What do we dream of for the future?

- What can we do now?

- Next meeting 2/26/15
- Smart Schools Board Act
- STEM Survey Results
- STEM Powerpoint
- STEM Video
- Introduction and Welcome

Agenda for 3/22/15

What should we plan to do in the future?

- Develop a long term vision for STEM that best meets the needs of Greenwich students

- What can we do now?

- Brainstorming short term strategies to advance STEM opportunities for K-12 students
- Review of community partners offering STEM options at this time
- Analysis of data collected on current STEM activities in the Greenwich CSD Committee

- Why on Action Team?

- Meeting dates TBD: 3/26/18
- 2/5:00pm Dfps Conference Room

K-12 teachers, counselors, administrators and students working collaboratively on a vision for STEM in the Greenwich Central School District.
Science, Technology, Engineering and Math Curriculum

Pre-K

- Little Learners reading, math & science – Greenwich Free Library
- The Kids learning & movement, reading and math readiness – Greenwich Free Library

K-2

- Science curriculum is not consistent or on a continuum; never mapped-rationale was to wait until new standards.
- Technology-Standards are accessible to teachers-no set curriculum; i-pads and cart available.
- Math-NYS Modules-resources from Envisions
- Lego Club – Greenwich Free Library

3-5

- Science curriculum is not consistent or on a continuum; never mapped-rationale was to wait until new standards.
- Grade 6 has attempted to align science with JH and 6th grade math; this year incorporating more labs
- Technology-Standards are accessible to teachers-no set curriculum; each class has a 40 minute block with an aide...the teacher plans or the students use sites that are appropriate
- Math NYS modules...resources from Envisions
- Lego Club – Greenwich Free Library
- Spring Break Camp using Lego robotics materials (gr. 4 - gr. 8) – CCGY Youth Center
- Supervised Internet Access (gr.4 – gr. 12) – CCGY Youth Center
- WGRE will provide an opportunity to learn about sound engineering and recording equipment (gr.4 – gr. 12) – CCGY Youth Center
- Varied musical experiences utilizing extensive electronic instruments and recording equipment (gr.4 – gr. 12) – CCGY Youth Center

7-8

- Advanced Science 7
- Living Environment 8
- Science 7 & 8
- Technology 7 & 8
- Math 7 & 8
- Advanced Math 7
- Spring Break Camp using Lego robotics materials (4-8) – CCGY Youth Center
- Supervised Internet Access (gr.4 – gr. 12) – CCGY Youth Center
- WGRE will provide an opportunity to learn about sound engineering and recording equipment (gr.4 – gr. 12) – CCGY Youth Center
- Varied musical experiences utilizing extensive electronic instruments and recording equipment (gr.4 – gr. 12) – CCGY Youth Center
• Living Environment
• Earth Science
• Chemistry
• Physics
• AP Environmental Science
• AP Biology
• Common Core Algebra
• Common Core Geometry
• Algebra II/Trigonometry A & B
• UHS Pre-Calculus, UHS Calculus, AP Calculus
• AP Physics
• Agricultural Engineering I, II, & III
• Agricultural Science
• Plant Science Veterinary Science
• Wood Working
• Accounting
• SUNY Ag Business
• Supervised Internet Access (gr. 4 – gr. 12) – CCGY Youth Center
• WGRE will provide an opportunity to learn about sound engineering and recording equipment (gr. 4 – gr. 12) – CCGY Youth Center
• Varied musical experiences utilizing extensive electronic instruments and recording equipment (gr. 4 – gr. 12) – CCGY Youth Center

Special Program (field trips or guest speakers)

K-2

• Scotia Glenville-Simple Machines (gr 2)
• CMOST-Wonderful World of Weather (gr 1)
• Scotia Glenville-Kitchen Science (gr 1)

3-5

• Jeff Bennett-Bubonic Plague (gr 4)

7-8

• Advanced Science and Living Environment 8 students attend Science Fair at RPI and present their research projects
• 8A Matt Ross from Quality Deer Management Association
• 8A Howard Romack (With NYS Museum)
• Science symposium guest speaker Dr. Denise Mayer Cambridge Fish Hatchery Research Station for NYS museum. In addition two student speakers (7A, 8A)
STEM Sundays @ Greenwich Library: Program development in progress first activity will be Geocaching. Planning for LEGO robotics and Hour of Code – Family

CCGY Youth Center Offers the following resources for students Gr. 4 – Gr. 12: LEGOS Robotics kits, 8 Apple computers with access to the internet, two iPads, Apple TV, Playstation, an AV proctor, a large screen TV, the components of a recording studio (monitors, mixing console, computer with recording software).
STEM Proficiency: A Key Driver of Innovation, Economic Growth and National Security

STEM skills are needed in the many millions of jobs in sectors such as energy, manufacturing, food production and health care.

