National Coalition of Girls’ Schools
June 22–24, 2015 | Richmond, VA

From STEM to STEAM
Girls’ Schools Leading the Way
2015 nCGs Conference

Sponsored by CapitalOne and Google
As Financial Advisors, we assume a **fiduciary responsibility** to put our clients’ needs first.
Science, Technology, Engineering, and Math plus Art and Design transforms STEM to STEAM. STEAM is everywhere, shaping our everyday lives, and therefore making STEAM education vital to our future—and our students’ futures. STEAM is the core of the technological age in which they live, the key to their best career options, and a critical component of problem-solving and decision-making skills.

Adding the “Arts” to STEM is considered by many to be a necessary adjunct to the success of STEM education. Arts education and design thinking encourage creativity, which are essential to innovation.

In 2009, the U.S. Department of Labor listed the ten most wanted employees. Eight were ones with degrees in STEM fields: accounting, computer science, electrical engineering, mechanical engineering, information sciences and systems, computer engineering, civil engineering, and economics and finance. According to the U.S. Department of Commerce, STEM occupations are growing at 17%, while others are growing at 9.8%.

But why is STEAM education even more crucial for girls?

Girls’ schools lead the way in graduating women who become our nation’s scientists, doctors, engineers, designers, and inventors. Research shows that girls’ school graduates are six times more likely to consider majoring in math, science, and technology and three times more likely to consider engineering careers compared to girls who attend coed schools. Nevertheless, women continue to be vastly underrepresented in STEM careers. Of 100 female college students, 12 graduate with a STEM major, but only three continue to work in STEM fields ten years after graduation. Although women fill nearly half of all jobs in the U.S. economy, they hold less than 25% of STEM jobs.

For this reason, the 2015 NCGS Conference will serve as a forum for us to examine why so many girls choose not to pursue careers in STEM-related fields and, even more important, how we can empower girls to shift this paradigm.

Over the next three days you will learn from a range of top STEAM thought leaders, network with fellow girls’ school peers, engage in hands-on activities, and, ideally, develop a clearer picture of the future of STEAM education for girls. We also will explore a variety of other topics of current interest to our schools through the course of the conference.

Thank you for traveling from near and far to be with us.

Trudy Hall
President, NCGS Board of Trustees
Head, Emma Willard School

Terrie Hale Scheckelhoff, Ph.D.
Trustee, NCGS Board of Trustees
Head, St. Catherine’s School

Megan Murphy
Executive Director, NCGS

Welcome!
Get Connected!

Wireless Network Access

St. Catherine’s Wireless Networks provide over-the-air access to the Internet and are available in the following locations:

**Network Name: StCatherines_WiFi**
- Bacot Hall
- Ellett Hall
- Armfield Science Center

**Network Name: NCGS_WiFi**
- Dining Hall & Cafe
- Washington Kenan Flagler Auditorium
- Kenny Center Gym

Password for both networks: NCGSwifi1

Having trouble setting up your connection?

Please report any trouble to the NCGS Technology Virtual Help Desk or dial 804.288.0008 from your mobile phone (x6247 from a campus phone). Be sure to note the details of the issue as well as your campus location.

Although many operating systems and client applications can be used to configure and connect with a wireless device, St. Catherine’s Wireless Networks provides support for Windows 7 and Mac OS X (10.6 through 10.10) and “best effort” support for smartphones and other handheld devices.

Stay connected!

Download the NCGS mobile app to view the full conference schedule, plan your days, network with attendees, receive conference updates, and compete for prizes. Logging in is as easy as:

1. Download National Coalition of Girls’ Schools app from iTunes or Play store
2. Open app and select 2015 NCGS Conference
3. Tap the Networking icon, select Sign In, and enter your unique Registration Code (sent via email) and email

Join the conversation!

Share your 2015 NCGS STEM to STEAM experiences during – and after – the conference on social media. Facebook, Twitter, Flickr, and LinkedIn can all be accessed directly through the conference mobile app:

#NCGS15
#STEM2STEAM

Game On!

Looking for a fun way to explore everything the 2015 NCGS Conference has to offer? Enjoy a bit of healthy competition? Then Click! is for you!

A scavenger hunt game available exclusively through our conference mobile app, Click! gives attendees the opportunity to earn points and win prizes by taking photos and completing a series of fun challenges. Play from any phone or browser, and track your progress in real-time vis-à-vis other players.

**So what’s at stake?** Goodies like Hummingbird Duo base kits, a SparkFun Inventor’s Kit, gift certificates to Richmond area restaurants and stores, and – most importantly – bragging rights.

Join in the fun – Click! today!
Monday, June 22

9:00 a.m. to 12:00 p.m. Pre-Conference School Tours
Orchard House School and Saint Gertrude High School
*Pick-up/Drop-off location for the school tours is in front of Bacot Hall at St. Catherine’s School. Advance registration was required.*

9:00 a.m. to 5:00 p.m. Registration Open
Washington Hall Lobby

12:00 to 5:00 p.m. Exhibitor Hall Open
Dining Hall

10:00 a.m. to 12:00 p.m. Pre-Conference Sessions
- *CS for All: Bring Google CS First to Your School* Armfield Lower Level
- *Secret Team Enrollment Agents and Marketers (STEAM for School Admission Professionals): The Importance of Managing and Empowering Your Faculty, Staff, Administration, and Board as Integral Members of Your Recruitment and Retention Strategies* Armfield S209
- *Steeped in Learning: The Student Experience at All-Girls Schools* Armfield S109

10:30 a.m. to 12:00 p.m. Pre-Conference Session
- *Using Research to Inform, to Plan, and to View the Educational Landscape through a New Lens* Armfield S207

1:15 to 2:30 p.m. Welcome | Keynote Address
Dr. Terrie Hale Scheckelhoff | Head, St. Catherine’s School
Robert M. Alexander | Chief Information Officer, Capital One
The Honorable Terence R. McAuliffe | Governor, Commonwealth of Virginia
Reshma Saujani | Workforce of the Future
Kenny Center Gym

2:45 to 3:45 p.m. Breakout Sessions A

4:00 to 5:00 p.m. Featured Speaker
Ruthe Farmer | The Power of Recognition
Turner Hall/Bannard Chapel

4:00 to 5:00 p.m. Breakout Sessions B

5:00 to 6:00 p.m. Welcome Reception Hosted by St. Catherine’s School
The Green

Tuesday, June 23

7:30 a.m. to 5:00 p.m. Registration Open
Washington Hall Lobby

8:00 a.m. to 5:00 p.m. Exhibitor Hall Open
Dining Hall

8:00 to 8:30 a.m. Breakfast
Dining Hall

8:30 to 10:00 a.m. Annual Report | Presentation of Ransome Prize | Keynote Address
Trudy Hall | Board President, NCGS and Head, Emma Willard School
Megan Murphy | Executive Director, NCGS
Ann Pollina | Ransome Prize Recipient
Maria Klawe | Giving More Girls Access to Tech Careers
Kenny Center Gym

10:15 to 11:15 a.m. Breakout Sessions C

11:30 a.m. to 12:30 p.m. Featured Speaker
Rebecca Kamen | Making the Invisible, Visible: Discoveries Between Art and Science
Turner Hall/Bannard Chapel
Schedule Overview

11:30 a.m. to 12:30 p.m.  INSPiRE! Sessions I  Dining Hall
12:45 to 1:30 p.m.  Lunch  Dining Hall
1:45 to 3:15 p.m.  Break/Snack with Exhibitors  Dining Hall
3:15 to 3:45 p.m.  Keynote Conversation  Kenny Center Gym
4:00 to 5:00 p.m.  Dorothy Bennett and Amy Leidtke | Advocating for Irresistible Girl-Powered STEAM Learning  Omni Richmond Hotel/James River Ballroom

Wednesday, June 24

8:00 a.m. to 12:00 p.m.  Technology Playground/Hackerspace Open  Washington Hall/Kenan Flagler Auditorium
8:00 to 8:30 a.m.  Breakfast  Dining Hall
8:45 to 9:45 a.m.  Keynote Conversation  Kenny Center Gym
9:45 to 10:15 a.m.  Dr. Jacque Fetrow and Dr. Ellen Stofan | Plugging the Leaky Pipeline: From Problem to Solutions  Turner Hall/Board Room
10:00 a.m. to 12:15 p.m.  Transgender Students at Girls’ Schools: A Training and Discussion  Dining Hall
10:00 to 11:00 a.m.  Breakout Sessions D  Dining Hall
11:15 a.m. to 12:15 p.m.  INSPiRE! Sessions II  Dining Hall
12:30 p.m.  Conference Concludes  Dining Hall

Get your hands dirty!

Talking about STEAM is one thing, but actively engaging with it is something else entirely. There are endless opportunities at the 2015 NCGS Conference for you to do, build, tinker, and make.

Capital One BetaBox: At this custom prototyping lab built inside of a shipping container, you can learn about – and experience firsthand – 3D printing, laser cutting, coding and programming, electronics, and design thinking. Location: In front of Bacot Hall.

Technology Playground/Hackerspace: Visit a robot petting zoo; explore Steelcase Education’s model classroom and learn about the design concepts that go into the creation of modern, innovative learning spaces; try your hand at making a circuit; or get ideas for hands-on projects that will inspire your students to become creators – rather than just consumers – of technology. Location: Washington Hall/Kenan Flagler Auditorium.

Hands-On Workshops: Attend one of over 30 engaging options on Tuesday, June 23, from 1:45-3:15 pm. See pages 15-20 in the program for descriptions of these exciting sessions. Pre-selection of a workshop is required.
Monday, June 22

10:00 a.m. to 12:00 p.m. | Pre-Conference Sessions

CS for All: Bring Google CS First to Your School
Armfield Lower Level

CS First is a free coding club for middle school students created by educators and computer scientists at Google. The club introduces students to programming in a collaborative and creative environment. Students build projects in Scratch organized around thematic curricula, including fashion and design, storytelling, art, music, and friends. Content is delivered via online videos, and clubs are facilitated by community volunteers who work from training and scripts, also provided online. The club targets underrepresented demographic groups in technology: girls and minorities. This hands-on workshop will walk you through CS First. You’ll code a project, learn how to bring this dynamic program to a school or community program near you, meet and collaborate with other educators and practitioners, and walk away with a toolkit of resources to get your students coding!

Presenters: Amanda Sandler, Program Manager, Computer Science Education and Jennifer Vaden Barth, Program Manager, Computer Science Education | Google CS First

Secret Team Enrollment Agents and Marketers (STEAM for School Admission Professionals):
The Importance of Managing and Empowering Your Faculty, Staff, Administration, and Board as Integral Members of Your Recruitment and Retention Strategies
Armfield S209

This interactive session will focus on key, yet underutilized ingredients in your recruitment and retention strategies: your faculty, staff, administration, and board. Ask yourself: are your families experiencing the same quality of care in the classroom, in a parent/teacher conference, in their communication between home and school, as they did in the admission process? Do you even know what your faculty is saying about your school, your process, your institutional goals and plans? This session will provide samples that will assist you in shaping and involving your adult community in a positive manner as well as offer best practices so as to not overlook many aspects that could, in fact, be undermining your success. Participants should come armed with their institutions’ calendar(s), event maps, and understanding of the operational strategies of their admission process, as this is a “roll up your sleeves” working session where you will leave with some concrete strategies to implement upon your return to campus.

Presenters: Janice Crampton, Executive Director | AISAP (Association of Independent School Admission Professionals)

Steeped in Learning: The Student Experience at All-Girls Schools
Armfield S109

In the fall of 2014, NCGS released the robust research report Steeped in Learning: The Student Experience at All-Girls Schools, a comparative analysis of responses to the High School Survey of Student Engagement (HSSSE). This survey - taken by nearly 13,000 girls attending all-girls schools, coed independent schools, and coed public schools - provides unequivocal support for the value of an all-girls educational environment. HSSSE is a comprehensive survey of student attitudes, behaviors, and experiences administered with the goal of generating discussions on teaching and learning and guiding student improvement initiatives. Collecting mountains of assessment data is relatively easy. Many schools are adopting instruments such as HSSSE to gather data about their students’ school experiences. Assessment partners like the Center for Evaluation and Education Policy, which administers HSSSE, do a great job summarizing the data in reports that are sent back to participating schools. But what happens to the reports then? In this workshop, you will dive into the results of the HSSSE analysis and explore practices that can transform assessment reports into evidence that enhance the student experience and learning.

