



CONNECTICUT STATE
DEPARTMENT OF EDUCATION

CONNECTICUT STATE DEPARTMENT OF EDUCATION

NGSS Standards Implementation, Instruction, Curriculum Resources



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Academics >

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Positive School Climate >

School Choice >

School Transformation >

Student Supports >

Search Department of Education

by Keyword



K-12 Education

Most Popular Results

List View ▾

[Apply to RSCO Open Choice or Magnet School](#)

The Regional School Choice Office (RSCO) lottery application includes the Hartford Region Open Choice Program and approximately 45 interdistrict magnet schools. Parents and guardians with children who reside in Connecticut at the time of application are eligible to apply.

[Carl D. Perkins and Career and Technical Education](#)

View Carl D. Perkins grants, publications, and Career and Technical Education Subject content.

[Bullying and Harassment](#)

Bullying cannot be a rite of passage in our nation's schools. Instead, our schools must be safe and nurturing environments that promote learning and full participation by all students.

[Mastery-Based Learning Resource Center](#)

This website is designed to support local school districts that choose to implement Mastery-Based Learning, as well as families and community partners who want to learn more about this model.

[School Nutrition Programs](#)

Information and guidance on the U.S. Department of Agriculture's school nutrition programs, including the National School Lunch Program (NSLP), School Breakfast Program (SBP), Afterschool Snack Program (ASP), Fresh Fruit and Vegetable Program (FFVP), Special Milk Program (SMP), and Seamless Summer Option (SSO) of the NSLP.



- Arts >
- Career and Technical Education >
- Committees and Councils >
- Comprehensive School Health Education >
- Computer Science >
- CT Core Standards >
- Education Technology >
- English Learners >
- Gifted and Talented >
- Literacy - English Language Arts >
- Mastery-Based Learning >
- Mathematics >
- Physical Education >
- Science >
- Social Studies >
- Summer Learning >



Academics

15 of 58 Results

List View ▾

[10 Principles of Mastery-Based Learning](#)

To help schools establish a philosophical and pedagogical foundation for their work, the Great Schools Partnership created the following "Ten Principles of Mastery-Based Learning," which describe the common features found in the most effective mastery-based systems.

[Academic Office](#)

Home page of the State Department of Education's Academic Office

[Additional Communications Tools](#)

Brochures, handouts, and presentations about how Mastery-Based Learning meets the needs of students and how it is different from traditional education

[Agricultural Science and Technology Education](#)

Agricultural Science and Technology Education prepares students for careers in the areas of agriculture mechanics, animal science, aquaculture and marine technologies, natural resources and environmental systems and plant science.

[Bilingual Education Programs](#)

Statutory requirements for educating English Language Learners (ELLs) not served in required programs of bilingual education.

[Business and Finance Technology](#)

Business and Finance Technology Education in Connecticut is offered through the middle school and comprehensive high school. These courses are an integral part of the total academic structure that

Science Standards and Resources

[Overview](#)[Related Resources](#)[Contact](#)

Provided by:

[Department of Education](#)

Overview

A foundation in scientific literacy prepares students to be confident and capable lifelong learners who are equipped with the skills needed to access, understand, evaluate and apply information in various contexts. Regardless of their academic standing, all students should have access to a rich and challenging science curriculum that will promote scientific literacy, while inspiring and supporting advanced study and science-related careers.



Next Generation Science Standards

- Nov. 4, 2015 - The [Next Generation Science Standards](#) (NGSS) were adopted by unanimous vote of the Connecticut State Board of Education.

NGSS Professional Development

- [Next Generation Science-CT](#): an introduction to Next Generation Science Standards (NGSS) and a broad overview of the changes to science teaching and learning envisioned in the Framework for K-12 Science Education (National Research Council, 2012). No-cost; web-based; self-paced; 15 modules offer 16 to 60 hours of structured professional learning for groups of educators.
- [Next Gen Science Exemplar System](#) (NGSX): a web-based, expert-led experience of a “3-Dimensional” culture of science learning, where learners use science “practices” (specifically modeling and arguing with evidence) and “crosscutting concepts” to co-construct scientific explanations of real-world phenomena. Expert-facilitated; tuition fee; 30-36 hours of seminar-style learning for groups of teachers.
- Department of Energy and Environmental Protection (DEEP) PD/PL Opportunities: by Connecticut state statute, DEEP addresses climate change and environmental education as part of their educational/educator series. DEEP has a variety of educational facilities throughout Connecticut. The following locations offer educational programs and exhibits that include climate change topics: Kellogg Environmental Center, Goodwin Conservation Center, Sessions Woods Conservation Center, Meigs Point Nature Center. Educator workshops are available for all CT educators to attend. National educational resource materials, local supplemental materials, resource contacts, and classroom support are provided as needed. Full workshops are structured for five-hour time periods with arrangements being available for shorter sessions. [Full list of DEEP resources](#).

NGSS Resources

- [CT NGSS Parent Toolkit](#)  is a short document that will guide parents to better understand the shifts in science education demanded by the NGSS. It includes many useful links to resources that will help parents identify the various components of an exemplary science program.
- [CT NGSS Toolkit for Local School Boards](#)  is a brief document that will guide school board members to better understand the shifts in science education demanded by the NGSS. It includes many useful links to resources that will help school boards identify the myriad components of an exemplary science program.
- CSDE NGSS Webinar Series - short NGSS webinars on a variety of topics can be found on the [CSDE YouTube page](#).

How Do NGSS Differ From Previous Science Standards?

