

STEM Steering Committee



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NH BOE, June 18, 2018

STEM Vision

Cultivate habits of mind and dispositions that allow students to develop an STEM orientation in all of their learning experiences

Integrate content and skills specific to the STEM disciplines and seek connections, when appropriate, across the curriculum.

Identify opportunities for STEM enrichment (curricular & co-curriculum)

ALLENDALE - HOHOKUS - NORTHERN HIGHLANDS - UPPER SADDLE RIVER



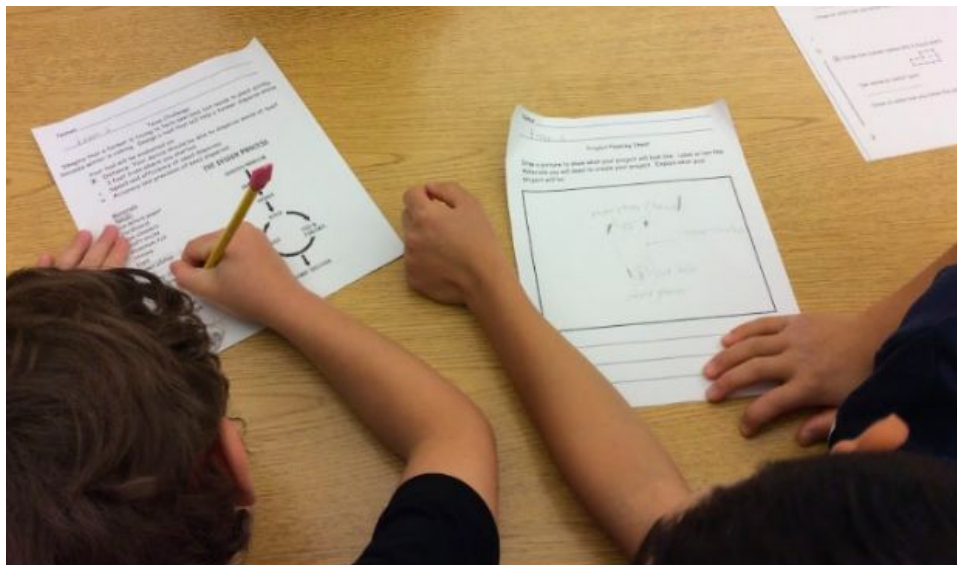
QUAD DISTRICT GOALS

- ⚙️ Promote **CURIOSITY**, **DISCOVERY** and **PLAY** through **SELF-INQUIRY**.
- ⚙️ Support and facilitate a **NURTURING** environment of **FLEXIBILITY**, **OPEN-MINDEDNESS**, and **DISCOVERY**.
- ⚙️ Experience **FAILURE** and productive struggle as a learning process and foster a **GROWTH MINDSET**.
- ⚙️ Solve **AUTHENTIC**, real world problems through **INTERDISCIPLINARY** data driven research.
- ⚙️ Learn **INDEPENDENTLY** through **INTRINSIC** motivation.
- ⚙️ Find and **SOLVE PROBLEMS** through **CREATIVITY**, **INNOVATION**, and **CRITICAL THINKING**.
- ⚙️ Gain **EMPATHY** by incorporating a **GLOBAL PERSPECTIVE**.
- ⚙️ **COMMUNICATE** and **COLLABORATE** effectively with **DIVERSE** groups.
- ⚙️ **TAKE RISKS** to cultivate **PERSEVERANCE** and **RESILIENCE**.
- ⚙️ Build **COMMUNITY** partnerships.



