

The 'STEAM' Behind GRC's Programs

In an article in the September - October 2009 publication of "The Futurist," Edward Gordon explored the need for workers skilled in the areas of science, technology, engineering, or mathematics (STEM). At that time, data showed 62% of U.S. jobs required these higher-level skills. Gordon predicts that in 2020 74% of jobs will require STEM-based skills. As a result, Gordon notes the necessity for investing in resources which provide educational programming aimed at developing STEM and creative problem-solving skills in order to satisfy the job market and to bring about innovative ideas in the U.S. Promoting STEM is now a priority of the U.S. Department of Education.

GRC Promotes STEM Ahead of the Trend

"Moving & Shaking – An Introduction to Engineering," is a **Saturday Learning Lab** created by Washington University faculty members Ruth Okamoto and Shelly Sakiyama-Elbert in 2000, years in advance of the STEM trend. In this course GRC middle school students learn basic engineering principles while working on everything from roving robots to satellite design or neural tissue engineering. Each week participants visit a different lab and interact with faculty in five engineering disciplines: aerospace, biomedical, computer science, environmental and mechanical.

Once again this fall, there are two sections of this course in order to accommodate more students. "Today's pre-teen and teenage girls have little inkling that women can become engineers," said Dr. Okamoto. "My goal is to get girls—and boys—interested in engineering while in middle school. We want to plant the seed for choosing engineering as a profession."

"We want them to get excited about the different types of engineering that they learn about. So if they are inspired by one lab, that's great, and if they are inspired by another one every week--so much the better," said Okamoto. "They are enthusiastic and ask lots of good questions." Because both women and men teach the students, "the take-home message is that both women and men can be engineers or scientists."

In 2009 GRC began using LEGO Mindstorms NXT robotics kits in Saturday Learning Labs and soon expanded their use to **GRC's Summer Space Academy**. In 2015, with a grant from Express Scripts, GRC



Girls tackle space-themed STEM challenges with their robot during GRC's Space Academy.

was able to update to the LEGO EV3 robotics kits. For example, GRC's Space Academy students recreate the

rovers on Mars or robotic arms of the Space Shuttles. In addition, Learning Lab students team up to design and build robots for many purposes on earth. These LEGO robotics kits enable students to express their innate creativity, develop their problem-solving abilities and acquire computer programming skills—all while developing social skills working with teammates. "In addition to problem-solving, teamwork and critical thinking skills," said Lisa Hummel, a veteran teacher of

gifted students who has been offering robotics classes at GRC since 2009, "building robots is a challenging, hands-on experience that gets kids excited about learning." The end result is that students are successfully involved in challenging STEM activities that may lead to career choices in the various fields of science.

Is STEM Enough?

Research shows that students who study the arts achieve more academic success than those who don't and that scientists who have studied the arts are more innovative in technical STEM-related professions. STEM primarily focuses on convergent thinking. Including the arts (the "A") identified as STEAM, adds divergent thinking, incorporating both sides of the brain—exactly what tomorrow's leaders and innovators need.

'STEAM' continued on page 3

Dialogue with the Director

As someone relatively new to the nonprofit world as well as a veteran educator, a plethora of thoughts came to mind regarding Bayer's acquisition of St. Louis's science tech giant Monsanto. In the nonprofit world, the possible loss of a large, locally controlled business community leader and philanthropic institution can be disheartening. As an educator, it is a reminder that our vocation is to fully prepare our youth for the ever-changing global and scientific society of the future. This goal is at the heart of Gifted Resource Council's various programs, and many of GRC's programs have emphasized core concepts of STEM education for several years.

Gifted Resource Council's STEM programs have benefited from community resources such as faculty from Washington University. GRC's Saturday Learning Lab's "Moving and Shaking - An Introduction to Engineering" class began with the inspiration of Ruth Okamoto and Shelly Sakiyama-Elbert. Dr. Okamoto continues to teach this STEM class along with Dr. Jessica Wagenseil on the campus of Washington University. Dr. Daniel Giammar, an associate professor at Washington University in the Energy, Environmental, and Chemical Engineering Department, provided instruction and experiments regarding the environmental impact of dyes and paints on the water we drink to GRC's ECO Academy students this past summer. Rich Heuermann, retired from Washington University's Earth and Planetary Sciences department and a member of GRC's Advisory Committee, is a



Susan Jesse, GRC Executive Director

perennial favorite speaker at GRC's Summer Space Academy.