By William H. Swanson and Brian Kelly April 23, 2014 | 7:00 a.m. EDT

STEM: what a terrible acronym. It’s one of those awkward labels that become accepted shorthand for a wonky policy topic because no one can figure out a better way to say it. But don’t let clunkiness obscure significance. STEM is also an under appreciated, and troubling, component of the U.S. economy. The real meaning behind “STEM” is the mismatch between supply and demand in a key part of the country’s labor pipeline. The demand for the many jobs requiring STEM skills—science, technology, engineering and math—is outstripping the supply, and the problem will only get worse.

That’s what we found when we crunched the numbers in the first-ever STEM Index, a basket of data measuring the state of STEM jobs and education since 2000. We wanted to impose some metrics on a much-discussed but ill-defined subject that has become a concern for most major industries in the U.S. STEM proficiency is a key driver of innovation, economic growth and ultimately national security. For instance, some of the most coveted and scarce skills today are in the fields of cybersecurity.

[SPECIAL REPORT: The U.S. News/Raytheon STEM Index]

But STEM is not just about tech companies. It’s not just about people who wear lab coats. STEM skills are needed in the many millions of jobs that will have to be filled in sectors such as energy, manufacturing, food production and perhaps most significantly, health care. What industry does not need more workers with science and math know-how? And not just at the high end. Having STEM skills could mean making it into the middle class, or not.

Going back to studies like the seminal “Rising Above the Gathering Storm” report of 2005, the problem has been a focus of much attention. But we wanted to add some new rigor by creating a unique set of data that looked at how the U.S. has fared in tackling this supply-demand challenge. We plotted dozens of statistics that measured student test performance, aptitude, and interest against job demand (read the full methodology). The result is a 14-year average that tells an important part of the STEM story, with limits. Our new benchmark, the U.S. News/Raytheon STEM Index, is a starting point that’s meant to lead to deeper discussions, and ultimately solutions. And of course any broad-based graph can only tell you so much; the analyses behind the component parts are ultimately the most revealing.

What the numbers tell us is that the country has made little progress on a problem we’ve seen coming for a long time. Despite growing job demand, the pipeline of talent is weak and will remain that way for at least a decade if nothing changes. There are some recent glimmers of hope, reflected
in an uptick over the past two years, but they are coming from a select part of the population. Our top-line data, supported by other studies, shows that some portion of white males, along with Americans of Asian descent, are increasingly drawn to STEM subjects, while those who represent the bulk of the future labor pool—women, Latinos and African-Americans—are showing disproportionately little interest.

The increased demand for STEM skills is evident despite a key shortcoming in the STEM Index: our need to rely on federal government data. Using the sometimes out-of-date definitions of what is a STEM job, the Index still charts a 30 percent growth, from 12.8 million in 2000 to 16.8 million in 2013. More granular estimates put actual jobs requiring STEM skills at as much as 50 percent of the job market. We’ll be refining that and other data for next year’s edition.

Among the biggest problems surfaced in the STEM Index:

- Between 2000 and 2013, an average of 37.5 percent of high school males reported having interest in at least one of the STEM disciplines, vs. 14.8 percent of females.
- In 2013, the average SAT math score for white students was 534, compared to 461 for Hispanic students and 429 for black students. The average ACT science scores were 22 for whites, 18.8 for Hispanic students and 16.9 for black students.
- As high school students’ interest in STEM has waned, their scores on international assessments like PISA have also dropped. In 2000, the average U.S. PISA math score was 493. In 2012, that score dropped to 481. Relative to other developed countries, we remain near the back of the pack.

STEM may be a simple label, but the problem it speaks for is deeply complex. Why do fourth-grade girls sour on math? Teacher prep programs ignore science training? University curriculums wash out too many talented students? The solutions require the interaction of industry, academia, government and non-profits.

There is work being done in all these areas, but the evidence suggests it is not enough. Better awareness and more-realistic assessments are important next steps. This new STEM Index is a start.

Brian Kelly is editor and chief content officer of U.S. News & World Report. William H. Swanson is chairman of Raytheon Company.
Emerging as a tech hub

Posted on September 9, 2014 | By TU Editorial Board

The evidence is compelling: The Capital Region is poised to take off as a bona fide tech industry hub. The region has scored impressive gains in technology-related jobs, and the latest employment data from the New York State Department of Labor would suggest the region could become another Silicon Valley, albeit on a smaller scale. The core high-tech industries now provide 41,800 jobs in the region; since 2008, jobs in high-tech fields rose by 6 percent, according to the Labor Department. Careers in these areas are growing 2.5 times faster than traditional labor categories in New York.

But despite the huge impact of developments like GlobalFoundries' computer chip manufacturing plant in Malta and the move to Albany of the international chip-producing consortium Sematech, the Capital Region has yet to emerge as a true entrepreneurial hotbed. This reality check was documented in a story Sunday by Times Union Business Editor Eric Anderson. In some cases, even when startups have successfully launched here, bigger nearby markets — like New York City or Boston — pull them away as they reach maturity. Those larger environments are much more able to support the new and innovative businesses, and it's easier there for entrepreneurs to attract vital venture capital.

