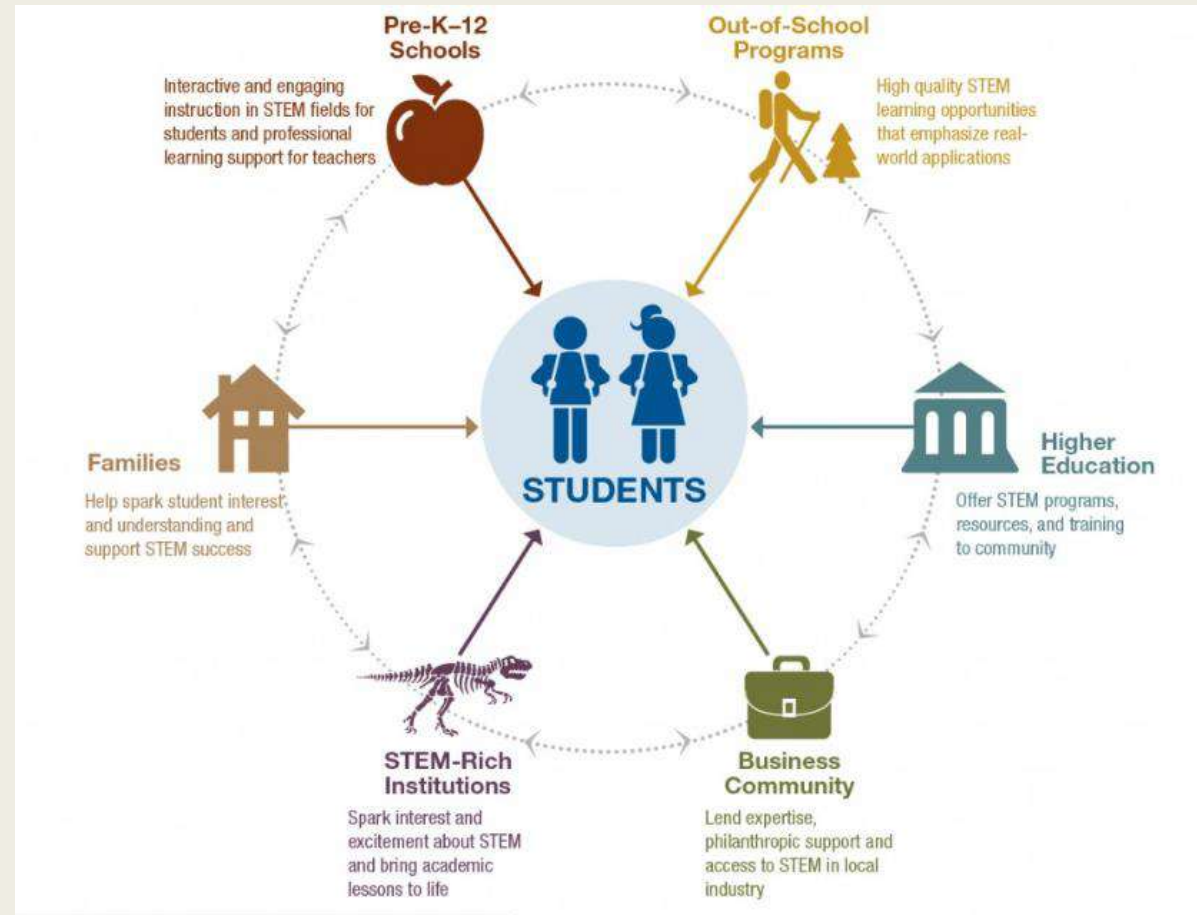


A VISION FOR STEM



Flemington-Raritan School District

Image credit given to The Department of Education
<https://innovation.ed.gov/2015/11/19/communities-come-together-to-support-stem-education/>

Presentation to the Board of Education
June 25th, 2018

Opportunities to Consider:

- Participation in an application to become one of New Jersey's STEM ecosystems; and
- Supporting a National LEAD STEM nomination.



