



MAKING THE RIGHT
CON
NECTIONS
IONS

APRIL 16-18, 2015

A 3-day convention for professionals,
educators, and students who focus on the
fields of Science, Technology
Engineering, and Math

STEMCON
Science Technology Engineering and Math Convention



stemcon



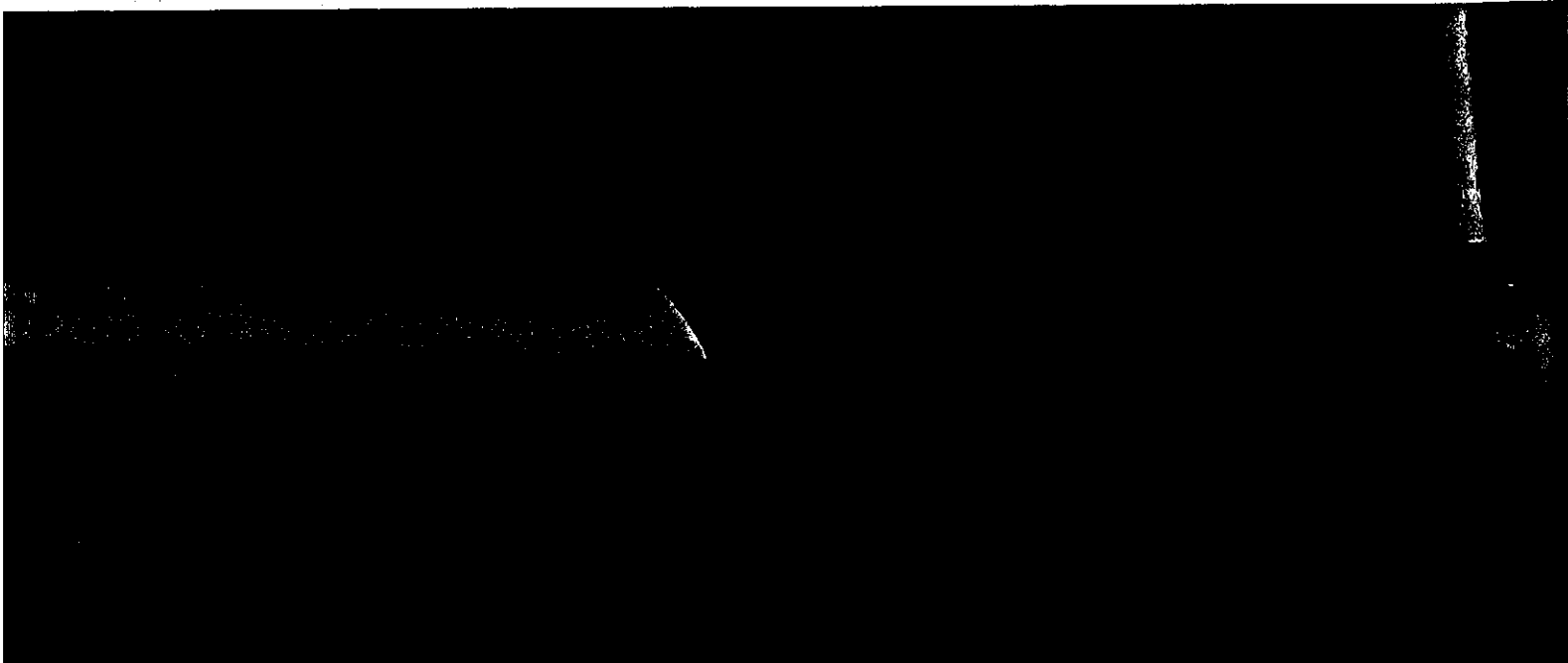
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"We must find new and better ways to help students master STEM inside and outside the classroom."

—Arne Duncan



Welcome to the 2nd Annual STEM Conference!

With the ever-changing standards and increasing demands on school districts, teachers, and students—and a national economy clamoring for STEM workers—on-going professional development is more important than ever for K-12 STEM educators. That's why we're so glad you're here.