University faculty, along with talented teachers and other highly qualified professionals, help GRC provide educational resources and support to families in the St. Louis metropolitan area. Gifted Resource Council offers enrichment opportunities alongside parenting classes, which are conveniently offered during our Saturday Learning Lab class times and during GRC's Academic Challenge Cup. As a small nonprofit we rely on gifts from individuals and corporations in order to provide these resources, and notably 83% of all GRC expenditures go directly to program support.

In returning to thoughts about the science technology community in our metropolitan area, I am reminded of the exciting new Cortex community of smaller company start-ups. This St. Louis hub of innovation boasts that it "...brings together problem-solvers of all kinds." All of GRC's programs - not just those with an emphasis in science, technology, engineering, art and math - promote out-of-the box thinking and problem-solving. The development of these skills will aid future generations. I am proud that Gifted Resource Council's programs will continue to offer various enrichment opportunities for children designed so that they can succeed in this ever-changing society of the 21st century.

You too can help GRC continue and expand these valuable programs by becoming a member of Gifted Resource Council or renewing your membership. Please consider sending your donation today in the envelope provided with this edition of *mindwonders*.

'STEAM' continued from page 1

STEAM for Young Minds

To its enduring credit, GRC has been promoting STEAM—STEM with the arts—for decades, offering dozens of courses to interest young, impressionable students in science, technology, engineering, arts and math. A great example is **Math, Marvels & More**, one of GRC's two-week Summer Academies offerings



ECO Academy students test which materials best filter out contaminated water.

for children completing kindergarten through second grades. **Math, Marvels & More** began in 1994 as the outgrowth of interest in the diversity of **Learning Lab** classes which allow students to take a variety of classes, such as a science class as well as a creative arts class in the same morning. Recognizing the popularity of choosing classes in both such disciplines, GRC responded by adding the two-week summer program of **Math, Marvels & More** where children engage in scientific exploration, encounter math challenges, and participate in activities utilizing creative expression. Another two-week summer session, **ECO Academy**, is offered to students who have completed third through eighth grades. In **ECO Academy**, students create and run an environmentally friendly business. The environmental sciences are taught alongside creative marketing strategies in developing and promoting a green business product.

GRC's wide range of Learning Lab choices include STEAM courses for even younger students. This fall's offerings included "What Good is Trash?" for 4- and 5-year olds, and "Are You an Architect?" for ages 5-6. "Art & Science & Math – A Multimedia Extravaganza" provided third and fourth graders enrichment in applying the arts and creative thinking skills to science and math-based projects. The list of STEAM courses goes on and on, and the titles are significant because they signal the unique approach GRC takes to engage students in high-interest, hands-on, creative problem-solving.

Creative problem-solving is the impetus behind Gifted Resource Council's **Creative Convention** held each year as part of GRC's **Academic Challenge Cup**. Beginning in 1984, teams of second and third graders have used the engineering design method after being presented with an open-ended real-world problem. Solutions are brainstormed, a plan is made, a prototype or model is created, and a creative marketing presentation is communicated to an audience. In welcoming Creative Convention participants to UMSL, Dr. Thomas George, Chancellor of the University of Missouri-St. Louis, revealed his skills as a pianist with a delightful jazz performance. Dr. George noted he has a Ph.D. in Chemistry and encouraged students to seek the arts in concert with their core academics.

Why STEAM for GRC Students?

Why such remarkable emphasis on STEAM in so many ways and so many years ahead of the trend? Because years ago Sue Flesch—then GRC's Executive Director—recognized the importance of involving students in STEAM topics and motivating them to consider careers in these important, technical fields long before it became an educational trend. And she encouraged GRC teachers to find increasingly creative ways to do so.

