

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 4<sup>th</sup>, 8<sup>th</sup>, and 12<sup>th</sup> 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