MORE EMPHASIS

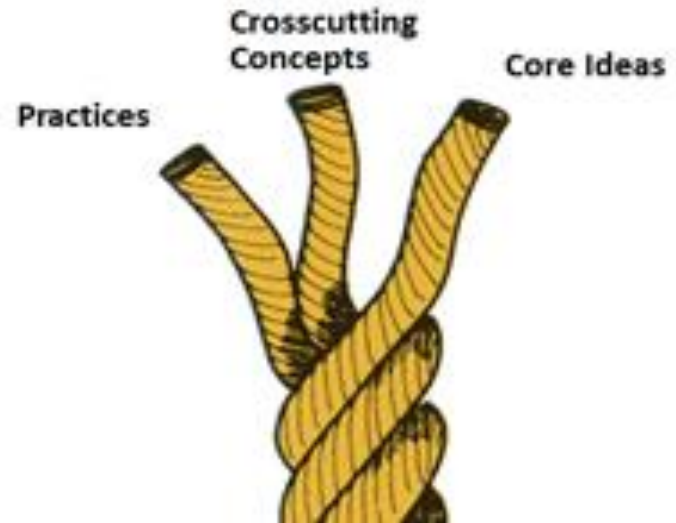
- Students *developing* explanations using evidence
- Students investigating explanations of *real-world phenomena*
- Students reading various *informational news* articles, magazines, journals and web-based resources

LESS EMPHASIS

- Students *repeating* explanations given by teacher or textbook
- Students *following instructions* to do experiments
- Students reading *textbooks* and answering questions at the end of the chapter

Students Learn Through 3 Intertwined “Dimensions” of Science

The NGSS are written as “Performance Expectations that blend a **Practice** with a **Core Idea** and a **Crosscutting Concept**.”



Engineering
Integrated with Science

SAMPLE NGSS PERFORMANCE EXPECTATION WITH 3 DIMENSIONS

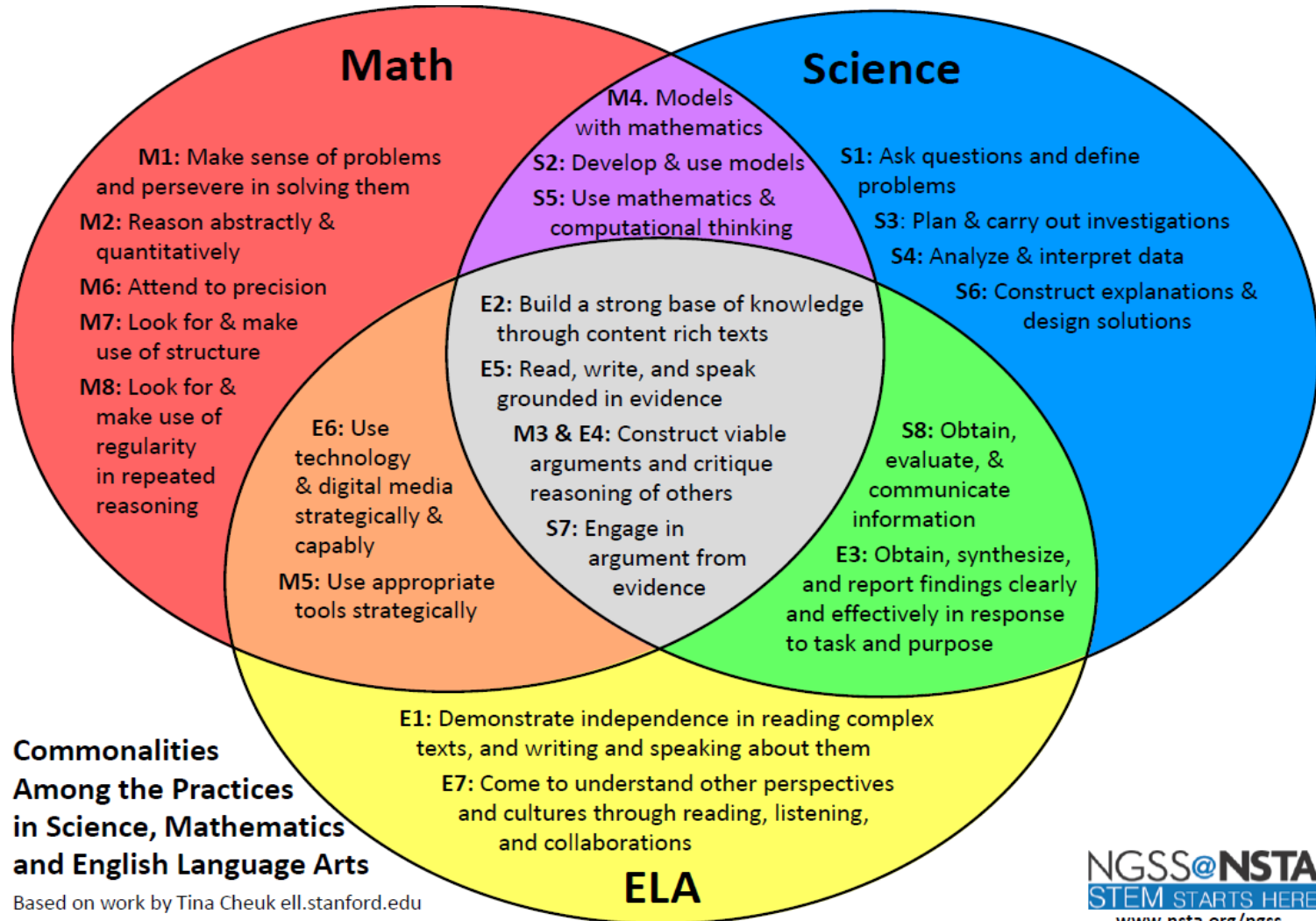
Analyze and interpret data to provide evidence that **plants and animals have traits inherited from parents** and that **variation of these traits exists in a group of similar organisms**.

NGSS “Innovations”

- Inquiry practices used by students to develop understanding of BIG ideas
- Engineering design included in science lessons as an application of science knowledge
- Explaining real-world phenomena
- Supporting explanations with evidence (not just what we know, but how we know it)

COMPARISON OF NGSS AND CT STANDARDS

Connections to Common Core



CSDE NGSS Resources

- Connecticut NGSS Parent Toolkit is a short document that will guide parents to better understand the shifts in science education demanded by the NGSS. It includes many useful links to resources that will help parents identify the various components of an exemplary science program.

https://portal.ct.gov/-/media/SDE/Science/NGSS_Parents.pdf?la=en

- Connecticut NGSS Toolkit for Local School Boards is a tool that will help guide school board members to better understand the shifts in science education demanded by the NGSS. It includes useful links to resources that will guide school boards to identify the complex components of an exemplary science program.

https://portal.ct.gov/-/media/SDE/Science/NGSS_Boards.pdf?la=en

CONNECTICUT NEXT GENERATION SCIENCE STANDARDS (NGSS-CT)



A TOOLKIT FOR PARENTS AND FAMILIES

A New Vision for Science Education

Children are naturally curious about the world. While many adults recall learning science by reading about it in a textbook or listening to a teacher's explanation, we now know how to engage learners in more meaningful, lasting and exciting science learning.