This year's conference is geared toward giving educational leaders and novice and seasoned teachers alike the tools and information they need to set their students up for success in the critical subjects of science, technology, engineering, and math. The aim is pure and simple: to make your job easier and your students' futures brighter.

"Making the Right Connections" is this year's theme, because offering your students a high-quality STEM education requires thinking more broadly and boldly than the curriculum. It requires collaboration between schools, their communities, their governments, and places of higher learning and innovation.

The STEM Conference will feature:

- Keynote Addresses by Renowned Leaders
- Relevant and Timely Conference Tracks
- Stimulating Panel Discussions
- Dynamic Breakout Sessions
- Exceptional Student Performances
- Productive Networking Sessions

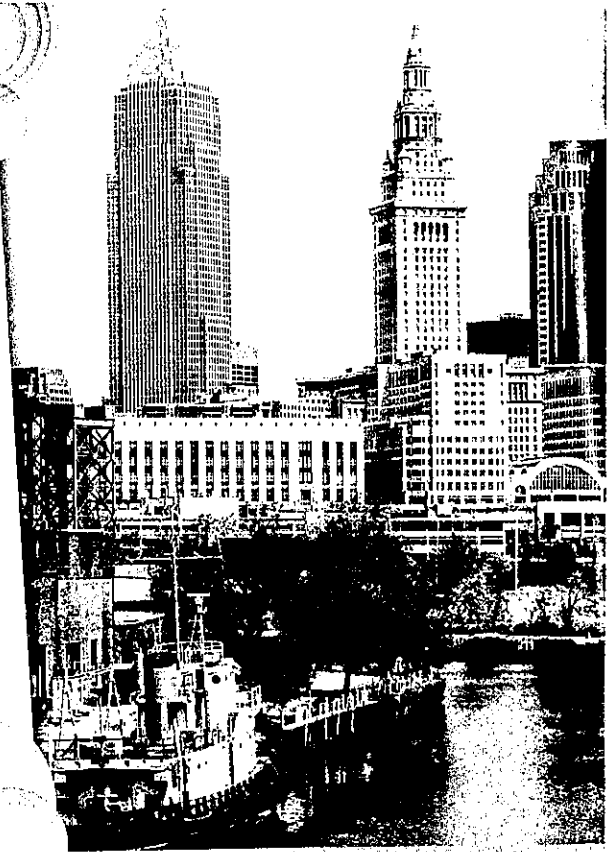
Conference tracks include:

