

THE NATIONAL

ACADEMIES

NAS Project and Role

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BOSE

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

An NRC Study Committee

- Highly respected scientists from multiple disciplines
- Experts on learning sciences
- Experts on education systems and policy
- Supported by 5 design teams

A framework for Standards

- Develop transparent criteria for selecting core ideas
- Delineate core ideas – “fewer, deeper, clearer, higher”
- Versions of these for 4th, 8th, and 12th grade to illustrate learning progressions
- Illustrate performance expectations
- Develop R&D agenda for future revisions

Fewer allows deeper

Current tendency

- Teach concepts without building underlying principles

Desired pattern

- Understanding of the connective tissue of ideas
- Ability to evaluate and select information

Core concepts framework

--Consensus from August 17th

Core ideas of each sub-discipline

e.g. cellular basis of life

Core ideas common across disciplines

e.g. models of system with subsystems
energy flow

Core skills, abilities and habits of mind (strands)

e.g. interpretation of data and science
argument from evidence

4 areas for design teams +1

- Physical sciences
- Life sciences
- Earth and space sciences
- Science applied to engineering and the designed world
- R&D Plan for future revisions

Critical challenges

- Reaching consensus on what is core, at the right level of detail, in each dimension
- Defining these concepts appropriately for grades 4, 8, and 12 (learning progression)
- Showing some examples of performance expectations that honor all 3 axes of the frame

Process Principles

- Transparency
- Partnership (NRC, Achieve, NSTA, AAAS, CSSS)
- Broad involvement of stakeholders
- Expert review

Process 1

- Build on current initiatives and past experiences
- Stakeholder meetings for informed input
- Draft conceptual framework within 6 months
- Public engagement and feedback

Process 2

- Translation of draft conceptual framework into standards (next: Achieve)
- Revision of draft based on public input
- Independent review
- Final version in about 12-15 months
- Review of standards based on framework