By dramatically changing the way science is taught and learned, the Next Generation Science Standards (NGSS), adopted by Connecticut in November 2015, are designed to raise interest, participation and achievement for all students. This introductory [video](#) explains the design principles and key features of NGSS. This [fact sheet](#) summarizes the need for and development of NGSS.

Like learning to ride a bike or play a musical instrument, the experience of doing science is far more important than just reading about it in a book. Based on years of research about how people learn science, the NGSS promote a new way of teaching and learning that allows students to actively do science in a meaningful way, not just learn about it from a textbook or a lecture. For students, next generation science means more "figuring out" and less just "learning about" science ideas. In this way, knowledge is retained and built upon for a lifetime.

Decades of research have led to recommended improvements to science education. Among these is a more authentic approach to scientific inquiry, the discovery process practiced by scientists that is more flexible and iterative than the scientific method traditionally taught in schools. This [poster](#) highlights new NGSS approaches that aim to involve all students in forming and explaining based on critical analysis of evidence. To summarize

A TOOLKIT FOR LOCAL SCHOOL BOARDS

A New Vision for Science Education

Children are naturally curious about the world. While many adults recall learning science by reading about it in a textbook or listening to a teacher's explanation, we now know how to engage learners in more meaningful, lasting and exciting science learning.

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Decades of research have resulted in increased understanding of how to engage diverse learners so that knowledge is retained and built upon for a lifetime. Our nation's leading scientists and science educators were convened by the National Academies of Science in 2012 to synthesize this research and recommend improvements to U.S. science education. These are reported in the Framework for K–12 Science Education (National Research Council, 2012). Among the envisioned improvements is a more authentic approach to [scientific inquiry](#), the discovery process practiced by scientists that is more flexible and iterative than the scientific method taught in schools. This [poster](#) highlights new NGSS approaches that aim to involve all students in figuring out explanations based on critical analysis of evidence. To summarize, an NGSS learning approach teaches students to think on their own and in collaboration with others.

NGSS are aligned with contemporary expectations for college-level science courses. Beginning in 2012, the College Board redesigned Advanced Placement exams in STEM subjects (e.g., biology, chemistry, physics, computer science) to emphasize the use of science practices to reason with evidence (see [summary of AP STEM advances](#)). To help states and districts reform their science programs to better prepare more students

CSDE Professional Development Webinar Series ([CSDE YouTube](#))

- **Classroom-Level Assessments Resources Supportive of Implementation of the NGSS**
 - How we think about instruction?
 - Assessments in the Classroom designed to support instruction.
 - Evidence based explanations
 - Examples

- **Overview of the NGSS Interim Assessment Blocks (IAB's):**
 - Purpose and value
 - Using the blocks
 - AIRWays reporting
 - How Items are scored
 - Resources

CSDE Professional Development Webinar Series ([CSDE YouTube](#))

- **NGSS Environmental Education Resources**
 - Understand the legislative mandate concerning the teaching of K-12 Science and climate change
 - Utilize resources found on the CSDE Science webpage that are about environmental/climate change education
- **NGSS: Evaluating Instructional Materials**
 - Identify and understand the resources available to evaluate instructional and assessment materials
 - Utilize the resources and tools developed by Achieve including the following:
 - NextGen TIME Tool Assessment Task Pre-Screener
 - EQuIP Rubric Task Annotation Project in Science (TAPS)
 - Assessment Task Screener Tool Cognitive Complexities Evaluation
 - Connecticut Local Assessment Resources Project (LARs)

Connecticut State Department of Education Evidence-Based Practice Guide
Supporting Local Education Agencies' (LEA) Use of ESSA Title Funds

Science

DRAFT

Under ESSA, there are four tiers, or levels, of evidence. Throughout this guide, the level indicator key is used to identify the evidence level at a quick glance.



Tier	Evidence Level	Evidence Descriptor
1	Strong Evidence	Supported by one or more well-designed and well-implemented randomized control experimental studies.
2	Moderate Evidence	Supported by one or more well-designed and well-implemented quasi-experimental studies.
3	Promising Evidence	Supported by one or more well-designed and well-implemented correlational studies.
4	Demonstrates a Rationale	Practices that have a well-defined logic model or theory of action , are supported by research, and have some effort underway to determine their effectiveness.

Interventions applied under Title I, Section 1003 (School Improvement) are required to have strong, moderate, or promising evidence (Tiers 1-3) to support them. All other programs under Titles I-IV can rely on Tiers 1-4.

Suggested citation: Connecticut State Department of Education. (2018). *CSDE and ESSA Evidence-Based Spending Guide*.

<https://portal.ct.gov/SDE/Connecticut-State-Department-of-Education-Evidence-Based-Practice-Guides>

Instructional Practice

The Connecticut State Department of Education adheres to research that supports the explicit instruction practices of conceptual understanding, procedural skill and fluency and application in science.