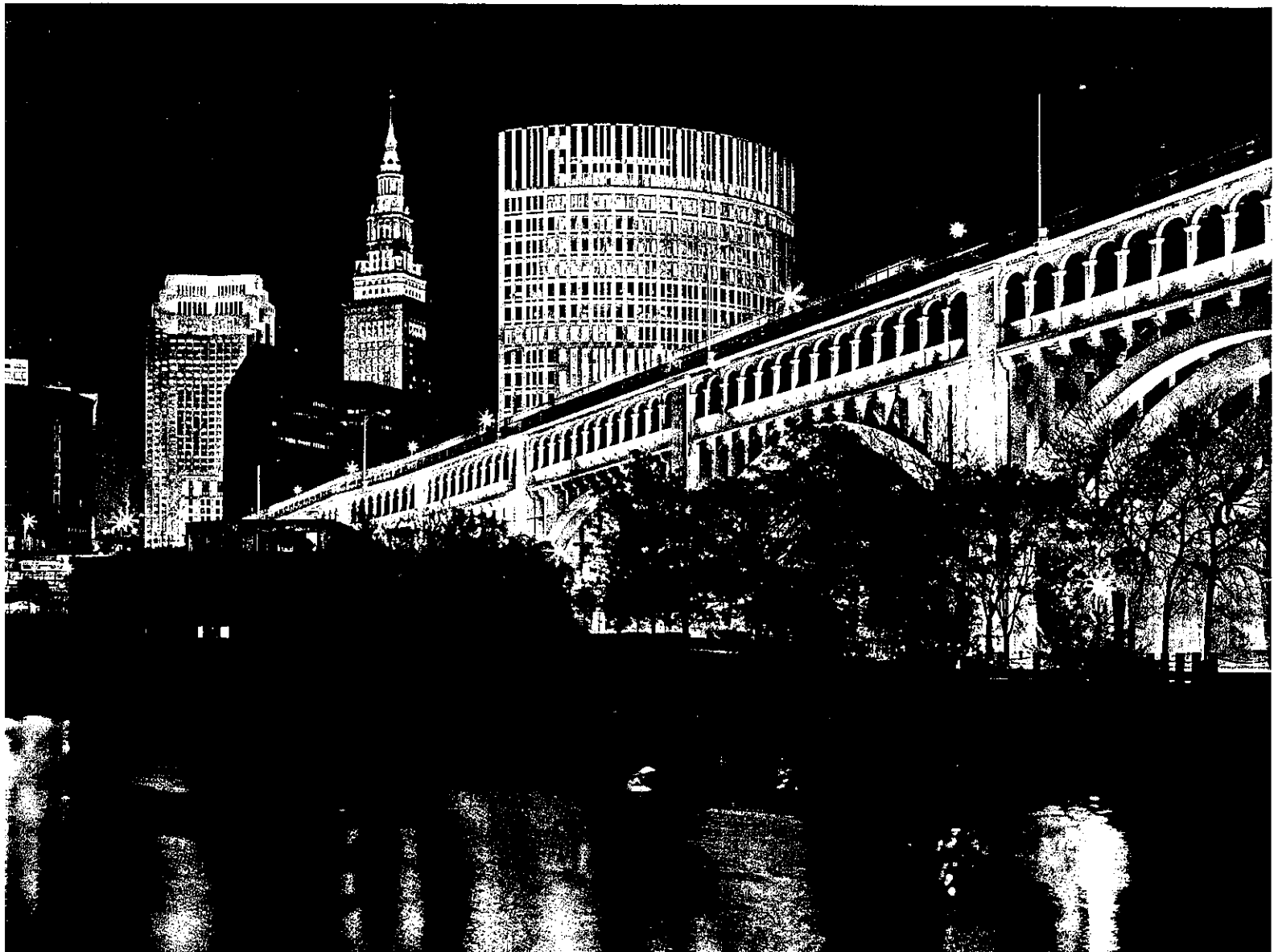
- Adding Value to STEM Education through Public/Private Partnerships
- Bridging the Gender and Ethnic Divide in STEM Fields
- Enlarging the STEM Pipeline
- Measuring Success in STEM Education
- Knowing When to Use Technology in the Classroom

Thank you for coming together to advance the agenda for better K-12 STEM education, policy, and workforce development in the United States. We hope you enjoy all The STEM Conference offers.

Cleveland

Located on Lake Erie, Cleveland, Ohio has a rich history of industry and commerce dating back to the nineteenth century all the way to its recent revitalization of its central business and commercial districts. Home to the Cleveland Cavaliers and LeBron James, number 4 ranked hospital in the country Cleveland Clinic, world-class places of learning, including Case Western Reserve, Cleveland State University, and John Carroll University, the Cleveland Institute of Art, the family-friendly Great Lakes Science Center, and so much more, Cleveland is a perfect place to engage educators in the pursuit of stronger STEM education.





**CLEVELAND
CONVENTION CENTER
GRAND BALLROOM B**

300 Lakeside Avenue
Cleveland, OH 44113

THURSDAY

FRIDAY

6:00pm – 8:00pm

Welcoming Dinner & Award Ceremony, Award Presentations, and Student Performances

Student Performance: Ashland High School Jazz Band

Keynote Speaker: Dr. Kristen Ellenbogen

President and CEO, Great Lakes Science Center

FRIDAY, APRIL 17, 2008

8:00am – 8:45am

Registration and Breakfast

8:45am – 9:00am

Welcoming

9:00am – 9:45am

Keynote Speaker: Dr. Carolyn Hayes, President-Elect

National Science Teachers Association (NSTA)

DEVELOPING STEM CLASSROOMS (As educators incorporate STEM activities into their existing curricula learn how Next Generation Science Standards (NGSS) enable this transformation.)