"Almost since its beginning, Gifted Resource Council has encouraged young people to explore the realms of science and math along with the creative arts. This 'STEAM approach' to learning connects both sides of the brain, giving greater depth and perspective to the innate inquisitiveness of children," notes Program Director Sue Flesch, who served as Executive Director from 1995-2015.



Creative Convention participants employ the engineering process.

How can we help our gifted child learn to use, but not misuse technology and social media?

by Dennis O'Brien

Teachers and savvy parents understand that electronic technology offers both great benefits and potential problems for children, even gifted ones, depending on the choices they make. The benefits seem obvious; the potential problems, not so much. Smart phones and tablets, computers, the Internet and social media provide instant access to information and contact with others. This ready access can expand children's capacity to acquire information and stay in touch with friends. All good.

But teachers also find that technology is often so overused and misused that even bright students are not learning how to spell, use correct grammar, punctuate, write complex sentences or develop their ability to formulate and articulate complex analytical thoughts. For example, texting, while helping children communicate rapidly in jury-rigged shorthand, also compromises their ability to acquire important writing skills. Likewise, autocorrect enables students to write without learning essential language skills or how to express nuanced ideas. And who needs to know basic math when a smart phone will compute for you?

In addition to undermining academic growth, misuse of social media which technology makes possible can also be a barrier to emotional and social development. This includes texting as well as a variety of social media platforms. When these become the primary way of communicating—as they are for many children—children are deprived of the opportunity to learn how people are really feeling by reading verbal and nonverbal cues. This not only damages children's social growth, but also limits their ability to develop intimacy with others throughout their lives.

Here's how parents can protect and nurture a child.

☞ Keep in mind that what works for you may not work for your child. Perhaps it was our good fortune that many of us were raised without the benefit of instant access to the world through electronic technology. As a result, most of us learned to compute, write coherently, express complex ideas, socialize personally and acquire the ability to recognize and respond to the feelings of others. So, given this strong foundation, even our excessive reliance on electronic technology now will probably not impair us as much.

But today's children will not have these same opportunities for personal and academic growth unless parents are savvy and committed to helping them develop these skills. Gifted children often have difficulty developing appropriate social relationships with their age-mates. Using technology and social media as a crutch can make this even more challenging. Failure to develop meaningful friendships and acquire appropriate social skills can impair your child's future relationships or happiness.

☞ Model healthy values. If you are texting or on the phone at meals or in the car, how can you expect your child to

take you seriously when you tell her that it's not acceptable for her to do so? Instead, be proactive about using these occasions to converse, learn more about your child's day and help her develop her social skills.

Ask yourself: how would you feel if your child, at age 16, were to do what she sees you doing when you drive? Are you texting or researching with your phone at your son's soccer game whenever he checks on you? Do you dive into your smart phone or tablet to immediately research any area of dispute or unclarity during a conversation? What message does your behavior send about your priorities? How does it affect your child's? Be honest, and admit to yourself and your spouse if you need to make behavioral changes.

☞ Confer with your spouse and agree about the skills and character traits you want to foster in your child. Agreeing on these skills and traits is the first step toward helping your child successfully acquire them. Think beyond the narrow scope of technology. What do you want for your child? In addition to academic success as measured by grades, do you want him to develop a passion for learning? To have the ability to think analytically and process information? What character traits do you prize? Conscientiousness? Optimism? Persistence when things are not easy? Cooperating well with others? Approaching new situations confidently? Being comfortable meeting new people and developing close friendships? Being well-rounded?

Then honestly assess your child's progress. This will help you refocus your strategy to nurture your child's overall development in healthy ways. What's on track? Where would you like to see improvement? How should technology fit into her life?

☞ Encourage your child to develop the character traits and skills you value. Tell her clearly what you value. Explain why. Praise your child when she demonstrates them or attempts to do so. Praising effort is often more important than praising outcomes because consistently making the effort eventually leads to success.

Encouraging your child may mean role playing social situations that challenge her. It may mean making sure she's involved in activities where she participates but may not excel. It may also mean helping her get involved in sports or extracurricular activities where she learns teamwork.