Evidence-based practice and rationale	Grade band	Evidence level and source
<p>Asking Questions and Defining Problems <i>A practice of science is to ask and refine questions that lead to descriptions and explanations of how the natural and designed world works and which can be empirically tested.</i></p>	<p>K-5 6-8 9-12</p>	<p>Tier 1, Strong Source: Osborne, J.F., Collins, S., Ratcliffe, M., Millar, R., and Duschl, R. (2003). What “ideas about science” should be taught in school science?: A Delphi study of the “expert” community. <i>Journal of Research in Science Teaching, 40(7), 692-720</i></p> <p>Tier 1, Strong Source: National Research Council. 2007. Taking Science to School: Learning and Teaching Science in Grades K-8. Washington, DC: The National Academies Press.</p>
<p>Developing and Using Models <i>A practice of both science and engineering is to use and construct models as helpful tools for representing ideas and explanations. These tools include diagrams, drawings, physical replicas, mathematical representations, analogies, and computer simulations.</i></p>	<p>K-5 6-8 9-12</p>	<p>Tier 1, Strong Source: Nercessian, N. (2008). Model-based reasoning in scientific practice. In R.A. Duschl and R.E. Grandy (Eds.), <i>Teaching Scientific Inquiry: Recommendations for Research and Implementation</i> (pp. 57-79). Rotterdam, the Netherlands: Sense.</p> <p>Tier 1, Strong Source: Lehrer, R., and Schauble, L. (2006). Cultivating model-based reasoning in science education In R.K. Sawyer (Ed.), <i>The Cambridge Handbook of the Learning Sciences</i> (pp. 371-187). Cambridge, England</p>
<p>Planning and Carrying Out Investigations <i>Scientists and engineers plan and carry out investigations in the field or laboratory, working collaboratively as well as individually. Their investigations are systematic and require clarifying what counts as data and identifying variables or parameters.</i></p>	<p>K-5 6-8 9-12</p>	<p>Tier 1, Strong Source: Duschl, R.A., Bybee, R.W. Planning and carrying out investigations: an entry to learning and to teacher professional development around NGSS science and engineering practices. <i>STEM Ed 1, 12</i> (2014) doi:10.1186/s40594-014-0012-6</p> <p>Tier 4, Demonstrates a Rationale Source: STEM Teaching Tools, http://stemteachingtools.org/brief/19</p>

<https://portal.ct.gov/SDE/Connecticut-State-Department-of-Education-Evidence-Based-Practice-Guides>

[CSDE NGSS/DEEP Resources](#)

[Environmental Education Resources](#) - by Connecticut state statute, CSDE and Department of Energy and Environmental Protection (DEEP) addresses climate change and environmental education as part of their educational/educator series. Educator workshops are available for all CT educators to attend. National educational resource materials, local supplemental materials, resource contacts, and classroom support are provided as needed. Full workshops are structured for five-hour time periods with arrangements being available for shorter sessions.

[Full list of DEEP resources.](#)



CSDE NGSS/DEEP Resources

- [Connecticut Department of Energy and Environmental Protection \(DEEP\)](#): DEEP offers professional learning, lesson plans, tools and resources that address climate change.
- [Climate Resources for Educators](#): DEEP provides Connecticut climate data to assist teachers and students in connecting real data to climate change.
- [NASA's Climate Kids](#): NASA's Climate Kids Web site brings climate science to life with fun games, interactive features and exciting articles
- [NASA Jet Propulsion Laboratory California Institute of Technology](#): NASA offers a collection of K-12 climate change lessons and activities aligned with the NGSS and the Common Core Mathematics Standards.
- [National Oceanic and Atmospheric Administration \(NOAA\): Teaching Climate](#): NOAA provides reviewed resources for teaching about climate and energy.
- [Climate Literacy & Energy Awareness Network](#): The CLEAN project, part of the National Science Digital Library, offers a reviewed collection of climate and energy science resources, coupled with tools to enable an online community to share and discuss teaching about climate and energy science.
- [NASA Wavelength](#): This reviewed collection of NASA Earth and space science resources is for educators of all levels: K-12, higher education and informal science education.
- [U.S. Department of Energy Lesson Plans and Activities](#): The Department of Energy offers a collection of energy-related lesson plans, labs, projects and other activities for grades K-12.
- [ESSEA Climate Education Modules](#): The NASA-supported Earth System Science Education Alliance (ESSEA) provides modules for teachers taking ESSEA courses, but teachers may also use the modules with their students.
- [NASA Innovations in Climate Education](#): The NASA Innovations in Climate Education (NICE) project, managed at Langley Research Center, includes a portfolio of 71 climate education initiatives that span across the nation and contribute to the development of a climate-literate public and a climate-related STEM workforce.

Professional Learning Opportunities

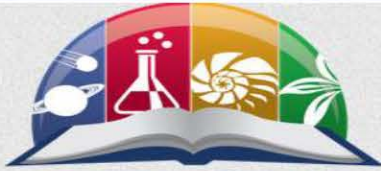
Next Generation Science- CT Short Course

- No-cost/Self-paced
- 11 modules offering 16 to 60 hours of structured professional learning
- Makes for a great PLC PD/PL opportunity

Connecticut Science Center

- *Why NGSS...? 2-day NGSS Awareness PD*
Cost: \$300 /person
- *NGSS District Transition Planning Workshop*
- Start or enhance your district's multi-year science plan
- For vertical teams (example: 1 asst. supt., 2 principals, 1 science coordinator, 2 science coaches)
- Ongoing district support since 2017 Cost: \$200 per person

Connecticut Science Teachers Association



CSTA | Connecticut
Science Teachers
Association

Connecticut Science Teachers Association

"...to inspire, promote and support the learners of science in the state of Connecticut."

Home

Events

Conference 2019

Resources

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Join us



Home

New! NGSS Assessment Tools

This site is designed to facilitate development and sharing of classroom NGSS assessment items and item clusters (groups of items associated with same phenomenon)

CT Science Educators Conference Program is now available!

Click to read

Exhibitor Registration for the Connecticut Science Educators Conference on November 8-9 is now open

Presenters for the CT Science Educators Conference have been notified. **Register with code** found on the acceptance letter.

