

Connecticut State Department of Education  
Bureau of Curriculum & Instruction

CONNECTING WITH  
THE NEW

CORE  
SCIENCE  
CURRICULUM  
FRAMEWORK

An Invitation for Students and  
Teachers to Explore Science and Its  
Role in Society

[www.state.ct.us/sde](http://www.state.ct.us/sde)

# Presentation Goal

**To describe the underlying beliefs, goals and format of the new Science Core Curriculum Framework**

# How Was The New Framework Developed?

- Fall 2002 to Summer 2003: 1<sup>st</sup> draft written by committee of science educators.
- October 2003: 1st draft reviewed and edited by State Board of Education.
- Fall 2003: Expert review and edits by committees of science teachers and department chairs.
- Winter/Spring 2004: On-line posting at [www.state.ct.us/sde](http://www.state.ct.us/sde) to solicit feedback from school districts.
- Spring 2004: Suggested revisions and edits incorporated.
- Spring 2004: 2<sup>nd</sup> draft reviewed and edited by teachers, university professors, museum/nature center educators, and corporate scientists.
- October 2004: Framework approval by the State Board of Education.

# What Is The Role Of The Science Framework?

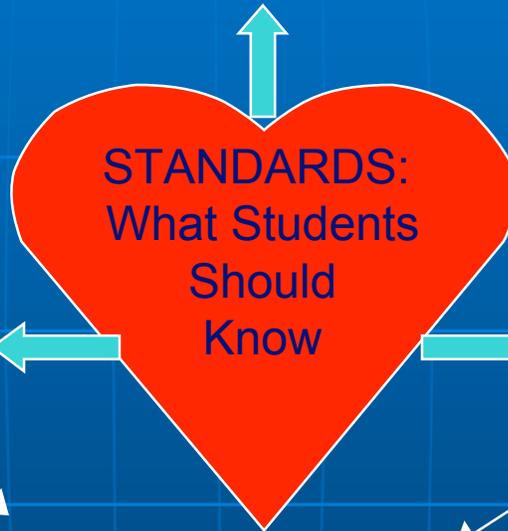
- **Establish and articulate a common vision for science education in Connecticut**
- **Identify the major science principles, concepts and processes that all students should learn**
- **Provide guidance to school districts as they make decisions about their science programs**

# Connections That Support Learning

District:  
Professional  
Growth Plan &  
PD

State: CCT  
& BEST

INSTRUCTION



CURRICULUM

ASSESSMENT

District  
Scope &  
Sequence

State  
Framework

District  
Summative &  
Classroom  
Formative  
Assessments

State  
Summative  
CMT &  
CAPT

# Why Change Current Practice?

- **IMPROVE STUDENT ACHIEVEMENT**
  - **CAPT-Science scores**
  - **National NAEP science scores**
  - **International TIMSS science scores**
- **INCREASE STUDENT INTEREST**
  - **To learn more science in HS and college**
  - **To enter science-related careers**
  - **Alarming decline in # of US college students majoring in science**
- **ENHANCE SCIENCE LITERACY**
  - **citizens must be able to apply science knowledge and reasoning skills to understand current events and make informed decisions about social and personal issues**
  - **All students (not just future scientists) should have access to a rich & challenging science curriculum**
- **GLOBAL ECONOMY & QUALITY OF LIFE**
  - **US needs more scientists and engineers to remain globally competitive in biotechnology, energy production, agriculture, pharmaceuticals, etc.**
- **CURRENT RESEARCH ABOUT LEARNING**
  - **Importance of multisensory experiences**
  - **Connecting new learning to prior knowledge**
  - **Placing learning in a relevant context**
- **NCLB & CLOSING THE ACHIEVEMENT GAP**
  - **Raising expectations and accountability**

# How Does NCLB Influence The Science Framework?

## MANDATES:

-  **States must define grade-by-grade science learning standards**
-  **A statewide science assessment must be given once in elementary, middle and high school**
-  **All students in a grade must take the same science test**

