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Greetings, Happy New Year!

This is the year!
I have 8 more months as president of the MassTEC board of directors so I plan on making the most of it.

First, we need to make Technology Engineering Education Awareness

job #1!

See April Lisbon-Peoples' article on the front page.

Second, we need to connect with the Special Education community. As April explains so well, there is a natural connection between Technology Engineering Education and helping young people with learning issues prepare to live in the real world.

Third, we need to connect with the science educator community to support our similar and non-competitive efforts to help all students see that there is so much more than only math in STEM, especially in Pre-K through 8th grade. Math is the language of science, both of which engineers and technicians use to solve real-world

problems to address human needs and wants. See the Mike Rowe article on page 3.

Fourth, we need to connect with the people who have the positive spot light. I have been looking for a "White Knight" for many years. Later I realized — with Fran Ploof's help — that WE must be our own White Knights. So true and yet we still need visible, verbal, articulate supporters. So who do you know who can be a "shaker and mover" for our discipline?

Fifth, we need to connect with the inner city and rural poor communities to spread the word that STEM related careers are viable and indeed the classic way to help people and families work towards becoming self sufficient as well as contributing members of our society.

This last area is one of my personal learning/growing goals. One of my NEU EdD students, Kara Casimiro, shared this with me and changed my understanding regarding learning.

[Verbal Connections:]
"research studies conducted by



Hart and Risley (1995) found a clear and profound difference in the way lower and middle-class parents foster cognitive development. For example, the number of **words per hour** used by parents with their children varied significantly with welfare children at 616, as compared to 1,251 words with working-class families and 2,153 words used with children of professionals. "[Hart, B., & Risley, T. R. \(1995\).](#)

Meaningful differences in the everyday experiences of young children. Baltimore, MD: Paul H. Brooks.

It makes sense that if one practices anything more, skills are going to be greater.

Also see how Testing advocate Diane Ravitch has changed her goals:

<http://www.thedailyshow.com/watch/thu-march-3-2011/diane-ravitch>

<http://www.amazon.com/Death-Great-American-School-System/dp/0465014917>

We have much to do!



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TED Talks

Technology is getting so far ahead of the older generations that everything is literally "over our heads." ~Scott Jewell

Some serious engineering went in to this project.

http://www.youtube.com/watch_popup?v=Fg_JcKSHUtQ



California or Bust!

MORE at
<http://www.masstec.org>



Washington & the Globe-

Mike Rowe Promotes Skills Training In New Video

Television star and **skills training advocate**, Mike Rowe, released a new short **video** [<http://vimeo.com/14192434>] to draw attention to the country's shortage of qualified workers in some vital Technology and Engineering fields.

While attaining higher education is a positive goal for some, Rowe said there are options for high school graduates who aren't college-bound. He stated that this focus on "college for all" exacerbates the skills gap and devalues jobs such as welding and plumbing that are critical and rewarding occupations. There are shortages in these areas, Rowe said, because we don't encourage students to pursue them.

"We're so focused on getting into the corner office, we forgot how to build a corner office," he said.

Career Technical Education (CTE)* offers students an opportunity to attain knowledge and skills required to succeed in the workforce or further education. Through career pathways, CTE students take rigorous coursework, often including work-based experiences and dual enrollment courses, and acquire valuable skills to help them succeed after high school whether or not they choose to pursue postsecondary education.

Also view: Dirty Jobs' Mike Rowe Testifies Before Senate Committee

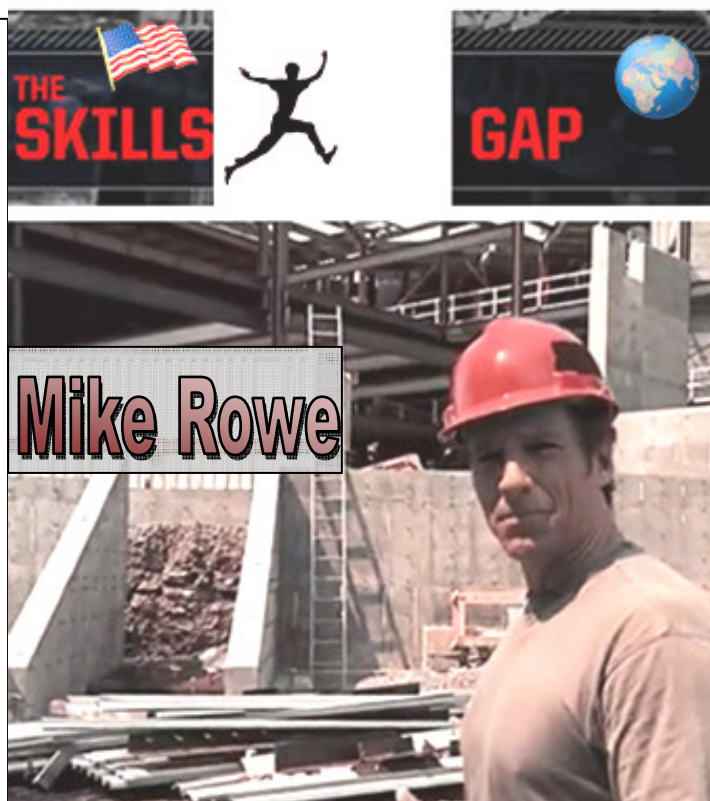
<http://blog.careertech.org/?p=3656>

~ Kara Herbertson, Education Policy Analyst



Career Technical Education (CTE)
Serves 1/8 of the high school
population
in Massachusetts...

However,



Technology

Engineering

Education

Has the power to

Reach all public school

Students from

Pre-K to 12th grade.

Help us educate parents, politicians, the media, and educational leaders!

Contact me at: ray.mccarthy.masstec@gmail.com to see how you can help spread the word:

Technology Engineering Education IS hands-on, minds-on STEM and we help bridge the **Gap!**

MORE at: <http://www.masstec.org>

Louisville-

What is the purpose of high school?

The current mantra is "college-ready for all," which means high school students need to be focusing on academic preparation and study skills, seems to be the answer. Politicians of all stripes can win points by pushing for a tougher high school education. In response, states and districts around the country have raised high school graduation requirements by increasing the number and, presumably, the rigor of required academic courses and by adding exit exams. The results are:

- The National Research Council concluded that high school exit exams have decreased high school graduation rates in the United States by 2 percentage points *without increasing* achievement.
- In Chicago, a 2010 study found **no positive effects** on student achievement from a school reform measure that ended remedial classes and required college preparatory course work for all students but high school graduation rates declined and there was no improvement in college enrollment and retention.

How to keep students from dropping out? Keep them engaged: Research demonstrates that **career and technical education-courses that teach applied skills** in agriculture, engineering, health science, and the like-increases attendance, raises completion rates, and improves earnings and employment prospects of high school graduates whether or not they attend college. International comparisons further reveal that countries offering more access to vocational options have higher high school completion rates as well as higher scores on international tests.