Registration is now OPEN for the Connecticut Science Educators

A **conference rate** to stay on Friday night at our conference site - the

Connecticut Science Supervisors Association



Connecticut Science Supervisors Association

*41 Years Of Science
Support and Advocacy*

**Register for the *Fall CT Science Educators Conference*
November 8th (join the star party) and 9th (great sessions)
Check out the program and register by clicking [here](#)**

**October 2nd Dinner Meeting -
[Photos and link to Jeff Greig's PPT](#)**

**Congratulations to *Lauren Danner and Chris Newlan*
2019 CT State Finalists for Science
Presidential Award for Excellence in Mathematics and Science Teaching (PAEMST)**





CONNECTICUT STATE
DEPARTMENT OF EDUCATION

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Next Generation Science Assessments

Jeff Greig, CSDE (jeff.Greig@ct.gov)

CONNECTICUT STATE DEPARTMENT OF EDUCATION
COMPREHENSIVE ASSESSMENT PROGRAM PORTAL



NGSS
Assessment

<https://ct.portal.airast.org>



NGSS Assessment
Resources



Take the Practice &
Training Tests

NGSS Assessments: Supporting the Vision and Key Shifts

- Less memorizing of factual knowledge and more sense making
- Use of real-world phenomena that engage students in problem solving
- 3-Dimensional science learning that integrates the SEPs, DCIs and CCCs
- Equitable opportunities for all students



Proposed System of NGSS Assessments

The goal is to provide useful information for a variety of purposes and audiences.

Formative Assessment Resources*: Process used every day by teachers to monitor student learning in the classroom and help make ongoing instructional adjustments to better meet student needs. **VOLUNTARY**

Local Assessment Resources*: Assessment resources, including PD supports, used to support ongoing instruction. Developed from a variety of sources including local CT school districts. **VOLUNTARY**

Interim Assessments*: Assessments administered at the end of units or grades to evaluate the learning of groups of students to inform curriculum and instruction at the local level. **VOLUNTARY**

State Summative Assessments: Assessments given at the end of learning (Grades 5, 8 and 11) to track student performance and inform decisions about curriculum, instruction, professional development, and policy for a variety of stakeholders. **MANDATED BY FEDERAL AND STATE LAW**

↑
Greater frequency of use
More useful to students and teachers



* Formative and local/interim assessment resources will come from a variety of sources and be shared by districts and states around the country.

Design of NGSS State Summative Assessments

Content Area	Disciplinary Core Idea (DCI) Area	Stand-Alone Items (short items)	Item Clusters (multi-part items)
Life Science	From Molecules to Organisms	4	2
	Ecosystems		
	Heredity		
	Biological Evolution		
Physical Science	Matter and Its Interactions	4	2
	Forces and Motion		
	Energy		
	Waves and their Applications		
Earth/Space Science	Earth's Place in the Universe	4	2
	Earth's Systems		
	Earth and Human Activity		
	Total	12	6

Each item is aligned to one NGSS Performance Expectation.
 Items are matrix sampled across students in a school and district.



Sample NGSS Assessment Item Cluster: Middle School

Fog appears and disappears over the course of a morning in the Willamette Valley in Oregon.

Morning Fog in Willamette Valley

Animation 1 shows the appearance and disappearance of fog in the valley during a 24-hour day. The sun rises at 6 a.m. and sets at 6 p.m. Click the small gray arrow to begin the animation.



Your Task

In the questions that follow, you will develop an explanation for the appearance and disappearance of fog.

Phenomena on left side

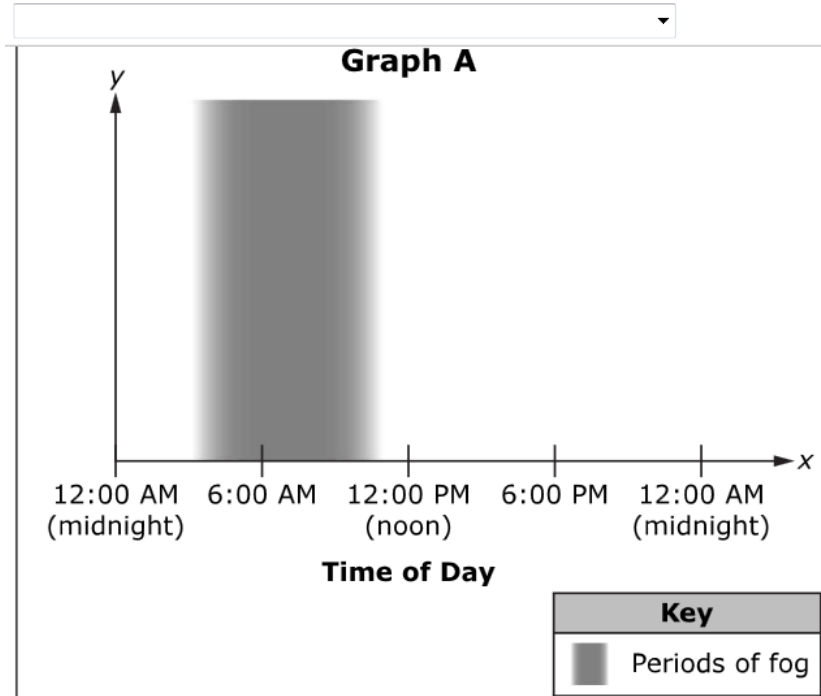


In the graphs below, illustrate three factors that change over the course of the day causing the fog to appear and disappear. The horizontal axis on each graph represents the 24-hour day shown in the animation.

For each graph's vertical axis, select the factor that you would like to graph. Then, use the Connect Line button to draw a graph that shows the pattern of change over time. To receive credit, your line segments must be connected and form a continuous graph.

Part A

Variable for vertical axis of Graph A:



Part D

Click each box and select a word or phrase to complete the sentence describing why fog appears and disappears during the course of the day.

A change in _____ causes a change in _____, which in turn causes a change in _____.

Item Interactions on Right Side

All items are machine-scored

Aligned to MS-ESS2-4: Develop a model to describe the cycling of water through Earth's system driven by energy from the sun and the force of gravity.

