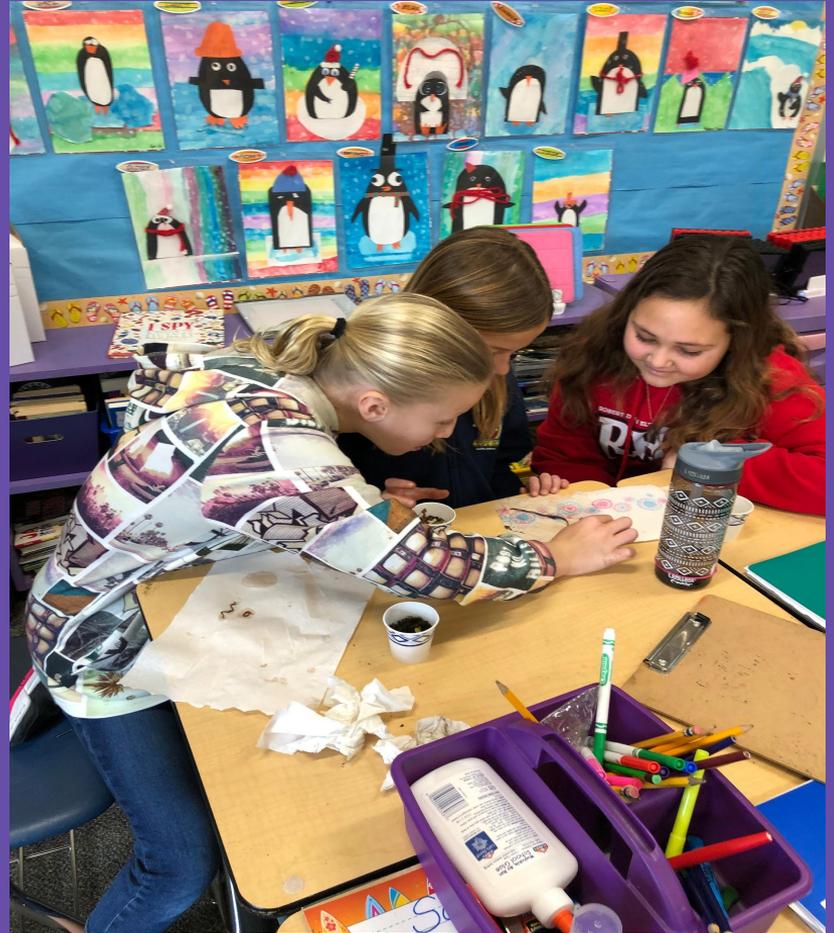




Pacific Grove
NGSS
Implementation

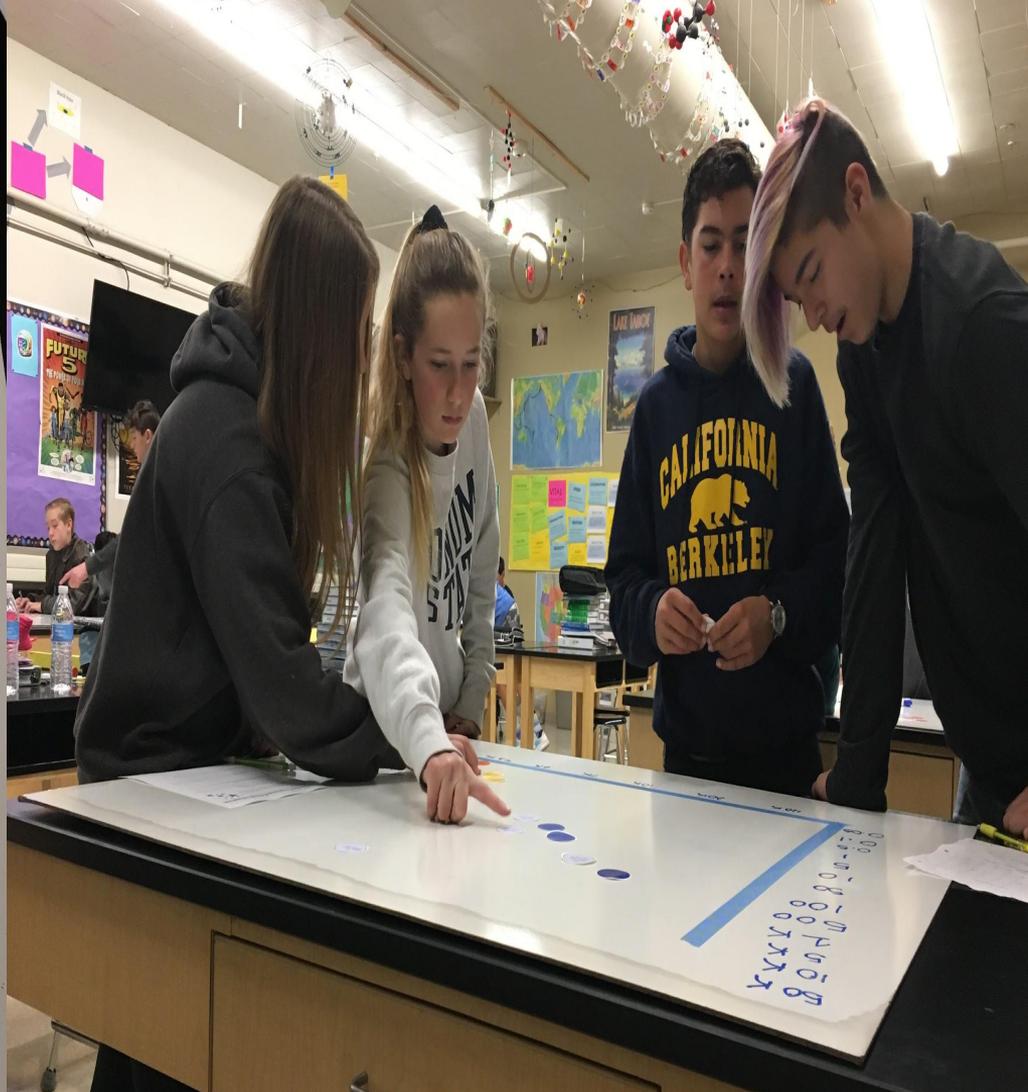
