support student understanding
- do not prescribe the instructional steps

Science and Engineering Practices

1. Asking questions (science) and defining problems (engineering)
2. Developing and using models
3. Planning and carrying out investigations
4. Analyzing and interpreting data
5. Using mathematics and computational thinking
6. Constructing explanations (science) and designing solutions (engineering)
7. Engaging in argument from evidence
8. Obtaining, evaluating, and communicating information

Disciplinary Core Ideas

Physical Science	PS1: Matter and its interactions PS2: Motion and stability: Forces and Motions PS3: Energy PS4: Waves and their applications in technologies for information transfer
Life Science	LS1: From molecules to organism: Structures and processes LS2: Ecosystems: Interactions, energy, and dynamics LS3: Hereditary: Inheritance and variation of traits LS4: Biological evolution: Unity and diversity
Earth and Space Science	ESS1: Earth's place in the universe ESS2: Earth's systems ESS3: Earth and Human activity
Engineering, Technology, and Applications of Science	ETS1: Engineering design ETS2: Links among engineering, technology, science, and society

Crosscutting Concepts

1. Patterns
2. Cause and effect
3. Scale, proportion, and quantity
4. Systems and system models
5. Energy and matter
6. Structure and function
7. Stability and change

Schedule

- Framework of standards
- Instructional shifts
- Implementation

Louisiana Student Standards for Science Instructional Shifts

The Louisiana Student Standards for Science represent the knowledge and skills needed for students to successfully transition to postsecondary educations and the workplace. The standards call for students to:

- Apply content knowledge to explain real world phenomena and to design solutions
- Demonstrate the practices of scientists and engineers
- Connect scientific learning to all disciplines of science
- Express ideas grounded in scientific evidence

Louisiana Student Standards for Science Instructional Shifts

Review the videos.

[Video 1](#): elementary

[Video 2](#): middle school

[Video 3](#): high school

- As a table, discuss how the instructional shifts were implemented into the lesson and how the approach to instruction differs from current classroom instruction.
- Give two specific examples of how the teacher interweaved three-dimensional learning into her classroom.

Schedule

- Framework of standards
- Instructional shifts
- Implementation

Louisiana Student Standards for Science

Area	Support and Timeline
Curriculum and Resources	<p data-bbox="523 439 1070 472">Instructional Materials Review</p> <ul data-bbox="552 491 1561 625" style="list-style-type: none"><li data-bbox="552 491 1561 529">● Rubric released and call for submissions - <i>March 2017</i><li data-bbox="552 539 1418 578">● Hiring and training of TLA's - <i>April / May 2017</i><li data-bbox="552 588 1174 625">● First review released - <i>Fall 2017</i> <p data-bbox="523 694 900 726">New Standards Tools</p> <ul data-bbox="552 745 1591 962" style="list-style-type: none"><li data-bbox="552 745 1528 783">● Connections to ELA and math standards - <i>April 2017</i><li data-bbox="552 802 1522 841">● Key shifts and instructional implications - <i>April 2017</i><li data-bbox="552 859 1476 898">● Middle School sample transition plan - <i>June 2017</i><li data-bbox="552 916 1591 955">● Sample scope and sequence documents - <i>Summer 2017</i>

Louisiana Student Standards for Science

Area	Support and Timeline
Professional Development	<p data-bbox="523 444 871 482">Self-paced Learning</p> <ul data-bbox="552 501 1731 539" style="list-style-type: none"><li data-bbox="552 501 1731 539">● Live and recorded webinars on new standards - <i>May - July 2017</i> <p data-bbox="523 608 784 646">Collaborations</p> <ul data-bbox="552 658 1267 743" style="list-style-type: none"><li data-bbox="552 658 1267 696">● Session at March 2017 collaboration<li data-bbox="552 708 1267 743">● Sessions at 2017-2018 collaborations <p data-bbox="523 812 944 851">Teacher Leader Summit</p> <ul data-bbox="552 862 1537 901" style="list-style-type: none"><li data-bbox="552 862 1537 901">● Multiple 2-day and 1-day institutes at the TL Summit <p data-bbox="523 969 672 1008">Vendors</p> <ul data-bbox="552 1019 1760 1205" style="list-style-type: none"><li data-bbox="552 1019 1760 1105">● The Department works with vendors to align trainings to the new standards<li data-bbox="552 1116 1537 1155">● Multiple vendors offering intensive summer sessions<li data-bbox="552 1166 1476 1205">● Vendors offering ongoing coaching opportunities

Louisiana Student Standards for Science

Area	Support and Timeline
Assessment	<p data-bbox="523 444 1566 482">Previous RFP secured vendor for assessment development</p> <ul data-bbox="552 501 1644 658" style="list-style-type: none"><li data-bbox="552 501 1282 539">● Field test for grades 3-8 – <i>Spring 2018</i><li data-bbox="552 558 1155 596">● Operational test – <i>Spring 2019</i><li data-bbox="552 615 1644 654">● Platform the same as ELA, Math, Social Studies, and EAGLE <p data-bbox="523 729 942 768">EAGLE Assessment Tool</p> <ul data-bbox="552 801 1769 972" style="list-style-type: none"><li data-bbox="552 801 1769 901">● Teacher Leader Advisors, who will help create sample assessment items, hired in April/May 2017 and trained during the summer<li data-bbox="552 929 1663 972">● EAGLE items created throughout the 2017-2018 school year

Contacts

Lydia.hill@la.gov

Jill.cowart@la.gov