10:00am – 11:00am

BREAKOUT SESSIONS

Room 21: THE DESIGN AND IMPLEMENTATION OF A STUDENT-CENTERED HIGH SCHOOL RESEARCH PROGRAM

Dr. Evan Glazer, Principal, Thomas Jefferson High School for Science and Technology, VA (BEST STEM SCHOOLS IN THE U.S.)

Room 22: IT'S NOT WHO YOU KNOW, IT'S HOW YOU KNOW!

Mr. Christopher Like, STEAM Coordinator, Bettendorf Community School District, IA

Room 23: PRECOLLEGE STEM INITIATIVES

Mr. James Bader, Executive Director, Leonard Gelfand STEM Center, Case Western Reserve University, OH




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10:00am – 11:00am


PAPER PRESENTATION




Room 24: Greg Gagnon, University of Fukui Go-Gaku Center, JAPAN
Co-author: **Walter S. Tsushima**, Assistant Professor, University of Fukui
Paper Title: GOOD CHEMISTRY: IMPLEMENTING A PROJECT-BASED LEARNING CLASSROOM IN JAPAN

11:15am – 12:15pm


BREAKOUT SESSIONS




Room 21: PREPARING STUDENTS FOR SUCCESSFUL STEM CAREERS
Dr. Marie Anette Karlsson, Dean, Washkewicz College of Engineering, OH



Room 22: ROBOTICS ANYONE?
Mr. Doug Scott, IT/Robotics Teacher, Natick High School, MA



Room 23: GIRLS IN STEM
Dr. Kecia Ray, Executive Director of Learning Technologies, Metropolitan Nashville Public Schools, TN



Room 24: GREEN-STEM: INSPIRING AND EMPOWERING LEARNERS TO CHANGE THE WORLD
Anne Tweed, Director, STEM Learning, McREL International, CO

12:15pm – 12:55pm

LUNCH & STUDENT PERFORMANCES

Student Performance: Orange High School Jazz Band

12:55pm – 1:45pm

**PANEL DISCUSSION: K-12 STEM EDUCATION:
THE SCIENCE FOCUS**

Moderator: James Bader, Executive Director, Leonard Gelfand STEM Center, Case Western Reserve University, OH

Panelist: Dr. Helen Soule, Executive Director, Partnership For 21st Century Skills, DC

Panelist: Anne Tweed, Director, STEM Learning, McREL International, CO

Panelist: Dr. Marie Anette Karlsson, Dean, Washkewicz College of Engineering, Cleveland State University, OH

2:00pm – 3:00pm

BREAKOUT SESSIONS

Room 21: LEGO EDUCATION: BUILDING THE ENGINEERS OF TOMORROW

Scott Hodges, Kenosha School of Technology Enhanced Curriculum, Kenosha, WI

Room 22: ENGINEERING FOR EXCELLENCE: KEY COMPONENTS OF A SUCCESSFUL STEM PROGRAM

Kevin Bals, Principal, High Technology High School, NJ

Room 23: INTRODUCTION TO THE SOLE APPROACH
Dr. Jeffrey D. McClellan, Founding Head of MC2 STEM, OH

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2:00pm—3:00pm



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PAPER PRESENTATIONS

Moderator: Dr. Regina Armour, Director of New School Development and Community Outreach, Concept Schools, IL

Room 24: Dr. Gretchen Skrotzki, Vice Principal, Bishop Elementary School, CA

Paper Title: THE IMPACT OF STEM ENRICHMENT PROGRAMS ON CALIFORNIA'S HIGH SCHOOL LATINO/A SENIORS

Room 24: Mr. Lou Randall, STEAM Coordinator, Val Verde USD, CA

Co-Presenter: **Michael McCormick**, Assistant Superintendent for Education Services, Val Verde Unified School District, CA