☞ Discuss the appropriate use of communication technologies. Emphasize that they should be supplemental tools for learning and enhancing communication with others, but should never be considered primary means. Explain both the advantages of technology and the reasons why it must be used appropriately.

You will need to make this an ongoing conversation, depending on the age of your child and her access to

Parents Ask continued on page 5

Parents Ask continued from page 4

technologies. For example, texting should be discussed when your daughter is closer to getting her own phone. Prior to that you may need to focus on what's acceptable behavior with a tablet or computer. Factor in your assessment of your child's social skills and maturity. These vary from child to child and from developmental milestone to developmental milestone.

☞ Identify for your child what's inappropriate. Start by eliminating what's not healthy or is outright dangerous, such as disclosing personal information or being in chat rooms with people she does not personally know. Be clear also that she is never to use technology to bully or gossip. Is it ever appropriate to text at school? Should your child be allowed to have a phone at school? What would make that necessary? Not having a phone at school eliminates the temptation to text rather than interact personally.

Make clear what's acceptable, what's not, and that you will check regularly. Explain your reasons, including the long-term damage an impulsive or inappropriate post can have, such as compromising college admissions or getting a job.

☞ Evaluate and make clear what social media she can use. At what age do you consider Facebook appropriate? Does she really need access to Facebook, Instagram, Snapchat or Twitter? Make it your decision whether or not she can ever use any of these. Of course, this decision will vary depending on your child's age, maturity and other factors.

☞ Set guidelines and post them. For example, she must never give away personal information to a stranger online. The

time your child is allowed to be involved with social media each day should be spelled out and consequences established for exceeding them. The two-to-one rule is a good starting point: your child loses the right to use a technology for two days for every day she exceeds the limits you set. Because it is more public and enduring, consequences for misusing social media must be more serious than for simply not following the rules, perhaps losing online privileges for two weeks for every violation.

☞ Enforce limits. Nothing changes behaviors more effectively than following through on predicted consequences. Make it clear that you will check your child's phone regularly (daily if you must) to be sure that she does not violate guidelines you have established on texting, including both the amount of time, the time of day and the people. If she uses her phone at school, apply the two-to-one rule.

☞ Bottom Line: Clarifying the appropriate use of electronic technology for your child's current developmental progress, combined with your willingness to set limits and enforce consequences, will go a long way to assuring that your child learns to use technology to enhance her growth in a healthy manner.

Dennis O'Brien is a licensed clinical social worker, experienced educator and therapist, who has led five nonprofits. He has written educational materials used by the Washington University School of Medicine Dept. of Psychiatry, weekly columns on parenting for the Suburban Journal/Post-Dispatch and numerous columns for St. Louis Moms and Dads, CHARACTERplus, Family Connection (Mo. Dept. of Mental Health) and Gifted Association of Missouri. O'Brien's April 6 column, "Prevent teen suicide by addressing it," won the 2010 Missouri Institute of Mental Health award for outstanding reporting on suicide.

'Like' Us; Learn More

If you would like to know about upcoming events or news regarding Gifted Resource Council, be sure to 'Like' GRC's Facebook page. Looking for a way to donate to GRC online? Go to: <https://www.paypal.com/fundraiser/hub#gift> and search for Gifted Resource Council. 100% goes to GRC, and you will get a tax receipt by email. If you tend to shop on Amazon, you can easily give to GRC with Amazon Smile. Go to <http://smile.amazon.com/ch/43-1293166>, and Amazon will donate .05% of qualified purchases to Gifted Resource Council. And don't forget GRC's website is www.giftedresourcecouncil.org.



ECO Academy students fabricate products using recycled materials.

Longtime Volunteers Bolster GRC's Academic Challenge Cup

Gifted Resource Council has benefited immensely from the generosity of Academic Challenge Cup volunteers for over 30 years, impacting hundreds of students during **Academic Challenge Cup** each year.