To read more, go to: <http://bostonglobe.com/ideas/2011/11/20/how-college-prep-killing-high-school/94mGUe6o9InIEuO9oMhnzJ/story.html>

Regards,

James R. Stone, III
Professor and Director, NRCCTE
University of Louisville
www.nrccte.org

Submitted to IdeaGarden by
W. Douglas "Doug" Miller | Supervisor for Technology & Engineering | dese.mo.gov

From the IdeaGarden-

Mythbusters is not all science,

in fact I believe the vast majority of what you see on there is design, engineering, and innovation. Often some elements of fast track prototyping. Yet, they refer to everything as science. It has a wide viewing audience and would be a great way to communicate in ways we can not as an organization. What about John Ratzenberger and his *Made in America* series. The same applies to Mike Rowe and his show *Dirty Jobs*. Then there are former shows like *Prototype This*. Think of the Star Power behind reading and literacy, not to mention the *SAVE THE MUSIC* people.

While you may abhor the idea of using stars to help spread who we are and what we do, it would certainly reach a wider audience than our local news or talking to politicians who will talk behind closed doors out of the sight of the general public. There is no doubt that we as the teachers with our boots on the ground so to speak are best to talk to our local community, and we do. What about those areas who are not represented by any Technology Education teacher, have no programs. Star power in that case may make a difference.

If only we could get the Bill & Melinda Gates Foundation to look past INFORMATION technology and be an advocate for us. Like it or not, advocates in the public eye would be an asset, and one we should not so easily dismiss.

-Jared Bitting, DTE

Teaches **Technology Engineering Education** in PA
Email Jared at: fasdte@verizon.net

So it is a “Six Degrees of Kevin Bacon” moment! -RMc

Who do you know who knows someone in business, entertainment, education or politics who supports what we do and might want to help us get our message out?

Maybe we need a “*MacGyver*” or “Mission

Impossible “ that accents what **Technology Engineering Education** does for America’s future...

Contact me at: ray.mccarthy.masstec@gmail.com

Ohio-

Scott Kutz uses this for 8th graders' Step-Up Night at his high school. What is your technique? RMc

Westlake High School

ENGINEERING & TECHNOLOGY EDUCATION DEPT

STEM, Pre-Architecture, Pre-Engineering, & Pre-Design Studies



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You'll have money and job security! Engineers have significantly higher starting salaries than do college graduates with bachelor's degrees in many other fields. After 4 years of college, you could be making up to \$60,000 a year. And society will always need people, like engineers, who solve problems and come up with new ways of thinking about and doing things. Learn more about engineering by searching www.discoverengineering.org

You'll be working with other talented people! Engineering is a team effort. As an engineer you may be working on projects with experts in many different fields and people from different backgrounds - even different countries.

You'll have lots of options! Engineers work everywhere: in big and small cities, rural communities, even remote wilderness areas. Some work in business offices or classrooms, others in factories or research labs; some work outdoors or even in outer space! Some engineers go into medicine, law, or business management.

An engineering education will prepare you for *many* different careers.

You'll get to do cool stuff! Be the first to develop or try out a new technology, like a flying car or an undersea house. Design and build virtual reality amusement parks. Discover and patent a new material that can mend broken bones or cure arthritis. Engineers will be involved in making all the wonders of the future a reality.

The Westlake High School Engineering & Technology Education Classes:

HAVE DOZENS OF FORMER STUDENTS WITH AMAZING CAREERS WORKING ACROSS THE COUNTRY DESIGNING AND BUILDING CARS, COMPUTERS, KITCHEN APPLIANCES, HOME DEPOTS, AND EVEN ONE WHO HELPED BUILD CROCKER PARK!

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MORE at: <http://www.masstec.org>



Scott Kutz's Handout

Fitchburg-

CRAWFORD TRIPLE FEATURE

A recent assignment within an online Fitchburg State University graduate class required that I review and reflect on a sampling of media related to Matthew Crawford's book, *Shop Class as Soulcraft: An Inquiry Into the Value of Work*. As I moved from watching, to listening, and finally reading Crawford's thoughts, I found the high value that he places on working with one's hands interesting. He repeatedly makes a strong case for the cognitive demands of manual work. Crawford points out that: "Skilled manual labor entails a systematic encounter with the material world, precisely the kind of encounter that gives rise to natural science." In another passage, he notes "craftsmanship might be defined simply as the desire to do something well, for its own sake."

In looking at knowledge work vs. manual work ... mental vs. manual, Crawford makes note that a significant amount of what is currently viewed as knowledge work is being reduced or dumbed-down to clerical work. On this point, he speaks in more than one of the items about his own

work experience, preparing the abstracts for scientific articles and the unrealistic requirement that he complete 28 journal articles per day following a specific process. Dr. Crawford discussed the lack of satisfaction he felt and readily admits that his work product was crap.

When Ford introduced assembly lines to the manufacture of automobiles once completed by craftsmen recruited from bicycle and carriage shops, it became more difficult to recruit workers. Crawford notes that it became necessary to recruit 963 men to fill 100 positions because workers simply walked off the job due to boredom. This is one of the passages where Crawford illustrates the need for people to experience intrinsic satisfaction from their work.

As I make the connection between the video, podcast and reading and what goes on in my classroom, I see that our classrooms/labs provide a place for students to experience this same systematic encounter with the material world described by Crawford. We also present them with the opportunity to learn and put into practice hands on skills that will allow them to experience the intrinsic satisfaction of having something that they design and build come out well. If successful, our efforts will plant a seed in our students that will mature into a desire to do something well, for its own sake. This desire will serve them well throughout their academic careers and work lives.

~Larry Lambert is a Tech Engineering Education teacher at the North Andover Middle School
lamber8@student.fitchburgstate.edu
Larry is a Masters level student at FSU

ITEC 8000 Assignment:

See:

<http://www.colbertnation.com/the-colbert-report-videos/231844/june-24-2009/matthew-crawford>

Hear:

<http://youtube-mania.com/videos/video/>

Read:

<http://www.thenewatlantis.com/publications/shop-class>

Thoughtful Response:

How do you respond to Crawford's assertion that our country has lost something of value by devaluing hands-on work and learning?

Muncie, IN -

A response to an **IdeaGarden** discussion, used with permission.

You are NOT on the IdeaGarden Listserve? It's one of the best benefits of joining ITEEA!

<http://www.iteea.org/Membership/membership.htm>

“Hands-On Activities or Achieve Specific Learning Outcomes?”

Yes, I get the feeling that we tend to see what we do as having students engaged in hands-on activities, rather than stylizing their educational experiences to achieve specific learning outcomes. We allow the project to determine the curriculum and the instruction. Instead, shouldn't we begin with identifying those learning outcomes, then proceed to the curriculum and all the content identification, then entertain a variety of instructional methods for achieving those goals and select the particular activities that optimal? Or do we just walk up to another teacher and say, "Hey, I need a laser activity that will keep my students busy for four days. What have you got?"

In fact, I'd suggest that it is our inability to work top-down that inhibits our acceptance by those outside our field. We can make a very strong case for hands-on learning and for the activities in which our students engage. But they are just a means to an end, and we sometimes lose sight of that. At least I do.

The issue of rigor is one worth addressing here, and I'm glad it was noted. But the mindset of determining curriculum by projects seems to be a bigger problem for us at first. And if we can overcome our tradition here, we might just be able to explain to others why we are using those CO² cartridges, why we are often ignoring a host of technologies dealing with the chemical industry, military technology, gaming technology, reproductive technology, agricultural technology, and why we focus instead on technologies that seem most closely associated with jobs that are stereotypically associated with white males in the USA.