Tools, Supports and Accommodations



Universal Tools: Available to ALL students

Embedded

- Breaks
- Calculator (Math Grades 6-8; Science Grades 5, 8, & 11)
- Digital Notepad
- English Glossary[^]
- Expanded Passages/Stimuli
- Highlighter
- [Keyboard Navigation](#)
- Line Reader
- Mark for Review
- Math Tools
- Strikethrough
- Writing Tools
- Zoom

Non-Embedded

- Breaks
- Scratch Paper/whiteboard with marker

[^] NOT available for Science

Designated Supports: Available to ANY student with a need determined by educators

Embedded

- Color Contrast
- Masking
- Mouse Pointer
- Print Size Online
- Streamline **New**
- Text-to-Speech- Science, Math & ELA Non-Reading Passages
- *Translations-Math (Glossary)
- *Translations-Math (Stacked)
- *Translation Test Directions (Math, Spanish)
- Turn off any universal accessibility tool

Non-Embedded

- Amplification
- *Bilingual Dictionary (Science)
- Color Contrast
- Color Overlay
- Magnification Device
- *Native Language Reader Directions (Science)
- Noise Buffering
- Read Aloud
- *Read Aloud in Spanish (Math)
- Separate Setting
- Simplified Test Directions[^]
- *Translation Glossary (Math)
- [*Translation Test Directions[^]](#)

*Intended for English Learners (EL)

Accommodations: Available to students with an IEP or 504 Plan

Embedded

- American Sign Language (Video)[^]
- Braille Embosser (Math & ELA: Contracted, Uncontracted)[^]
- Braille Transcript (ELA Listening)
- Closed Captioning (ELA Listening)
- Refreshable Braille (ELA: Contracted, Uncontracted) [^]
- Text-to-Speech ELA Reading Passages (Grades 3-8)

[^] NOT available for Science

~ Requires Trained Educator

Requires Petition for Approval of Special Documented Accommodations

Non-Embedded

- [100s Number Table](#) (Grades 4-8)
- Abacus
- Alternate Response Options
- Braille Booklet
- Braille supplemental math booklet for online fixed form test
- ~ # Human Signer for ELA or Math Items
- ~ # Human Signer for ELA Reading Passages (Grades 3-8)
- Human Signer for Science items
- Large Print Booklet
- [Multiplication Table](#) (Grades 4-8)
- # Print on Demand
- ~ # Read Aloud ELA Reading Passages (Grades 3-8)
- ~ # Scribe
- Specialized Calculator (Math Grades 6-8; Science Grades 5, 8, & 11)
- Speech-to-Text

[^] NOT available for Science

Next Generation Science Standards(NGSS) Assessment

 Select Grade: All Grades Combined All Grades 05 08 11

 Year: District: Schools: Filter By:

Next Generation Science Standards(NGSS) Assessment, 2018-19

State of Connecticut, All Grades, All Students

[Export .csv file](#)

 Note: For more information on scale scores and achievement levels, please view the [Connecticut Science Assessments Reporting FAQ](#)

District	Grade	Total Number of Students	Total Number Tested	NGSS Participation Rate	Total Number with Scored Tests	Level 1 Not Met		Level 2 Approaching		Level 3 Met		Level 4 Exceeded		Level 3 & 4 Met or Exceeded		Average Scale Score (SS)
						Count	%	Count	%	Count	%	Count	%	Count	%	
State of Connecticut	05	38,889	38,548	99.1	38,541	5,892	15.3	11,972	31.1	15,569	40.4	5,108	13.3	20,677	53.6	500
	08	40,188	39,360	97.9	39,346	7,584	19.3	11,216	28.5	17,041	43.3	3,505	8.9	20,546	52.2	800
	11	38,873	37,584	96.7	37,561	7,339	19.5	12,296	32.7	13,975	37.2	3,951	10.5	17,926	47.7	1100

Overall science results available on EdSight for the state, districts, and schools. Results are also available for subgroups of students (e.g., gender, EL status).

More detailed results will eventually be available on EdSight secure.



2019 NGSS Assessment Results

More detailed results for districts and school are currently available through the **Online Reporting System (ORS)** – access through assessment web portal: <https://ct.portal.airast.org>

Results available for students, schools, districts and the state:

- **Overall Science:** Scale Scores and four Performance Levels (see below)
- **Three-dimensional Disciplines** (Life, Physical and Earth/Space Sciences):
 - ✓ Average scale score
 - ✓ Relative to proficiency standard (Below, Approaching, Above)



**Access requires
account in ORS**

Results available for groups of students only:

- **11 Disciplinary Core Ideas:**
 - ✓ Relative strengths and weaknesses
 - ✓ Relative to proficiency standard

Grade	Scale Score Range	Does Not Meet	Approaching	Meets	Exceeds
5	400 - 599	400 - 467	468 - 497	498 - 534	535 - 599
8	700 - 899	700 - 771	772 - 797	798 - 841	842 - 899
11	1000 - 1199	1000 - 1072	1073 - 1098	1099 - 1140	1141 - 1199



Home Page Dashboard

Select Test and Year

Test: **NGSS Summative**

Administration: **2018-2019**

- Scores for students who were mine at the end of the selected administration
- Scores for my current students
- Scores for students who were mine when they tested during the selected administration

Select

Hamden School District (062)

Click on a grade and subject to view more information.

Overall Performance on the NGSS Summative test, by Subject, Grade: 2018-2019

Science

Grade	Number of Students Tested	Percent at Level 3 or Above
Grade 5	405	45%
Grade 8	444	37%
Grade 11	376	28%

Click on to access grade level reports

ORS Home Page



Online Reporting System



Overall Science Results by District and School

Performance on the NGSS Summative Science Grade 8 Test: 2018-2019

Breakdown by: **All**

Comparison: ON

Legend: Achievement Levels

■ %Level 1 ■ %Level 2 ■ %Level 3 ■ %Level 4

Name	Number of Students	Average Scale Score	Percent at Level 3 or Above	Percentage in Each Achievement Level
Fairfield School District (051)	770	816 ±1	76	5 19 60 17
Fairfield Woods Middle School (051-0515211)	305	817 ±2	77	6 17 58 19
Roger Ludlowe Middle School (051-0515311)	239	818 ±2	78	3 19 60 18
The Spire School (051-0356621)	2	788 ±14	50	50 50
Tomlinson Middle School (051-0515111)	224	815 ±2	74	5 21 62 12

Click on the district or school to get more detailed reports (see next slide).