Three Decades of Service

Connie Burkhardt is GRC's longest serving volunteer. In addition to training teachers and parents as **LinguiSHTIK** coaches each fall, she has served as master-of-ceremonies for every LinguiSHTIK competition GRC has held since 1984. Her involvement began the year before when she attended a small meeting of gifted educators from six school districts called by Beverly Berla, GRC's second Executive Director, to launch ACC's LinguiSHTIK competition. Burkhardt immediately saw



Long-time volunteer Connie Burkhardt leads a workshop for LinguiSHTIK coaches.

the game's potential to help gifted students and trained a team of 6th graders at Hoech Middle School to represent the Ritenour School District. Approximately 30 students participated from those six districts that first year. And GRC's LinguiSHTIK competitions were launched.

Why her remarkable sustained involvement? "I see students who are already good at something improve their vocabulary and verbal skills even more by playing LinguiSHTIK," she said. "And I learn something new from them each year as they play." Burkhardt is also grateful for Tom Campbell and Chris Dadian taking the initiative to computerize scoring for LinguiSHTIK as well as **Equations**. "Originally, we were doing it all on chalkboards. This is much more convenient."

Campbell, Dadian and Bob Coulter are also longstanding Academic Challenge Cup volunteers, contributing their time and special skills throughout the Equations and LinguiSHTIK portions of ACC. Coulter usually serves as master-of-ceremonies running the Equations competitions, and Dadian supervises the volunteers who serve as judges. Dadian and Coulter also train teachers and parents in the game of Equations each fall so they can, in turn, prepare their students.

Campbell brings his computer, inputs all the data, and scores all the teams. "I am fortunate to be employed by Edward Jones, a company that appreciates a long-term investment strategy in our youth and has supported me by providing computer and printer resources to assist GRC and its volunteers expand the reach of **Academic Challenge Cup**," he said.

Awesome Impact

"Gifted Resource Council is so extremely grateful for the generous number of hours that Bob, Connie, Chris and Tom have donated to GRC's Academic Challenge Cup," said Executive Director Susan Jesse. "Their ongoing commitment has impacted thousands of ACC participants throughout the years, and we look forward to their continued participation in order for many more students to benefit from the Equations and LinguiSHTIK events."

Recognizing Mike Moore

by Sue Flesch

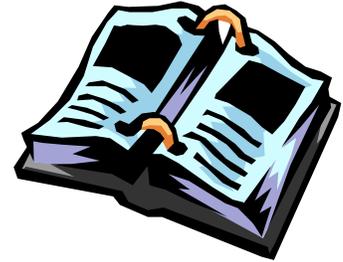
Mike Moore, long-time respected teacher with GRC's Summer Academies, is now retiring from GRC after teaching PT (Physical Training) for 27 years with Gifted Resource Council. Coach Moore (as Mike was addressed by students and adults alike) brought creativity and dedication along with his love of physical activity to countless numbers of students during his tenure. Early in his years as a GRC summer teacher, Mike recognized that in order to engage gifted young people in physical activities more successfully, he would need to "think outside the box". Thus was begun his creative adaptation of numerous athletic games (think kickball as normally played by children everywhere) by adding varieties of rules to the games, thereby engaging gifted children's minds as well as their bodies. The result: Fun and active participation for all involved.

Mike is most deserving of a long and active retirement, though we at GRC will miss him immensely. He has taken the concept of mind and body connection to a new high – for the benefit of innumerable Gifted Resource Council students. Thank you, Mike! Congratulations on your retirement from GRC!



Summer Academies students impersonate Coach Mike Moore at his 25th anniversary roast.

Mark Your Calendar



January 28, 2017 – Summer Opportunities Fair at MICDS, 101 N. Warson Rd.

February 4 - March 11, 2017 (Six Saturdays) – **Winter Learning Lab** at Wydown Middle School, 6500 Wydown Blvd. Parenting Classes will be offered.

February 28 and March 1, 2017 – GRC's Academic Challenge Cup **Equations** Competitions at University of Missouri-St. Louis. Parenting classes will be offered.