Trip to the Highline

K-8 STEM in the Classroom



Top 3 Fidget Spinners

Black Blur 3rd- Average: 204 seconds



You Can't Stop Me 2nd- Average: 234.6 seconds

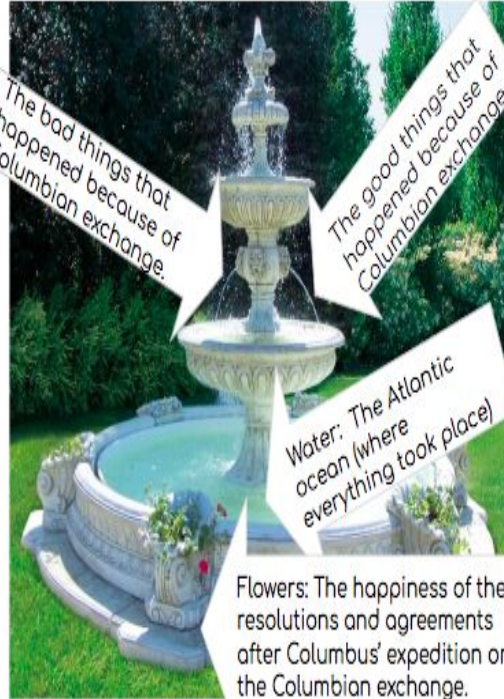


Rainbow 1st- Average: 307.9 seconds

K-8 STEM in the Classroom



Monument Redesign challenge



The bad things that happened because of Columbian exchange.

The good things that happened because of Columbian exchange.

Water: The Atlantic ocean (where everything took place)

Flowers: The happiness of the resolutions and agreements after Columbus' expedition or the Columbian exchange.

This Monument represents the Africans, Native Americans, and the Europeans. There were many good and bad things that took place due to Columbus' expedition which led to the Columbian exchange. The water on this fountain is representing the Atlantic Ocean where the traveling and trading systems took place. The two places where the water sprays out represents the good and the bad things that happened. At the very bottom of the fountain, there is a pool of water. This is symbolizing peace when all three groups of people come together and started to get along despite all that happened. During the Columbian exchange, there were many things that occurred such as the spreading of disease, slavery, and more that made the outlook on the Columbian exchange seem bad. That is why people need to also remember the good things. When people remember the good things they still can't forget about the bad things. This monument is made to represent both the good things and the bad things.

Applications of STEM Vision at NH: Honors Chemistry

Create and market an instant hot pack

- ★ Engineers
- ★ Research scientists
- ★ Marketing/Advertising/PR
- ★ Accounting
- ★ Supervisors

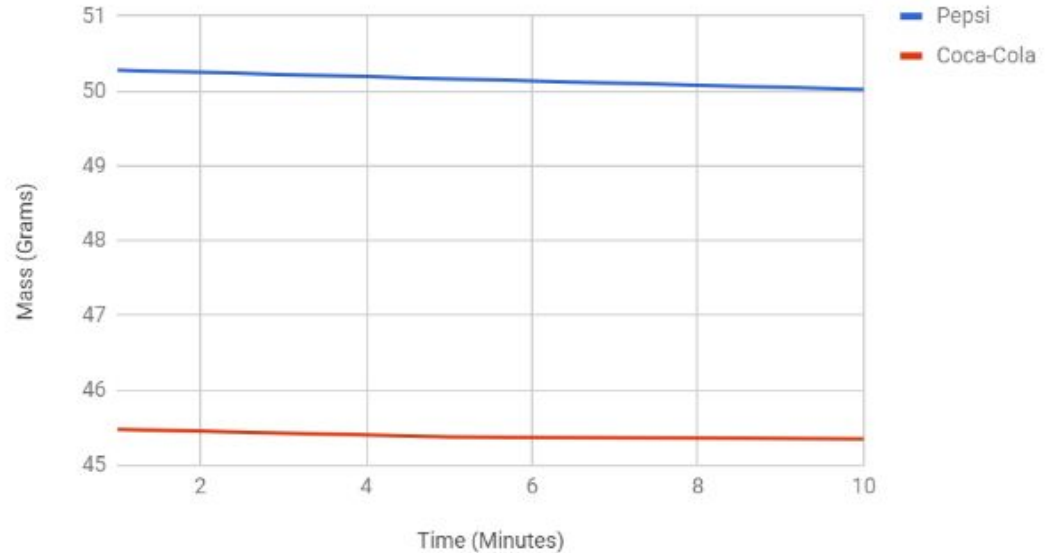


Applications of STEM Vision at NH: Biology

Diffusion/Osmosis Inquiry Lab

- ★ Students identified a problem or question
- ★ Designed an experiment to test problem/question

Pepsi and Coca-Cola Carbonation Loss



Applications of STEM Vision at NH: Physics

- ★ English 9 and Honors Physics
- ★ The Martian text
- ★ Science and literature connections

Representations

- The Fan = The MAV
- The Battery = The fuel
- The Circuit Board = Ares 3 location
- The Switch = The Controller
- Fan = Thrusters