Level 1

- Climate Change
- Water Scarcity
- Energy Security
- Cyber Security
- Global financial structure
- Biodiversity and Ecosystem losses
- Fisheries Depletion
- Deforestation
- Infectious Disease

Eliminate our way of life

Level 2

- Poverty
- Education
- The Digital Divide
- Urbanization
- Intellectual property
- International labor and migration
- E-Commerce rules
- Biotechnology rules
- Maritime Safety and Pollution

Disruptive to our way of life

Level 1

Climate Change

Water Scarcity

Energy Security

Cyber Security

Global

Biodiversity and Ecosystem losses

Fisheries Depletion

Deforestation

Infectious Disease

Level 2

- Poverty

- Education

- The Digital Divide

- Urbanization

- Security

- International labor and migration

- E-Commerce rules

- Biotechnology rules

- Maritime Safety and Pollution

Require Engineering Thinking to Solve

New Jersey STEM Learning Ecosystems

- New Jersey currently has four STEM learning ecosystems representing six counties within the state of New Jersey.
- The STEM learning ecosystems are interconnected, collaborative efforts of New Jersey communities working towards the shared vision of “providing New Jersey’s students with the Science, Technology, Engineering and Math education and experiences needed to succeed in college, career, and life.”
- Originated with the Office of Innovation and Improvement to cultivate a creative workforce that is ready to step into science, technology, engineering and math (STEM)-related fields.
- Initiated by Former President of the United States, Barack Obama, designed to bring STEM to life for young people in the real-world in high-quality and engaging ways.(2015)



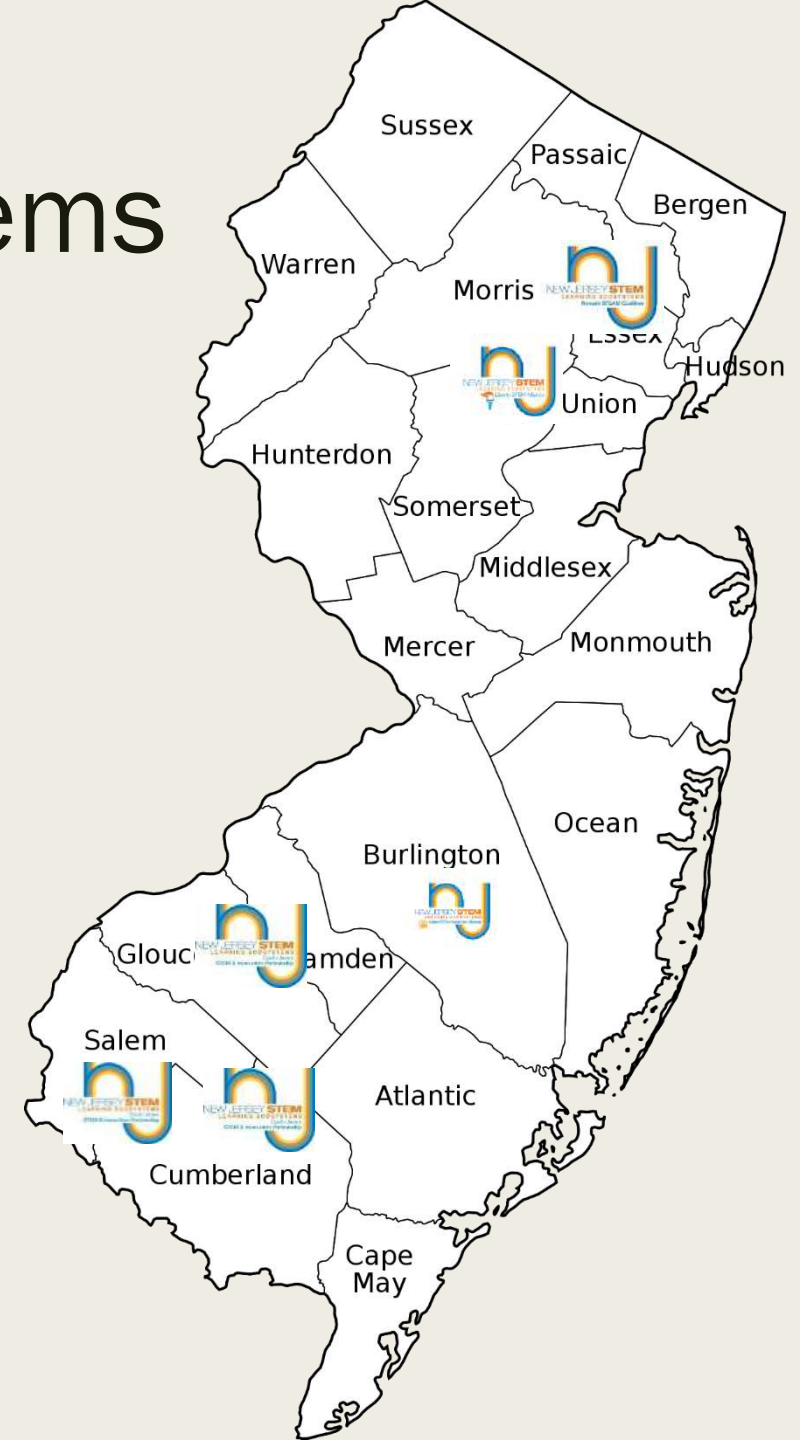
What is a STEM Ecosystem?