Paper Title: AQUAPONICS TO UNITE TEACHERS, ADMINISTRATION, AND DISTRICT THROUGH AN INTERDISCIPLINARY STEM PROGRAM USING ENGINEERING

3:15pm—4:15pm



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BREAKOUT SESSIONS

Room 21: STUDENT INQUIRY & RESEARCH AT IMSA: DEVELOPING AUTHENTIC INQUIRY SKILLS

Dr. Judith, Scheppler, Illinois Mathematics and Science Academy (IMSA), IL

Room 22: STEM CERTIFIED AND STEAM INSPIRED

Dr. Cheryl Crooks, D.Ed. Magnet Coordinator/Assistant Principal, The Center for Advanced Studies in Science, Math & Technology at Wheeler High School, GA

Room 23: BLOOM WHERE YOU'RE PLANTED: GROWING YOUR OWN ELEMENTARY SCHOOL STEM PROGRAM

Mrs. Andrea Sagely, STEM Instructional Specialist, Broken Arrow Public Schools, OK

3:15pm – 4:15pm

24

PAPER PRESENTATIONS

BRIDGING THE GENDER AND ETHNIC DIVIDE IN STEM FIELDS

Moderator: **Dr. Melissa Parks**, Visiting Assistant Professor, Stetson University, FL

Room 24: Mrs. Valerie Blackburn, Assistant Director/Sole Proprietor

UTMB Educational Outreach & Blackburn STEM Educational Consulting, TX

Paper Title: GENDER BIAS IN THE CLASSROOM: A REFLECTIVE LOOK TOWARD AN ACTION PLAN FOR IMPROVEMENT

Room 24: Tansu Mutlu-Sural, Visiting Scholar, University of Wisconsin – Milwaukee, WI

Co-author: **Fidan Korkut-Owen**, Ph.D, Retired Professor of the Counseling Program, Hacettepe University, Ankara, Turkey

Paper Title: STEM GENDER GAP IN TURKISH UNIVERSITIES

Paper Title: EFFECTIVE FACTORS ON CAREER DECISION-MAKING PROCESS: A QUALITATIVE STUDY OF THE TURKISH WOMEN IN STEM

NETWORKING RECEPTIONS

Room 17: Higher Education-Reaching for the Stars

Room 18: 9-12 Molding Futures Today

Room 19: K-8 Teaching Today; NASA Tomorrow!

Room 20: Leaders in Action

4:20pm – 5:20pm

17-20



A widely published science center veteran, Dr. Kirsten Ellenbogen brings more than twenty-five years of experience to her role as the third President and CEO of Great Lakes Science Center. Her energetic leadership has advanced informal science education through her work at five museums and the creation of four national centers.

Her learning research focuses on measuring community impact of science centers, understanding the role of museums in family life, and facilitating digital environments to support science learning.

She is co-Principal Investigator of the Center for Advancement of Informal Science Education that works in collaboration with the National Science Foundation. She has served in many appointed roles for the Board on Science Education at the National Academy of Sciences. And she has been

appointed to the Cleveland Mayor's Lakefront Advisory Committee, the Planning and Urban Design Committee of the Group Plan Commission, and the Downtown Cleveland Alliance Visioning Committee. She serves on the board of the Cleveland Water Alliance, the Association of Science-Technology Centers, and the Rock and Roll Hall of Fame and Museum.

Dr. Ellenbogen holds a Ph.D. in Science Education from Vanderbilt University and a B.A. from University of Chicago.



KEYNOTE SPEAKER

Dr. Carolyn Hayes
President-Elect
National Science
Teachers
Association (NSTA)

Dr. Carolyn Hayes is the president-elect of the National Science Teachers Association (NSTA). She began serving her one-year term on June 1, 2014 and will assume the office of president on June 1, 2015. Dr. Hayes is currently an elective course director and the statewide curriculum specialist at Indiana University's School of Medicine in the Office of Undergraduate Medical Education.