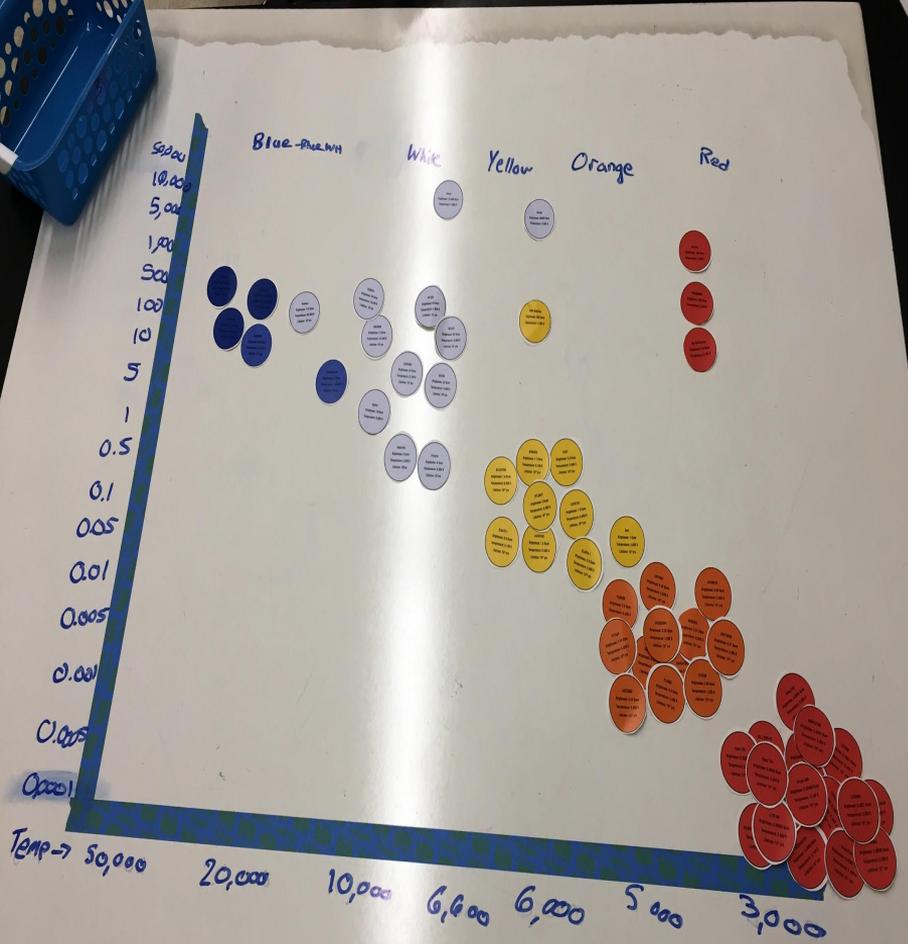


Learning Through Science Phenomena



What is Phenomena?