Presenters: Richard A. Holmgren, Ph.D., Vice President for Information Services and Assessment | Allegheny College

10:30 a.m. to 12:00 p.m. | Pre-Conference Session

Using Research to Inform, to Plan, and to View the Educational Landscape through a New Lens
Armfield S207

There is great change in the education landscape and, for schools to stay ahead of challenges and take advantage of opportunities, they must be continually informed through pertinent data, research, and environmental trends. We’ll look at the types of data and research that should be part of a school’s ongoing research agenda, sources for obtaining this information, and how school leaders can use this information to create a culture of generative thought among the leadership team and the school’s board.

Presenter: Donna Orem, Chief Operating Officer | NAIS

1:15 p.m. to 1:40 p.m. | Welcome

Dr. Terrie Hale Scheckelhoff, Head | St. Catherine’s School; Robert M. Alexander, Chief Information Officer | Capital One; and The Honorable Terence R. McAuliffe, Governor | Commonwealth of Virginia

Kenny Center Gym
From STEM to STEAM: Girls’ Schools Leading the Way

1:40 to 2:30 p.m. | Keynote Address

Workforce of the Future

Kenny Center Gym

We must bring young women, parents, policymakers, educators, NGOs, and tech companies to the table to finally close the gender gap in technology. If we inspire our girls with passion rather than fear of STEM, equip them with the skills to pursue computer science degrees, and build a sisterhood of mentors and sponsors to retain female engineers in the workforce, I have no doubt we will achieve parity in my lifetime.

Presenter: Reshma Saujani, Founder & CEO | Girls Who Code

2:45 p.m. to 3:45 p.m. | Breakout Sessions A

Assessing the Subjective in STEAM Courses

Turner LLR

Incorporating the Arts into other disciplines asks girls to draw upon their imagination, creativity, collaborative work habits, resilience, and communication skills. Moving from STEM to STEAM requires educators to incorporate subjective assessment practices into their teaching. This can seem daunting. The Arts Department at the Madeira School considered common elements of all Arts practices, and determined ways to measure student performance. We removed the guesswork for evaluating what goes into artistic processes, and created an assessment model that can be used across the curriculum when assessing subjective activities and projects. We will share the theory and process of developing this assessment tool.

Presenters: Stacie Steinke, Chair, Arts Department; Krista Cowan, Director of Theater and Film; and Sasha Newman, Technical Director and Scenic Designer | Madeira School

Creating Next-Generation Learning Spaces

Bacot B214

The education environment is rapidly changing as teaching, space and technology are influenced by the world around us. Technology is reshaping education - from mobile devices to blended learning. Learning spaces must evolve to foster a more active and engaging experience for students and teachers. Classrooms today must support frequent collaboration and communication, easy transfer of information between individuals and groups, the effective display of content and seamless transitions—whether in large group, guided small group discussion or presentation. Pedagogy, technology and space, carefully considered and integrated, define the new classroom ecosystem. Inspired by Steelcase research and insights, active learning is the foundation of our solutions developed for students and educators. Please join us as we share our research foci on educational practices and spatial designs, and metrics from our research on how new classroom design can improve engagement and performance for girls.

Presenter: Chip McLellan, Education Sales Leader, The Americas | Steelcase, Inc.

Don’t Forget Your Armor-Clad Bikini: Why and How Should We Change Girls’ Perceptions of Online Gaming?

Bacot 311

This session will look at the value of online gaming both in educating girls and in encouraging girls to access the “A” in STEAM. It will explore the online gaming field and present latest research on gaming, as well as look at the often negative gender stereotypes of girls and women presented in online gaming, and how we can challenge them. After a presentation covering the main areas, the session will be turned over to targeted story-telling and solution-finding, so that participants are able to leave inspired to encourage girls to engage with the world of online gaming.

Presenter: Helen Wright, Former President | Girls’ Schools Association (UK)

Drawing and Videomaking as STEAM Pursuits

Armfield S109

Drawing and videomaking as art forms have become staple for transitioning from STEM to STEAM. In “Concept Sketch,” students select a concept from the unit’s lesson to bring to life a rather abstract concept. The outputs of the sketch are checked based on the correctness of scientific concepts and creativity of portrayal. The Science Music Video Awards (SMVA) is one of the multi-faceted events in Miriam College High School’s Science and Math Exposition, which is a week of alternative learning experiences for young women. In this event, participants submit music videos consisting of popular songs. The lyrics of the song must be changed to convey scientific concepts, and show student creativity at the same time. Most of the entries show our girls’ ability to provide analogies for chemistry.

Presenters: Resty Collado, Chairperson, Department of Natural and Engineering Sciences and Ryan John Garcia, Science Faculty | Miriam College High School (Philippines)

Girls in the Making: Building Partnerships Between Schools and Community Makerspaces

Armfield S207

The Emma Willard School (a progressive boarding and day school for girls) and the Tech Valley Center of Gravity (a local Makerspace) first partnered in the Fall of 2013 to offer a Mini Maker Faire in Troy, NY. Inspired by that success, the relationship has grown to include engineering classes, special activities, professional development for school leaders, camp programming and opportunities for students, faculty and staff. Join Bridget McGivern and Meredith Legg for a discussion of lessons learned and benefits to both partners in 18 months of successful collaboration.

Presenters: Bridget McGivern, Math Specialist/Founding Member & Educational Outreach | Albany Academy for Girls/Tech Valley Center of Gravity and Meredith Legg, Curriculum Innovation Department Chair | Emma Willard School
Incorporating Ethics into STEM Education  
**Turner Hall/Bannard Chapel**

Ethics is a crucial but often overlooked aspect of STEM instruction. New technologies in biomedicine, engineering, nanotechnology and robotics, as well as research ethics in the manipulation of bioinformatics and statistics require a knowledge of and respect for ethical codes of conduct. STEM educators must prepare students to face the difficult and complex ethical issues they will face in the research lab, the workplace, and as citizens in a technological society. This presentation will use real-life examples of ethical issues in STEM, as well as practical suggestions for how to integrate ethics into a STEM curriculum.

**Presenter:** Terry Maksymowycz, Ethics Educator | Academy of Notre Dame de Namur

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Science Across Disciplines  
**Armfield S209**

Engage your students in purposeful scientific investigations, integrating disciplines of science, math, and language arts. Take a closer look at how science journals increase inquiry and application of skill sets as students gather data, use graphics, write observations, and much more. Student samples of journals and video clips show how scientific and engineering practices liven up our first grade curriculum. Students are active participants in communicating information using models, analyzing data, constructing explanations, and applying prior knowledge. Lessons include: Amazing Lima Beans, Pond & Backyard Habitats, Clay Boats (buoyancy), Marble Runs, and Building Bridges (engineering).

**Presenter:** Belle Akers, 1st Grade Teacher | Convent of the Sacred Heart Elementary School (CA)

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Inspiring High School Girls by Saving Endangered Species: Robotics Take Flight  
**Bacot B101**

Experience flight through the partnership between Foxcroft and the Kashmir World Foundation’s DaVinci Challenge, in which teams of students create and program drones to track endangered species worldwide. Drones combine aeronautical engineering with advanced materials science and robotics. Studies show girls will avidly pursue learning technology when tied to solving real-world problems. We will highlight KWF’s challenge, the student workshop experience, and the on-going program at Foxcroft. Since our first flight, students have designed additional drone components, printed them on our 3D printer, and have developed code to automate flight. We are expanding to include local middle school girls mentored by Foxcroft students.

**Note:** With permission, Foxcroft will demonstrate a test flight during the session and attendees can explore the drone.

**Presenters:** Maria Eagen, Science Department Chair | Foxcroft School; Aliyah Pandolfi, Founder and CEO | Kashmir World Foundation; and Cathy McGeehee, Head of School | Foxcroft School

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STEM Curriculum on Two Continents  
**Bacot B208**

With the establishment of its sister school on Jeju Island, South Korea, Toronto-based Branksome Hall has forged a new partnership that is enriching the lives of students and faculty on two continents. The benefits are realized through more than the well-received student exchange program—the partnership has created outstanding professional development opportunities for faculty at both schools. Taking advantage of Branksome Hall Asia’s unique setting in a UNESCO World Heritage Site, Branksome has expanded learning opportunities for faculty and students in STEM by focusing on experiential learning linked to understanding globalization and sustainability. This presentation will describe an interdisciplinary STEM unit of inquiry collaboratively developed by faculty at the two schools.

**Presenters:** Karen Jurjevich, Principal; Dawn McMaster, Grade 9 and Grade 11 Course Leader; Heather Cornford, Mathematics Teacher; Joe Smith, Head of Computer Studies & Tech Integration; and Edith Louie, Mathematics Teacher | Branksome Hall (Canada)

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Think Tanks as Segues to Design Thinking  
**Bacot B305**

Using Google’s 20% time as a model, middle school teachers design opportunities for students to explore a variety of topics related to their personal areas of interest. Teachers serve as facilitators guiding the interdisciplinary process through the use of essential questions as students research, investigate, interview, observe, plan and implement projects that extend their problem-solving and creative thinking skills. Inviting experts into MakerSpaces/classrooms adds another dimension to experiential activities that often result in community partnerships that include service to others and long-term internships. The Division Head and three teachers will share the amazing student outcomes from these real-world experiences.

**Presenters:** Sue Baldwin, Assistant Head of School & Director of Middle School and Laura Horn, Chair of Physical Education Department | St. Catherine’s School

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**Youth Engagement Through Design and Robotics**  
**Armfield S107**

Join us as we discuss turning outdoor spaces into STEAM learning places. Hutchison Middle School science and math teachers discuss a hands-on, inquiry-based STEAM unit utilizing our campus lake. We will focus on how science students in four different grades studied and then developed inquiries examining the health of the lake, how these same students made math connections by measuring and calculating the area and volume of the lake, and finally how Language and Visual Arts connected through creative writing and illustrations. The use of technology throughout the project helped students engineer solutions to issues involving the lake.

**Presenters:** Donna Budynas, Science Department Head and Earth Science Teacher; Rebecca Deehr, Life Science Teacher; and Mona Bland, Pre-Algebra Teacher | Hutchison School

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**Science Across Disciplines**  
**Armfield S209**

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**Presenter:** Belle Akers, 1st Grade Teacher | Convent of the Sacred Heart Elementary School (CA)

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**Incorporating Ethics into STEM Education**  
**Turner Hall/Bannard Chapel**

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**Presenter:** Terry Maksymowycz, Ethics Educator | Academy of Notre Dame de Namur
What Keeps You Up at Night? An Allegation of Sexual Misconduct, Past or Present

The issue of sexual misconduct (and many iterations of it) by an educator has become the most significant and frequent crisis The Jane Group manages. In this session we will use the SWOT (strengths, weaknesses, opportunities, threats) analysis to determine your school’s readiness. We will also discuss your school’s ability to respond when there is an allegation or admission of misconduct. We will look at what the school should have in place and the first most critical steps to take when someone comes forward with an allegation. We are in the age of transparency, and there is nowhere to hide when faced with such an issue. Every school’s moral compass is set on doing the right thing, and we will discuss what that looks like.

Presenter: Maureen Maguire, Senior Crisis Manager | The Jane Group

4:00 to 5:00 p.m. | Featured Speaker

The Power of Recognition

Young women are bombarded with messages that push them away from STEM fields throughout their lives from media, peers, parents and even educators. Learn how the combination of recognition and encouragement can counteract this negative messaging and instill confidence in young women about their ability to succeed in STEM fields and help them form STEM identities.