In addition to having taught high school science for nearly 30 years in Indiana, Hayes worked in various positions at several universities since 1976, including Franklin College, Purdue University, University of Indianapolis, and Indiana University.

An NSTA member since 1987, Hayes has contributed extensively to the association. She served as a district director (2003–2006); chaired the 2012 national conference in Indianapolis, and worked on numerous committees. She also served as president of the Hoosier Association of Science Teachers, Inc. (HASTI) (1995–1996), was a member of the board of directors for HASTI (1992–1994) and the Science Education Foundation of Indiana, Inc. (2001–2006), and served as secretary of Pi Lambda Theta in 1997.

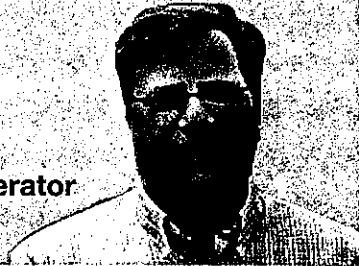
Dr. Hayes is a member of the Indiana Association of Biology Teachers (IABT), Pi Lambda Theta, and is a charter member of the

Central Indiana Biology Focus Group. She was also a writer and facilitator of the Center Grove Community Schools Paper Recycling Grant (1999) and was the co-writer and facilitator of the Center Grove Curriculum Development Grant (1993). In 1991, Hayes was selected along with 49 other biology teachers from across the country to participate in the first-ever Biology Institute at Princeton University, sponsored by the Woodrow Wilson National Fellowship Foundation. She also participated as an American Society of Biochemistry and Molecular Biology Fellow in 1995.

During her distinguished career, Hayes has received a number of honors and awards. Her accomplishments include receiving the Presidential Award for Excellence in Science Teaching, Secondary Science (2000), HASTI's Distinguished Service Award (2001), the Radio Shack National Teacher Award (2000), the Golden Apple Award (1997), IABT's Creativity in Biology Teaching Award (1995), Geography Educators in Indiana's Science Teaching Award (1988), the National Marine Educators' Association's (NMEA) Teaching Excellence Award, and the National Association of Biology Teachers' Outstanding Biology Teacher Award (1986), just to name a few. Hayes was also a top 10 finalist for the Indiana Teacher of the Year in 1989.

Hayes earned a B.S. degree in biology from Indiana University in 1973, a M.S. degree in secondary education from Indiana University in 1976, and an Ed.D. in secondary education and biology from Indiana University in 2005.

PANEL DISCUSSION: K-12 STEM EDUCATION: THE SCIENCE FOCUS



Moderator

James Bader, Executive Director, Leonard Gelfand STEM Center, Case Western Reserve University, OH



Panelist

Dr. Helen Soule, Executive Director, Partnership for 21st Century Skills, DC



Panelist

Anne Tweed, Director, STEM Learning, McREL International, CO



Panelist

Dr. Marie Anette Karlsson, Dean, Washkewicz College of Engineering, Cleveland State University, OH

BREAKOUT SESSIONS 10:00am - 11:00am

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THE DESIGN AND IMPLEMENTATION OF A STUDENT-CENTERED HIGH SCHOOL RESEARCH PROGRAM

Dr. Evan Glazer, Principal, Thomas Jefferson High School for Science and Technology, VA
BEST STEM SCHOOLS IN THE U.S.