Or maybe we'll start questioning the assumptions inherent in our curricular decisions. Maybe if we start by considering those larger student outcomes

and goals, we'll consider addressing technological skills people need when they walk into a voting booth to decide on one candidate or another based on the soundness of the way the candidates addressed upcoming technological decisions. Maybe when our students walk into a garden/yard center or a hardware store and see bags of herbicides for lawns, they'll better realize their responsibility for preserving groundwater quality and the diversity of species. Maybe when they are at the grocery store and notice that one apple came from their state, another came from a state 1000 miles away, and a third came from New Zealand, they will picture the differences in embedded energy and embedded pollution in these three apples, and realize their responsibility.

These are tough times, and we need a citizenry equipped with a keen eye toward technological decisions, and the decision-making tools that allow them to make wise decisions. Or, do we instead sell out to a model that our field is there to promote materialism, capitalism, and corporate profit? Are we "pro-technology" in our approach, or do we instead at least try to take a more balanced approach? Do we help students see the assumptions and implications in technological decisions, or do we concentrate more on sawing, sanding, logo design, and the ability to give a marketing pitch for a product. It seems to me that the world and society are both in too great a need right now for us to give all this time and effort to the same projects my father might have experienced in his industrial arts classes in the 1930s, though with updated materials and computers.

Instead of feeling so drawn to an activity, why don't we try beginning with a question like the following: "How do I design learning experiences for my students that help them understand the technologies involved with E-waste, the disposal options, the impacts of different purchase and disposal decisions, and the importance of end-of-life management?"

~ Dr. James Flowers
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CT-

MIDDLE SCHOOL STEM ACADEMY

Our school district in Connecticut is looking to grow our fledgling middle school STEM academy and is in desperate need of a model curriculum. Finding a sample scope and sequence to look at has been very difficult as there are few good models in our state. We are struggling with how to incorporate the engineering/technology component on a limited budget. While I have found great websites with project ideas, I have been unable to find a fully articulated program (grades 6-8) that meets the new Common Core and National Science Standards.

The group of teachers we have are very dedicated, however, we have noticed a lack of reading/literacy growth with the STEM students since they have reduced the 90 minute literacy Readers/Writers workshop block to 45 minutes to add more project time for the science-themed units [Technology Engineering?].

There is also a divide on philosophy as to whether the STEM part of this academy should be a separate course that is interdisciplinary in nature or should all courses (Math, English and Social Studies) deliver their content with a full STEM focus, different from the rest of the district. Some (me) feel we need to leave the daily 90-minute literacy block in place since our students are very deficient in these areas and offer an additional weekly STEM block that delivers this unique curriculum - drawing on content learned previously in all areas. Many of our traditional units/curriculum already have technology components and culminate in authentic project-based assessments.

We are an urban district with 50% poverty rate (and growing) and a budget deficit for the 3rd year in a row. I want to make this program a reality but need some suggestions on where to find a high-quality model at low cost to our district.

Can you suggest any schools to visit in Massachusetts that would be willing to share their program curricula?

Best Regards,
Kara Casimiro

casimiro.k@husky.neu.edu

Kara is an EdD doctoral student at Northeastern University

MORE at

<http://www.masstec.org/>

West Lake, Ohio-

Take a look at this article from **EdWeek** (below). The 3 reasons the author gives for teachers being brain-changers are **exactly the same deliverables TEE has to offer....**

#1 - "connections to other curricular areas"

#2 - "brings pleasure into the classroom"

#3 - "students practice higher-order thinking—when they question an initial assumption or answer and explore it further."

As it says in the subject line above, you could easily retitle it to say "TEE as Brain Changers"!!

~Scott Kutz
Kutz@westlake.k12.oh.us

Teachers as Brain-Changers: Neuroscience and Learning

~ Wendi Pillars
12-20-11

I'm an armchair neuroscientist, or at least I love learning about the brain, how it functions, and what recent findings mean for my practice as a teacher.

Bridging research findings to the realities of the classroom, however, is far easier said than done. In addition to navigating the daily challenges of our work, we must distinguish trendy "research-based" claims about the brain from those grounded in legitimate neuroscientific findings. And then we have to figure out how to apply what we've learned. Sifting through these claims to understand their origins is precisely the goal of my current research.

Remember when conventional science wisdom claimed that the average person could learn and retain about seven chunks of information at a time? (Hence, our seven-digit phone number protocol.) Well, recent neuroscientific findings have determined that our cognitive capacity is actually just three to four items.

This can be good: It forces us as teachers to narrow and hone our objectives, and to determine what is most important as we make decisions throughout the day. But it can also be overwhelming—how can we possibly help students master an extensive body of content when they can only learn it in such small chunks?

In keeping with this particular finding, here are three critical takeaways that I keep coming across as I explore the literature on neuroscience and teaching.

#1. Teachers are, in essence, brain changers.

We are the only professionals whose job it is to physically alter a child's brain daily. I like how Judy Willis, accomplished

neuroscientist-turned-teacher, refers to a teacher's work as a form of "bloodless brain surgery."

Here's how it happens at a basic level:

- If a child takes in information through her sensory pathways and her brain makes the decision to keep that knowledge, the integrative process takes over and makes sense out of that learning as she sleeps.
- This consolidation occurs when neurons transmit messages to one another. The messages must cross microscopic chasms between the neurons—laboriously at first, and then more quickly with each subsequent moment of access.
- Eventually the learning is connected to several points within a denser and denser web of neurons, easing the information retrieval process for the conscious learner.

As teachers, we must understand that a neural pathway is like a new path in the woods. The more frequently that a neural pathway is traveled, the fewer the obstacles, the greater its capacity, and the smoother and faster it becomes. This means that we must help our students make connections to prior experiences, knowledge, and learning—and connections to other curricular areas. The more connections we make in class, the more we are physically altering our students' brains by creating and strengthening neural pathways. Knowing this, it becomes all the more crucial to maximize learning opportunities during the 1,260 hours <http://www.amazon.com/Teaching-Poverty-Mind-Brains-Schools/dp/1416608842/ref=ntt_at_ep_dpt_1> our students are with us during the school year.

Studies show that we as teachers spend 90 percent of planning time ensuring our lessons make sense. We tend to spend far less planning time (about 10 percent) on establishing the relevance of the lesson to previous and future learning. But neuroscientific findings indicate that relevance—linked to connections and emotion—is particularly important. Reflecting on my own teaching, I see that it's important to engage a range of sensory pathways more consistently as I provide explicit and implicit opportunities for the students to recognize and make connections.

#2. The one whose neural pathways are changing is the one doing the learning.

Self-evident, right? I admit that, initially, I just thought, "Well, duh!" But as I reflected honestly on my own classroom, I began to see that my mindset needed to shift. I was doing too much of the wrong kind of work—making too much explicit too quickly, rather than planning for opportunities to help students make connections themselves. So many areas of learning could be owned by the students, yet I was robbing them of that experience, either in total or in part.

#3. Critical thinking is more important than ever—which means we expect different results from learning.

