Celebrating Science in the Flemington-Raritan Regional School District

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Goals for Science Education:

By the end of 12th grade, *ALL* students:

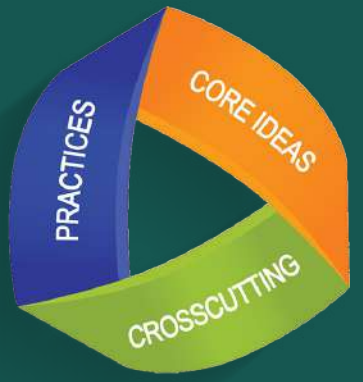
- have some appreciation of the beauty and wonder of science
- possess sufficient knowledge of science and engineering to engage in public discussions on related issues
- are careful consumers of scientific and technological information related to their everyday lives
- are able to continue to learn about science outside of school
- have the skills to enter careers of their choice

A Framework for K–12 Science Education, National Research Council

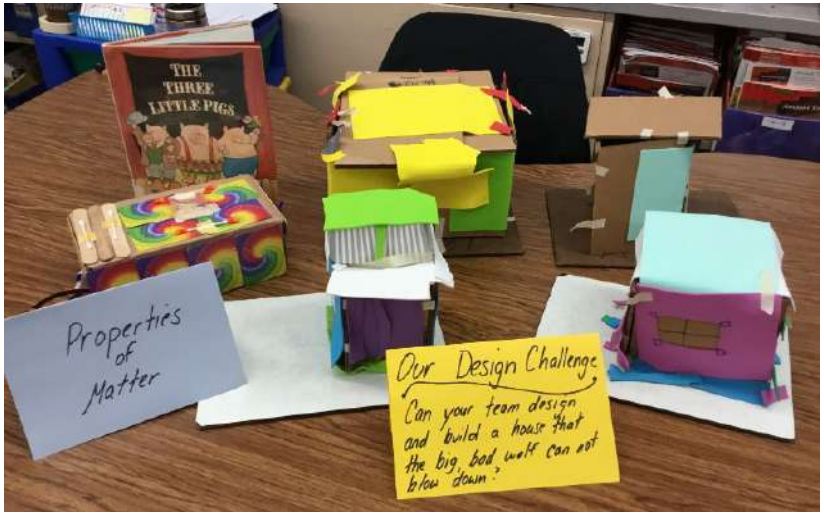
New Jersey Student Learning Standards for Science

3-dimensional learning:

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



Disciplinary Core Ideas



- Life Science, Physical Science, Earth and Space Science, and Engineering Design
- Engineering Design is embedded throughout the curriculum
- Grade-level specific for Kindergarten through 5th grade

Disciplinary Core Ideas Example: Tadpoles

LS4.C: Adaptations

For any particular environment, some kinds of organisms survive well, some survive less well and some cannot survive at all. (3-LS4-3)

LS1.B: Growth and Development of Organisms

Reproduction is essential to the continued existence of every kind of organism. Plants and animals have unique and diverse life cycles. (3-LS1-1)

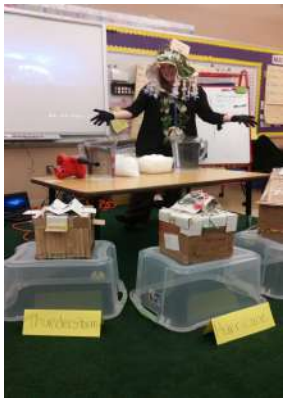
blogfrog

SAVE THE FROGS!
savethefrogs.com

Disciplinary Core Ideas Example: Hurricanes

ESS3.B. Natural Hazards

A variety of natural hazards result from natural processes. Humans cannot eliminate natural hazards but can take steps to reduce their impacts. (3-ESS3-1)