Presenter: Ruthe Farmer, Chief Strategy & Growth Officer | National Center for Women & Information Technology (NCWIT)

Creating Relevant Learning Opportunities During Design and Construction Projects

School construction projects cannot only yield gorgeous new facilities, but they can also provide a once-in-a-lifetime opportunity for students to get a first-hand look at the design and construction profession and process. This session will provide an overview of highly successful, custom-created curriculum for student engagement and will explore lessons learned, and the plans for its refinement and future use. This session will explore opportunities to integrate an educational model into a school’s construction project and how to create strategies for the design and construction project to be a true learning event. When learning is made relevant and hands-on, students will better comprehend the concepts and information taught in the classroom.

Presenters: Deborah Anderson, Business Manager | Foxcroft School; William Stann, Project Executive and Jen Meador, Assistant Project Manager | Forrester Construction; and Peter Winebrenner, Principal | Hord Coplan Macht

Authentic Interdisciplinary Experiences for Students Designed by Interdisciplinary Faculty

One of the frequently cited obstacles to authentic Arts integration is time for curricular development and co-teaching among colleagues from different disciplines. Here, we model one pathway toward authentic Visual Arts integration of STEAM courses previously designed and taught by STEM educators with little formal input from trained artists. Two STEAM classes - “The Science and Art of Glassmaking” and “The Science and Art of Wax” - will be evaluated to determine the influence of this collaboration on learning outcomes and the quality of student artwork. We will provide detailed comparisons between the curricula before and after collaboration.

Presenters: Regina Campbell-Malone, Director of STEAM Initiatives and Jeanne Regan, Middle School Art Teacher | Laurel School

Building Community and Connections On-Campus and Off for New Faculty

Each summer more than 100 new girls’ school faculty members connect to each other through the NCGS and Online School for Girls online course, “Introduction to Girls’ Schools.” This session will explore that offering, as well as participant responses and outcomes from the course. The session will also highlight how The Hockaday School has built their own blended new faculty program to take advantage of connections and content from the NCGS-OSG offering and to offer just-in-time support for work on campus.

Presenters: Brad Rathgeber, Executive Director | Online School for Girls and Kim Wargo, Eugene McDermott Headmistress | Hockaday School

The Creation of a Stand Alone STEM/STEAM Program and Makerspace

Makerspaces and STEM/STEAM go hand in hand. They both encourage hands-on, creative ways to encourage students to design, experiment, build, and invent as students deeply engage in science, technology, engineering, art, and mathematics. Learn how the Baldwin School started a competitive hands-on STEAM program from the ground up. Learn what equipment is needed, how to get administrative support, partnerships, and community involvement.

Presenters: Elizabeth Becker, Director of Lower School and Rebecca Lewis, Lower School Science Teacher | The Baldwin School
Breakout Sessions B

Diverse Voices in American Literature: Exploring the Harlem Renaissance and Beyond Through Sound Design, Argument, Rhetoric and Cultural Research  Bacot B305
The Harlem Renaissance gave rise to diverse voices in American literary history. How can educators bring the landscape of this historic moment alive utilizing textual analysis and sound design? What pathways of further understanding are available to students when educators collaborate with new technology artists to bring traditional Humanities courses alive? Learn how a high school Literature teacher and an Audio Designer combined expertise to create a course where students explore, analyze and process text while building comfort with ambiguity, innovative thinking and artistic experimentation.
Presenters: Brien Gorham, High School English Teacher and Chanel Summers, Interactive Audio Design Artist | Forest Ridge School of the Sacred Heart

Infusing the Arts into STEM Instruction: Strategies to Support Creative Problem-Solvers  Bacot B311
The presenters will report on the neuroscience of girls’ brains and the importance of providing role models for students. In addition to receiving information about research supporting gender-based learning, participants will experience hands-on STEAM activities which can be integrated into their STEM instruction for the upcoming school year. The presenters believe that the Arts should not be an add-on that can be subtracted based on economics, but an infusion which enriches each subject and students’ lives.
Presenters: Abigail Norfleet James, Ph.D., Adjunct Professor of Psychology | Germanna Community College and Susan M. Bardenhagen, Ed.S., Regional Director / Branch STEM Liaison & Coordinator of “Girls + Math + Science = SUCCESS!” Conference | Virginia Association of Science Teachers / American Association of University Women

Out of the Classroom, Into the Community  Armfield S107
The motivation behind the EPICS High School program is to enable high school students to connect engineering and computing design with people and local community needs. Last year, two Madeira faculty combined our sophomore weekly community service program with the EPICS mission to help wounded veterans. We will share our experiences with design thinking and engineering in and out of the classroom. Then, hear from Lake Washington Girls Middle School Director of Communications (and resident guru of app-building and inspiring girls to use technology and design to solve real world problems) Shannon Blaisdell as she shares lessons learned from LWGMS’s planning and hosting the first ever Up Global Startup Weekend GIRLS event – in which design thinking, entrepreneurship, and real world problem solving were all wrapped up in one big, exciting package – as well as how social entrepreneurship can be used day-to-day in classrooms and service projects to teach leadership, collaboration, and advocacy.
Presenters: Reyna Pratt, Science Teacher and Science Department Head and Ashley Johnson, Science Teacher | The Madeira School and Shannon Blaisdell, Director of Communications | Lake Washington Girls Middle School

Single-Sex Schools in a Multi-Gender World: What’s A Girl (to Do)?  Turner LLR
How would your school respond to a born-male applicant who has lived as a girl since age 3? How would you support a sophomore who declares that he is transgender, changes his name, and asks that you use male pronouns? Educators are confused as the intrinsically binary mindset of girls’ schools collides with a 21st century gender revolution which replaces categories of female/male with a spectrum of multiple gender identities. We will examine the questions, issues, and controversies of the newest diversity issue and build on the experience of one school in applying progressive understandings of gender to girls education.
Presenters: Julie Mencher, Consultant/Therapist/Trainer and Sandra Luna, Head of School | Julia Morgan School for Girls

The Inside Scoop on Administrator Recruiting from Multiple Perspectives  Bacot B101
Wonder what schools are looking for when they are planning to hire an administrator? Come learn about trends in recruiting practices from three different perspectives: a candidate, a hiring school, and a recruiter. Bring your questions and be ready for a behind the scenes look. Regardless of which side of the table you are sitting on, you’ll take away practical information to use in your next search effort.
Presenters: Jui Joshi, Communications Consultant | CalWest Educators Placement; Jamie Estes, Director of Administrative Placement | Southern Teachers Agency; Jemima Giddings, Assistant Head of School | Westover School; and Cathy McGehee, Head of School | Foxcroft School

2015 National Coalition of Girls’ Schools Conference 9
Girls’ School NET: Networking and Empowering Together Reception

Tuesday, June 23, 6:00-7:30 p.m.
Omni Richmond Hotel, James River Ballroom

The Girls’ School NET cocktail reception is a unique opportunity for conference attendees to network with fellow educators as well as for member schools to connect with their alumnae in the region.

Connect with peers working in a common capacity across the US, Canada, and abroad from a network of 200 NCGS member schools. Receptions are complimentary for all NCGS member school representatives.

For advancement offices, Girls’ School NET receptions are ready-made, cost-effective regional alumnae events. Member schools were encouraged to invite their alumnae to join them at the reception to make three powerful connections in one evening: engage with their alma mater, unite with classmates in their region, and network with local girls’ school alumnae.

The NET reception is open to all 2015 NCGS Conference attendees.

Tuesday, June 23

8:30 to 9:00 a.m. | Annual Report |
Presentation of Ransome Prize
Trudy Hall, Board President | NCGS and Head | Emma Willard School; Megan Murphy, Executive Director | NCGS; and Ann Pollina | Ransome Prize Recipient
Kenny Center Gym

9:00 to 10:00 a.m. | Keynote Address
Giving More Girls Access to Tech Careers
Kenny Center Gym

We explore how to make computer science interesting, fun, and not-scary for girls, thus enabling our young women to access amazing careers that impact every sector of today’s society.

Presenter: Maria Klawe, President | Harvey Mudd College

10:15-11:15 a.m. | Breakout Sessions C
Builders, Writers, Tweeters, and Readers: STEAM in the Language Arts Classroom
Armfield S209

As a fifth grade Language Arts teacher, I’ve often asked myself, “How can I best support and promote the goals of STEAM in my classroom?” and “How can STEAM strengthen my Language Arts curriculum?” These questions have taken me on a journey to think creatively and re-imagine my approach to teaching reading and writing. Participants at this session will learn strategies for thinking about STEAM in their language arts curriculum. They will come away with ideas for digital literacy, flipped learning, engineering, and ways to connect with authors and classrooms around the world.

Presenter: Dana Johansen, English Teacher | Greenwich Academy

From Social Media to STEAM: Understanding the Latest Trends and How Social Media Can Promote STEAM
Bacot B311

Girls and women make up 70% of Instagram and Snapchat users, and women install 40% more apps than men. In addition, women are 611% more likely to use social media apps than our male counterparts. And yet, the vast majority of the developers of apps are male. In this presentation, noted author and educator Ana Homayoun discusses the latest social media trends among pre-teen and teen girls, especially with increased focus on ephemeral and anonymous online interactions. She then gives practical strategies and lesson ideas for how to use current social media trends to promote STEAM initiatives.

Presenter: Ana Homayoun, Author, Educator | Green Ivy Educational Consulting

Save the Date!

NCGS will host a Girls’ School NET event on February 8, 2016, during the Global Forum on Girls’ Education in New York, New York.
How the Maker Mentality Transforms Instruction  Bacot B208

How will schools remain relevant if all of the content is at students’ fingertips? How do you balance content and skills, process and product? Join us as we discuss how we’ve adopted the Maker philosophy to extend our Project-Based learning curriculum. We’ll share how by using making to solve problems. We are empowering girls with not just content but the 21st century skills of Collaboration, Cooperation, Community, Critical Thinking, and Creativity. The process of making crosses all disciplines and will prepare our girls to change the world.

Presenters: Jeanne Goka-Dubose, Principal; Kristina Waugh, High School Assistant Principal; and Anah Wiersema, Assistant Principal for Middle School | Ann Richards School for Young Women Leaders

Inspiration Starts with Relationships  Bacot B305

At the heart of risk-taking, developing confidence, strengthening leadership, and exploring connection is feeling safe in a learning community. Establishing inclusion as a base, this workshop will explore the benefits of Base Groups, especially in a single-sex setting. Base Groups are multi-grade, year long, intact social groups designed to foster relationships and to establish a community for each girl. This workshop has three main components: the research behind the validity, the practical application, and the opportunity for experiential learning. Inspiration Starts with Relationships is based on years of application and revision at Orchard House School.

Presenters: Nancy Davies, Head of School and Lauren Jones, Base Group Chair | Orchard House School

Keys to Success of Thriving 17-Year Old

Hathaway Brown Research Program  Turner Hall/Bannard Chapel

Founded in 1998 by a former researcher who continues to direct it today, the Hathaway Brown Science Research & Engineering Program (SREP) has fostered highly successful multiyear placements of over 500 top students in labs at The Cleveland Clinic, Case Western Reserve University, NASA Glenn Research Center, and more. Students have placed in the Siemens or Intel events over 150 times, and over 300 publications of student work exist. Ten-year longitudinal data shows that 58% declared STEM majors, and almost 70% of that group completed BS degrees in STEM and went on to medical school, Ph.D.’s, and even M.D./Ph.D.’s. A twenty year longitudinal study will be initiated in 2017. Two Marshall Scholars, a cardiothoracic surgeon, and at least one Fulbright Scholar have come out of the group, in addition to scores of other impressive SREP alumnai. The vast majority of them report that the SREP experience in high school played a major part in later choices they made and who they became. This presentation discusses the keys to success of the Hathaway Brown SREP.

Presenters: H. William Christ, Head of School; Crystal Miller, Director, Science Research & Engineering Program; and Patricia Kelly Hunt, Founding Director, Science Research & Engineering Program | Hathaway Brown School

St. Mary’s and SIM (Society for Information Management) Collaborate to Encourage Girls to Pursue STEM Degrees/Careers  Bacot 214

SIM is a professional organization for IT executives, academics in computing fields, and technology industry thought-leaders. Recognizing the under-representation of women in technology, SIM reached out to four girls’ schools in Memphis (through SIM members who were alumnae) to provide career talks, role models, workshops, field trips, ideas and advice. Role models are critical because girls can’t BE what they can’t SEE. Join us to hear details about how we got started and the evolving collaboration between SIM and the girls’ schools.