Wendi Pillars is a National Board-certified Teacher

Clear Spring-

Woodworking for Kids

A seasoned woodworker and teacher explains the importance of setting up woodworking programs in schools

~ Doug Stowe

When I was in college, an older friend who helped me restore an antique Ford observed, "I don't know why you're studying to be a lawyer. Your **brains are in your hands.**" That simple observation led me to re-evaluate my plans and eventually become a woodworker.

My daughter Lucy began regular visits to my wood shop when she was three. If you have children of your own, you understand the very important feelings that arise when you introduce your child to something that you love so much. I have enough love of woodworking to feel a need and a responsibility. I feel it's important to share what we love and what we know with new generations to provide a foundation for the growth and development of new generations.

It was the time spent with my daughter in the woodshop that helped me to envision Wisdom of the Hands, the woodworking program I developed for the Clear Spring School, a small independent school in Northwest Arkansas. Wisdom of the Hands recognizes the importance of integrating the head and hands in the development of intelligence for all students.

Even the youngest students can take pride in the work they create in a well-run school woodshop program.

Hands-on benefits

Hands-on education is nothing new. It has been advocated by theorists for centuries, from Comenius and Jean Jacques Rousseau, to Pestalozzi and Froebel, then to John Dewey and Howard Gardner. It was Rousseau who said, "Put a young man in a workshop, his hands will work to the benefit of his brain, and he will become a philosopher while thinking himself only a craftsman."

Through Wisdom of the Hands, I've discovered huge benefits for the children. Woodworking has become a favorite activity throughout the school. The counting, measuring, and problem-solving that goes on in the woodshop helps the kids in all their other classes. I describe this experience in a regular blog. You're welcome to visit and follow my discourse on the significance of hands-on learning, but you may not need it. We woodworkers seem to grasp the relationship between the hands and learning. We don't need experts to tell us what we know so clearly from our own experience.

However, it seems unlikely that there will be a renewal of woodworking in schools any time soon. The decline of woodshop courses began long ago, when the so-called Russian system was widely promoted to supply the demand for a largely unskilled workforce. But as the U.S. economy moved away from an unskilled manufacturing base, school woodshops became the dumping ground for unsuccessful

students. Stripped of their original mission, woodshops have foundered.

But by reexamining the origins of woodshop, we gain a renewed sense of possibility. At Clear Spring School, we hope the Wisdom of the Hands program provides an example for other schools to follow, but if you want your child or grandchild to have the creative opportunities and growth that woodworking offers, you will need to take matters in your own hands.

Setting up a school program

There are many ways to start. You can buy woodworking project kits for your kids to assemble. If you don't have time to dream up more interesting and engaging projects, kits can be a fun activity to share. But they pale in comparison to the educational benefit that comes through more experimental woodworking: when there are good old-fashioned mistakes to be made, opportunities for your child to help design things engage in problem solving. For that you will need to go a little deeper in your preparations.

In late 2001, I learned about an early system of woodworking training called Educational Sloyd. It originated in Finland and Sweden and was introduced throughout the world in the latter part of the 19th century. Sloyd, now nearly forgotten, was a very important part of our own manual training history, replaced by the Russian system. (In a nutshell, Sloyd advocated hands-on education for everyone, while the Russian system pushed some students into industry to create an unskilled work force.) My study of Educational Sloyd led my expansion of the woodworking program at Clear Spring School into the primary grades.

Five Rules for Setting Up a School Woodshop Program

These rules from the theory of Educational Sloyd can help any adult in guiding the development of young hands and minds in the wood shop.

1. Move gradually from the known to the unknown, from the easy to the more difficult, from the concrete to the abstract.
2. Create lessons to involve the senses, particularly touch, sight, and smell.
3. Design activities to reinforce the connections between the child, the family, the school and the community.
4. Plan your projects so that tools can be introduced one or two at a time. It is important that kids aren't overloaded with information all at once and that they can spend enough time with each tool to develop an understanding of its uses and limitations. Plan simple projects at first. Complications can come later. You may be surprised that children have very little understanding of or experience with handwork. Even folding paper and cutting with scissors are largely forgotten in our computer age.
5. Have fun. You will be providing **lifetime memories!**

For the rest of the article go to:

<http://www.finewoodworking.com/SkillsAndTechniques/SkillsAndTechniquesArticle.aspx?id=29548>

International Technology Engineering Education Association



MARCH 15-17, 2012 • CALIFORNIA

Long Beach CA!-

ONLINE PREREGISTRATION IS NOW OPEN!

What do the beautiful beaches of California have in common with a Georgia Tech Dean, an Aerospace Manufacturing CEO, dozens of professional development and networking opportunities, robotics, a studio animation workshop, the Queen Mary, grant writing, and the Aquarium of the Pacific? You can experience them all in Long Beach at ITEEA's 74th Annual Conference.

Don't miss this one-of-a-kind opportunity to immerse yourself with others who want to remain at the top of the teaching profession as you listen to keynote speakers, focus on Professional Development, Vendor Interaction, Networking, and have the opportunity to participate in an array of specialized, technical labs and workshops. Not to mention all the fun, social activities available for your after-hours enjoyment in the Long Beach area.

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For all the latest conference information, visit the ITEEA website at www.iteea.org.

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[http://www.masstec.org/
recognition/index.htm](http://www.masstec.org/recognition/index.htm)

Hudson-

POY—TOY

All applications need to be submitted no later than Thursday, September 13, 2012

MassTEC is offering two recognition programs for technology/engineering teachers: Program of the Year, and Teacher of the Year. The recipients of Teacher of the Year, and Program of the Year will receive a plaque.

The top two finalists of Teacher of the Year will receive a free MassTEC membership, admission to the following year's MassTEC conference and a year's membership to ITEEA. The top two finalists of Program of the Year

will receive a free MassTEC membership, admission to the following year's MassTEC conference. The award recipient(s) will receive a one year membership to ITEEA for up to 3 members of the department. All applications need to be submitted no later than Thursday, September 7, 2012

The recipients for the Teacher of the Year and Program of the Year will be eligible to submit an application to the International Technology and Engineering Education Association (ITEEA) for consideration for the ITEEA Teacher Excellent or the Program Excellent Awards.

These awards will be presented at their annual conference.

I ask you to think about applying for one or both of these awards. For additional information and an application for either of the awards please go our web site and look under Recognition.

Please Consider Applying for Program of the Year and Teacher of the Year. This section is located on the left side of our web page.

[http://www.masstec.org/recognition/
index.htm](http://www.masstec.org/recognition/index.htm)



MORE at

<http://www.masstec.org/>

Arlington -

Woman nearly takes handyman title

Arlington school teacher lends feminine perspective to show

Boston Globe -

Busting stereotypes is nothing new for Allison Oropallo. She grew up playing hockey on boys' teams until she was 14, and the boys grew a lot bigger than she was. But Oropallo didn't stop playing hockey, and she didn't stop trying to break stereotypes.

"I am definitely not the norm," Oropallo said. "I've never met another woman who does what I do. And I think it's important because I think women would be great [in nontraditional roles]. They look at things differently."

Oropallo, who lives in Stoneham, is a **technology engineering teacher at Ottoson Middle School in Arlington**, where she is also the Legos robotics coach. She recently finished as the runner-up on HGTV's "All-American Handyman," one of 20 contestants and the only woman in the final four.