Applications of STEM Vision at NH: Interior Architecture

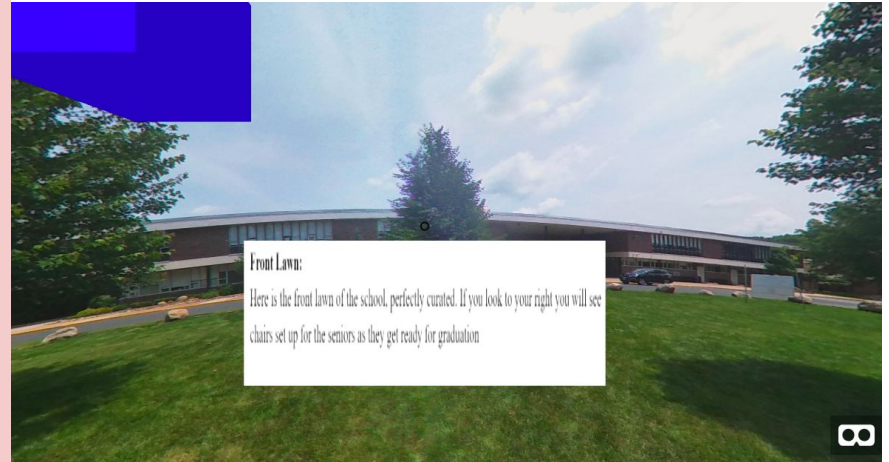


Applications of STEM Vision at NH: Computer Science and US History

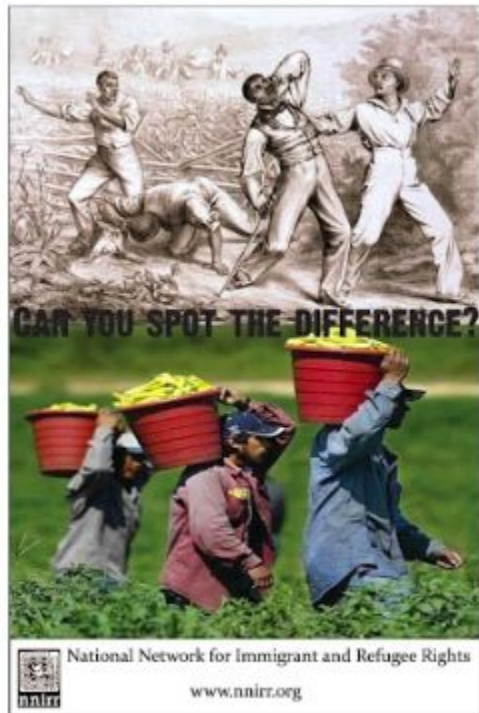
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Applications of STEM Vision at NH: Art



Applications of STEM Vision at NH: Humanities



STEM in the classroom

An overview of STEM principles

- Inquiry
- Perseverance
- Collaboration
- Innovation and Design

Where can we improve and expand student experiences?



Advancing STEM Education at NH: Evaluation

Section C "School Checklist"

How can schools assess their current STEM programs using the Vision Statement as a guide for evaluation and improvement? Develop a checklist that could be used (looks for) that would include: culture/ environment, curriculum, programs, instruction, students, facilities, resources, partnerships with community/ business.

- Are students given opportunities to be innovative and creative?
- Do opportunities allow for them to problem solve and constantly learn throughout the process?
- Do these opportunities allow students to grapple with and investigate real world problems?
- Are students engaged in an iterative process that allows for failure and redesign in order to demonstrate perseverance and resilience?
- Are students encouraged to communicate and share ideas in a way that demonstrates effective and constructive collaboration with peers, teachers, and world beyond the classroom?
- Are industry professionals invited to share their experiences or to provide constructive feedback for student work?
- Are opportunities offered to all students?
- Are professional learning opportunities available for teachers and staff?
- Is there dedicated physical space that supports innovative culture and curriculum?
- Are there curricular opportunities to support interdisciplinary design thinking?
- Are accommodations and modifications provided for accessibility to all students?
- Is instruction taught through the use of appropriate industry technology?

Advancing STEM Education at NH: Parents



Advancing STEM Education at NH: Culture

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