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Co-author: Walter S. Tsushima, Assistant Professor, University of Fukui

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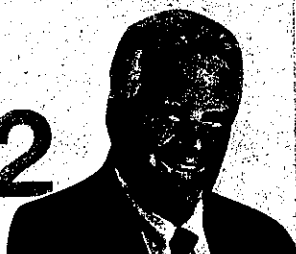
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LEGO EDUCATION: BUILDING THE ENGINEERS OF TOMORROW
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ENGINEERING FOR EXCELLENCE: KEY COMPONENTS OF A SUCCESSFUL STEM PROGRAM
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Moderator: Dr. Regina Armour, Director of New School Development and Community Outreach, Concept Schools, IL

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AQUAPONICS TO UNITE TEACHERS, ADMINISTRATION, AND DISTRICT THROUGH AN INTERDISCIPLINARY STEM PROGRAM USING ENGINEERING AS THE TOOL WHICH INTEGRATES SCIENCE, TECHNOLOGY AND MATH
Mr. Lou Randall, STEAM Coordinator, Val Verde USD, CA

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Co-Presenter: Michael McCormick, Assistant Superintendent for Education Services, Val Verde Unified School District, CA

BREAKOUT SESSIONS 3:15pm - 4:15pm

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STUDENT INQUIRY & RESEARCH AT IMSA: DEVELOPING AUTHENTIC INQUIRY SKILLS
Dr. Judith Schepler, Illinois Mathematics and Science Academy (IMSA), IL

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STEM Certified and STEAM Inspired
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BLOOM WHERE YOU'RE PLANTED: GROWING YOUR OWN
ELEMENTARY SCHOOL STEM PROGRAM
Mrs. Andrea Sagely, STEM Instructional Specialist, Broken Arrow
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BRIDGING THE GENDER AND ETHNIC DIVIDE IN STEM
FIELDS
Moderator: Dr. Melissa Parks, Visiting Assistant Professor,
Stetson University, FL

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GENDER BIAS IN THE CLASSROOM: A REFLECTIVE LOOK
TOWARD AN ACTION PLAN FOR IMPROVEMENT
Mrs. Valerie Blackburn, Assistant Director/Sole Proprietor UTMB
Educational Outreach & Blackburn STEM Educational Consulting, TX

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- STEM GENDER GAP IN TURKISH UNIVERSITIES
- EFFECTIVE FACTORS ON CAREER DECISION-MAKING PROCESS:
A QUALITATIVE STUDY OF THE TURKISH WOMEN IN STEM

Tansu Mutlu-Sural, Visiting Scholar, University of Wisconsin
Milwaukee, WI

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Co-author: Fidan Korkut-Owen, Ph.D, Retired professor of the
Counseling Program at Hacettepe University, Ankara, Turkey

AWARDS

The STEM Conference is proud to present awards to distinguished individuals for their contributions to STEM education.

Dr. Carolyn Hayes
President-Elect,
National Science
Teachers Association
(NSTA)



Excellence in Science Education Award

Dr. Evan Glazer
Principal, Thomas
Jefferson High
School for Science
and Technology, VA



STEM Leadership Award

Rep. Bill Patmon
Representative, Ohio
House District 10



Public Service Award

Dr. Kirsten Ellenbogen
President & CEO
Great Lakes Science
Center



Community Inspiration Award

 **BANDS**

Ashland High School's Jazz Band

STEAM Award



CONSEF **SCIENCE**
AND ENGINEERING FAIR

April 18, 2015

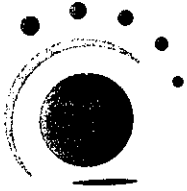
Students from across the Midwest will showcase their STEM projects for judges, fellow students, parents, and teachers at the 12th Annual Concept Science & Engineering Fair at the Cleveland Convention Center.

This family-oriented day of fun and educational events features:

- The Science Project Session
- STEM Expo
- Math Demonstrations
- ROBOCON robotics competition
- Design Contest
- Special Guest
"Mathemagician" Arthur T. Benjamin