"It was a great experience," she said. "It was certainly hard work, really long hours, but it was the most satisfying thing I've done. It was hard and the fact that I made it all the way through felt really good."

Oropallo happened to be browsing online the day auditions in Philadelphia were announced.

"I called my mother and I'm like, 'Let's go on a road trip,' " she said. "So we went and I did it, and then I got a call like three days before [filming began]."

"A lot of times we had 22-hour workdays," she said. "It's high, high stress. You've got cameras on you at all times. You're going against all these other really talented people. You've got Mike Holmes and Scott McGillivray, who are judging your projects. People watch every day."

Oropallo, 28, was well prepared for the challenge. The jobs included building a shed and constructing a kitchen in the finale after finishing a living room, an obstacle course with standard handy-person tasks, and several other trials. The contestants were judged on their overall knowledge, the quality of their work, how well they managed a crew, and their ability to get the job done quickly and efficiently.

Jared Polston of Pottsville, Pa., won the grand prize, a \$10,000 Sears shopping spree and an HGTV talent development deal, but Oropallo was voted the viewers' fan favorite and received a \$1,500 gift certificate to Sears.

Known as "Score" to her friends, Oropallo, a native of Saratoga Springs, N.Y., studied civil engineering and played hockey at the University of Connecticut. She also studied applied technology at the College of Saint Rose in Albany and has a master's degree in education from SUNY-Plattsburgh.

She taught **architecture, engineering, wood shop, and**

construction at a high school in the San Francisco area before coming to Arlington. In addition to teaching, she has a side business doing handywoman jobs. Many of her clients are women, who appreciate that Oropallo will take the time to show them how a project is done, enabling them to do it themselves in the future.

Oropallo is the first woman in the show's first two seasons to make it to the finals.

"I think she had a different perspective and a different approach," said Margherite Ottaviano, the show's spokeswoman.

"I'm not surprised that a woman made it that far. I think having a woman in the mix made for a more healthy competition, a more interesting competition. It doesn't surprise me that she was able to keep up and had an advantage sometimes. She's a smart gal."

And if Oropallo had won, would they have changed the name of the show?

"Ah, that's a producer question," Ottaviano said.

Oropallo hopes she can be an example to her own students at the Ottoson in Arlington.

"My students and their parents will say, 'We can't believe the things we see you doing on TV,' " she said. "I know my female students love the fact that they have a woman as a teacher in this particular trade. I think that I'm kind of just trying to show that anyone can do anything, no matter how big you are or what sex you are, and everybody should respect that."

She's already helping to accomplish that at the Ottoson.

"We had hired Allison primarily because she was extremely qualified," said Timothy Ruggere, the school's principal.

"We have a male tech teacher and I wanted somebody that would be a role model for girls, for women in engineering, because that's a really big push that I personally wanted to make, for girls to know that they can be engineers, that they can be good at technology and math. . . . So we hired Allison because she was vivacious, she's very bright, and the program really took off when she got here. She and the other tech teacher just took to each other and they started doing really wonderful things."

It's a lesson for the boys as well as the girls, Ruggere said.

"This show came up and the kids got really excited about it, and really got into it," he said. "They love the fact that they would be able to see her on television on Sunday nights. It really made a great impression for them to see that this woman is beating these men and doing these great things and doing a great job."

One of the show's judges - McGillivray - had a message for Oropallo just before the winner was announced.

He said, "You came in here the smallest contestant with probably the biggest heart."

~ Maureen Mullen, Globe correspondent

http://articles.boston.com/2011-11-03/news/30356084_1_shopping-sprees-engineering-hgtv



MORE at

<http://www.masstec.org/>

Ideagarden

2 interesting and quick reads

Submitted by Matt Pagliari matt_pag@yahoo.com

Review:

Schooling in the Workplace: How Six of the World's Best Vocational Education Systems Prepare Young People for Jobs and Life

By Laura Johnson

In February, the “college-for-all” movement was dealt a mighty blow with the publication of Harvard GSE’s Pathways to Prosperity report. This new book from Nancy Hoffman, VP of Jobs for the Future, offers yet another forceful whack. (Insider power-couple scoop: Ms. Hoffman is married to a lead author of Pathways.) Though a seemingly admirable crusade, she contends, “college for all” is ill-advised for a country interested in having an “appropriately skilled and employed workforce.” (It’s also an anomalous goal, not shared by other countries.) As Hoffman explains, unemployment rates currently soar, even as employers complain of difficulty finding candidates with the right skill set. Americans have often shied away from promoting Vocational Education and Training (VET) programming, viewing it as classist, even elitist—a system that perpetuates social and fiscal disparities. However, strong VET initiatives in other nations are redefining post-secondary options for students. These programs are thoughtful, rigorous pathways to careers—no longer the “throwaway” tracks for the least effective students. And they seem to be effective: In Switzerland, 42 percent of students attaining the highest scores on the PISA exam chose VET enrollment. High-performing Australia enrolls about 60 percent of its eleventh- and twelfth-year students in VET programs. Through six case studies, Hoffman articulates lessons for America as we think through expanding our own work-based learning programs. The biggest: Ensure constant employer participation in curricula and certification development and in apprenticeship placements. For those ready to revisit the “college-for-all” mandate, this book provides a useful starting point.

Nancy Hoffman, *Schooling in the Workplace: How Six of the World's Best Vocational Education Systems Prepare Young People for Jobs and Life* (Harvard Education Press, Cambridge, MA, 2011).

Review:

Pathways to Prosperity: Meeting the Challenge of Preparing Young Americans for the 21st Century

By Marena Perkins

This new report from the American Youth Policy Forum and the Harvard Graduate School of Education challenges the “college for all” rhetoric that dominates much of the current ed-reform movement, making readers rethink the “college-and career-ready” call to arms. The report points out, fairly convincingly, that only 30 percent of jobs in 2018 will require a BA or better. But by forcing all students into an academic track that may or may not correspond to their interests and career needs, schools are creating bored, uninterested, and unmotivated pupils who are ready for neither college nor career. Instead of this single tracking, the report argues, we should create multiple pathways for students—both academic and career-based. Citing examples from central and northern Europe (the apprenticeship structure of Germany, the vocational-education opt-in structure of Finland), it urges an increase in employers’ roles in student learning so as to improve rigor, relevance, and business relationships. The report works better as a manifesto than a roadmap, but it raises an important issue worthy of serious consideration—and reconsideration. Harvard Graduate School of Education, “Pathways to Prosperity: Meeting the Challenge of Preparing Young Americans for the 21st Century,” (Cambridge, MA: Harvard Graduate School of Education with the Pearson Foundation, February 2011).

MORE at

<http://www.masstec.org>

Prior Lake-

Bringing more hands-on science, technology [engineering education!!!] to south metro schools

~ SHANNON PRATHER , Special to the Star Tribune
November 29, 2011

Prior Lake-Savage schools are looking to strengthen hands-on experiences in science, math and technology for elementary students.

Ben Burnett wrote his first bits of computer code in the fourth grade. Those first key clicks led to a computer programming career.

Fabrizio Moroso said he knew as a young boy he'd pursue a career in engineering after watching the film character Han Solo pilot the Millennium Falcon in "Star Wars."

