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Greetings!

"...what brings us the greatest joy and satisfaction in life are those actions we undertake out of concern for others"
~ the Dali Lama

Teachers live to help others. And Technology Education teachers are the dedicated professionals who help prepare future citizens to be technologically literate.

We missed *you* at the ITEEA Conference in Minneapolis. Check out page 2 and consider going to Long Beach California next year.

It's official: a Harvard study found less than 30 % Graduate from college after four years. Check out page 3 to find out that Students need more paths tor career success.

The Shop Rat Foundation (p. 5) is an interesting reaction to the nation's "Testmania" that has forced many school systems to drop technology education. Check them out.

The Lemelson/MIT Grant application deadline is upon us. Could you use up to \$10,000 to do something amazing with your students? See a video of one of the past winners on page 6.

RSA Animate - Drive: The surprising truth about what motivates us
~Dan Pink

<http://www.youtube.com/watch?v=u6XAPnuFjJc&feature=channel>

sTEM

We hear about STEM all the time yet in every school meeting or state department of education meeting that I attend I hear: "How do we get Math and Science more hands-on and exciting?" When I mention that the only scalable way to make STEM come to life in most schools is to support or create new Technology Engineering education courses that use math and science as tools to solve real world problems, the room goes silent for a ten count. Then someone awkwardly clears her/his throat and says—as if I was invisible—"So: How do we get Math and Science more hands-on and exciting?" See page 6.

Didn't Einstein once say that "Insanity is when you do the same thing over and over again the same way yet expect a different answer?"

What if we accented creativity instead of testing? See page 7. And how about good old American ingenuity? Go to page 10.

As you will see in this issue, I strongly suggest that we all belong to our state Technology Engineering education teachers' associations as well as the ITEEA.

The benefits far out way the cost of joining these organizations.

In fact the \$80 fee for the ITEEA membership is a bargain even if you only use the IdeaGarden—"The amount I get from the IdeaGarden is worth more then what I pay for my membership to ITEEA." Thank you—Liz Gallo.

So as the snow finally comes to an end and the flowers break through the frosty ground let us all have a rebirth of spirit and hope. Our students are our future and we touch their tomorrows...

Make those tomorrows great!



Thank you for all you do,

Think Spring!!!

Dr. Ray McCarthy
MasSTEC President

c 413.627.7043
ray.mccarthy.masstec@gmail.com



**JOIN
MasSTEC
&
ITEEA!**

Field of Energy

See page 5

Minne-freezin-sota -

Annual ITEEA Conference

The friends, the functions, the fantastic hosts, the fabulous speakers, the fun of reinvesting in our beliefs and re-dedicating ourselves to preparing all our children for their technological future. That is the answer if this column was the *Jeopardy* game and the Double Bonus topic was:

What is **The Annual ITEEA Conference?**

Friends — old and hundreds brand new — shared experiences, received tips, extended networks, forged consortiums, developed Professional Learning Communities, shared lessons, dreamed, brainstormed, and had a blast.

The functions were too numerous to do for one person. Many people told me they that they wished for a clone so that they could attend the panoply of great workshops that invigorated, innovated, and inspired. Fascinating teachers explained how they led students to find their best selves while exploring *STEM* careers, robotics/class competitions and more, green technology, externships, publicizing our great class opportunities in your local media, grants, gender equity in *STEM*, mainstreaming ELL students and getting our future global citizens ready for a “Jetsons” world (Hanna-Barbera, 1963).

The fantastic hosts — “You betcha!” —



These green shirted (or heavily over-coated) folks were the friendliest, kindest, and most patient people you could ever meet. The careful planning, and the attention to detail made the conference a breeze. The warm smiles and the enclosed walkways helped stave off the cold as attendees received eye-opening opportunities for their students. These included an array of new offerings from the vendors

Thank you vendors! The latest in communication and design (PTC, Adobe, Whitebox and more!); in rapid prototyping



MasterCam, Roland, Stratasys and more!; pre-K through Doctoral level educational connections (Museum of Science, STEM Academy, Ball State, and more!); tools and ideas for manufacturing, bio-technology, transportation, construction and engineering (Pitsco, Goodheart-Wilcox, Teacher Geek and more!) encouraged us to see what we could add to our students’ learning experience.

The fabulous speakers crooned goofy Ole ‘n Swen songs, while others made poignant points regarding the challenges for our children, our schools, our country and our world. Thursday’s key note speaker, Dr. Rich Feller stressed preparing the SYEM workforce. On Friday morning, Dr. Jay Zwischenberger even whipped out a harmonica to prove the point that risk taking and setbacks bring new challenges and better results. Adversity actually gives our students a chance to test their mettle, while forging their character, strengthening their self-awareness and gaining life long learning techniques.

The dedication and investment of time and skills were apparent in the *IdeaGarden* sharing workshop. This amazing sub-group of the ITEEA is “worth the price of the annual dues all by itself!” (said Liz, a first year teacher, and avid “Gardener”. See the articles on page 8 for more.)

The networking contacts grew exponentially as professionals shared experiences, suggested resources, made connections, and re-connections with schools of higher ed and companies that have supported our profession for over 40 years.

The educational trips, the EBD training sessions, and the special recognition dinners gave attendees an inspiring connection to what we do

Best moments:

- Katie de la Paz —I think mine was bumping into keynoter Dr. Rich Feller in the Hyatt elevator and having the opportunity to escort him to the Convention Center. He is such an

interesting and engaging man and I even got an article commitment from him!