March 2, 2017 – GRC's Academic Challenge Cup **LinguiSHTIK** Competition and **Creative Convention** at University of Missouri-St. Louis. Parenting classes will be offered.

March 3, 2017 – GRC's Academic Challenge Cup **Creative Convention** at University of Missouri-St. Louis. Parenting classes will be offered.

March 14 -16, 2017 – GRC's Academic Challenge Cup **Equations** Competitions at Washington University in St. Louis. Parenting classes will be offered.

**For more information on any of these events, contact GRC:
314-962-5920 or info@giftedresourcecouncil.org**

BECOME A MEMBER OF GIFTED RESOURCE COUNCIL

Now *you* can participate in shaping America's future by becoming a member of **Gifted Resource Council**, a not-for-profit agency serving bright and talented young people. Your tax-deductible contribution will enable us to improve existing programs, extend offerings and reach more children. Your membership will not only benefit gifted children, but also entitle you to receive the following:

Gifted Member: \$60

- ▶ Priority registration for all programs
- ▶ *FREE* parenting classes (\$160 value)
- ▶ Use of GRC Library

Brilliant Benefactor: \$500

- ▶ All of the above, *plus*
- ▶ One *FREE* Learning Lab course *or*
- ▶ Learning Lab scholarship in your name at your request

Intelligent Friend: \$100

- ▶ All of the above, *plus*
- ▶ \$10 discount off two Learning Lab registrations

Wise Philanthropist: \$1,000

- ▶ All of the above, *plus*
- ▶ GRC logo lapel pin
- ▶ The undying gratitude of gifted children throughout the metropolitan area

Sharp Sponsor: \$150

- ▶ All of the above, *plus*
- ▶ Additional \$25 discount off a Summer Academy

Imaginative Institution: \$100

- ▶ For schools and other not-for-profits

Talented Patron: \$250

- ▶ All of the above, *plus*
- ▶ Additional \$25 discount off a Summer Academy (\$50 total)

My employer _____
will match my charitable donation. (company name)

Gifted Member Intelligent Friend Sharp Sponsor Talented Patron Brilliant Benefactor Wise Philanthropist Imaginative Institution

Name (as you wish your membership to be listed) _____

Address _____

City _____ State _____ Zip _____ Phone _____

Please mail check to: Gifted Resource Council, 357 Marshall Ave., Suite 6, St. Louis, MO 63119-1827

mindwonders

informs the public about activities of Gifted Resource Council and about issues relevant to the development of bright and talented children and youth.

Gifted Resource Council
357 Marshall Ave., Suite 6
St. Louis, MO 63119
314-962-5920
www.giftedresourcecouncil.org

Susan Jesse
Executive Director
Susan C. Flesch
Program Director
JoAnn Hetisimer
Office Manager
Linda Sher
Editor

Fall 2016

Non profit org.
U. S. Postage
PAID
St. Louis, MO
Permit 4757

Enhancing the potential of talented young learners

GiftedResourceCouncil



Gifted Resource Council Board of Directors

Kathy A. Surratt-States, President
Stephen C. Murphy, Vice President
Sandy Kalin, Secretary
Darryl Munden, Treasurer

Directors

Mary E. Angert
Jane Killebrew
Steve Krekeler
Agnes Meyo, Psy.D.
Debbie Pyzyk
Hameeda Qadafi
Alice K. Richter
Chris Winkelmann

Advisory Board

Beverly K. Berla
David Blasingame
Margaret W. Cohen, Ph.D.
Robert Coulter, Ed.D.
Christopher Dadian
Sherman George
Richard Heuermann
Lisa K. McLaughlin
Eve M. Riley, Ph.D.
Don Senti
Linda H. Smith, Ph.D.

GRC needs your charitable support to continue providing talented children with special enrichment opportunities. Tax-deductible membership gifts keep fees as low as possible and provide scholarship assistance to those who need it.

Please use the enclosed envelope to mail your membership gift today.

Gifted Resource Council is a not-for-profit education agency serving the greater St. Louis Metropolitan area. Its purpose is to bring together the resources of the community, the schools and parents to help bright and talented children achieve their potential.