Ethnicity/Race
Gender
IDEA Indicator
Limited English Proficiency Status



Subject: Science ▼

Grade: Grade 5 ▼

Who: School ▼

What: Subject ▼

When: Current Admin ▼

[View](#)

- Subject
- Discipline
- Disciplinary Core Idea



Discipline Results by District and School

Performance on the NGSS Summative Science Grade 8 Test, by Discipline: District, 2018-2019

Breakdown by: **All**

Comparison: ON

Name	Number of Students	Average Scale Score	Percent at Level 3 or Above	Disciplines	Discipline Average Scale Score	Percent at Each Discipline Achievement Category
				Science		
Fairfield School District (051)	770	816 ±1	76	Physical Science	818 ±1	7 52 42
				Life Science	815 ±1	8 55 36
				Earth and Space Science	816 ±1	6 55 38
				Science		
Fairfield Woods Middle School (051-0515211)	305	817 ±2	77	Physical Science	819 ±2	6 49 45
				Life Science	818 ±2	9 51 40
				Earth and Space Science	817 ±2	6 52 42

Ethnicity/Race
 Gender
 IDEA Indicator
 Limited English Proficiency Status

Legend: Discipline Achievement Category

% Below Standard
 % Approaching Standard
 % Above Standard



Disciplinary Core Ideas (DCI) Results by District and School





Performance on the NGSS Summative Science Grade 8 Test, by Disciplinary Core Idea: School District, 2018-2019

Disciplinary Core Idea	Areas of Strongest and Weakest Performance	Areas Where Performance Indicates Proficiency
Physical Science		
PS1 Matter and Interactions	+	⦿
PS2 Motion and Stability: Forces and Interactions	≡	△
PS3 Energy	≡	⦿
PS4 Waves and Their Applications in Technologies for Information Transfer	—	△
Life Science		
LS1 From Molecules to Organisms: Structures and Processes	+	⦿
LS2 Ecosystems: Interactions, Energy, and Dynamics	≡	⦿
LS3 Heredity: 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	+	⦿





Note: Subgroup results are not available for DCI areas.

* Insufficient information results from too few students in a group or too few items in the test bank.

Legend: Areas of Strongest and Weakest Performance

-  Area of Strengths
-  Performance is similar to performance on the test as a whole
-  Area of Weakness
-  Insufficient Information

Legend: Areas Where Performance Indicates Proficiency

-  Above the Proficiency Standard
-  Approaching Proficiency Standard
-  Below the Proficiency Standard
-  Insufficient Information



Sample Individual Student Report



Student Name: **Jonathan Doe**
 Grade: **8**
 Date of Birth: **05/20/2005**
 SASID: **1234567892**

School: **Demo Middle School**
 District: **Demo District**
 Test Year: **2019**



Student Name: **Jonathan Doe**
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School: **Demo Middle School**
 District: **Demo District**
 Test Year: **2019**

Connecticut Next Generation Science Standards Assessment Results

The Connecticut Next Generation Science Standards (NGSS) Assessments are administered to students in Grades 5, 8, and 11. This report shows Jonathan's achievement on the NGSS assessment aligned to science standards from Grades 6 through 8. Your child completed this assessment in spring 2019.

The NGSS are a new set of K–12 science standards that the Connecticut State Board of Education adopted in 2015. The NGSS challenge students to use science and engineering practices to show they understand core ideas and concepts in science. The standards encourage the use of real-world situations to help students think and act like scientists as they explore and make sense of the world around them.

Connecticut's comprehensive plan for college and career readiness includes challenging academic standards and assessments to measure student progress. The results below should be used along with other information, such as classwork and other tests, when making educational decisions. Specific questions about individual student results should be directed to local school personnel.

Science Results **Jonathan's Total Scale Score = 845** (Scale Score Range 826–850)

Overall scores from the NGSS assessment are reported in scale-score units with a range of 800–899. Within the scale-score range, four performance levels have been established for each content area. Scoring in the Level 3 or 4 range is a challenging yet reasonable expectation for Connecticut students.

Jonathan scored at **Level 2** on the NGSS assessment.

Science	Level 1 Does Not Meet (800–828)	Level 2 Approaching (826–850)	Level 3 Meets (851–875)	Level 4 Exceeds (876–899)
Science		✓		

Level 2: Approaching the Achievement Standard

Jonathan has nearly met the achievement standard for science expected for this grade. Students performing at this level require further development toward mastery of science knowledge and skills. Students performing at this level will likely need support to get on track for success in the next grade.

A student's test score can vary if tests are taken several times. If Jonathan were tested again in science, the new scale score would probably fall between 830 and 860.

Areas of Knowledge and Skills

The results below show how Jonathan performed when using science and engineering practices to demonstrate understanding of the core ideas and concepts in life sciences, physical sciences, and Earth/space sciences. A description of what students are expected to know and be able to do is included.

Practices and Concepts in Life Sciences	Practices and Concepts in Physical Sciences	Practices and Concepts in Earth/Space Sciences
Approaching Standard	Below Standard	Above Standard
In life sciences, student performance includes: <ul style="list-style-type: none"> Using evidence to argue that organisms are systems of cells and various factors affect their growth. Using patterns to model the flow of energy and matter in organisms and through ecosystems. Using models to describe how the structure and function of genes causes variations. Using patterns in fossil data to compare organisms and infer evolutionary relationships. Evaluating solutions that maintain biodiversity and stabilize ecosystems. 	In physical sciences, student performance includes: <ul style="list-style-type: none"> Developing models and analyzing data to describe atoms, molecules and chemical changes. Asking questions and investigating motion caused by contact and non-contact forces. Using data and constructing arguments to describe kinetic and thermal energy changes in systems. Developing and using models to describe how waves travel in patterns, transfer energy, and interact. Designing devices to optimize collisions, forces, and energy transfers. 	In Earth/space sciences, student performance includes: <ul style="list-style-type: none"> Using evidence to model Earth and other objects as part of a universe with movements controlled by gravity. Using rock strata evidence to explain Earth's geologic history. Modeling the cycling of matter and energy to explain changes in Earth's surface features, weather, and climate. Using evidence to describe how human activities are affected by Earth's resources. Designing solutions to problems caused by using Earth's resources.

