

THE NATIONAL

DIVISION OF BEHAVIORAL AND SOCIAL SCIENCES
AND EDUCATION

ACADEMIES

Framework for New K-12 Science Education Standards

Helen Quinn, Chair
Board on Science Education
Framework Study Committee

THE NATIONAL ACADEMIES
Advisers to the Nation on Science, Engineering, and Medicine

National Academy of Sciences
National Academy of Engineering
Institute of Medicine
National Research Council

Framework: frames what is important to be learned, some grade band endpoints suggested.

**Standards: elaboration into K-12 learning expectations
(**next task - Achieve**)**

Why now?

The opportunity

- **Common Core State Standards in Mathematics and English Language Arts - so why not science**
- **Race to the Top (STEM invited priority, assessment consortia)**
- **>15 years since NSES**
and Benchmarks

Why NRC?

The opportunity

- Convene experts in science and science education
- Process for consensus studies

Project funded by Carnegie Corp.

- Build on prior work - of NRC and others e.g. NSTA (Anchors), AAAS (Benchmarks, Maps)

Some Studies from BOSE-NRC



Major components of the Framework

- Vision of high quality science education
- **3D: Cross-cutting concepts, practices, and core disciplinary ideas**
- Discussion of implementation issues
- Suggestions for research and development

What is the Framework's vision?

“The Framework is designed to help realize a vision for science and engineering education in which students actively engage in science and engineering practices in order to deepen their understanding of core ideas in science over multiple years of school.” July draft, pg 6-1 emphasis added

Three dimensions

- **Cross-cutting concepts**
- **Scientific and engineering practices**
- **Core disciplinary ideas
(PS, LS, ESS, ETAS)**
- **What do these look like when integrated?**

Criteria for Core Ideas and Practices – as per July draft

- 1. Broad importance**
- 2. Key tool**
- 3. Relates to student/connected to societal concerns**
- 4. Teachable and learnable over multiple grades**

What value does this provide to the community?

- **A specific vision**
- **3 Dimensions concept**
- **Inquiry as a set of practices**
- **A common starting point for standards, curricula and assessments**

What are the implications for:

- **Standards?**
- **Curriculum?**
- **Instruction?**
- **Teacher professional Development?**
- **Assessment?**
- **Equity?**
- **Research and Development?**

BOSE Project Staff

- **Heidi Schweingruber, Deputy Director, Project Co-director**
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Ways to keep updated on Conceptual Framework

BOSE website

<http://nas.edu/BOSE>

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