- An ecosystem is an interconnected, collaborative, effort of a community working towards a shared vision. It is comprised of industry leaders, community organizations, higher education institutions, parents, teachers, and pre-school parents. Stakeholders often include neighboring higher-education institutions, school education foundations, PTA organizations, art centers, and others.
- There are 56 national STEM learning ecosystems in North America. 56 sites representing 26 states, the District of Columbia and British Columbia. Over 150 local and regional Philanthropic Organizations, 1322 School Districts representing rural, urban, and suburban areas. Nearly 21 million pre-K-12 children. Over 4,200 business and industry partners.



New Jersey STEM Ecosystems

- Liberty Science Center
- Newark STEM
- Delran STEM Ecosystem Alliance
- South Jersey STEM





Impact...

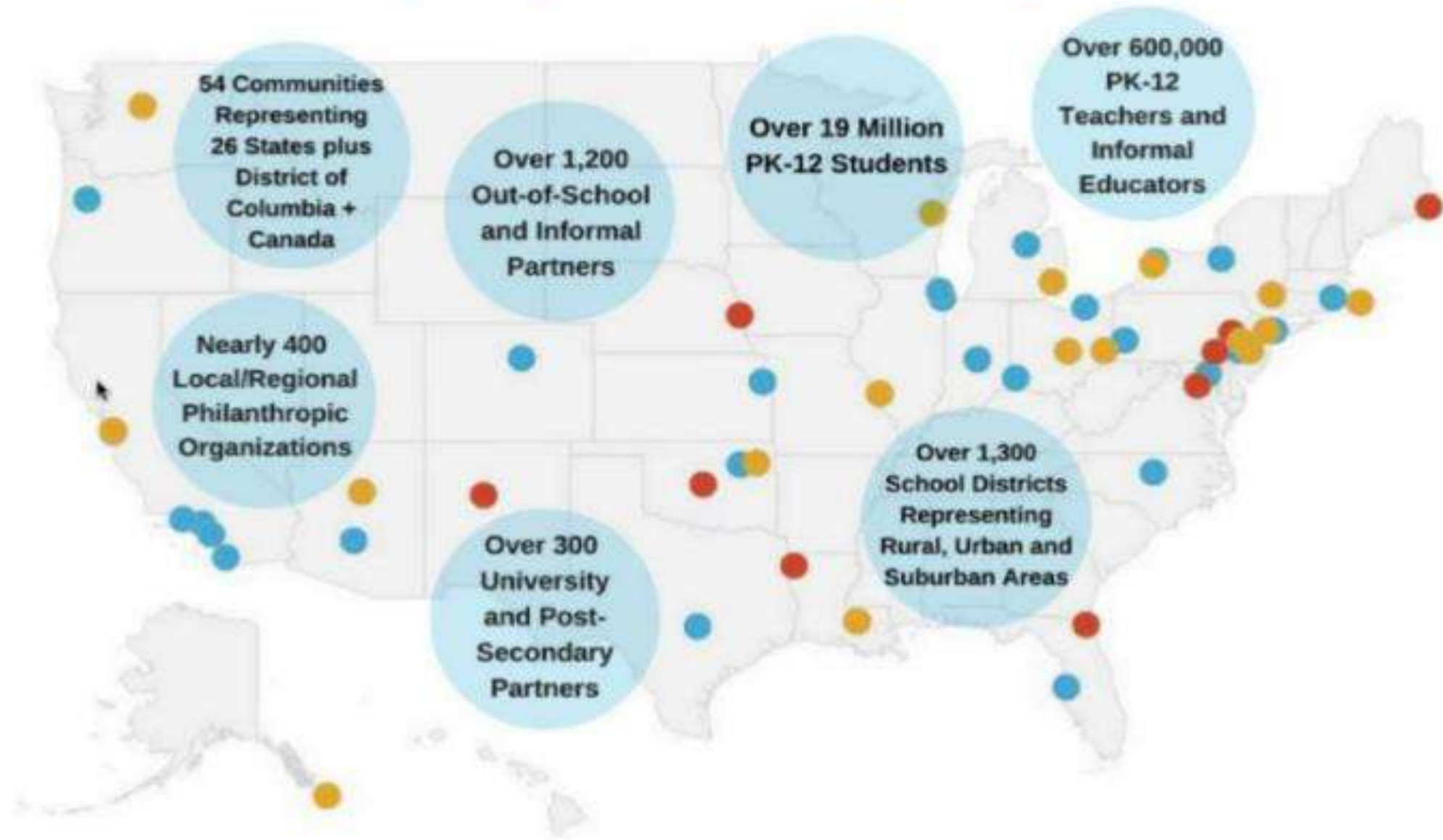
0 in Hunterdon County, NJ

- 27 communities
- 576 school districts
- 15,122,133 K-12 students
- 1,029 out-of-school informal partners
- 3,617 business/industry partners
- 600,000 educators





Participating STEM Learning Ecosystems





Human Energy™



Time
Warner
Cable®

ENJOY
BETTER



CHARLES AND LYNN
SCHUSTERMAN
FAMILY FOUNDATION



MERCK

Be well

Kern|FAMILY FOUNDATION



GORDON AND BETTY
MOORE
FOUNDATION



UNIVERSAL
TECHNICAL
INSTITUTE

Chosen by Industry. Ready to Work.

TIGER WOODS



GILL FOUNDATION