- Susan Margolis —Actually getting the Bi-metallic coil activated attic fan to work. Ensuring that straight, candid and useful EbD sign-up information was understood and available to all. Knowing that Technology Education teaches the kinds of things that give rise to inventions such as the Artificial Lung and o2-Co2 exchange devices.
- I can't imagine a better group of people with whom I'd want to be to be stuck on an island!
- Liz Gallo—The best experience was being surrounded by the nicest group of people who all selflessly support me and want to make me better. Having the president and board members of and international organization (ITEEA) tell me this girl needs to get her doctorate. My most anticipated moment was being in the **IdeaGarden** meeting.
- Jared Bitting—My best moment? I think there were a few actually: the two General Sessions. In both cases I was inspired by what they had to say and excited to know that we, all of us here on the Garden, in our association, and in our profession are indeed creating the future inventors and innovators of America and the world. Also, meeting all of the fresh new faces and the young teachers who we can mentor into becoming the future leaders.
- Jocelyn Long—The highlight of my conference was being able to attend it with my dad and showing him what has become a HUGE part of my life. I too was able to watch the conference events through someone else's eyes and he had so many ah-ha moments that he is now trying to figure out how and what he can present at Long Beach. Although I am not sure if it's an excuse to leave the "beautiful" MN weather My Dad was soooooo impressed with everything he saw, experienced and especially with all the support you guys provide me. Also the conference gave me a renewed spirit to be the best teacher I can be.
- Ray McCarthy—Seeing Joanne Trombley receive her well earned Teacher of the Year award!

~RMc



MORE at

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

Pictures by Bill Van Loo

East Bridgewater —

SOE Reville meets Technology Engineering Education

By Stephanie Spyropoulos/For The Enterprise

“Propulsion, drift and thrust may are not everyday words for most. But for Luke Dewhurst and the rest of his seventh-grade class at the Mitchell Middle School in East Bridgewater, they are.

The students put those words into action in their technology-education class, where the work includes making soda bottles into rockets and launching them into the sky.

“I built a one-layer bottle with eight wings to help it fly farther,” Dewhurst said.

This is the world of 21st century education, and Massachusetts Secretary of Education Paul Reville, who recently visited the school, said the class is exactly the type of program and curriculum the state likes to see.

Reville commended teacher Steve Van Voorhis for his enthusiastic approach to teaching the content and the power of student engagement.

“There is too little of that in our mainstream education system,” Reville said. “I thought it was a very effective demonstration of the role of tech education.”

Gov. Deval Patrick and his administration have placed an emphasis on science, technology, engineering and math education, grouping those four disciplines under the acronym STEM. Reville has been spending some of his time visiting various schools to learn how such education is implemented. Technology today conjures images of laptops, iPads and all manner of cell phones and digital devices. But Van Voorhis said tech education is far broader; it teaches students about the

human-made world and how it all works.

“Ironically, there’s very little reference to an actual computer,” Van Voorhis said. “Without technology you wouldn’t have the time or ability to study other subjects.”

To that end, Van Voorhis has also spent some of his afternoons during the past three years working with students in a Technology Engineering Club. The club has had many successes and even has defeated high school teams in competitions at Fitchburg State University.

The Massachusetts frameworks call for 180 days of tech education for students in grades 6-8, Van Voorhis said, but budget constraints make that a challenge not just in East Bridgewater, but in classrooms across the state.”

Read more: <http://>

www.enterpriseneews.com/archive/x1664570377/East-Bridgewater-middle-school-teacher-takes-technology-education-class-to-new-heights#ixzz1IG8fqFmN

Dear Secretary Reville,

Thank you for visiting and meeting with me at the Gordon W. Mitchell Middle School last Tuesday. The rocket launching/prototype testing is a exciting class to see as the culmination of the transportation unit. I felt the article in the Brocton Enterprise was very reflective of the experience I try to provide for the students of East Bridgewater. Your comments in the newspaper were complimentary and in line with the goals of my classroom. The article can be viewed online at [http://www.enterpriseneews.com/features/x1664570377/East-Bridgewater-middle-school-teacher-takes-technology-education-class-to-new-heights?](http://www.enterpriseneews.com/features/x1664570377/East-Bridgewater-middle-school-teacher-takes-technology-education-class-to-new-heights?img=1#axzz1GIHMD6mY)

[img=1#axzz1GIHMD6mY](http://www.enterpriseneews.com/features/x1664570377/East-Bridgewater-middle-school-teacher-takes-technology-education-class-to-new-heights?img=1#axzz1GIHMD6mY). I have hard copies if you would like one.

During our meeting we discussed high school students receiving science credit and or science lab credit from their high school and Massachusetts institutions of higher education accepting these as sciences or lab sciences. Last Friday I attended the TEAM conference and spoke to a few people and told them of your willingness to look into the issue. It was recommended that I speak with the Dean of Enrollment Services,

Pamela McCafferty at Fitchburg State University. I called her on Tuesday and spoke with a very helpful person in that office. She gave me some information and then recommended I speak with the admissions office. The personnel in both offices were very polite and helpful.

I asked them questions about the science admission requirements, what fulfills a science requirement, and explained why I was making this inquiry. They told me the science requirements and a list of classes that can be used to qualify for admission. Additionally students can not use science or lab science credits from Technology / Engineering classes for admission to Massachusetts institutions of higher education. This decision was not a choice of FSU but is within the Board of Higher Education’s responsibility. They informed me that receiving science credit for technology education classes is a topic that has been brought to their and the Board of Higher Education’s attention. This was all the information that FSU could provide for me. They recommended speaking to the Liaison to Admissions at the Board of Higher Education Aundrea Kelley (Deputy Commissioner for P-16 Policy and collaborative Initiatives).