Comparison to Student's School and District

Results below show Jonathan's scores compared with the school and district averages on the NGSS assessment.

Student's Score	845			
School Average	855			
District Average	856			
		Level 1 Does Not Meet (800–825)	Level 2 Approaching (826–850)	Level 3 Meets (851–874)
			Level 4 Exceeds (875–899)	

Supporting Your Child's Success in Science, Technology, Engineering, and Mathematics (STEM)

The NGSS enable teachers to offer interactive instruction that encourages all students to plan and conduct investigations, develop and use models, analyze data, and engage in critical thinking and problem solving as they learn about the world around them.

You can support this instruction by:

- Encouraging your child's interests and abilities in STEM learning.
- Being informed about the STEM educational programs and the specific instruction that your child is receiving in your school.
- Supporting your child's curiosity and learning opportunities through STEM-related books, television shows, museums, nature centers, and enrichment activities in your community.
- Encouraging your child to participate in extracurricular STEM activities such as clubs, field trips, after-school programs, and competitions.

Frequently Asked Questions

Where can I find more information about NGSS?

Parent Guides can be found at <https://www.nextgenscience.org/parentguides>.

Where can I find more information about NGSS test design and content?

For more information on the test design and content, go to <https://ct.portal.airast.org> and click on NGSS Assessment.

Where can I find more information about school and district performance?

Further information about school and district academic performance can be found at <https://edsight.ct.gov>.



School and District Accountability

Results will be included in district and school accountability:

- Includes a broad set of 12 indicators
- Science assessment results included in indicator 1: Academic Achievement
- Questions about the accountability system should be directed to Renee Savoie (renee.Savoie@ct.gov)



Overview > Next Generation Accountability

Next Generation Accountability Results

Year: District: Schools:

Next Generation Accountability, 2017-18

State of Connecticut

[Export State of Connecticut .csv file](#)

[Export All Schools and Districts .csv file](#)



NGSS Interim Assessments

For optional use by school districts.

Considered semi-secure (not available to public).

Administered online to students. Each takes about 8-10 minutes. Machine-scored.

Grade	No. of Item Clusters
3-5	14
6-8	20
High School	20

Educators can access NGSS interims through Assessment Viewing Application through the web portal: <https://ct.portal.airast.org>

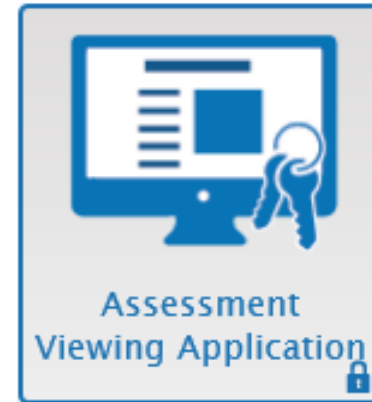
Supporting resources available:

- [Next Generation Science Standards \(NGSS\) Interim Assessment Webinar](#)

[Next Generation Science Standards \(NGSS\) Interim Assessment Webinar – Slides \[PPTX\]](#)

Updated November 6, 2018

- [Next Generation Science Standards Interim Assessment Quick Guide \[PDF\]](#)



Using NGSS Interim Assessments in the Classroom:

<https://www.youtube.com/watch?v=nrp9bSf2L7E&t=8s>



NGSS Interim Assessment Results

First Stop in AIRWays – the Dashboard



High School Science: Structures and Processes in Living Organisms	Unassigned	1	0/21
High School Science: Changes in Earth's Climate	Unassigned	1	2/17
High School Science: Earth's History and Systems	Spring	3	3/20
High School Science: Earth's History and Systems	Unassigned	7	5/20
High School Science: Earth's History and Systems	Winter	4	3/20

Breakdown of student performance by scoring assertion

Student	Total Items	Total Items																							
Item Number		1	1-1	1-2	1-3	1-4	1-5	1-6	1-7	1-8	1-9	1-10	1-11	1-12	1-13	2	2-1	2-2	2-3	2-4	2-5	2-6	2-7	2-8	
Max Points	13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	8	1	1	1	1	1	1	1	1	1
Everyone	4.2	0.57	0.57	0.31	0.29	0.71	0.14	0.12	0.12	0.08	0.06	0.53	0.37	0.33	2.88	0.33	0.41	0.2	0.41	0.31	0.67	0.51	0.04		
Sample Student	8	1	1	1	1	1	0	0	0	0	0	1	1	1	6	1	1	1	1	0	1	1	0		

Scoring assertions indicate specific student performances included in an interim assessment item.





Using 3D interim assessments to support coherence, equity, and a shared understanding of learning

BY TODD CAMPBELL, JONATHAN HALL, PETER MCLAREN, JEFF GREIG, SEAN ELKINS, JOHN DUFFY, HOLLY HOLLANDER | JANUARY 2020

STEMteachingtools.org/brief/65

WHY IT MATTERS TO YOU

- **Teachers**, collaborating with colleagues, should use interim assessments to analyze the extent to which their instruction is supporting student learning.
- **PD Providers** should provide learning experiences for teachers focused on using a system of assessment that includes the use of interim assessments.
- **School & District Leaders**, in collaboration with teachers, should use interim assessments to improve instructional or curriculum choices based on data analyzed across classes, classrooms, and schools.

REFLECTION QUESTIONS

- What shared model of learning guides curriculum, instruction, and interim assessments?
- Who will be involved in interim assessment teams?
- What is the purpose of your team's work with interim assessments (e.g., supporting classroom instruction, providing insight into curriculum and learning across systems)?



Questions?

For information about **NGSS Standards Implementation, Instruction, Curriculum Resources** in Connecticut contact:

Ron Michaels

CT State Department of Education

Academic Office

860 713-6851

Ronald.Michaels@ct.gov

For information about **NGSS Assessments (Standard, Alternate, Interims)** in Connecticut contact:

Jeff Greig

CT State Department of Education

Performance Office

860 713-6854

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