NOYCE
FOUNDATION



ASSOCIATION OF
CHAMBER OF COMMERCE
EXECUTIVES



The Harry and Jeanette Weinberg Foundation, Inc.

SIMONS FOUNDATION

BURROUGHS
WELLCOME
FUND



the Lemelson foundation
improving lives through invention



Overdeck Family
Foundation

United States STEM Data

- As of February 2012, more than half of the 30 fastest growing occupations require some level of post-secondary education
- Of the 15 Major study categories, Engineering has the highest median earnings, yet less than 20% of students choose a STEM path
- By 2018, 92% of traditional STEM jobs will be for those with at least some post-secondary education and training
- 23% of STEM workers are women; however women make up 48% of workers in all occupations
- In 2009, 12% of STEM workers were non-Hispanic black and Hispanic. But non-Hispanic black and Hispanic individuals accounted for 25% of all overall employment
- 1/2 of all STEM jobs do not require a four-year degree and pay an average of \$53,000; 10% higher than non-STEM jobs with similar education requirements (Source: Change the Equation)
- Women received 29.6% of computer science degrees in 1991, compared to 18.2% in 2010
- Jobs in computer systems design and related services, a field dependent on high-level math and problem-solving skills

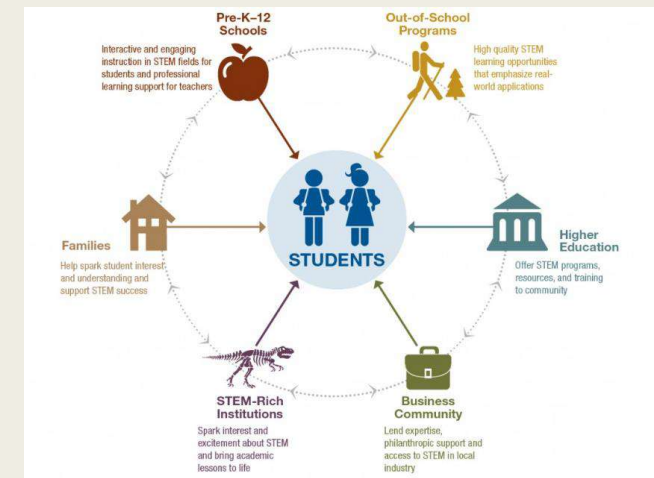
Source: STEM Education Statistics, 2016, National Math and Science Initiative

Proof of Success...