I have attempted to contact Ms. Kelley several times in the past two days and have not yet received a response. I was intending to ask her if there were parameters that identify what qualifies as a science or lab science and if there is a department policy to support their class selection.

The FSU Admissions Office informed me that there will be a meeting at the Board of Higher Education this Friday, March 18, with directors and this issue will be better defined..

In the mission statement on the Board of Higher Education it is stated

The mission of the Board of Higher Education is to ensure that Massachusetts residents have the opportunity to benefit from a higher education that enriches their lives and advances their contributions to the civic life, economic development, and social progress of the Commonwealth.

We would like students to have the opportunities to use technology engineering for admissions to Massachusetts Institutes of Higher Education, to help fulfill the goals identified in the mission statement through science requirements.

Sincerely,

Stephen Van Voorhis

MassTEC Board Member & Web Master

MORE at

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

AP-

Harvard Study:

70 % Do not Graduate!

Study: Students need more paths to career

success

By Christine Armario
Associated Press / February 2, 2011

The current U.S. education system is failing to prepare millions of young adults for successful careers by providing a one-size-fits-all approach, and it should take a cue from its European counterparts by offering greater emphasis on occupational instruction, a Harvard University study published Wednesday concludes.

The two-year study by the Pathways to Prosperity Project at the Harvard University Graduate School of Education notes that while much emphasis is placed in high school on going on to a four-year college, only 30 percent of young adults in the United States successfully complete a bachelor's degree.

While the number of jobs that require no post-secondary education have declined, the researchers note that only one-third of the jobs created in the coming years are expected to need a bachelor's degree or higher. Roughly the same amount will need just an associate's degree or an occupational credential."