Presenters: Jana Markowitz, Principal OD Consultant | The Collective Mind and Laura Jaggar, STEM Coordinator / Director, Honors Science | St. Mary’s Episcopal School for Girls

STEAM Surge: Unique Opportunities and Challenges for a Small School  Armfield S207

Maker Spaces, 3-D printers, state-of-the-art facilities – sounds great, but how can a small school engage with STEAM meaningfully without them? Hear about the journey of Seattle Girls’ School in developing its STEAM Surge from conception to its current evolution of a two-week, multi-grade, multi-project intensive plus an accompanying summer camp that cultivates future applicants and develops student leaders. Learn how a small school can leverage its agility, flexibility, and resourcefulness, while being mindful of the challenges around people power, facilities, and budgets. Hear how small schools can have a big bang without the big bucks.

Presenter: Erika Bailey, Advancement and Mentor Coordinator | Seattle Girls’ School

Stone Ridge “Triple Tech Team (T3)” Engineering/Design Project  Armfield S107

In this workshop participants will learn about an innovative approach to engaging high school students in the engineering/design process. By providing students with access to a commercial MakerSpace called “Tech Shop,” students use industrial tools, equipment, and design software to build a project of their own design. This hands-on project allows for development of skills in alignment with the shifts seen in the Next Generation Science Standards. Students are required to maintain a WordPress blog of the design and engineering experience. Presenters will describe the evolution of the project including the successes and potential pitfalls encountered along the way.

Presenters: Kathleen Flood, Director of Student Activities and Urvi Shah, Director of Educational Technology and Innovation | Stone Ridge School of the Sacred Heart
STREAM: The Early Childhood Classroom

This session focuses on developing STEM skills in an Early Childhood setting. Special focus will be on room design, developing the engineering thinking process and lines of inquiry, and specific paper crafting design techniques and challenges. Videos will be provided to help further illustrate and demonstrate projects in the Early Childhood setting. Additional focus is placed on developing PLN’s to continue individual teachers’ professional development and networking.

Presenter: Heidi Echternacht, Kindergarten Teacher | Stuart Country Day School of the Sacred Heart | Kinderchat

Top Strategies from Australia to Integrate STEAM and STEM in Mathematics and Science Teaching

Our presenters will demonstrate how they have focused on increasing participation of girls in Mathematics and Science, in both traditional and more creative ways in each of their schools. Each strategy can be adopted easily by any school intent on providing strong, STEM learning experiences, which are both relevant and of interest to girls and young women. The narrow view about the value of STEM subjects, that is as a preparation for a life in engineering and research, will be challenged showing how a celebration of STEM study in schools can reveal the value of an understanding of STEM as a preparation for a variety of creative careers.

Presenters: Karen Spiller, Principal | St Aidan’s Anglican Girls’ School; Ros Curtis, Principal | St Margaret’s Anglican Girls School; and Janet Hunter, Head of Mathematics | Ascham School

Tutu Turtles Promoting STEAM Through FIRST Tech Challenge Robotics

This session is STEAM in action at Chatham Hall. Students will drive and describe a robot they built from Tetryx and 3-D printed parts for the FIRST Tech Challenge and explain the competition. View one-minute videos the Tutu Turtles created to compete for the Promote Award (Why I choose FIRST) and the Compass Award. Watch as the robotics team’s 3-D printer creates a plastic part. Discover the time, costs, outreach and service involved with FTC robotics and learn how Chatham Hall promotes and markets the robotics team. Twitter: Chatham Hall FTC5086 @ftc5086 #omgrbots, #tututurtles

Presenters: Molly Thomas, Science Teacher/Robotics Sponsor; Carney O’Brien, Director of Enrollment Management; Claire Mayo, Alumna; Rachel Neller, Alumna; and Annabelle Poston, Alumna | Chatham Hall

Taking Action on Google’s “Women Who Choose Computer Science” Research

To guide Google’s outreach and investments in promoting Computer Science education and encouraging women to pursue CS, the company conducted a study to identify and understand the factors influencing young women’s decisions to pursue degrees in CS. It identified encouragement and exposure as the leading factors influencing this critical choice. During this session, the presenter will dig deeper into Google’s research findings and lead a brainstorming session with audience members on ways to encourage young women to explore Computer Science.

Presenter: Abby Bouchon, K-12 Education Outreach | Google

11:30 a.m. to 12:30 p.m. | Featured Speaker
Making the Invisible, Visible: Discoveries Between Art and Science

Scientists and artists have always harnessed extraordinary gifts of curiosity and knowing as a guiding force for discovery. Visualization and patterns create exciting bridges between art and science. Before the advent of the camera, scientists, like artists, utilized drawing and painting as a means of capturing, collecting and disseminating observations. This lecture will explore the concept of Scientist as Artist and the Artist as Scientist in relationship to the development of my work, and how the fields of art and science continue to inform and inspire each other.

Presenter: Rebecca Kamen, Artist, Lecturer, and Professor Emeritus of Art | Northern Virginia Community College

11:30 a.m. to 12:30 p.m. | INSPIRE! Sessions I
All INSPIRE! Sessions will take place in the Dining Hall

All Teachers Teach Writing: Writing Practice in the Science Classroom

“Fifty-four percent of the nation’s 4th graders and 47 percent of its 8th graders report that they ‘never or hardly ever’ write reports about science projects.” Writing well is an essential skill for young women as they prepare to pursue careers in a variety of fields, the sciences among them. Online writing instructional tools, when built upon an analytic rubric that provides an objective measure of student writing, can support quality writing in the sciences, and across the curriculum. Personalized feedback leads to real growth in areas where a student needs more frequent practice. As an example of what one should look for in such an online tool, ERB’s Writing Practice Program (WPP) will be highlighted. WPP provides all teachers with dynamic and engaging prompts, analytic scoring, instant feedback, detailed reports, and follow-up tutorials. WPP allows focused writing instruction to be incorporated into the science classroom without adding piles of grading. Come to this session and use an online writing instructional tool first-hand and see how easy it is to get your students writing more!

Presenter: Philippe Best, Regional Director, Member Services | ERB
**Coding, Videos, and Blogs in the Math Class**

In this session, we will explore how students can create math blogs to share their understanding of mathematics. The student blogs are broken down into three distinct areas. The first is Notes, whereby students watch video lectures in a flipped class scenario, take notes, and then post their notes on their blogs. The second is Video Projects, whereby students solve complex math problems, post video solutions on Youtube, and then post their embedded Youtube videos in their blogs. The third is Coding, whereby students use JavaScript, HTML and CSS to create an interactive Calculation Page within a Tumblr page. Students create calculators for each topic covered.

*Presenter: Greg Scruton, Math Teacher | Trafalgar School for Girls (Canada)*

**Communication, Critical Thinking, and Character: Developing Norms in the Math Classroom Through the Use of Rubrics**

How can we encourage girls to think deeply and critically? How can we foster a learning environment where students feel comfortable taking risks, making mistakes, and communicating with their classmates? Teachers at Saint Mary’s School in Raleigh, NC, are exploring these questions. We recently started utilizing rubrics school-wide to clearly present these expectations to our students. In this session, participants will see three examples of rubrics in math classes (Algebra I, Geometry, and Algebra II). Each example shows how rubrics can be used to encourage girls to communicate effectively, work collaboratively, think critically, and solve problems creatively.

*Presenters: Krista Holstein, Mathematics Instructor and Rachel Hencher, Mathematics Instructor | Saint Mary’s School*

**Demystifying the Digital Transformation**

Delve into the newest innovative approaches that can transform educational practices, diversify instructional strategies, drive core curriculum and engage students in a 21st century skill set classroom. We will review the latest tools to help drive digital literacy, content literacy and information literacy that will transform educational environments. Discussions regarding online platforms, curriculum design and mapping, professional development device deployment strategies, digital textbook content distribution protocols and other items related to the digital environment will also occur.

*Presenter: Crickett Thomas-O’Dell, Education Services Manager | ClassBook*

**Do Engineering Toys Inspire Tinkering?**

This session, a presentation and moderated discussion, focuses on engineering toys designed specifically for girls. The presentation outlines a case study of one engineering toy piloted in second and third grade classrooms. As a part of this case study, the toy was assessed for it’s ability to encourage “tinkering skills.” In other words, the presentation addresses both whether girls engaged with the toy, and whether they developed a greater desire to build, fix or experiment after being exposed to the toy. After the presentation, discussion will focus on the potential efficacy of and best practices for “girl-specific engineering toys” more generally.

*Presenters: Sarah Anne Eckert, Research Associate, Center for the Advancement of Girls and Kimberly Walker, Third Grade Teacher | The Agnes Irwin School*

**Encouraging Girls to Lead**

As part of my capstone project for the NCGS-OSG Advanced Professional Certificate in Girls’ Education, I conducted research on girls and leadership. Using these results, I created a new club at Oak Knoll School to help girls envision themselves as leaders. This year the club surveyed the student body about their viewpoints on leadership, conducted interviews with female political and business leaders from across the country via Google Hangouts, created a website for their newsletters and videos of interviews, and presented throughout the school year on multiple leadership topics to the student body.

*Presenter: Nicole Johnston, History Teacher | Oak Knoll School of the Holy Child*

**From 0 to 40: How We Got 40 Girls to Choose Computer Programming in One Year**

Puzzled by the lack of girls choosing to take computer programming, we implemented a plan and in one year, got 40 girls to enroll. This session will describe our plan and other strategies to encourage girls to take computer programming.

*Presenter: Christopher Talone, Department Head, Mathematics | Marlborough School*

**Girls as Change Agents**

The Girl Effect states that investing in girls is the solution to a better world. How can educators prepare girls to be thought leaders and global change-makers? How can we cultivate girls’ courage, creativity, and collaboration in areas where women are most underrepresented: STEM fields, business and politics? How do international students help broaden our perspectives, developing skills to thoughtfully and responsibly create change together? Join us to discuss Westover School’s trans-curricular, holistic approach to empowering girls, living our motto, “To Think, To Do, To Be.”

*Presenters: Kathryn Taylor, Director of Rasin Center for Global Justice and Sara Sykes, Director of Admission | Westover School*
INSPIRE! Sessions I

Girls in the Great Outdoors
Challenge your girls to put down their electronics and explore the natural world. Whether it is a walk in the woods or an adventure to a National Park, the benefits of outdoor education are undeniable. Come learn thought provoking ways to combine your classroom with nature’s. These lessons instill confidence, foster curiosity, and broaden horizons.

Presenter: John Raymond, Director of Sales and Marketing | Grand Classroom

Iceland: An Interdisciplinary Adventure
From dramatic volcanic eruptions to the rich literary history of the sagas, Iceland offers a unique and diverse opportunity for interdisciplinary study. Hear how an English teacher and a Science teacher worked together to develop a student trip to the land of ice and fire. This learning adventure immersed students in the study of sustainability, geothermal energy, geology, glaciology, literature, poetry, and history. This Iceland trip process provides a model for designing place-based, interdisciplinary learning expeditions where students have the opportunity to experience directly the impact of STEM issues on a culture.

Presenter: Sheri Homany, Upper School Science Department Chair | Hathaway Brown School

Interdisciplinary Teaching through Facets of Design Thinking
Every day themes or present world issues require the connection and collaboration of the humanities and the sciences. This session will use technology and design thinking to make global connections. You will find ways to bridge the gaps between STEM and STEAM through resources, possible lessons and capstone projects. The topic of choice is immigration. The basis of the session will show data on past immigration trends, examine male/female perspectives and experiences, discuss language barriers, explore immigration policy and biases toward immigrants and form a realization on how this impacts your community’s immigrant population.