Flemington-Raritan Action Plan to Lead Hunterdon County in STEM Success

1. Communicate with the community the goals in STEM tied to our strategic plan;
2. Build partnerships with higher-education institutions, families, STEM-rich institutions, business communities, out-of-school programs, and local community leaders;
3. Apply to be a New Jersey STEM ecosystem in the fall/winter of 2018, anticipating an award in 2019;
4. National recognition as the 5th New Jersey STEM ecosystem located in our own Hunterdon County and one of 52 National STEM ecosystems;
5. Consider supporting a National Lead STEM nomination for new Superintendent to cement steps 3 and 4.



What is a National LEAD STEM Leader?



LEAD STEM

- LEAD STEM is a unique leadership development experience tailored for National STEM leaders;
- Designed for leaders who have vested interests in advancing STEM and its core principles throughout the US
- Provides peer-to-peer learning groups among educators, the business community, out-of-school programs and STEM-rich opportunities

Reference and for more information:

https://gallery.mailchimp.com/d8cd27572272a50e5d9b3e0b5/files/328a74f1-ac65-4de8-a054-694b7b8c491f/LEAD_STEM_one_pager.pdf



LEAD STEM Details



- Part of a cohort of STEM leaders and educators, local STEM champions, and part of a national network of STEM advocates focused on outcomes for educators, learners, companies, and the economy;
- Focuses on ensuring equity in STEM opportunities;
- Promotes a STEM learning ecosystem mindset;
- Capstone project that addresses an ecosystems specific STEM need;
- Data, communication, and development of market capstone project to support community project idea;
- Tuition and time commitment

LEAD STEM Outcomes



- Outcomes of LEAD STEM;
 - personalized leadership development,
 - development of a capstone project to meet local need,
 - engagement in a national network of STEM leaders



Tuition and Time Commitment

- Tuition (Incoming Superintendent negotiated \$4,000 tuition to be covered by the Research and Development Council of New Jersey)
- Time (Required mandatory participation in four in-person meetings.)
 - Meetings include intensive training and team building and are at the heart of the LEAD STEM experience
 - In person meetings, monthly web meetings, connections with mentors, communication and work with peers
 - 1-2 hours per week over the one-year length of the program
 - Four 1.5 day in-person meetings; one of which has challenging timing



Scheduled Meeting Dates

- September 5 - 7, 2018 (networking evening of September 5 and a full day September 6th and 7th) LEAD STEM Kick-Off meeting in Las Vegas, Nevada
- November 13 (full day) and November 14th (half-day) 2-18 LEAD STEM Pre-conference to the Community of Practice (CoP) in Orange County, California
- November 14-16 National STEM Learning Ecosystems in CoP in Orange County, California
- April 3, 2019 (Full day) LEAD STEM Preconference to the CoP- New Orleans, Louisiana
- April 4-5, 2019 National LEAD STEM Learning Ecosystems- New Orleans, Louisiana
- Summer 2019, Final LEAD STEM meeting- TBD

Benefits and Opportunities

- Networking with STEM national leaders;
- Sets Hunterdon County up for the next New Jersey STEM ecosystem;
- Sets Flemington-Raritan up to be the second school district that is a national STEM ecosystem;
- National positive publicity for Flemington-Raritan;
- Connections with Overdeck Foundation and others for future funding;
- Student opportunities in STEM increased;
- Staff in Flemington-Raritan receive STEM leadership support
- Flemington-Raritan leadership team can serve as key leaders in STEM ecosystem; and
- Flemington-Raritan has a district leader that is known as a STEM National Leader.

Challenges & Methods to Meet Challenges

- Clear communication to the community and district regarding the need for STEM leadership
 - *Statistics shared about innovation and creativity for the 21st century*
- Travel/Superintendent out-of-district
 - *Assistant Superintendent steps in as chain-of-command lead*

Discussion