Go to:
http://www.boston.com/news/education/higher/articles/2011/02/02/study_students_need_more_paths_to_career_success/.

~~~~~  
"I do not know the keys to **success** but the key to failure is trying to please everyone every time" ~Bill Cosby

Brimfield-

## Thanks Harvard!

As a Technology Engineering teacher, I know that all children (indeed all human beings) learn in different ways. Dr. Howard Gardner's (1993) theory of multiple intelligences suggests that we all learn in many different ways.

My contention is that students are best served by encouraging learning experiences in as many different fields and methods as possible, which would allow students to discover their own best selves.

This "Test—mania" (McCarthy, often) is not the best way to get students to love learning. Instead they deserve to experience defeat so to learn resiliency and re-design and make real life connections to the theoretical math and science in which they are immersed.

We need those who make policy and make fiscal decisions aware of the facts:

- ◇ Students learn differently
- ◇ Creativity can be enhanced in people but not by testing
- ◇ Hands-on learning is a huge piece of the learning puzzle
- ◇ The USA and the world need all manner of sTEM professionals as the Baby-boomers retire.
- ◇ The average age of skilled workers (plumbers, electricians, and rocket scientists is 58... we better address the skills needed soon!

Therefore, I sent this letter to everyone on the Listserve:

#### Greetings:

Please consider writing a short response to tills needed soon!he **February 2, 2011 Associated Press article: Study: Students need more paths to career success** by Christine Armario for our next *MassTEC Express* newsletter. This article will be the main theme of the April issue. We want your input to show where you stand on this crucial state and national matter.

(See attached or go to: <http://>

[www.boston.com/news/education/higher/articles/2011/02/02/study\\_students\\_need\\_more\\_paths\\_to\\_career\\_success/](http://www.boston.com/news/education/higher/articles/2011/02/02/study_students_need_more_paths_to_career_success/)).

Citing Armario who wrote: "U.S. Education Secretary Arne Duncan delivered opening remarks at the report's release in Washington on Wednesday, saying career and technical education has been "the neglected stepchild of education reform."  
"That neglect has to stop," Duncan said" (AP, 2011).

The "career and technical education" that Secretary Duncan mentioned is the newer name for the traditional Vocational Education. These potentially great hands-on learning experiences **only service**

**approximately 8%**  
**of all high schools students in the country.**

The one discipline that has the potential to bring hands-on, minds-on learning experiences to most middle schoolers through high school students is **Technology Engineering education --** a set of courses that is currently in many middle and secondary schools but is woefully underfunded and poorly supported in these days high stakes testing. Indeed, just as this article points out that we need more options for career readiness and student learning, more Technology Engineering education.

Please contact and/or call me for more on this topic.  
Thank you for all you do.

~Ray McCarthy

\*\*\*\*\*

**Send** me your ideas and opinions regarding ways to improve student readiness for real life as well as college!  
[ray.mccarthy.masstec@gmail.com](mailto:ray.mccarthy.masstec@gmail.com)

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

Rochester, NY-

## The Field of Energy

~ by Andy Yau

My interest has long been in the field of energy. Globally, the world is facing an impending energy crisis, after all the U.S. has already peaked in the production of oil in the 1970s. So I think its fascinating to explore new energy innovations whether its biodiesel from algae, a "bio-battery" or something yet to be discovered.

Under the Obama administration science funding for energy is long been a top priority at the moment so the future looks pretty bright. One of the coolest things I've been following up on is hydrogen fuel for vehicles. There are many problems associated with this technology like compressibility of enough hydrogen to sustain long duration travel, efficiency of the fuel cells in both extreme and cold conditions, production of the fuel, and etc. In my opinion, the single largest issue at had is the issue of cost. If the consumer is unable to afford this new fuel source, then the technology

for many is useless. So there are pros and cons to hydrogen that is a problem that is preventing any upcoming plans to build a national fuel infrastructure (from production to fuel stations).

Water is the world's most abundant source of hydrogen. Electrolysis is the most expensive method to produce hydrogen that is fairly "green" (in comparison to extracting smaller quantities of hydrogen from natural gas). The reason being is platinum is often used as the catalyst to split hydrogen atoms from water. Being a precious metal, platinum as you can imagine is fairly expensive. All across the country federal, military, and private sector research labs have been working hard in producing a new catalyst to empower a hydrogen tomorrow. One of these new materials is a Nano-Aluminum particle. In the presence of water, massive amounts of hydrogen gas can be released and captured for use in a fuel cell.

Imagine the possibility for cheap hydrogen gas. In the future, all you need is a trip to your local supermarket to pick up a bottle

of catalyst material. From your garage, you can fill up your car with tap water from a garden hose. Then flip the key and watch as clean hydrogen starts to bring your car to life. By powering electric motors by a fuel cell fueled by hydrogen gas (produced from water), you potentially could travel for just pennies a day.

I feel that examples like these can really fix our future. A world that is powered by alternative fuel sources (whether its hydrogen, bio-diesel, or etc.) is the first step to move society forward in energy independence for a greener tomorrow. Unfortunately, many people and politicians that may be uneducated in these new advances in technology so to some level a lack of insight to follow through with the bigger picture. Without the partnership of politicians, the automobile industry, and etc. no one wants to make the large financial investment into research and infrastructure development without the guarantee of a positive return.

~ Andy Yau is a student at Rochester Institute of Technology who suffered me as his teacher from 6th to 11th grade in Somers, CT  
~RMC

Pleasant Lake, MI -

## The Shop Rat Foundation:

~Quoted from the Website with permission. RMc

"The Shop Rat Foundations has a mission to advance the skilled trade industries by opening the minds of our youth through building unique and innovative projects from concept to completion. The foundation provides hands on programs in Jackson County to teach students how to use their hands, minds, and creativity to build unique and innovative projects.

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