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

Science and Engineering Practices Example

First Attempt

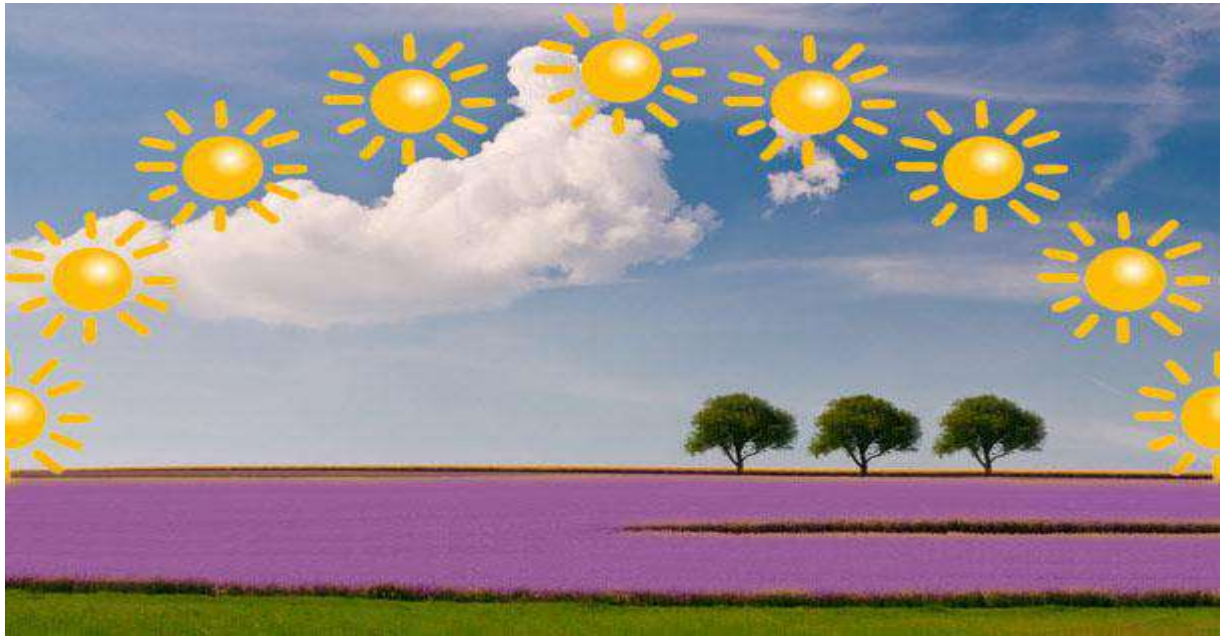
Success!

Kindergarten Example

Crosscutting Concepts

- Patterns
- Cause and Effect
- Scale, Proportion, and Quantity
- Systems and System Models
- Energy and Matter
- Structure and Function
- Stability and Change

Crosscutting Concepts Example



First Grade:
Earth Science

Patterns of the Day and Night Sky

Knowing Science

- Written specifically for the Next Generation Science Standards
- Provides ‘hands-on/minds-on’ activities that capitalize on students’ natural curiosity
- Offers teacher manuals, student activity books, and materials for each unit

K-5 Science Curriculum Units

	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
Unit 1	Weather, Part 1	Patterns of Change in the Sky, Part 1	Relationships in Habitats	Force and Motion	Weathering and Erosion	Becoming a Scientist
Unit 2	Basic Needs of Living Things, Part 1	Light and Sound	Properties of Matter	Electrical and Magnetic Forces	Earth Processes	Properties of Matter
Unit 3	Pushes and Pulls	Communicating with Light and Sound	Changes to Matter	Weather and Climate	Structures and Functions	Changes to Matter
Unit 4	Basic Needs of Living Things, Part 2	Characteristics of Living Things	The Earth's Land and Water	Continuing the Cycle	How Organisms Process Information	Energy and Matter in Ecosystems
Unit 5	Basic Needs of Human	Mimicking Organisms to Solve Problems	Changes to Earth's Land	Traits	Transfer of Energy	Water on the Earth
Unit 6	Weather, Part 2	Patterns of Change in the Sky, Part 2		Organisms and the Environment	Force and Motion	Earth Systems
Unit 7	Effects of the Sun			Using Evidence to Understand Change in Environments	Waves and Information	Interactions within the Earth, Sun, and Moon System
KEY	Earth	Life	Physical			

Technology Integration with Flipgrid

Why Flipgrid?

- Amplify student voice
- Experience social learning
- It's the way students use video – short authentic and FUN!
- Provides a safe space to share ideas and grow together

Future Plans

- Curriculum revision for the 2018-2019 school year
- Additional technology integration
- Training with Dr. Robert Richard from BTANJ for new teachers
- Training with Dr. Wil van der Veen from RVCC
- Review of science materials and ordering process

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Additional Thanks

- Teachers
- Administrators
- Students
- Parents

Questions? Please email Kristen Wolff at kwolff@frsd.k12.nj.us

Credits

Special thanks to all the people who made and released these awesome resources for free:

- Presentation template by SlidesCarnival