"I can tell you the moment I became interested in engineering. In 1977, I saw 'Star Wars.' You don't know as a child what will be your trigger," said Moroso, who now travels the world helping companies improve efficiency. "Maybe they will be fascinated with a butterfly or the mechanics of a typewriter. That could be their spark."

Fueled by their own childhood "aha!" moments, these two dads are now on a Prior Lake-Savage schools committee assigned to bring more hands-on science, technology and engineering to elementary students. The goal is to show children the interplay among subjects including science, math and reading and to make them better problem-solvers.

"Children will do more experimentation, more designing and more inventing that ever before," promises Superintendent Sue Ann Gruver, who described "putting a project on the table and having five children solve it and make things happen."

The committee will focus on E-STEM, which stands for environment, science, technology, engineering and math.

The committee of school board members, teachers, administrators and parents will meet seven times and make recommendations sometime next year.

After finishing their work on science and math, the committee also will examine language immersion possibilities. Gruver formed the committee after parents told her they wanted to see more science, math, and technology and language options.

The district isn't starting from scratch. It's the only one in the state with an environmental education program spanning early childhood classes through high school. The committee's goal is to add even more hands-on learning opportunities.

"I took an interest in computers pretty young," Burnett said. "It's good to get kids interested as soon as possible."

"Kids are very curious creatures. They just go around exploring all over the place," said Moroso, who has a master's degree in engineering management. "We need to do more of that in the classroom."

Unlike other districts, which have opted to pluck out the best students to attend magnet programs and schools, this E-STEM committee is focusing on hands-on science learning for all elementary school students.

Gruver said an emphasis on E-STEM won't diminish the focus on the core subjects, including reading and writing. It should expand on core subjects by teaching children to read technical, nonfiction manuals and applying math to real-life scenarios, Gruver said.

The district adopted a new elementary science curriculum just last year and already incorporates labs and hands-on work.

"We have a lot of things in place that we don't necessarily call E-STEM. A lot of the technology and engineering pieces are embedded in the curriculum," said fifth-grade teacher and committee member Adam Brandell.

He said he teaches science about three times a week and that learning has included hands-on lab work such as building models of the Grand Canyon, complete with dams and bridges, and then introducing water to simulate erosion.

But Brandell, who teaches at WestWood Elementary in Prior Lake, said there are ways to further hone the curriculum, including making more **connections between subjects**.

"You take a look at everything you teach and you try and put an environmental, technology or engineering twist in every area. It's a more holistic approach," Brandell said.

For more., go to:

<http://www.startribune.com/local/south/134439863.html>

MORE at

<http://www.masstec.org/>

Boston, MA—

Wentworth Opens New \$3 Million Manufacturing Center

November 3, 2011

Wentworth Institute of Technology celebrated today a ribbon-cutting ceremony for a new \$3-million Manufacturing Center. The new facility will serve as an applications lab where students will gain hands-on experience working with the technology that is defining modern manufacturing. Students will be prepared to enter into rewarding careers that address the need for skilled engineers and engineering technologists in the manufacturing sector, which comprises approximately 12 percent of the U.S. economy.

Working on 20 pieces of equipment, more than 200 engineering and technology students per year will benefit from the latest technological advances in rapid prototyping, computer numerical control (CNC), and computer aided manufacturing (CAM). They will design and manufacture parts for industry, including mechanical components and devices for the biomedical, electronics, automotive, machine tool, and consumer products fields, which represent personal interests and future career pursuits. Students are now able to work on projects remotely and access the Manufacturing Center’s equipment to produce final designs and models on one of the Center’s rapid prototype printers.

Students are afforded the opportunity to be more nimble in their work as the increased functionality of the equipment enables real-time updates for improving the end-product being designed and created. The speed of the output that is generated from the printers also accounts for time, volume, and cost savings—important factors in the manufacturing process. In addition, the knowledge and expertise students gain from using this equipment will directly impact the shortage of manufacturing professionals in the U.S. and further advance the industry in the U.S.

“The Manufacturing Center is at the forefront of innovation – it rivals labs at leading companies,” said Fred Driscoll, dean of the College of Engineering and Technology. “The skills students will learn by using these machines is part of the undergraduate engineering and engineering technology experience, representing a shift in the workforce needs of the industry. They will become more marketable in their career pursuits and will represent the new wave of professionals entering into manufacturing, keeping the U.S. competitive in a global economy.”

The Manufacturing Center is partly funded by a \$300,000 grant received from the Richard H. Lufkin Memorial Fund, Bank of America, N.A. Trustee to replace outdated manual equipment with modern computer operated machines, resulting in improved learning for Wentworth students.

~ Submitted by
 Jamie Kelly
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 Wentworth Institute of Technology
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MORE at
<http://www.masstec.org/>

When an adult took standardized tests forced on kids

From the Washington Post

http://www.washingtonpost.com/blogs/answer-sheet/post/when-an-adult-took-standardized-tests-forced-on-kids/2011/12/05/gIQA7DuUO_blog.html?wpisrc=nl_cuzheads

By Valerie Strauss <http://www.washingtonpost.com/valerie-strauss/2011/03/07/ABZ7ToC_page.html>

This was written by Marion Brady <<http://www.marionbrady.com/>>, veteran teacher, administrator, curriculum designer and author.

By Marion Brady

A longtime friend on the school board of one of the largest school systems in America did something that few public servants are willing to do. He took versions of his state's [high-stakes standardized math and reading tests](#) for 10th graders, and said he'd make his scores public. By any reasonable measure, my friend is a success. His now-grown kids are well-educated. He has a big house in a good part of town. Paid-for condo in the Caribbean. Influential friends. Lots of frequent flyer miles. Enough time of his own to give serious attention to his school board responsibilities. The margins of his electoral wins and his good relationships with administrators and teachers testify to his openness to dialogue and willingness to listen. He called me the morning he took the test to say he was sure he hadn't done well, but had to wait for the results. A couple of days ago, realizing that local school board members don't seem to be playing much of a role in the current "reform" brouhaha, I asked him what he now thought about the tests he'd taken.

"I won't beat around the bush," he wrote in an email. "The math section had 60 questions. I knew the answers to none of them, but managed to guess ten out of the 60 correctly. On the reading test, I got 62%. In our system, that's a "D", and would get me a mandatory assignment to a double block of reading instruction.

He continued, "It seems to me something is seriously wrong. I have a bachelor of science degree, two masters degrees, and 15 credit hours toward a doctorate. "I help oversee an organization with 22,000 employees and a \$3 billion operations and capital budget, and am able to make sense of complex data related to those responsibilities.

"I have a wide circle of friends in various professions. Since taking the test, I've detailed its contents as best I can to many of them, particularly the math section, which does more than its share of shoving students in our system out of school and on to the street. Not a single one of them said that the math I described was necessary in their profession.

"It might be argued that I've been Here's the clincher in what he wrote:

"If I'd been required to take those two tests

<<http://www.washingtonpost.com/blogs/answer-sheet/post/why-standardized-tests-for-2nd-graders-are-nonsensical/2011/10/26/>

[gIQA7QaKM_blog.html](http://www.washingtonpost.com/blogs/answer-sheet/post/why-standardized-tests-for-2nd-graders-are-nonsensical/2011/10/26/gIQA7QaKM_blog.html)> when I was a 10th grader, my life would almost certainly have been very different. I'd have been told I wasn't 'college material,' would probably have believed it, and looked for work appropriate for the level of ability that the test said I had.