Presenters: Melissa Fairchild, Spanish Teacher; Katie Gillen, History Teacher; Kali Lambrou, STEM and Dance Teacher; and Nicole Sadowski, Science, Engineering and Mathematics Teacher | Trinity Hall School

Music + Geography + Writing = Relevant and Enriched Math Instruction
Learn how to use several web based tools to add thought provoking and collaborative problem solving to your math lessons. You will engage in “Musical Moments” calculation, “Commercial Break” problem solving, “Audio Maps,” and more. Your students will see, hear, and experience math as never before.

Presenter: Judy McCallum, Fourth Grade Teacher | St. Catherine’s School

Planning a STEM Career Day
This session will provide a detailed journey of one school’s implementation of a STEM career day. This session will include details on scheduling a 6-12 grade school STEM Career Day from securing a keynote speaker to networking with colleagues and alumnae to developing partnerships with local businesses and colleges to provide 30 hands-on presentations representative of all STEM fields. A STEM Career Day exposes students of all grade levels to a variety of STEM disciplines and career choices.

Presenter: Kim Eife, Academic Dean | Academy of Notre Dame de Namur

STEAM from Latin to the Sciences: A Faculty’s Approach to Immersive and Empowering Use of Technology
Two teachers and their technology integration endeavors in the area of STEAM will be documented for their impact on the young ladies of Oldfields School. Latin studies are enriched with the use of multiple devices for studying and providing authentic experiences with the language structure. In the science classroom, students consistently analyze data, make predictions, and formulate hypotheses. The resulting data will be used to determine which types of integration from these two instructors create a learning environment that immerses, empowers, and encourages students to look to the STEAM fields when making college and career choices.

Presenter: Patricia Reilly, Coordinator of Educational Technology | Oldfields School

STEAM in Technical Theater
In our session we will discuss how students gain important STEAM skills through the process of producing our winter musical, “Anything Goes.” This musical production provided unique and complex problems that students were able to solve using math, engineering, and artistic ingenuity. Through documenting the design, drafting, construction and performance process, we will elaborate on how a technical theater program provides excellent hands-on STEAM curriculum outside of the typical classroom.

Presenters: Sasha Newman, Technical Director and Krista Cowan, Director of Theater and Film | Madeira School

STEM Immersion for Middle School
i2 Learning’s week-long STEM immersion programs for middle schools have been developed with MIT, Woods Hole, the American Museum of Natural History, Harvard, and others, and span engineering, genetics, ecology, mathematics, computer science, robotics, and more. Programs have been run in New York, Chicago, Washington, Palo Alto, and Dallas, among other cities, and in Jordan and Kenya. Partner girls’ schools include Chapin, Greenwich Academy, Castilleja, Garrison Forest, Bryn Mawr, and Baldwin. In this session, we will recount our experiences and take-aways in terms
of the impact on students, teachers, and administrators, and the
advantages (and challenges) of setting up these programs.

Presenter: Michael Zigman, Co-Founder | 1z Learning

STEM@emma: Small Groups Exploring Big Ideas
In this session, we will discuss how the STEM@emma program at
Emma Willard School was created for 9th and 10th grade students
as an on campus opportunity to explore STEM related topics.
At the heart of the program is the interaction between students
and a faculty mentor as they explore a topic that is engaging and
interesting to both. We believe that early exposure to various STEM
related topics as well as a personal connection with an adult mentor
are critical components in a program designed to help girls gain the
confidence needed to pursue advanced study and possible careers in
the STEM fields.

Presenters: John Evans, Science Teacher and Raimie Utterback,
Mathematics Instructor | Emma Willard School

Student-Led Independent Research
St. Catherine’s Upper School Independent Research students will
talk about their projects and their experiences in this innovative,
year-long program. Facilitated by Upper School Science faculty, each
advanced Science student creates her own project, researching a
topic of personal interest. Current student projects include: The Use
of Metals as Antimicrobial Agents, The Effects of Nicotine on the
Nervous System of Minnows, and Measuring Nitrates in Soil and in
Runoff.

Presenters: Regan Ellis, Current Student; Connor Haynes, Current
Student; and Juliana Jiranek, Current Student | St. Catherine’s School

The Summer Investigators
For the last 21 years, I have been actively involved in a science
summer camp for girls: The Summer Investigators. The Summer
Investigators camp is built around the development of a camper’s
21st century skills, especially those related to problem solving,
collaboration, and curiosity. This is accomplished through the
integration of the areas of biology, chemistry, and iPad technology
into a program where girls assume the role of crime scene
investigators in order to solve a mock crime. Let me show you how a
camp like this can enhance your science program.

Presenter: Dennis Oliver, Science Department Head | Chatham Hall

Transforming to a Digital World
Journalism has changed. In order to keep up with the real world
and continue to make our Journalism curriculum and the student
newspaper relevant for our students, we had to transform the
learning experience. We created a place where students make
connections across curricula that offer hands-on and applied
experiences, and expand the possibility for story-telling. The results
of the venture: a dynamic program of project-based, deeper learning

in which students apply 21st century skills. The presenters will
discuss transforming the Journalism Program via convergence to
a fully digital publication, incorporating the skills from Broadcast
Journalism and Multimedia Design.

Presenters: Matilde Larson, Upper School Faculty - English and
Journalism and Karl Haeseler, Director of Educational Technology
Convent of the Sacred Heart (CT)

What are the Effects of Introducing Robotics in the
Classroom in a Female Single-Sex School?
After five years of working with robots in the classroom, we carried
out a study about how the introduction of robots in school affects
not only the number of girls that choose a STEM career, but also
the conception that girls studying technology have of themselves
and how others see them as well. With Educational Robotics, girls
venture into the world of gears, boolean algebra and computer
programming, unwittingly, in a natural way, as a baby learns to
speak. From a quantitative and qualitative approach, we noticed a
significant increase in STEM career choice and an improvement in
academic self-concept.

Presenters: Teresa Martinez, Principal and Carmina Solà, Alumna
La Vall School (Spain)

What To Do (and NOT To Do) When Launching a
STEAM Initiative
What happens when you merge two ambitious teachers, physics, art,
and freshmen girls? Curious about the possibilities, the educators
aligned their curricula and worked towards producing a year of
projects that would break down the barrier between the Arts and
STEM, encouraging girls to look past the confines of the classroom
into real world applications. Attendees will hear the full story of
the first year initiative – a thriller with chaotic twists and turns,
fantastic dreams, horrible realities and a few phenomenal discoveries.
Educators will also have the opportunity to brainstorm and share
their ideas about future STEAM lessons and/or projects.

Presenters: LaShonda Torbert, Physics Teacher and Emma Cowan, Upper
School Art | Stone Ridge School of the Sacred Heart

What’s your STEM Type?

STEM Jobs connects your students’ passions and dreams to the
right opportunities so that they can #DoWhatYouLove and find
career success. Come explore our STEM Type quiz to see how we
can help them explore the occupations, colleges, and resources
needed to pursue their dreams. Each of our 8 STEM Types is based
on the knowledge and skills needed to succeed in a variety of
high-demand careers.

Presenter: Glen Zollman, Vice President K-12 Solutions | STEM Jobs
Hands-On Workshops

1:45 to 3:15 p.m. | Hands-On Workshops

3-D Printing in the 21st Century, Middle-School Classroom (1)  Ellett E207

Come experience a new way of teaching and learning through 3-D design and printing. A collaboration of science and art teachers transform and revolutionize their atomic, molecular and furniture design curriculum. Participants in this session are introduced to the world of computer-aided design through the online program, Tinkercad. Tips and tricks on how to incorporate students’ ideas from concept to reality will be shared. Guided instruction will be provided to create a three-dimensional model as well as use of a 3-D printer. Participants will need to bring a laptop (a mouse is strongly recommended).

Presenters: Ashlie Smith, 8th Grade Physical Science Teacher; Andrea Lorey, 6th Grade Life Science Teacher; and Robert Thies, Middle School Art Teacher | Cranbrook Kingswood Middle School for Girls and Michael Toth, Outreach Program Instructor | Cranbrook Institute of Science

The ‘A’ in STEAM is Awareness – The Role of Meditation and Mindfulness in STEAM Education (2)  Bacot B101

Innovative thinking requires creativity and whole brain involvement. Meditation, long recognized for its calming and relaxing benefits, has been scientifically proven to affect brain changes in areas of attention, emotional regulation, compassion and introspection (Harvard.edu). Meditation helps girls pay attention to the entire spectrum of critical thinking, creating, brainstorming and problem-solving. The resulting self-awareness can open the door to learning opportunities like STEAM, and provide a nurturing environment for girls’ curiosity and intellectual pursuits. Participants will practice mindfulness meditation – observing present moment experience, thoughts and feelings – as well as leave with a simple practice to offer girls in the classroom. Chairs will be provided, floor seating optional.

Presenter: Judith Sekler, Meditation, Mindfulness, and Movement Consultant

Artistic Expression in Game Audio Design (3)  Arnsfeld S107

This workshop introduces educators to the possibilities and potential of audio when deeply integrated into the game design process. Attendees will learn how sound can be utilized in the design process as a fundamental storytelling agent, opening up previously unexplored paths in order to create truly remarkable works of art. They will be exposed to new foundations for crafting deeper emotional resonance, focusing on the principles of audio aesthetics, and supplied with a rich toolkit of artistic techniques derived from examples found in nearly all forms of art.

Presenter: Chanel Summers, Adjunct Faculty | University of Southern California

Break the Plane: 3D Printing in the Classroom (4)  Armfield Independent Research Lab

Learn how to bring 3D printing into your classroom. We’ll discuss the basic function of the 3D printer, along with some tips and tricks we have learned to make practical use of the printer in the classroom. We’ll share resources for finding items to print online, as well as discuss the new technology of 3D scanning to create a model of an item you already have. Additionally, we will discuss tools that students can use to create their own designs and give you hands on time with OpenSCAD (http://www.openscad.org/). This free program is a great way to improve your students’ spatial and computational thinking skills by coding 3D models using constructive solid geometry. It is friendly enough to use with beginning coders, and these models can then be printed with a 3D printer. This unit is a great addition to a computer science, science, technology, or math class. A laptop is required, but it is not necessary to load any software before the workshop.

Presenters: Jill Pala, Computer Science Department Chair | Girls Preparatory School and Ashley Johnson, Science Teacher | Madeira School

Bringing Engineering into Elementary Science (5)  Bacot B305

In this 90-minute experiential session, find out about two great curriculum resources for 1st–5th grade students that can provide hands-on experience with the engineering design process, both in class and after school. The “Engineering is Elementary” series and the “Engineering Adventures” programs present students with real-world situations in scenarios that matter to kids. You will have the opportunity to try several of the activities for yourself and to make-and-take at least one item!

Presenter: Amy Banks, Lower School Science Coordinator | Hockaday School

Bringing GIS - Geographic Information System - to the Classroom (6)  Bacot B311

GIS - Geographic Information System - is an emerging field that uses computer mapping to analyze geographic data. As our schools move towards a curriculum that integrates STEAM skills, GIS offers an accessible and relevant platform to teach both technology and data analysis skills. It has authentic applications across the curriculum, from Science to English, from Math to Social Studies. With major software players now offering free educational access to their products, the barriers to entry – cost and computer capacity – are gone. This hands-on workshop will provide practical examples of GIS to bring back to your schools.

Presenter: Alex Northrup, Academic Technology Coordinator | Foxcroft School

From STEM to STEAM: Girls’ Schools Leading the Way
Building Leadership in STEAM Classrooms (7)  Bacot B313
A skill common to today’s successful scientists, doctors, engineers, designers, and inventors is the ability to work and thrive in teams. In addition to acquiring subject-matter expertise, girls must learn how to lead team projects, negotiate with colleagues, and facilitate groups through the creative process in order to confidently pursue STEAM careers and drive innovation and progress once in those careers. In this interactive workshop, participants will experience student-centered methods for teaching negotiation and team leadership skills in STEAM classrooms through a group building project and facilitated debrief. A deeper discussion about incorporating these frameworks into existing curricula will follow.