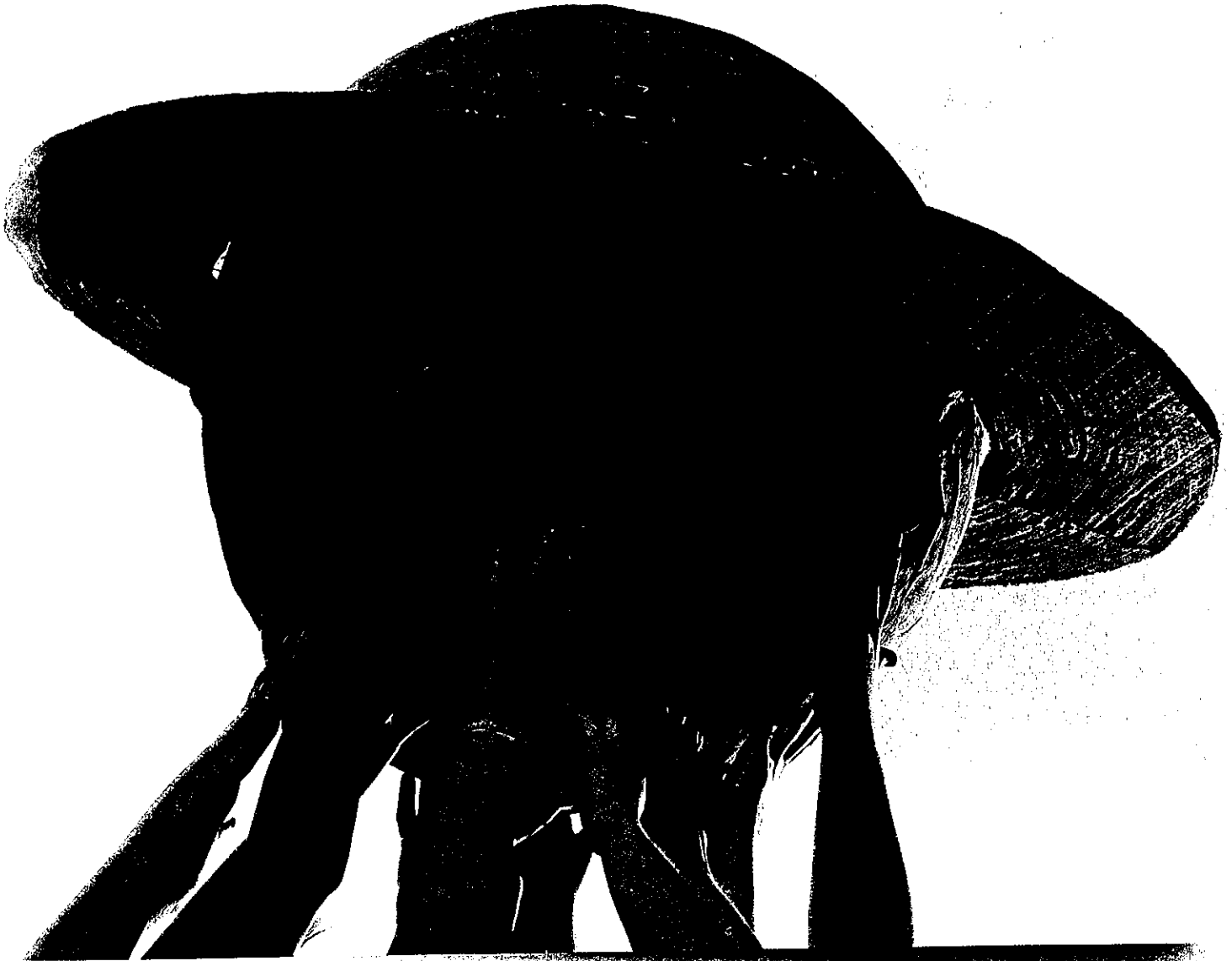
For more information and to participate in next year's CONSEF, visit www.consef.org.

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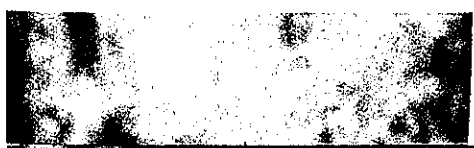
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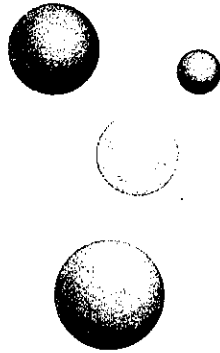
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