"It makes no sense to me that a test with the potential for shaping a student's entire future has so little apparent relevance to adult, real-world functioning. Who decided the kind of questions and their level of difficulty? Using what criteria? To whom did they have to defend their decisions? As subject-

matter specialists, how qualified were they to make general judgments about the needs of this state's children in a future they can't possibly predict? Who set the pass-fail "cut score"? How?"

"I can't escape the conclusion that decisions about the [state test] in particular and standardized tests in general are being made by individuals who lack perspective and aren't really accountable." There you have it. A concise summary of what's wrong with present corporately driven education change: Decisions are being made by individuals who lack perspective and aren't really accountable.

Those decisions are shaped not by knowledge or understanding of educating, but by ideology, politics, hubris, greed, ignorance, the conventional wisdom, and various combinations thereof. And then they're sold to the public by the rich and powerful.

All that without so much as a pilot program to see if their simplistic, worn-out ideas work, and without a single procedure in place that imposes on them what they demand of teachers: accountability. But maybe there's hope. As I write, a [New York Times story](#)

<<http://www.nytimes.com/2011/11/28/education/principals-protest-increased-use-of-test-scores-to-evaluate-educators.html?pagewanted=all>> by Michael

Winerip makes my day. The stupidity of the current test-based thrust of reform has [triggered the first revolt](#)

<http://www.washingtonpost.com/blogs/answer-sheet/post/principals-rebel-against-value-added-evaluation/2011/11/03/gIQAHEHBJM_blog.html> of school principals.

Winerip writes: "As of last night, 658 principals around the state (New York) had signed a letter — 488 of them from Long Island, where the insurrection began — protesting the use of students' test scores to evaluate teachers' and principals' performance."

<http://www.washingtonpost.com/blogs/answer-sheet>

MORE at

<http://www.masstec.org/>

Cambridge-
M.I.T. Expands Its Free Online Courses

~TAMAR LEWIN

Published: December 19, 2011

http://www.nytimes.com/2011/12/19/education/mit-expands-free-online-courses-offering-certificates.html?_r=1&ref=tamarlewin

While students at the Massachusetts Institute of Technology pay thousands of dollars for courses, the university will announce a new program on Monday allowing anyone anywhere to take M.I.T. courses online free of charge — and for the first time earn official certificates for demonstrating mastery of the subjects taught.

“There are many people who would love to augment their education by having access to M.I.T. content, people who are very capable to earn a certificate from M.I.T.,” said L. Rafael Reif, the provost, in a conference call with reporters Friday.

M.I.T. led the way to an era of online learning 10 years ago by posting course materials from almost all its classes. Its free OpenCourseWare now includes nearly 2,100 courses and has been used by more than 100 million people.

But the new “M.I.T.x” interactive online learning platform will go further, giving students access to online laboratories, self-assessments and student-to-student discussions.

Mr. Reif and Anant Agarwal, director of the Computer Science and Artificial Intelligence Lab, said M.I.T.x would start this spring — perhaps with just one course — but would expand to include many more courses, as OpenCourseWare has done.

“The technologies available are much more advanced than when we started OpenCourseWare,” Mr. Agarwal said. “We can provide pedagogical tools to self-assess, self-pace or create an online learning community.”

The M.I.T.x classes, he said, will have online discussions and forums where students can ask questions and, often, have them answered by others in the class.

While access to the software will be free, there will most likely be an “affordable” charge, not yet determined, for a credential.

“I think for someone to feel they’re earning something, they ought to pay something, but the point is to make it extremely affordable,” Mr. Reif said. “The most important thing is that it’ll be a certificate that will clearly state that a body sanctioned by M.I.T. says you have gained mastery.”

The certificate will not be a regular M.I.T. degree, but rather a credential bearing the name of a new not-for-profit body to be created within M.I.T; revenues from the credentialing, officials said, would go to support the M.I.T.x platform and to further M.I.T.’s

Bertie County, North Carolina-

Design. Build. Transform.

"A billboard at the entrance to Bertie County, North Carolina, reads, "Design. Build. Transform." That's exactly what's been happening in this rural community for the past year. Thanks to an innovative curriculum called Studio H [<http://www.studio-h.org/>], high school students here have stepped into the role of designers, builders, and transformers of their own community."

Studio H is a public high school "design/build" curriculum that sparks rural community development through real-world, built projects.

By learning through a design sensibility, applied core subjects, and industry-relevant construction skills, students develop the creative capital, critical thinking, and citizenship necessary for their own success and for the future of their communities.

Over the course of one calendar year, students earn high school and college credit, and are paid a summer wage to build the community project they have spent the year designing and prototyping. This past year, we designed and built some crazy chicken coops for families in need, and a 2,000-square-foot farmers market pavilion for our hometown of Town of Windsor, North Carolina.

Studio H is a different kind of classroom. We **design, build, and transform.**

For more:

http://www.edutopia.org/blog/design-build-curriculum-pbl-suzie-boss?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+EdutopiaNewContent+%28Edutopia%29

~Submitted to IdeaGarden by Bill Van Loos, bill.vanloo@mteea.org



At the opening ceremony of the farmers market pavilion on Saturday, the Mayor of Windsor, Jimmy Hoggard, gave us the key to the city. It has only been given to one other organization. We are so honored and grateful. Then, our students gave us an honorary “thank you wrench,” as a response to the engraved bolts we gave them as trophies for completing the Studio H academic program on the last day of school. These two objects pretty much say it all.

MORE at

<http://www.masstec.org/>



Massachusetts Technology Education/ Engineering Collaborative

From the Webmaster, Stephen VanVoorhis
coertevanv@msn.com

By Bryan Clark

21:27 December 18, 2011

There is too much to list here!
Go to:

<http://www.masstec.org/>
For amazing stuff!

http://www.gizmag.com/kitegen-high-altitude-wind-turbine/20335/?utm_source=Gizmag+Subscribers&utm_campaign=f034675fe5-UA-2235360-4&utm_medium=email

Go to <http://www.masstec.org/>

Go to:

<http://www.masstec.org/>

For more!

Building and Testing High Performance Bike Wheels Using STEM

Want your students to remember math or science class the next time they ride a bike? Give them an inside look at what it takes to build and test durable, high-tech bike wheels. In the assembly room, spokes are plucked like guitar strings to ensure equal tension and a balanced load. In a test room, a custom machine is subjecting a wheel to 4.4 million bumps! Behind the scenes, high performance bikes are all about science, technology, engineering and math (STEM).

Watch the movie and download the classroom activity:

http://www.thefutureschannel.com/dockets/realworld/building_testing_bike_wheels

KiteGen looks to get wind-power off the ground

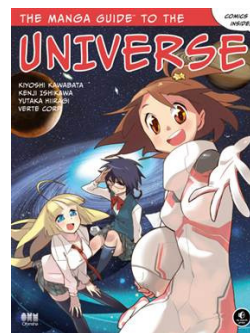


“Technology is getting so far ahead of the older generations that everything is literally "over our heads."