Presenter: Rachel Krol, Founder & Principal | Connect More Consulting, LLC

A Chair Affair: Exploring Form and Function through a Chair Design Project (8)  Ellett E204
During this hands on workshop not only will you experience the design and build process, but also explore the case study of “our” Grade 3 project. From brainstorming and sketching ideas for chairs, to constructing with digital and real materials, you will be taken through a micro version of the entire process. This project, based on the Big Idea of form and function in our junior school, can be adapted to multiple grade levels. This methodology has its roots in what BSS strives to do through their Reggio and inquiry approach to teaching and learning - theories tested between the girls to come up with plausible and workable solutions to authentic problems.

Presenters: Roark Andrade, Technology Integration Specialist and Nadine Hustler, Teacher | Bishop Strachan School (Canada)

C. F. I. Cool Forensics Investigation (9)  Bacot B202
Come join us for a hands-on experience in forensics. Participants will help solve a crime using Math computation, Science reasoning and Technology skills, in the field of forensic investigation, to collect evidence at the “Crime Scene.” All necessary paperwork and forensic tools to actively participate in a mock investigation will be provided. You will also have the opportunity to talk personally with the female investigators at the Grand Prairie Police Department, Crime Scene Division. Come participate in the real world of crime scene investigation and learn about STEM careers in forensic science.

Presenters: Cheryl Horton, Assistant Principal; Jennifer Oliver, Principal; Megan Hunt, AP Science Teacher; and Rebecca Cavitt, STEM Teacher | Young Women’s Leadership Academy at Arnold; and Amanda Self, Crime Scene Investigator and Leticia Hidalgo, Crime Scene Investigator | Grand Prairie Police Department

Crafting and Coding - What a Mix! (10)  Armfield S109
If you’re interested in helping tweens and teens create interactive toys, smart accessories, or light-up fashion, this workshop is for you! Come learn about e-Textiles-in-a-Box, a joint curriculum project of NCWIT and MIT’s High-Low Tech group, and create a bookmark book light with felt, LEDs and conductive thread. Leave ready to learn programming through our tutorial and soon you’ll be helping girls combine crafting and coding as they create sweet - or fierce! - plush toy monsters that light up and sing.

Presenter: Jane Krauss, Curriculum and Program Consultant | National Center for Women & Information Technology (NCWIT)

Creating an Early Childhood Tinker Lab for Your Youngest Students (11)  Armfield S115
Participants will see the journey of creating a tinker lab for our youngest students: two, three, four and five year old girls. With the Maker Movement explosion, why not start exposing our youngest girls to problem solving, simple circuit electricity, deconstruction, working with tools, exploration with wind, simple machines, chain reaction, and more! We will share what materials we have used, our successes and failures, and why we believe so strongly in creating these experiences for young girls. Participants will have opportunities to tinker while building grit and resilience - as our girls do - while they problem solve, build and design!

Presenters: Mimi Odem, EC Curriculum Coordinator/LS Admissions and Rita Brunious, Tinker Lab Facilitator/Studio Facilitator | Louise S. McGehee School

Designing and Reporting in Book Creator: A Tactile Experience in Inquiry-Based Science (12)  Bacot B208
In this highly interactive session, small groups of participants will design and perform a series of safe, fun, and inexpensive laboratory experiments, chronicling their unique process using the iPad app, Book Creator. The app will allow participants to describe their experience in their own words, to include electronic sketches, pictures and videos of what they create, and to experience the power of inquiry-based science. Then, participants will brainstorm in their small teams to design Book Creator lessons for use in their own schools, in their own classrooms, and across disciplines, helping to get the “A” in STEAM.

Presenter: Amy Davis, Biology Teacher | Chatham Hall

Digital Humanities (13)  Bacot B302
What are innovative ways that humanities teachers can bring STEAM into the curriculum? How can digital media allow for exploration of historical and literary topics and simultaneously offer routes for “humanizing” the digital age? This hands-on session allows participants to develop ideas for a range of projects, from using 3-D design tools to map the development of characters and plot in fiction to leveraging online platforms for analysis, discussion, and artistic creation. Such ventures allow students to collaborate on group projects and to discover the compatibility of a range of disciplines.

Presenters: Christopher Wilson, Upper School History Teacher and Mary Dobroth, Director of Academic Technology | Holton-Arms School
Drawing and Animating with Code (14)  Bacot B308
Using code to create drawings and animations is a fun and effective way to introduce students to computer programming. When they have time to explore, play, and create, students naturally create challenges for themselves. In essence, the students create their own mini-problems, which they then have strong motivation to solve. Participants in this workshop will learn how to create animated, interactive computer graphics with the Processing language. Because the Processing language is based on Java, it is easy to transition to programming in Java for more advanced courses (such as AP Computer Science). Note: Participants must bring their own laptops.
Presenter: Darren Kessner, Math and Computer Science Teacher  |  Marlborough School

Getting Hands-on with the Maker Movement (15)  Ellett E306
The Maker Movement is not only bringing a technological and creative revolution to education, but it is also becoming an important pathway for girls to engage in computer science and engineering. There are amazing tools and materials that are bringing science, technology, engineering, art and math (STEAM) concepts to life for students of all ages. In this workshop, we’ll get hands-on with the MaKey MaKey Invention Kit, Hummingbird Robotics Kit and Scratch, bringing our ideas to life with physical computing and code!
Presenter: Kim Wilkens, Coordinator of Computer Science Initiatives / Founder  |  St. Anne’s-Belfield School / Tech Girls

Getting Started with MinecraftEDU in the Classroom: Practical Applications of What We Have Learned (16)  Bacot B312
Don’t know a spawn block from an enchantment table? Your girls do, and you can learn too! Girls love to game, and MinecraftEDU is fun, familiar, and academically versatile. MinecraftEDU is a teacher controlled and facilitated, educational version of the wildly popular sandbox game Minecraft, played by students of all ages. This platform allows you to engage your girls in STEM applications through collaboration and contextual problem solving in a virtual world. Learn how to get MinecraftEDU up and running in your classroom. Explore the MinecraftEDU tutorial world and create introductory lessons for your classes during this hands-on session.
Presenters: Daniel McGee, Director of Information Resources and Technology and Karen Redmond, Technology Integration Coordinator  |  Laurel School

Girls Rock the Blocks (17)  Ellett E308
This presentation will focus on how girls engage in construction activities and how teachers can encourage and support the process of planning, construction, and presentation. Participants will learn how construction allows girls to use the three domains of learning - cognitive, affective and physical kinesthetic - to engage in deep and joyful, creative and critical thinking. They will experience the powerful moments of negotiation, collaboration and discussion which lead to experimentation, risk taking, problem finding, and problem solving. Through hands-on work and photographs, attendees will participate in all aspects of the creative construction process.
Presenters: Joanne Emery, English Language Arts Coordinator and Molly James, Kindergarten Teacher  |  Kent Place School

How to Implement Design Thinking at the Elementary Level (18)  Turner L352
This session will focus on the topic of Design Thinking. What is design thinking and how does it differ from standard project based learning? Learn the steps of Design Thinking and learn how to incorporate it for a younger audience. Lesson plans will focus on grades 1-5 and will give you specific examples to get you up and running your own design thinking project. Once we learn about this process, as a participant you will dive into each step of the process with a mock project. This is your invitation to learn how to experiment with your current curriculum and the design thinking process.
Presenter: Rebecca Lewis, Lower School Science Specialist  |  Baldwin School

Inquiry and Literacy for Grades 3-5 Science: A Perfect Pair for Making Meaning of the Natural World (19)  Bacot B214
Science provides an authentic and engaging context for reading, writing, and structured conversation. Integration of literacy and science also provides an opportunity for the development of critical skills such as reading and writing nonfiction text, representing information visually, and analyzing visual information. Research supports this integrated approach, suggesting that it has the potential to improve student achievement in both disciplines. Come experience this approach by participating in an inquiry unit that integrates authentic literacy experiences from start to finish. This session is based on the NSTA Press book, “Inquiring Scientists, Inquiring Readers: Using Nonfiction to Promote Science Literacy, Grades 3-5.”
Presenter: Jessica Fries-Gaither, Lower School Science Teacher  |  Columbus School for Girls

Integrating STEAM in the Kindergarten Classroom Using “Cubelets” (20)  Bacot B220
Cubelets are a “tech toy” which provide students with opportunities to build robots using inquiry and exploration. Cubelets are an excellent way to introduce concepts involved with STEM and robotics including, but not limited to, building, programming/computational thinking, problem solving and patterns. This session will provide teachers with a framework for integrating a Cubelet curriculum within their Kindergarten classroom. The curriculum includes opportunities for collaboration with older grade levels, use of iPads, science lessons on solar energy, and much more. This
session will include interactive play with both Cubelets and iPads.

Presenters: Amy Adkins, Lower School Science Specialist; Sloan Hiscock, Grade 4 Teacher; Marsha Alexander, Kindergarten Teacher; and Carter Warren, Kindergarten Assistant | St. Catherine’s School

Learn Design Thinking: Redesign the Lab Report (21) Bacot B317
Have you ever asked: How could my students demonstrate their learning in engaging, substantive ways that I would enjoy grading? Design Thinking is a process that allows you to creatively problem-solve solutions to tough questions like these. Design Thinking can be used for decision making at all levels, from strategic planning to redesigning assessments. Emma Willard School has used design thinking to redesign a daily schedule, and to design the school’s blended learning initiative. In this workshop, participants will engage in a mini-Design Thinking exercise to experience how to use this process to rethink curriculum and innovate in the classroom.

Presenters: Meredith Legg, Curriculum Innovation Department Chair and Erin Hatton, Science Teacher | Emma Willard School

Lights, Circuits, Design Thinking in Action! (22) Bacot B201
Design Thinking is much more than a buzzword in education. It represents a strategic means of problem solving and developing collegial and collaborative relationships between students as they solve problems while also providing an easy access point for girls to experience engineering with a multidisciplinary approach. This session focuses on introducing participants to the design process through immersion into a design challenge involving simple circuit construction, with the correlation that the precepts of design thinking can be integrated within any course.

Presenters: Nicole Blandford, Academic Technology Coordinator and Phil Cook, Science Faculty | Nightingale-Bamford School and John Ball, Assistant Head for Academic Affairs | Emma Willard School

Making, Design, and Technology Across the K-12 Curriculum (23) Bacot B221
In this hands-on session, we will share projects that students have created through the integration of Making, Design and Technology across the curriculum at Stuart Country Day School, an all-girls K-12 independent school in Princeton, NJ. Participants will learn about classroom projects that incorporate 3D printing, Laser Cutting, Wearable Technology, Circuits, Paper Engineering and Microprocessors. We will also experiment with microprocessors, sensors, and actuators. Participants will make three projects that they can easily take back to their classrooms, including several projects with LEDs and a stylus.

Presenters: Michael Schwartz, Director of STEM Programs; Melinda Huffman-Schwartz, 5th and 6th Grade Science Teacher; and Alicia Testa, Technology Integrator and Computer Science Teacher | Stuart Country Day School of the Sacred Heart

A Model for Partnering to Improve Science Education (24) Armfield S207
Learn how Roland Park Country School and BD Diagnostics have collaborated with the Baltimore area Teach for America program to create and provide a professional development opportunity to increase and improve inquiry and investigational learning in the elementary through high school science and math classrooms in the Baltimore City Public Schools. Participants will engage in one of the actual workshops which Roland Park and BD provide and, through a facilitated discussion, learn how they might adapt this kind of collaborative outreach between industry and independent schools for their own communities.

Presenters: David Brock, Science Department Chair and Meredith Moore, AP Psychology Instructor | Roland Park Country School

Prosthetic Arm Creation Using Design Thinking in the STEAM Classroom (25) Ellett E306
The presenters will give an overview of the STEAM curriculum recently implemented at the Julia Morgan School for Girls. We will look at various engaging projects that can be brought into classrooms and after school clubs to help give all students a strong background in STEAM, including the curriculum development and implementation process. Afterwards, participants will try out one of the student projects using the design thinking process to create a prosthetic device with low-cost everyday supplies.