### Shop Rats

We are the skilled men and woman that build the world around us. We are the creators of everything man made. Because of our great contributions, our society enjoys many comforts. Without the skills of our talented group, life as we know it would not exist.

## A Shop Rat

- ◆ is a skilled craftsman capable of fine works and is worthy of the title "Artisan."
- ◆ is willing to roll up [her or] his sleeves and show initiative.
- ◆ enjoys a challenge.
- ◆ a problem solver, not a procrastinator.
- ◆ has honor, intelligence, curiosity, and imagination.
- ◆ realizes that every day is an opportunity to learn.
- ◆ is the teacher and the student.
- ◆ is someone you can rely on.

This nation was built by the hard work of Shop Rats.

Shop Rats—Seldom Seen but Always There!

What Shop Rats Create

Shop Rats create airplanes, chairs, trucks, buildings, cars, garages, bulldozers,

rockets, satellites, coffee containers, cranes, drains, solar panels, engines, tables, stores, stairs, motorcycles, wheelchairs, floors, tools, machines, axles, wheels, toilets, batteries, hovercrafts, boats, jet skis, roads, bridges, skyscrapers, showers and this is just the tip of the iceberg!

### The Need

Most schools throughout the nation have removed Shop Classes from the curriculum that taught students vital hands on skills and created interest for Skilled Trade careers.

Students have lost interest in hands on hobbies as the youth of our nation are becoming more and more reliant on technology and computers and using their hands less and less.

The perception of hands-on careers has been negative or "less desirable" to the youth of our nation. This negative perception is contributing to the current shortage of skilled workers and with the baby boomers retiring at a pace of 10,000 a day, the USA needs more skilled workers!"

For More Contact:

### ShopRats

Foundation Offices (Within Peak

Manufacturing):

11855 Bunkerhill Road  
Pleasant Lake, MI



**BUILD IT NOW.**

# \$10,000 STEM Grants Available from MIT

April 22, 2011



*Lemelson-MIT InvenTeams:  
Inspiring a New Generation of  
Inventors*

The InvenTeam initiative is designed to excite high school students about invention; empower students to problem solve; and encourage an inventive culture in schools and communities.

Click for  
video

<http://www.ksl.com/index.php?sid=14244264>

Cambridge-

Looking for a hands-on, project-based learning opportunity for your students? If so, the Lemelson-MIT Program wants YOU to apply for an InvenTeam grant. InvenTeams™ are teams of high school students, educators, and mentors that receive grants of up to \$10,000 each to invent a technological solution to a real world problem.

The InvenTeam initiative is designed to excite high school students about invention, empower students through problem solving, and encourage an inventive culture in schools and communities. The deadline to submit an application for the 2011-2012 school year is April 22, 2011. For more information, visit the InvenTeams website at: <http://web.mit.edu/inventeams/formerinventeams.html> and <http://web.mit.edu/inventeams/>

Springfield-WAMC) -

## sTEEm

<http://www.publicbroadcasting.net/wamc/news.newsmain/article/0/0/1769909/WAMC.New.England.News/New.STEM.Education.Initiative>

~ Quoted from the WAMC Website Author Paul Tuthill

“(Massachusetts has entered into a partnership with a national organization as the state seeks to encourage more of its high school students to pursue studies in science, technology, engineering and math .WAMC’s Pioneer Valley Bureau Chief Paul Tuthill

reports

Massachusetts has entered into a memorandum of understanding with the organization Innovate plus Educate that will bring national and state level industries together to help advance the teaching of science, technology , engineering and math in the state’s schools.

Governor Deval Patrick created a STEM advisory council on the issue in 2009. It is chaired by Lt Governor Timothy Murray. Its objective is to reverse a decade long decline in the number of students in Massachusetts colleges and universities majoring in the fields. Experts say 80 percent of the jobs that will be created in the next decade will

require math and science skills.

Loretta Dansereau is the director of River East School to Career Inc a business and education partnership..that promotes careers that require science , math and engineering .

About 175 students from five high schools attended a career day Tuesday at Western New England College , where they got a chance to talk with the engineers who make scented candles at the Yankee Candle Company .And they discovered how much science goes into automobile repair .

40 businesses and colleges were represented. Summer Tinken, a Junior at Monson High School

said it gave her a lot to think about as she ponders a career

Ray McCarthy, the president of the Massachusetts Technology Education Engineering Collaborative says Massachusetts has done a good job promoting the Math and Science part of its STEM initiative

And, McCarthy says the exposure to careers in technology and engineering needs to start before children reach high school.

In 2009, just under 30 percent of the Massachusetts students who took the SATs said they would pursue a college major in STEM.. The national average is just under 40 percent.”

MORE at

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

NY Wall Street Journal -

# Creativity

A Box? Or a Spaceship? What Makes Kids Creative”.

<http://online.wsj.com/article/SB10001424052748704694004576019462107929014.html>

From: **Bertrand, William**  
<[wbertrand@state.pa.us](mailto:wbertrand@state.pa.us)>

Subject: [Ideagarden] It is now your turn to act!

To: IdeaGarden List

Here is what I just posted to the Wall Street Journal, Journal Community for the article “A Box? Or a Spaceship? What Makes Kids Creative”. Which I sent out the link from ASCD on. I also contacted the writer Sue Shellenbarger.

**What are you going to do to support your teaching?**

There is a curricula area in the schools that also teaches students creativity and innovation but it is usually under utilized and misunderstood. Technology Education sometimes called Technology or Technology and Engineering is mostly thought of as for those students not going to college but is best suited for all students today. Technology Education is the curricular area through which technology and engineering instruction is delivered to students. It is the application of tools, materials, processes, and systems to solve problems and provide benefits to humans and society. Its focus is teaching all students engineering “habits of

mind.” This includes teaching students the knowledge, skills, and dispositions necessary to understand and apply engineering concepts, including the engineering design process, systems, and the impact of technology on society. While the relationship between science and technology is symbiotic, the ultimate goal of Technology Education is to foster technological literacy in all students. A report from the National Academy of Engineering and the National Research Council titled “Technically Speaking: Why all Americans need to know more about Technology” done in 2002 helps people understand the importance of this area and can be read online free by going to [www.nap.edu](http://www.nap.edu) and typing Technically Speaking into the search area. If more students were exposed to these classes we may not be in this problem that also affects our economy.