## CONNECTICUT'S RESPONSE:

-  **New core curriculum framework**
-  **Statewide science tests at Grades 5, 8 and 10 assessing scientific reasoning and knowledge in life, physical and earth sciences**

# What Is The Framework's Vision for Science Education?

**To promote scientific literacy, conceptual understanding and science interest, school science should:**

- **build on children's innate curiosity and desire to make sense of natural phenomena**
- **promote understanding of important science concepts, principles and theories within a context that is relevant and engaging to students**
- **provide all students with opportunities to understand fundamental life, chemistry, physics and earth science concepts at the high school level**
- **support students' abilities to apply science knowledge and ways of thinking to access and analyze information and make informed decisions about personal and societal issues**
- **support all students' interest and enthusiasm for learning about science and pursuing studies and careers in science, technology and engineering**

# How Are Framework Learning Goals Focused?

## PreK-2:

- Development of *wonder* about the natural world and the ability to apply basic process skills

## Grades 3-5:

- Development of basic *descriptions* of natural phenomena and the ability to perform simple explorations

## Grades 6-8:

- Development of basic *explanations* for natural phenomena, and the ability to apply experimental procedures to acquire new knowledge

## Grades 9-10:

- Development of *interest* in global issues and the ability to collect, *analyze* and use data to explore and explain related science concepts

## Grade 11-12:

- Development of *deep understanding* of science concepts and principles; preparation for future studies/careers

# How Is The Framework Document Structured?

- **INTRODUCTION** communicates framework underlying beliefs and goals for science education
- **USERS' GUIDE** explains the presentation of information and the coding system.
- **GRADE-BY-GRADE** learning expectations. These are intended as *GUIDELINES, NOT MANDATES, for curriculum developers. School districts may reorganize the standards at different grades, guided by the developmental appropriateness of the concepts, connections among concepts, and the need to address them by the TESTING YEAR.*
- **CONTENT STANDARDS** are narrative statements of science concepts that guide the development of a rich and rigorous *curriculum*. Content Standards include:
  - A conceptual theme followed by an overarching guiding question (*italics*)
  - The Content Standard, a broad conceptual statement, identified with a numerical code, that serves as a general learning goal for a unit of study (**bold**)
  - One or two supportive concept statements that provide more specific information about the focus of the learning unit (**bullets**)
- **EXPECTED PERFORMANCES** identify which main ideas from the learning unit will be *assessed* on statewide tests given at Grades 5, 8 & 10.
- **SCIENTIFIC INQUIRY, LITERACY AND NUMERACY** standards are described separately, as developmentally appropriate, for gradespans preK-2, 3-5, 6-8 and 9-10. These are intended to be learned and applied through the exploration of each of the Content Standards, rather than taught independently of the science content.

# How Can School Districts Respond?

**ACCESS SCIENCE FRAMEWORK DOCUMENTS ON-LINE**  
**[www.state.ct.us](http://www.state.ct.us) . Follow links to**  
**"curriculum" & "science"**

- **Examine current science program: is there a clear picture of its purpose, process and product? How is success measured?**
- **Examine district policy regarding time allocated for science learning (especially K-5). Do the frequency and duration of class sessions allow for hands-on inquiry?**
- **Identify professional development needs of teachers (content, pedagogy, safety)**
- **Compare current district science curriculum to new framework; begin to identify content standards that are not currently addressed by specified TESTING YEARS (i.e., Grades 5, 8 and 10)**
- **Consider current instructional materials in relation to new performance expectations. Do they provide opportunities to explore questions by collecting and analyzing data? Is there administrative, community and materials support for updating and maintaining materials?**
- **Develop a district curriculum that will include specific learning objectives, activities and assessments aligned with framework vision and guidelines.**

# Need More Info?

[www.state.ct.us/sde](http://www.state.ct.us/sde)

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