

A Framework for K-12 Science Education

NGSS Standards for NJ



NGSS Background

- Formally adopted July 9, 2014
- Transition Periods:
 - September 2016 for 6-12
 - September 2017 for K-5

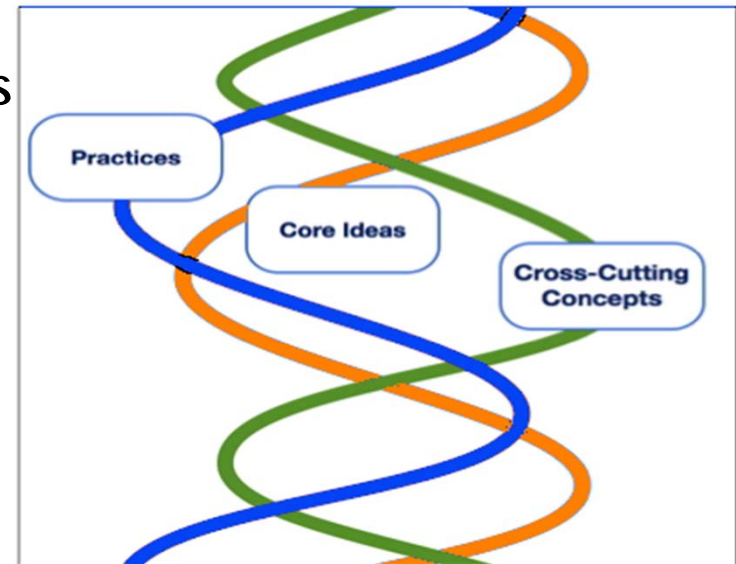


Guiding Assumptions with the Framework for NGSS

- Children are borne investigators
- Students' understanding builds over time.
- Science and engineering require both knowledge and practice.
- Connecting to students' interests and experiences is essential.
- Focus on disciplinary core ideas and practices.
- Promote equity.

Framework for NGSS - A Vision For Science Education

- Three Interwoven Dimensions of NGSS
 - DCI or Disciplinary Core Idea
 - Science and Engineering Practices
 - Cross Cutting Concepts



- What is it all about??

- <https://www.teachingchannel.org/videos/next-generation-science-standards-achieve>

Sample NGSS standards for aligned science instruction.

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
Asking Questions and Defining Problems	Evidence of Common Ancestry and Diversity	Patterns
Developing and Using Models	Ecosystem Dynamics, Functioning, and Resilience	Cause and Effect: Mechanism and Explanation
Planning and Carrying Out Investigations	Biodiversity and Humans	Scale, Proportion, and Quantity
Analyzing and Interpreting Data	Structure and Properties of Matter	Systems and System Models
Using Mathematics and Computational Thinking	Interdependent Relationships in Ecosystems	Energy and Matter: Flows, Cycles, and Conservation
Constructing Explanations and Designing Solutions	Earth and the Solar System	Structure and Function
Engaging in Argument From Evidence	Relationship Between Energy and Forces	Stability and Change
Obtaining, Evaluating, and Communicating Information	Types of Interactions	



Disciplinary Core Ideas (DCI)

- The anchor for any NGSS!!

- But, what are they?

AND

- How do we make sense of them?

- <https://www.teachingchannel.org/videos/disciplinary-core-ideas-achieve>



Science and Engineering Practices

- Asking Questions and Defining Problems
- Developing and Using Models
- Planning and Carrying Out Investigations
- Analyzing and Interpreting Data
- Using Mathematics and Computational Thinking
- Constructing Explanations and Designing Solutions
- Engaging in Argument From Evidence
- Obtaining, Evaluating, and Communicating Information

- Let's take a moment and explain:
 - <https://www.teachingchannel.org/videos/science-engineering-practices-achieve>



Cross Cutting Concepts

- Patterns
- Cause and Effect: Mechanism and Explanation
- Scale, Proportion, and Quantity
- Systems and System Models
- Energy and Matter: Flows, Cycles, and Conservation
- Structure and Function
- Stability and Change

But what are they really?

- <https://www.teachingchannel.org/videos/crosscutting-concepts-achieve>

What's Next???

- **Resources:**

- How are the standards constructed?
- Let's do a little dissecting.
 - <http://www.nextgenscience.org/>

- **The PD Plan:**

- Initial PD - The Framework
- Curriculum Gap Analysis
- Develop and align one experience or sub-unit with the NGSS.
- Align the Written Curriculum
- NGSS Curriculum in Place
- Continued development and implementation