Wall Street Journal, Journal Community for the article “A Box? Or a Spaceship? What Makes Kids Creative”.

<http://online.wsj.com/article/SB10001424052748704694004576019462107929014.html>

When art teacher Kandy Dea recently assigned fourth-graders in her Walnut, Iowa, classroom to create a board game to play with a friend, she was shocked by one little boy's response: He froze.



One Harlem charter school gets creative with problem solving. WSJ's Christina Tsuei sees how the school is developing ingenuity and reasoning in their students at a time when research shows Americans are less creative.

## Creativity Test

Examples of creativity-test answers from students in fourth through sixth grades

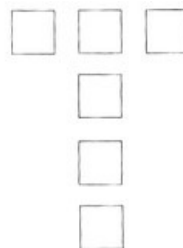


Figure 3.3a

**TASK ONE: List all the things this figure could represent.**

COMMON IDEAS

- A tornado
  - Hair
  - A squiggle
- ORIGINAL IDEAS
- Path of a dizzy bug
  - A straight line poorly drawn



**TASK TWO: List all the things this figure could represent.**

COMMON IDEAS

- The letter "T"
  - Blocks in a row
- ORIGINAL IDEAS
- Bases in some new game
  - Stones in an anti-gravity statue

### Verbal Tasks

**TASK THREE: List as many square things as you can think of.**

COMMON IDEAS:

- TV
  - blocks
  - a book
- ORIGINAL IDEAS:
- Thumb nail

--*My dad's music ...*

[That Hurts!

And hits home! ~RMc]

Contact Bill Bertrand for more!  
<[wbertrand@state.pa.us](mailto:wbertrand@state.pa.us)>

## Profession: Technology Engineering Education Teaching

Minneapolis and beyond-

Over 3,000 professionals braved cross country travel to meet in Minnesota. These folks are passionate, dedicated, funny, and driven to keep these great learning experiences available for students all over the world.

One thought that kept coming to me as I walked the "Gerbil Tubes" that connect many of the fine hotels to the conference center, participated in the great workshops, attended the main speeches was:

### We need to spread this feeling!

People were excited. Folks were pumped up! Women, men, and students were networking, sharing ideas, creating new ideas, and buzzing with the excitement that was the

### 2011 ITEEA Conference.

## So

We have a lot of work to do.

- ♦ Only 1 in 10 Technology Education teachers belong to ITEEA
- ♦ 3,500 ITEEA members support ~35,000

Technology Education teachers with:

1. Great professional resources
2. Curricula
3. Political action to support you!
4. Teacher and Program Recognition
5. Professional Liability insurance
6. Annual Conferences

We need more professionals to agree to share the work and the fun! ~RMc

<http://store.iteea.org/departments/iteea-memberships-10001.cfm>

Hudson-

## POY—TOY

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 and a \$150 gift certificate to the vendor of their choice. 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.

Please Consider Applying for Program of the Year and Teacher of the Year.

The application is located on the left side of our MassTEC web page.

<http://www.masstec.org/recognition/index.htm>

~Charlie Corley, DTE



## MassTEC & ITEEA

## Teacher of the Year Program of the Year

Apply or Nominate Today!

<http://www.masstec.org/recognition/index.htm>



These could be yours!  
Congratulations to

Scott Jewel And David Jurewicz

MORE at

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

Brimfield &amp; Minneapolis-

**The IdeaGarden:**

Affirmation  
Benefaction  
Communication  
Demonstration  
Embarkation  
Fascination  
Graduation  
Higher expectation  
Inspiration  
Justification  
Kation (look it up!)  
Lumination!

Manufacturing action  
Nano-chemical reaction  
Olfaction  
Processes selection  
Qualification  
Recreation  
Satisfaction  
Tenacity in action  
Unification  
Verification  
Working together in creation  
Xaction (made it up!)  
Zee best group of people when you need collaboration!  
~RMc



# IdeaGarden & the ITEEA

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

**Indiana DOE-****2011 Innovation Generation Grants**

~Kelli J. McGregor

In 2011, the Motorola Solutions Foundation will provide \$5.5 million in Innovation Generation grants that engage U.S. preschool through university students -- especially girls, underrepresented minorities and teachers -- in STEM programming. We invite eligible non-profit organizations, schools and school districts to apply through April 22. The 2011 Innovation Generation grants program will feature two distinct funding areas: Local Impact grants and Collaborative grants. For more information click the following link: <http://responsibility.motorolasolutions.com/index.php/society/cominvest/education/igg>

**August 2011 STEM Guitar Workshop - West Lafayette, IN Purdue**

Monday, August 01, 2011 at 8:00 AM - Friday, August 05, 2011 at 3:00 PM (ET)  
West Lafayette, IN <http://purduestemguitar.eventbrite.com/>

This is registration for the educator guitar workshop. Educators should visit <http://www.guitarbuilding.org>

The NSF grant project stipulates that TEAMS of teachers attend, one high school level tech-ed/eng teacher AND either a math OR science teacher. We will be able

to reimburse hotel and meal expenses.

**Introduce a Girl to**

Engineering Day  
In honor of the tenth anniversary of Introduce a Girl to Engineering Day, The National Engineers Week Foundation is launching an exciting campaign to reach 10,000 ten year old girls with positive engineering experiences. This campaign will launch during E-Week on February 24, 2011 (Introduce a Girl to Engineering Day) and last approximately ten weeks closing on Mother's Day. AAUW is one of the ten national partners, NGCP is also a partner, feel free to spread the message with your Collaborative networks. An informative webcast has been archived that shares more information about the campaign and ways to participate.

Access the archived webcast at: <http://www.ngcproject.org/events/events.cfm?eventid=188>  
Find out more, request a kit, or report event data: <http://www.eweek.org/EngineersWeek/Introduce.aspx>

\* Breaking through Barriers for Women and Girls: Celebrate AAUW's 130th anniversary and help shape our future at the June 16-19, 2011 National Convention in Washington, D.C. at <http://convention.aauw.org/index.aspx>

**NASA Education****Opportunities Rockets Educator Guide -- March 23, 2011, 9 p.m. EST**

During this webinar, receive an overview of the Rocketry activity, explore the NASA connections, share tips and tricks for implementing this lesson in the classroom, watch videos of students engaged in the lesson and discuss possible modifications or extensions. <https://digitalmedia.wufoo.com/forms/nes-webinar-registration-nasa-rockets-guide/>

**Smart Skies -- March 30, 2011, 9 p.m. EST**

Learn how to use an innovative air traffic control simulator to engage your students as they explore the mathematics involved in being an air traffic controller. <https://digitalmedia.wufoo.com/forms/nes-webinar-registration-smart-skies/>