Presenters: Katie Topper, Educational Technology Director and Gillian Thomas, STEAM Teacher and Science Department Chair | Julia Morgan School for Girls

Robotics – Not Just for Boys! (26) McCue LS Tech Lab
There is nothing more fun or satisfying as watching a group of 4th through 8th grade girls start jumping up and down when the robot, that they built and programmed, successfully completes a task! Come and feel this excitement as we guide you in programming a LEGO Mindstorms EV3 robot. With just a few command blocks you, too, can program a robot to do the same challenges that these girls did during the 2014 FIRST Lego Robotics season. Join us to play and explore programming robots! Three, two, one, LEGO!

Presenters: Ian Armitage, 7th Grade Science and LEGO Robotics Coach and Ann Hamilton-Dixon, Lower School Technology Coordinator | St. Catherine’s School
**Hands-On Workshops**

**Showing “App”titude in the Secondary Mathematics Classroom (27)**  
Ellett E203

Participants will learn about apps that can be used in conjunction with features of the iPad to help students create alternative and fun ways of demonstrating their knowledge. Project examples (related to math) include creative videos, RSA videos, student-created interactive books, art projects, music, mash-ups and more. The main apps to be briefly explored are Explain Everything, Touchcast, Animator, Knowio, Tellagami, BookCreator, Geogebra, and Showbie. Participants will have an opportunity to work with green screening, basic video editing, and app-smashing to make their own creative project. Although math examples will be discussed, projects are easily adjusted for any subject.

*Presenters: Kris Sorrells, Mathematics Department Chair and Amanda Malatlian, Mathematics Instructor | Salem Academy*

**STEAM Success for English Learners (28)**  
Bacot B318

In this Hands-on Workshop, presenters will share insights from an innovative school for refugee girls. They will share how they integrate STEAM into curriculum for English Language Learners and will demonstrate classroom activities involving electricity, electrical circuits, Thinking Maps, and drawings. The presenters will share strategies for differentiation and show how to scaffold science activities for English Language Learners at all levels, using kinesthetic and pictorial activities for the acquisition of abstract science concepts and language. The presentation is appropriate for all K–12 classroom teachers and administrators, especially those interested in differentiation for science instruction according to English Language Development.

*Presenters: Marjorie Cooper, STEAM Teacher & Coordinator and Amy Pelissero, Head of School | Global Village Project*

**Storytelling by MAKERS (29)**  
Turner LlR

From the creators of MAKERS, the PBS documentary series and the permanent archive of women’s stories, comes a storytelling app: MAKERS Stories. The app will enable anyone to video record their own MAKERS story. That app comes with pre-programmed questions and the final product is a 3 to 5 minute video featuring you or someone you want to profile; easy to upload and share. Great for classroom or school-wide projects, plus the opportunity to be featured with a community of MAKERS.

*Presenter: Amy Richards, Director of Education Outreach | MAKERS*

**Tower Activity – The Engineering Design Process (30)**  
Ellett E108

This session will present a hands-on activity that introduces students to the engineering design process. The activity begins with an overview of tower types and the advantages of each, as well as the steps of the engineering design process. Then students are given a challenge to envision, design, and build a municipal tower based on the customer requirements from city council. Straws, tape, and other common materials are assigned costs so that the tower construction cost may be evaluated during the selection process. Participants will complete the activity and discuss best practices for using it in the classroom.

*Presenter: Melissa Peskin, President | Society of Women Engineers, Richmond Chapter*

**Underwater Robotics: Discovering ROV’s with History and Science (31)**  
Kenny Health Center Classroom and Pool

Session participants will have the opportunity to design, build and test a ROV. They will learn how ROV’s are used in the classroom, the marine industry and by NOAA, National Oceanic and Atmospheric Administration. They will test and drive their built ROV’s in St. Catherine’s indoor swimming pool. Participants will learn how this activity can adapt to enhance and enrich existing curriculum in several subject areas and with the resources available. It is project based learning that allows teachers to excite and motivate students to engage in the engineering process. Supporting materials were developed by NOAA’s Monitor National Marine Sanctuary. http://monitor.noaa.gov/

*Presenters: Lisa Foster, Science Teacher and Gina Gordon, Dean of Middle School/Algebra 1 Math Teacher | St. Catherine’s School*

**Using iPads to Support Design, Make, Play in STEM (32)**  
Armfield S209

NYSCI has developed a suite of STEM-focused iPad apps and curricular resources for middle school educators and students. These units help students make mathematics and science discoveries through compelling and playful design projects that align with CCSM and NGSS. Explore using forced perspective photography as the inspiration for learning ratios and proportions; choreography and dance for angles, translations, and coordinate geometry; 3D models for surface area and volume; photo mashups for fractions; and playground experiences for physics. Attendees can expect to smile, laugh, and take away inspiration for how to infuse playful, creative student-centric projects in your math and science programs.

*Presenter: Douglas Moore, VP of Digital Education Strategy | New York Hall of Science*

**Using Robots to Teach Something More Than Robotics (33)**  
Armfield Lower Level

How can we reinforce concepts such as the perimeter of a circle, speed, acceleration and many others, in a more practical and intuitive way, using robots? Is it possible to learn about levels and gears, or even about domotics while playing and trying to solve some challenges that have to be met? We will present some small challenges to work on different concepts in class (with students from
12 to 16 years old): structural reinforcements, relationship between diameter-perimeter, speed and domotic-house. A student who worked on robotics when they were at school and who is currently at university will take part in presenting this workshop.

Presenters: Inma Balcels, Technology Teacher and Roser Farrús, Assistant Principal | La Vall School (Spain)

3:15 to 3:45 p.m. | Break/Snack with Exhibitors | Dining Hall

4:00 to 5:00 p.m. | Keynote Conversation
Advocating for Irresistible Girl-Powered STEAM Learning | Kenny Center Gym

The speakers will promote the concept of how STEAM pedagogy can ignite curiosity and engagement, making learning irresistible for girls.

Presenters: Dorothy Bennett, Senior Researcher, Design Lab | New York Hall of Science and Amy Leidtke, Adjunct Professor of Industrial Design | Rhode Island School of Design (RISD) and Design and Education Consultant | Leidtke Design
Moderator: Sarah Edson, Dean of Academic Technology and Innovation | Ethel Walker School

Wednesday, June 24

8:45 to 9:45 a.m. | Keynote Conversation
Plugging the Leaky Pipeline – From Problem to Solutions | Kenny Center Gym

Statistics show that girls are leaking out of the pipeline that leads to STEM-related college majors and careers in Science, Technology, and Engineering. This panel of STEM-field women from Government, Higher Education, and Financial Services will share what’s currently happening in their industries and how educators in K-12 can help to strengthen the pipeline in the key decision-making years.

Presenters: Dr. Jacque Fetrow, Provost and Vice President for Academic Affairs | University of Richmond and Dr. Ellen Stofan, Chief Scientist | NASA
Moderator: Julie Elberfeld, Senior Vice President, Commercial Banking Technology | Capital One Financial Corporation

10:00 a.m. to 12:15 p.m | Breakout Sessions D
Transgender Students at Girls’ Schools: A Training and Discussion | Turner Hall/Board Room

While the mission of girls’ schools remains vital and strong, contemporary notions of gender diversity are challenging the very categories of male and female, girl and boy. In this extended session, panelists will discuss the NCGS Transgender Position Statement, train participants on the basic vocabulary and concepts of gender diversity, and describe how one girls’ school took leadership in trans-affirmative education. We will then review several experiences and possibilities for how girls’ schools encounter transgender issues and connect the newly minted policies of women’s colleges to options for girls’ schools. Finally, we will gain insight into the parent perspective and hear how all schools can better support transgender students. We aim for a candid, open discussion of these important topics and issues.

Presenters: Sandra Luna, Head of School | Julia Morgan School for Girls; Shannon McKay, Founder/Facilitator | He She Ze and We; Julie Mencher, Consultant/Therapist/Trainer; and Davey Shlasko, Founder & Lead Facilitator | Think Again Training and Consultation
Everyday Exploration: Resources and Techniques for Engaging Girls in Computer Science  

Turner Hall/Bannard Chapel

In this round-table discussion, we will explore resources and techniques for engaging and retaining girls in computer science, including both early childhood and upper-level focused elements. We will also ask participants to share curricular and classroom resources that have worked for them and explore new ideas.

Presenters: Whitney Miller, Technology Director | Hutchison School and Ann Pollina, Head of School | Westover School

FIRST Robotics: Engaging Girls in STEM  

Washington Hall/Kenan-Flagler Auditorium

This hands-on workshop uses the FIRST Tech Challenge (FTC) robots to create an exciting STEM learning environment! Generate fun in your classroom as your students gain valuable 21st century skills with robotics. You will go through a mini-FTC season, including: marketing, strategy, design, robot build, and end with a high-energy competition! Learn about all that FIRST has to offer your students, including over $14M in scholarships!

Presenters: Carol Edelman, FIRST Tech Challenge, Director of Program and Sally Sylvester, FIRST Tech Challenge, Director of Program | VirginiaFIRST

Promoting STEM by Understanding Stereotype Threat  

Bacot B305

Does the Western cultural belief that “girls just can’t do math” truly make it harder for girls to succeed in calculus? Does that stereotype even reduce girls’ participation in STEM disciplines? An emerging body of research into Stereotype Threat, initially developed by Claude Steele, reaches this paradoxical conclusion: girls’ efforts to disprove STEM stereotypes might ultimately impede their STEM successes. This workshop introduces research showing precisely why and how stereotypes weaken performance; offers many specific strategies for combating Stereotype Threat; and explains how girls’ schools are well positioned to foster their students’ confidence and development.

Presenter: Andrew Watson, President | Translate The Brain

STEAM in the Early Childhood  

Turner LLR

In our Junior Kindergarten Outdoor Classroom, designed to represent the topography of our city and to function with the use of “loose parts” and natural materials, children engage in exploration of physics, biology, coding, symbolic representation and other STEAM related subjects, all through play. Hear, see, and ask about the creation of the Outdoor Classroom, stories about its use, and the learning that happens here. In addition, participants may see and explore the Outdoor Classroom themselves.

Presenter: Pam Oken-Wright, Junior Kindergarten Teacher | St. Catherine’s School

A STEAMy Midsummer Night’s Dream  

Armfield Lower Level

See the work of 6th graders at Laurel School as they integrate technology into their annual production of A Midsummer Night’s Dream. In conjunction with Computer Music and Digital Arts faculty and students at Oberlin College, students learn the fundamentals of Audacity to record, edit, and layer sounds that are used as the soundtrack of the show. See, too, how they integrate the arts into their technology class to create interactive mini scenes from Shakespeare’s play using Carnegie Mellon’s Hummingbird Robotics Kits. Students are also involved in other aspects of the production, both artistic and technical. Come find out more about how to make your next production STEAMy.

Presenters: Soraya Ahmad, Dean of Middle School and Heather Havre, Associate Director of the Primary School | Laurel School

STEM Sisterhood: Girls Mentoring Girls  

Armfield S109

Role models play a critical part in addressing the disparity of women in STEM. Learn how to develop a “Girls Mentoring Girls” outreach program that will provide valuable opportunities for the development of leadership skills and for high school girls to serve as strong STEM role models, sharing their knowledge, skills, excitement and enthusiasm for STEM with younger girls. Stuart Country Day School has created a STEM Sisterhood, a network of support for girls in STEM through best practices in teaching, mentorships, and year round innovative programming. Come and envision a successful sisterhood program at your school!

Presenters: Michael Schwartz, Director of STEM Programs | Stuart Country Day School of the Sacred Heart

“Through his glaz’d Optic Tube”: An Ultimate Guided Tour Into Milton’s Paradise Lost  

Armfield S107

Like Satan on the brink of the Abyss embarking on his own epic journey, this foray into John Milton’s Paradise Lost encourages scientific exploration and inquiry in a cross-disciplinary context. STEAM helps students understand the contemporaneous scientific ramifications of Milton’s epic while creating a collaborative visual multimedia journey through the Abyss. Traditional classroom discussion is paired with collaboration with outside sources, teachers, and student-consultants from other disciplines. By following their own individual passions, students more genuinely engage with Milton’s epic, making intentional cross-disciplinary connections. Students’ findings facilitate discussion about Milton’s universe in the context of their own.