Some serious engineering went in to this project.

http://www.youtube.com/watch_popup?v=Fg_JcKSHUtO

Bam! How comics teach science



How about
Technology
Engineering
Education?

http://cosmiclog.msnbc.msn.com/_news/2011/11/29/9094878-bam-how-comics-teach-science

No Starch Press

"The Manga Guide to the Universe" surveys the cosmos in comics.

By Alan Boyle

Can you really learn relativity from a comic book? The Japanese have been using manga for decades to teach complex subjects, and now Americans are doing it too.

MORE at

<http://www.masstec.org/>

Wethersfield, Connecticut-

21st Century Skills and Engineering by Design (EbD)

I was very excited when I got the opportunity to teach middle school in my hometown, because my passion for technology and my desire to teach began while I was a student in that program. When I returned, however, I was disappointed that students were still doing the same activities that I did when I was in middle school. I wanted to implement some new curriculum that was standards-based and incorporated 21st Century Skills. I took advantage of a summer workshop that introduced the Engineering by Design (EbD) middle school curriculum developed through ITEEA. That fall I implemented parts of the seventh grade Invention and Innovation EbD curriculum in my classroom with much success. This is an overview of the eight-day unit.

The first lesson provides students with a broad overview of invention. I give each student seven patent documents, from Google patent search, for them to analyze for similarities. Then students work with partners to brainstorm famous inventors and their personal attributes. Then students choose three important inventions and analyze their positive and negative impacts. Students then correctly sort the steps of the design process using cards. Then students match key terms and definitions from the inventing process (criteria, constraint, prototype, invention, innovation and patent). This overview provides students with essential information for the next lesson.

During the second lesson students analyze the plastic TicTac container for design flaws. Students then read the design brief for their invention project. The challenge is to invent a prototype of a new TicTac dispenser, with advertising, using the design process. The dispenser must be able to hold 3 ounces of TicTacs and dispense only 2-4 pieces of

candy. Students can only use the materials that I give them, which can include popsicle sticks, plates, cups, plastic strips, etc. Students work in small groups to design, build, test and modify their own custom TicTac dispenser until it is a successful working model. Throughout the process students create a written report of their progress. When finished, students present their invention and advertisement to the class and demonstrate their prototype. It takes students an average of five class periods to complete the entire process. For many students this is their first opportunity in school to build a working prototype without having step by step directions. The results vary widely, but I am often surprised at what students build with their imagination.

The last lesson gives students an opportunity to briefly research an important inventor. Students choose an inventor from a list and create an information sheet in Microsoft Word that includes researched information about that inventor. Students use a template to cut and paste the information they find from the internet. The finished sheets are hung around my classroom.

~ Behn Sikora
 bsikora@wethersfield.k12.ct.us
 Silas Deane Middle School



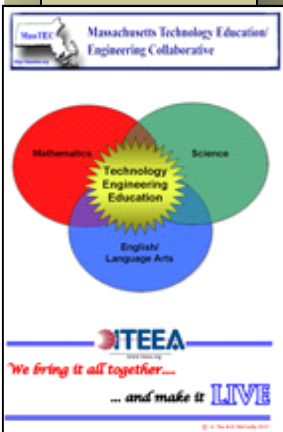
Cool Lesson Plan!

Many have asked if we still had this MassTEC Poster in the 12 x 18 format.

Short answer: No.

However, you can download it and print with our permission if you go to:

<http://www.masstec.org/conferencefolder/conference2009/images/TechEngED%20LIVE%208x11%20poster.pdf>



MORE at <http://www.masstec.org/>

Cool Lesson Plan
Part 2!

Great inventors!



Alexander Graham Bell, telephone
Orville and Wilbur Wright, airplane
Frank Zamboni, modern ice resurfer
Eli Whitney, cotton gin
Nikola Tesla, ac current, induction motor
George Westinghouse ,Jr., railroad air brake
Igor Sikorsky, helicopter
Les Paul, solid body electric guitar
Alfred Nobel, dynamite
Lewis Miller, combine harvester
Guglielmo Marconi, wireless telegraph
Theodore Harold Maiman, laser
Art Fry, Post-it Notes
Dean Kamen, Segway
Walter Hunt, sewing machine, safety pin
Martin Cooper, mobile phone
Philo Farnsworth, television
Charles Goodyear, vulcanized rubber
Robert Goddard, liquid fuel rockets
Robert Fulton, steamboat
Elisha Otis, elevator brake
Douglas Engelbart, computer mouse
George de Mestral, velcro
Percy Spencer, microwave
Gideon Sundback, zipper

African American

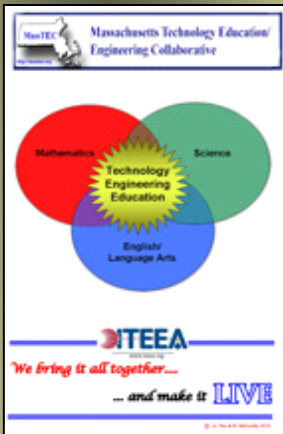
Elijah McCoy, lubrication systems
Lewis Latimer, lightbulb filament
George Washington Carver, various peanut applications
Garrett Morgan, gas mask, traffic signal
Otis Boykin, resistor, pacemaker controller
Frederick McKinley Jones, portable air conditioners

Female

Beulah Henry, sewing machine, freezer
Margaret Knight, paper bag machine
Bette Nesmith Graham, liquid paper
Josephine Garis Cochran, dishwasher
Mary Anderson, windshield wiper blade
Grace Hopper, computer programming language
Ellen Ochoa, optical inspection system

Internet Sources:

1. Clusty Search Engine
& Type in name of inventor
2. <http://inventors.about.com>
Select: Find A to Z Inventors
3. www.Invent.org
Select: Hall of Fame
Select: Search



MORE at

<http://www.masstec.org/>

Cool Lesson Plan Part 2!

Design Brief

Create a one-page information sheet on a famous inventor and her/his invention using Microsoft Word that includes all the required information.

Directions:

1. Choose an inventor.
2. Using the internet sources given by the teacher complete the Invention and Innovation Sheet.
3. Use picsearch.com to look for pictures.
4. Copy a picture of your Inventor to your document.
5. Copy a picture of their invention to your document.
6. Type all the information into the Word template.

Required Information:

Name of Inventor:

Date Born:

Location Born:

Education:

Date Died:

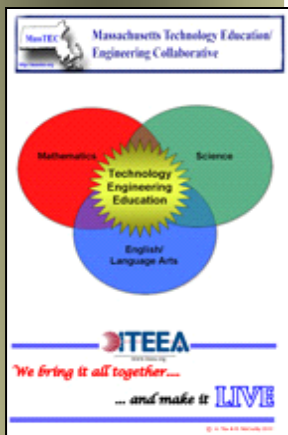
Name of Invention:

When invented:



Positive Impact of invention:

Interesting fact about invention:

7. Show your teacher when finished.



Invention and Innovation Information Sheet

Name of Inventor/Innovator: Date Born: Location born: Education: Date died:	
Invention/Innovation	Inventor/Innovator
	Name of Invention/Innovation: When invented/innovated: Positive impact of invention: Interesting fact about invention:
Your name:	Period #

Grading:

Your information sheet will be graded on neatness, completeness, information, and time on task.

Contact Behn Sikora at bsikora@wethersfield.k12.ct.us for details! Thanks, Behn!



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