The Tufts Center for Engineering Education and Outreach (CEEEO) invites you to the 5th annual LEGO Engineering Symposium May 24-26, 2011 at Tufts University in Medford, Massachusetts, USA.

**LEGO and STEM**

The LEGO Engineering Symposium aims to bring together educators that want to explore using LEGO MINDSTORMS to teach STEM concepts. This year's

symposium's theme is Pushing the Envelope of STEM Learning. Speakers will include researchers in science education, leading K-12 teachers, maverick Mindstorms users, and other folks pushing the boundaries of technologies for supporting STEM education.

Six development labs this year:  
I. Seeing the Science/Engineering in Children's Thinking.  
II. Integrating Engineering & Literacy.  
III. SAM (Stop Action Movie Making) - Tools for Children to Create Representations of their Ideas.  
IV. Labview Education Edition - The Next Generation of Programming.  
V. Supporting the Development of Engineering Design Skills K-12.  
VI. Physics the final day of the conference.

Registration is now Open! Space is limited to 100 participants - so register early. Visit [http://legoengineering.com/index.php?option=com\\_content&view=article&id=167](http://legoengineering.com/index.php?option=com_content&view=article&id=167) for more information and registration. **Contact Kelli for more!**

*Kelli J. McGregor*  
Engineering & Technology Education Specialist  
Indiana Department of Education  
Office of Career and Technical Education  
[kmcgregor@doe.in.gov](mailto:kmcgregor@doe.in.gov)

<http://www.iteaconnect.org/Networking/IG/IG.htm>

**And Join!**

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

# Ingenuity

By Dave Janosz, on March 13th, 2011

<http://www.teachingenuity.com/2011/03/13/ingenuity/>

The profession I most closely identify with has been challenged since I've entered into it, perhaps longer, with an identity crisis. This is not surprising; I believe that many others in education are hard-pressed to articulate why they teach what they teach. To me, this discussion is very much about identifying the personal quality that one wants to develop in young children. Language arts and English teachers strive to develop literacy in young people. Physical education teachers strive to teach lifelong physical fitness.

Most in my profession have wanted to hang their hats on the term "technological literacy," especially since the release of the National Standards for Technological Literacy by the ITEEA in 2001. Is technological literacy a personal quality? Yes. Is it measurable? Well, yes, but many would set out to measure someone's proficiency using Microsoft Word in an effort to describe a young person's "technological literacy." Unfortunately, the time when my profession could have captured this term and made it their own has long since sailed away.

"Design" is a pretty understandable term, but it is not a personal quality. It's more a verb or activity and also sounds like something art teachers teach. I've taught many students over the years about the design loop or the other design processes, but I'd rather hang my hat on a personal quality as an outcome of teaching.

Some like to use the term "engineering." Does "engineering" describe a great deal of what we teach and how we teach it? Yes, but engineering (the verb) doesn't describe everything that I'd want children to develop through their education. Add to that the fact that engineering is the title of a very specific profession and you might see the problem with widespread adoption of the term as something desirable in every school for every student. Further, engineering is not really a measurable personal quality.

"Innovation" also sounds like a desirable thing. But, I'm not sure that you could call innovation a personal quality. An innovation to me is more of a thing, a noun. Yes, there is a describable process behind the term and I want young people to learn to innovate, but innovation really isn't a personal quality. Beyond that, innovation seems to have become pretty cliché in the current common vernacular.

There has been a recent rally around the term "STEM" in the realm of education among those in and around my profession. Is it a very laudable goal that we should be striving toward to have more integrated learning especially at the high school level? Absolutely. But, that may be the best thing that will ever come from the acronym that as far as I can tell was first conceived as a way to organize funding streams instead of as a way to make interdisciplinary connections. I'd also rather not describe what I'm about in terms of the acronym du jour, which will surely fade into the next catchy acrostic invention.

This brings me to the term "ingenuity," the namesake of this blog. Every student should be spending time in school developing their ingenuity, and lots of it. Looking at some dictionary definitions of the term I find that it is a personal quality. It's a term that can be used in conjunction with talent. There's an outcome to be had from applying it. Perhaps we haven't yet found the most effective way to measure it in an educational setting, but in my heart of hearts I believe that it's just as measurable as one's physical fitness. One can challenge themselves to develop their ingenuity and they can also put it on display in a competitive setting.

So, fifteen years into my education career, I think I've decided on the term that I'm going to "be about" and promote it's development in our young people. I want my own children to develop their ingenuity because I think it will make them every bit as successful in life as almost anything else. I want the young people of our nation to develop their ingenuity because I think it's what has always set us apart from others and I think that will continue. I want others around the world to develop their ingenuity because with ingenuity becomes independence.

<http://www.iteea.org/Membership/MembershipBenefits.pdf>

**Make a Difference**  
in the technological education of our children!

Do you believe in the importance of the "T" & "E" of STEM?  
Are you looking for resources that will help you further understand current and future trends within technology and engineering education?

If you answered "YES" to either of the above questions, then you should consider joining ITEEA.

**You Don't Have to be a Teacher**  
to SUPPORT STEM EDUCATION!

Membership is available to any ADVOCATE of STEM education.

**Advocate Membership: \$40.00**

**Benefits include:**  
Technology and Engineering Teacher (formerly TTT) – Electronic format  
STEM Connections – monthly electronic newsletter  
MEMBERS ONLY on ITEEA Website – valuable resources at your fingertips  
IDEA GARDEN listserv – member-to-member listserv  
Annual Conference Registration discount  
Curriculum materials discount  
Insurance Programs – group-rate discounts

**JOIN TODAY and make a difference**  
in the education of our children.

Questions? Call 703-860-2100.

Details about membership can also be found at  
[www.iteea.org/Membership/membership.htm](http://www.iteea.org/Membership/membership.htm).

**ITEEA**



## Massachusetts Technology Education/ Engineering Collaborative

From the Webmaster,

Stephen VanVoorhis  
coertevanv@msn.com

- ◆ Do you have an **instructional resource that is web based?**  