- Phenomena is an observable, repeatable event or instance that can be explored, investigated, or explained.
- Phenomena do not have to be phenomenal, but should be engaging to students and make them wonder, ask questions, or identify a problem to be solved.

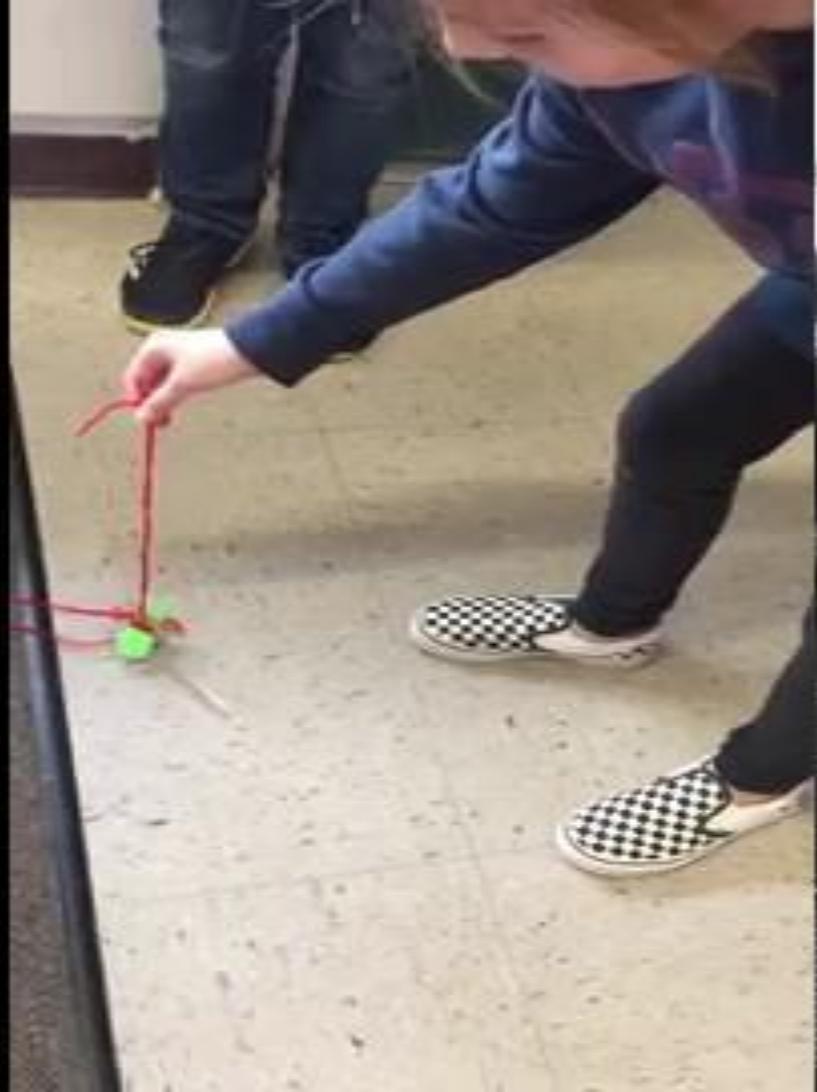




Clipboard
Daisy
Bernie, Olav, Anthony
Tuesday
10:15 - 10:25
1:55 - 2:45

7:30
10:15 Recess
10:25 Dividing Decimals
12:40 Lunch
12:55 Math
1:55 Cultural problem
2:45 Recess
STEAM

Code
Jacob: Jordan
Lunch today with
Mrs. Koch! You're
our service leaders
this month!