If the Capital Region is to become a true tech hub, we must grow our own tech ecosystem so that existing businesses see beyond short-term competition by mentoring and collaborating with those launching the startups.

Silicon Valley's explosive growth has been credited to Stanford University's five decades of support and cultivation of the region's tech sector. Stronger links must also be developed between our own universities and their young graduates, keeping more of them here to innovate and create new businesses.

We are encouraged by the University at Albany's decision to launch a School of Engineering in 2015. Rather than competing, it should be tooled to complement the programs at Rensselaer Polytechnic Institute in Troy and Union College in Schenectady. The results will be a rich pool of talented graduates ready to join a thriving local technology economy.

We're equally heartened by new efforts on the high school and community college level to respond to the growing tech sector. Last week, the Troy Riverfront Pathways in Technology Early College High School became the newest of these so-called P-TECH programs, which prepare students for the technology sector. Through partnerships with the local tech industry, the state-funded program grants associate degrees when students graduate from high school, ready to step into a host of high-skill and well-paid jobs.

It's a worthwhile effort. Why should GlobalFoundries have to recruit nationally to expand its current workforce of 2,000 to 3,000 by the end of the year? Those employees, and workers drawn by future projects, can and should come from this region — and a unified effort will help make it happen.

Categories: Editorials, Education/schools, Technology
On Nov. 4, New York voters approved the Smart Schools Bond Act, providing $2 billion in funding for classroom technology and internet connectivity.

Eligible Recipients of Bond Act Proceeds

School districts are recipients of these funds and districts must loan educational technology to nonpublic school students upon request.

Allowable use of Bond Act Proceeds

The funds received by the state from the bond act will be used by school districts for capital projects related to educational technology equipment, including but not limited to interactive whiteboards; computer servers; tablets, desktop and laptop computers; high-speed broadband or wireless internet connectivity for schools and communities; capital projects to construct, enhance or modernize educational facilities to accommodate pre-kindergarten programs and provide instructional space to replace transportable classroom units; and capital projects to install high-tech security features in school buildings and on school campuses.

Allocation Methodology of Bond Act Proceeds

Each school district has already been given the amount of their potential allocation from the bond act (Greenwich Central School District allotment is $807,563). A list of all district allocations is included beginning on page three. The state budget included a formula which was used to make district allocations and provides that each school district’s percentage of the $2 billion bond act will be based on the district’s percentage of formula school aid (excluding Building Aid, Universal Pre-k, and the Gap Elimination Adjustment) in 2013-14. For example, if a district’s school aid was 1 percent of the state total school aid then the district would be eligible for a $20,000,000 allocation (1 percent of the $2 billion) from the bond act.

Smart Schools Investment Plan

Districts are required to submit a “Smart Schools Investment Plan” to the Smart Schools Review Board which is comprised of the education commissioner, the state budget director, and the chancellor of the State University of New York. The plan will describe how the district will use the Smart Schools Bond Act funds. In developing such investment plans, school districts are required to consult with parents, teachers, students, community members and other stakeholders. The district may not receive a Smart Schools Grant until the review board approves their plan.

Loan of Technology to Nonpublic Students

Smart Schools classroom technology shall be made available to nonpublic students who attend nonpublic schools within the school district upon their request. This loan process is consistent with existing practices of “loaning” instructional computer hardware to nonpublic students. Nonpublic students could only receive loans for classroom instructional technology such as laptops, tablets, computers, servers, and projects which expand broadband access and wireless internet connectivity.

Such Smart Schools classroom technology is to be loaned free to nonpublic students, commencing with the 2014-15 school year, subject to such rules and regulations of the Board of Regents and school districts. This loan process is similar to the existing requirements for loaning technology to nonpublic students for computer hardware.

The maximum funds which may be loaned to nonpublic students may be no greater than two hundred fifty dollars multiplied by the nonpublic school enrollment. This acts as a cap on school district technology loans to nonpublic schools but the statute also requires that districts make these loans on an equitable basis to nonpublic students within this maximum dollar amount.

Source: www.NYSUT.com
Study shows STEM awareness remains low

The Carnegie Science Center is one of the institutions that can help develop STEM education through hands-on learning experiences. Business leaders can support STEM education projects for their employees and provide opportunities for STEM education. Teachers also have a critical role in preparing students for the workforce of the future. STEM education can help students develop critical thinking and problem-solving skills, which are essential for success in today's workforce.

In conclusion, STEM education is crucial for the future of our workforce. As businesses continue to evolve and demand more skilled workers, it is important that we invest in STEM education and support initiatives that help students acquire the necessary skills.

By: Carnegie Science Center