We have created a page to help share these great links, **Framework Web Resources**. If you have something that you use and is framework related please pass it onto the **webmaster**. Go to the following link <http://masstec.org/fwr.htm> and there will always be a link at the bottom of each page and in the column to the left. 3-24-2011
- ◆ The **STEM Discovery Workshop for high school students** is a one day workshop for high school students being offered by **Wentworth Institute of Technology in Boston**, Massachusetts during Spring 2011. This workshop was developed to inspire students' interest in Science, Technology, Engineering and Mathematics (STEM). This workshop aims to introduce students to some of the fields in STEM disciplines, and to the professional opportunities that can be pursued by studying STEM subjects. **Workshops will be held on Saturdays** April 2, April 9 and May 7 from 9:00 am to 3:00 pm. <http://masstec.org/new.html#Wentworth> 3-24-2011
- ◆ **Become familiar with solar energy concepts** and give your students the tools they need to understand solar technologies through hands-on experiments. Are you a teacher, museum or nature center staff, youth group leader or home school parent living or working in a town served by Western Massachusetts Electric Company (WMECo)? Then register for one of NESEA's **free educator workshops!** March 25- Greenfield, MA, April 2-, Easthampton, MA, April 5- Westfield, MA, April 12-, Hancock, MA, April 26- Leeds, MA, May 3- Amherst, MA <http://masstec.org/new.html#freesolarworkshop> 3-21-2011
- ◆ In 2011, the Motorola Solutions Foundation will provide **\$5.5 million in Innovation Generation grants** that engage U.S. preschool through university students—especially girls, underrepresented minorities, and teachers—in STEM programming. We invite eligible nonprofit organizations, schools, and school districts to apply **through April 22**. <http://masstec.org/new.html#motorola> 3-18-2011
- ◆ **Design Squad Nation Wants YOU to Build it Big** By Entering the 2011 Build Big Contest! Beginning next week, we're challenging kids across the country to show their creativity by creating an oversized version of a *Design Squad Nation* activity. Form a team (that includes at least one adult), choose an activity, build it big, and upload a video of your design to YouTube. Submissions may be posted on the *Design Squad Nation* website. No purchase is necessary, and **entries must be received on or before August 1, 2011** at 12:00 p.m. **One prize (a Flip™ camera with a retail value of \$149.95) will be awarded** to the winning team as determined by judges. <http://masstec.org/newstudent.html#dsn> 3-18-2011
- ◆ **RET Program at UMASS Amherst**, The Materials Research Science and Engineering Center (MRSEC) at the University of Massachusetts Amherst is soliciting applications from middle and high school teachers for the summer RET program. The deadline for receipt of applications is **\*April 7th\***. <http://masstec.org/new.html#ret> 3-18-2010
- ◆ A free program that was sent out over the list serve, DraftSight

<http://www.3ds.com/products/draftsight/free-cad-software/>, a permanent link will be on the classroom resources page, <http://masstec.org/lists.html#draftsight> 3-3-2011

- ◆ **LAUNCH** - moving ideas to the next level, Friday, April 8, 2011, Bristol Community College - Attleboro, MA, <http://masstec.org/new.html#launch> 3-3-2011
- ◆ I'm pleased to announce the 2011 Summer LEGO Institute at the Center for Engineering Education and Outreach at Tufts University on August 1st - 5th. . <http://masstec.org/new.html#tuftslego>

### AND

- ◆ **EGFi Engineering**  
<http://www.egfi-k12.org/>

eGFI evolved from the name of the first 3 editions of the magazine, Engineering, Go For It!

Today, eGFI refers to several integrated components of the eGFI brand: the new interactive eGFI website, the 4th edition of the eGFI magazine, the teacher and student e-newsletters and eGFI poster.

Is eGFI just for students?  
eGFI is for everyone! From the interactive website to the colorful and inspiring print and digital magazine, there is something for everyone--students, K-12 teachers and informal educators, parents and guardians, and anyone else with an interest in engineering.

- ◆ **TED talks:**  
<http://alum.mit.edu/pages/sliceofmit/2011/03/10/kahn-academy/?tr=y&auid=7994973>
- [http://www.ted.com/talks/salman\\_khan\\_lets\\_use\\_video\\_to\\_reinvent\\_education.html](http://www.ted.com/talks/salman_khan_lets_use_video_to_reinvent_education.html)

- ◆ **Put Yourself To The Entrepreneur Test**  
PsychTest has created the Entrepreneur Personality Test. It is a unique test that can assess whether you're entrepreneur material <http://testyourself.psychtests.com/testid/3011>

### ◆ Design a New Studebaker Design Contest

Do you like to design cars? Design a New Studebaker! Our design contest kicked off February 18th and closes on October 21st, 2011. Anyone may participate in this contest. Judging will take place in four categories: 11 & under, 12-16, 17-20, and 21 & over. Visit the website for more information about the contest or to download an entry form. <https://studebakermuseum.org/p/whats-happening/events/>

- ◆ **RSA Animate - Drive: The surprising truth about what motivates us – Dan Pink**  
<http://www.youtube.com/watch?v=u6XAPnuFjJc&feature=channel>



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

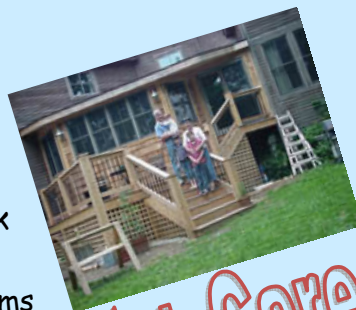
## Home Construction & Communication Design Brief

**Your Mission:** Identify and explain one part of a home that **modern, energy efficient** houses need to have to be warm and cozy homes. You will teach your peers about your great topic!

1. This is a "Homework" project...**all work will be done outside of regular class time.**
2. You **must research** and cite three (3) sources (one must be print media!) of information about home design and construction.
3. You will create three (3) **PowerPoint slides or a 3' x 3' Poster** to show the keys or most important points that a person needs to know to build or buy a house. **(PowerPoint presentations needs 3 pictures, 3 bullets per slide or a Poster with 3 pictures with at least 9 Bullets!)**
4. You will have at least three (3) pictures that help tell your story.
5. You will use transitions between slides.
6. You will avoid what Dr. Abed called: "Power Pointless" productions.
7. You will be creative in your production.
8. You will "sign" your slides or Poster before you email or deliver by disk or flash drive.
9. You will be the best student there ever was!  
Share your enthusiasm, ideas, and FUN!

### Possible topics:

1. House design
2. Permits and laws
3. Plot plans
4. Excavation
5. Foundations & concrete work
6. Carrying beams & lintels
7. Floor joists & flooring systems
8. Wall systems
9. Rafter systems
10. Roofing systems
11. Wiring systems
12. Plumbing systems
13. Interior walls & insulation
14. Septic systems
15. Water systems
16. Careers in Home Building
17. Heating/Cooling Systems
18. More!



**Effort + Care = Success!**



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>



◆ For a digital, fully editable version contact me at [ray.mccarthy.masstec@gmail.com](mailto:ray.mccarthy.masstec@gmail.com)