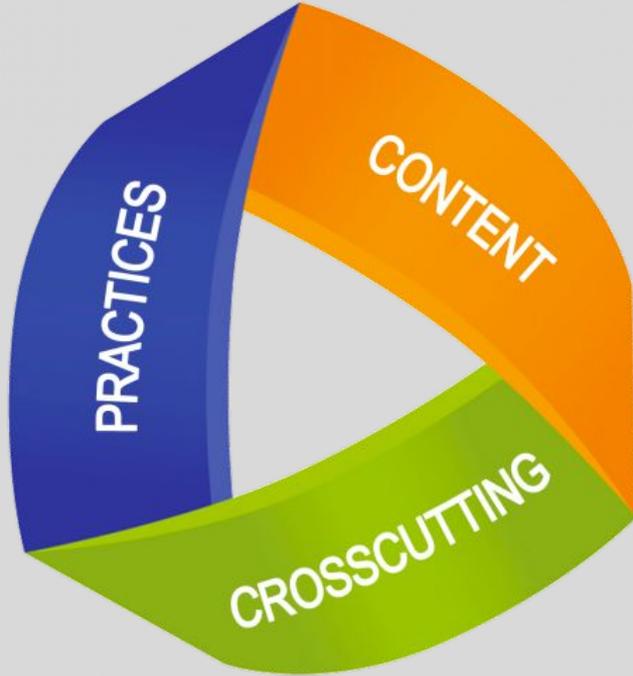
Phenomena and the 5E Model



A Closer Look at the Next Generation Science Standards



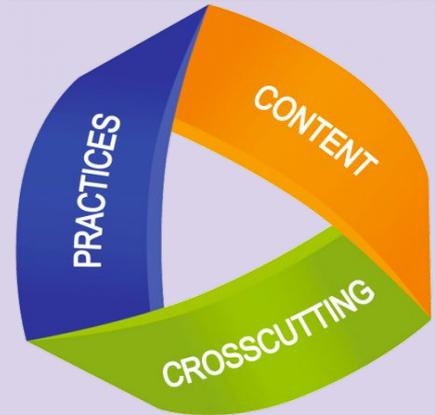
Three Dimensional Learning



- Science and Engineering Practices
- Crosscutting Concepts
- Disciplinary Core Ideas

WHAT IS THREE-DIMENSIONAL LEARNING?

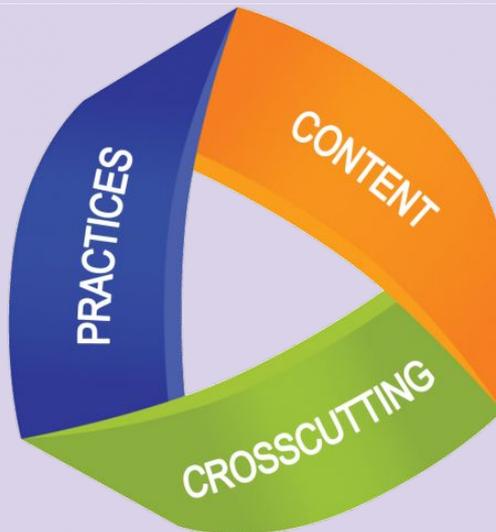
Students use **Disciplinary Core Ideas**, **Crosscutting Concepts**, and **Science and Engineering Practices** to explore, examine, and explain how and why **phenomena** occur and to design solutions to problems.



Three Dimensions of the NGSS

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



Crosscutting 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

Disciplinary Core Ideas

Physical Sciences

- PS1: Matter and its interactions
- PS2: Motion and stability: Forces and interactions
- PS3: Energy
- PS4: Waves and their applications in technologies for information transfer

Life Sciences

- LS1: From molecules to organisms: Structures and processes
- LS2: Ecosystems: Interactions, energy, and dynamics
- LS3: Heredity: Inheritance and variation of traits
- LS4: Biological evolution: Unity and diversity

Earth and Space Science

- ESS1: Earth's place in the universe
- ESS2: Earth's systems
- ESS3: Earth and human activity

Engineering, Technology, and Applications of Science

- ETS1: Engineering design
- ETS2: Links among engineering, technology, science, and society

Major Shifts in NGSS

- Phenomena-Based
- Authentic science with real world interconnections
- Student-centered learning
- Standards build coherently through K-12 while incorporating engineering
- NGSS and Common Core State Standards (CCSS) are aligned



Implementation Plan 2015–2019

- Began exploring the shift in standards and the CCC, SEP, DCI, PE
- Collaboration days for MS/HS teachers and summer planning to align curriculum/resources
- Partnership with MCOE (networks)
- MS/HS teachers developing 5 E lessons
- Purchase of Mystery Science for Elementary

Implementation Timeline 2015–2019

- Professional development for teachers and administration
- MS/HS teachers articulation meeting (ongoing)
- Partnership with Cohort B Districts
- Will Franzell 4 day PD plan for Elementary (September and January)
- Will Franzell facilitates elementary planning 2/25/19MCOE

What's Happening Next?

- Professional Development: Continued MCOE Partnership and looking at additional supports
- Resources: Science Adoption/Pilot in 2019–2020
- CAST Testing: Using data to inform and refine practices
- Multiple Measures: Use the assessments in Illuminate and CAST practice tests to prepare students and assist teachers in planning instruction

District Vision & Mission



Vision

All students will graduate with the ability to do and understand science in order to make sense of the world around them to have a positive impact in the world.

Mission

All Students will be provided with engaging inquiry based science instruction by doing what scientists and engineers do in real life.

Thank You!