Presenters: Stephanie Fontanone, Upper School English Teacher and Joanna Caudle, Upper School Science Teacher and Department Chair | Stone Ridge School of the Sacred Heart
To Flip or Not to Flip – Experiences from the History and Mathematics Classrooms

Many educators are experimenting with the idea of a flipped classroom model. Two math teachers at National Cathedral School, one in upper school and one in middle school, and an upper school history teacher at Oak Knoll School have each joined in this effort by instituting a variety of flipped lessons in their classrooms. This session will provide information on how they first started flipping lessons, useful tools they have employed, and a discussion of both pros and cons of the model. They are eager to share strategies and lessons learned in their endeavors, as well as to hear from others who have experimented with a flipped classroom.

Presenters: Patricia Howie, Upper School Mathematics Teacher and Susan Karpatkin, Mathematics Teacher | National Cathedral School; and Nicole Johnston, History Teacher | Oak Knoll School of the Holy Child

11:15 a.m. to 12:15 p.m. | INSPIRE! Sessions II
All INSPIRE! Sessions will take place in the Dining Hall

Archaeology: Digging Up the Past

This workshop will focus on the use of archaeology as a tool for in-depth study of a particular time period/culture. Archaeology is more than just digging in the dirt; it involves critical thinking and research skills: observing, recording, comparing, questioning, and making inferences based on the evidence that is found. Students develop these important skills and more when taking on the role of an archaeologist. We will give a brief introduction of archaeology and will explain how our students take on the various roles of an archaeologist. Then we will explain the process we use to explore one particular historical moment: Westward Expansion. We will talk about how we create an excavation site, choose artifacts and develop a curriculum which provides students with the tools to explore the past. We will give practical advice on materials, curricular planning, historical resources, and excavation site construction.

Presenters: Joanne Emery, English Language Arts Coordinator and Jenn Hrebin, 4th Grade Teacher | Kent Place School

Encouraging Girls in Engineering

This session will focus on activities that encourage girls to participate in and enjoy engineering activities. We will discuss what attitudes young girls have about their abilities and how to raise their confidence in science, and I will showcase some STEM activities.

Presenter: Kelly Sigro, Science Teacher | Ethical Culture Fieldston School

Exploring the Calculus Concept of Continuity at a Point with Toy Trains and Track: A Hands-on Approach

This session focuses on examining the concept at an intuitive level using manipulatives - train tracks and bridge - to model functions that are discontinuous. Graphs are modeled and the discontinuities analyzed and categorized using the tracks and bridge. The modeling is extended by determining if a train can successfully navigate the tracks and bridge. The discussion continues with an assessment of how the model might be repaired within certain parameters. With this intuitive understanding in place, the calculus definition and test for continuity at a point is introduced and aligned with the track and bridge analysis.

Presenter: Keith Krusz, Dean of Faculty and Math Department Chair | St. Margaret’s School

Exploring Wearable Technologies

Welcome to the world of wearable technologies! In this session, you will have the opportunity to experiment with soft circuits and learn to program Lilypad Arduinos, microcontrollers designed to be embedded in wearable projects. Learn how electronic textiles create a new path for exciting girls about computer programming and discover strategies for incorporating wearable electronics into your classroom.

Presenter: Kiki Carozza, Technology Coordinator | Convent of the Sacred Heart (CT)
INSPIRE! Sessions II

Financial Education for Girls: Math, Empowerment, and Engagement
This session focuses on effective financial education for girls of all ages. Financial education can be an empowering part of a girls’ school curriculum. With women earning 78% compared to men, under-negotiating salaries after college and beyond, and facing unique barriers to financial security, financial education is critical. The connection of finance to math is an intellectually stimulating - and life-changing - part of a young woman’s education.
Presenter: Melissa Donohue, Principal | Financial Nutrition

Getting Up to Code: Design in Programming
Explore how design thinking can kick-start a coding program built to grow that engages girls, focusing on their strengths as creative learners.
Presenters: Sarah Rasich, Academic Technologist and Peggy Boon, Dean of Academics | Saint Gertrude High School

How Do You Do STEAM Career Exploration?
In this small-group discussion, participants will share ideas for creative and fun ways to introduce students to different and exciting STEAM careers. What do you do? What do you want to do? What have you done to showcase the variety and importance of STEAM careers? How do can you know if what you are doing is impactful? Do you have any hard-won wisdom to share? During the session, we will work together to build a Google Doc listing ideas, suggestions, and questions – participants can continue to access this resource long after they leave Richmond!
Presenter: Amy Banks, Lower School Science Coordinator | Hockaday School

Inspiring Service-Learning Design for Middle School Students
In this session you will be inspired to help your students organize a service-based design competition. Our Middle School Robotics Team sponsored a design competition for students in grades four to seven. The team members organized the whole competition, from recruiting their peers, to developing materials to inspire and assist contestants, to creating a competition rubric. Almost sixty students participated. Our girls came up with amazing inventions designed to help others. We would like to share the excitement this endeavor generated in our community along with best practices that other schools can follow to integrate design and service-learning.
Presenters: Trude Goodman, Teacher/Class 5 Supervisor and Jack Cooley, Head of Middle School Science | Chapin School

Integrating STEM Opportunities into the Classroom on a Shoestring Budget
Infusing STEM into the curriculum does not always require you to break your budget. Teaching STEM does not require you to be a scientist or mathematician. STEM learning helps students connect the dots and find meaningful ways to apply their learning. Learn easy ways to incorporate STEM into what you already teach - and on a shoestring budget. Sample lesson plans will be given for grades K-6 and sample activities will be provided as handouts.
Presenters: Rebecca Lewis, Lower School Science Specialist and Elizabeth Becker, Director of the Lower School | Baldwin School

“How Leading the Way”: Girls’ Schools as Historic Innovators in STEAM Fields
This session presents research on how girls’ schools have been historic innovators by “leading the way” in STEM/STEAM fields and how the National Coalition of Girls’ Schools has been a thought leader by promoting STEM/STEAM research and conferences in the last few decades. By exploring the changes and continuity in the conversations surrounding young women’s participation in STEM/STEAM fields since the early 1990s, the goal of this session is to facilitate discussions about the significance of these topics for teachers and students today.
Presenter: Eliza McGehee, Program Associate | National Coalition of Girls’ Schools

Modern AND Cozy: Creating a Space Where Girls can Fail
See how one school has transformed the old computer lab into a Spark Studio: a place for girls to experiment, program, make and collaborate. In this space, which they share with their brother school next door, the girls at Convent Elementary School are taking a hands-on approach to STEAM education, learning to challenge themselves as individuals and work together collaboratively.
Presenter: Krista Inchausti, Educational Innovation Coordinator | Convent of the Sacred Heart Elementary School (CA)

Prototyping to Programming and Everything in Between
In this 30 minute session we will share ways to engage students of all ages in STEAM related activities using littleBits electronic modules. LittleBits supports the design thinking process and encourages creativity and collaboration as students are challenged to discover solutions to real world problems. Whether littleBits are used to explore and discover, to create prototypes, or in combination with more advanced programming and 3D printing, littleBits modules support and encourage a student centered approach to learning in all STEAM areas.
Presenters: Lois McGill, Director of Academics and Judith Steek, Principal of Junior School | Balmoral Hall School
Secrets of the Math Mastery Mindset

In this session, participants will discover key elements of the innovative and practical Math Mastery Mindset process that I have developed and routinely use to help girls who are failing or freaking out about math to shift the paradigm, achieve true mastery, rise to the top of their class, and even come to experience math as a source of joy and a type of self-expression. Participants will walk away with clear steps, case studies, and tools that they can immediately use to nurture a mastery approach and Mastery Mindset in their own classroom.

Presenter: Rebecca Zook, Math Mastery Mentor | Zook Tutoring

Signature: Growing a Capstone Research Program from the Ground Up

In five years, Emma Willard School has grown a 10 student STEM Internship program into the Signature Program, a capstone project program that spans all disciplines and supports the students as they pursue their passions in deeply meaningful ways with support both on and off Emma’s campus. STEM and Arts internships have been key to the success of Signature and continue to drive students in the program. Join us for a discussion of the history of Signature, the structure of on and off campus mentors, and the programmatic milestones that have made Signature a huge success.

Presenters: Katie Archambault, Director of Research and Lindsay Slaughter, Arts Faculty | Emma Willard School

Soapbox to Success: Intergenerational Mentorship Models

Empowerment never happens in a vacuum. Mentorship models are crucial to create uplifting environments of success, especially with girls and young women. It is critical in educating youth to make these spaces - and to make them together. How do we transfer knowledge intergenerationally? What are models of mentorship success? How do you build a peer-to-peer network of success among youth? Soapbox will present best practices from seven years of running its immersive Feminist Camp programs. Participants will learn models of success that have led to carving out nurturing, feminist spaces to support girls and young women on their way to success.

Presenter: Ha Tran, Artist/Activist | Soapbox Foundation

STEAM CAMP - Bringing STEAM to Auxiliary Programs

A glimpse into a newly developed summer program incorporating design thinking and STEAM disciplines, uniquely designed for middle school girls.

Presenters: Erin Ross Moses, Director of Auxiliary Programs and Partnerships and Eileen Mooney, Chair of Mathematics and Professional Development | Miss Porter’s School

STEAM Class - Anything Goes!

Selected projects from Madeira’s Topics in STEAM course will be presented to illustrate the wide variety of interests and emphases which can be incorporated into a STEAM course. Projects such as Origami for Wildlife (Spatial Reasoning), Ferris Wheels and Trigonometry (Mathematics of Motion), Composting on Campus (Local Activism), Global Health Design (Global Awareness), and Whirligigs (Art in Motion) will be presented. The structure, goals, and teaching and assessment methodologies utilized will be discussed as well as what has worked and what has not.

Presenter: Stacey Boyette, Science Teacher | Madeira School

Transdisciplinary Units to Encourage Creative Thinking in Upper School Science Courses

The Next Generation Science Standards (NGSS) require that the use of solution design, communication skills and evaluation of data be incorporated into the science classroom. Teachers are concerned the addition of these skills might limit necessary content in upper school science courses. One alternative is the use of transdisciplinary units in the curriculum. The presenters will show how to use transdisciplinary units in order to meet specific objectives in the traditional secondary school science classes without sacrificing content while addressing multiple intelligences.

Presenters: Jeannette Adkins, Science Instructor | St. Catherine’s School and Dean Goodwin, Science Instructor | Tatnall School

STEM Facts on Women and Girls

- 74% of STEM workers are male.
- Only 26% are female.
Reshma Saujani | Monday, June 22 | 1:40 to 2:30 p.m.
Founder and CEO | Girls Who Code

Reshma Saujani is the Founder and CEO of Girls Who Code, a national non-profit organization working to close the gender gap in technology and prepare young women for jobs of the future.


After years of working as an attorney and supporting the Democratic party as an activist and fundraiser, Saujani left her private sector career behind and surged onto the political scene as the first Indian American woman in the country to run for U.S. Congress.

Following the highly publicized race, Saujani stayed true to her passion for public service, becoming Deputy Public Advocate of New York City and most recently running a spirited campaign for Public Advocate on a platform of creating educational and economic opportunities for women and girls, immigrants, and those who have been sidelined in the political process.

A true political entrepreneur, Saujani has been fearless in her efforts to disrupt both politics and technology to create positive change.

Saujani is a graduate of the University of Illinois, Harvard’s Kennedy School of Government, and Yale Law School. She was recently named one of the 50 Most Powerful Women in New York by the *New York Daily News*, *Forbes*’ Most Powerful Women Changing the World, *Fast Company*’s 100 Most Creative People, *Ad Age*’s Creativity 50, *Business Insider*’s 50 Women Who Are Changing the World, *City & State*’s Rising Stars, and an AOL/PBS Next MAKER.

Ruthe Farmer | Monday, June 22 | 4:00 to 5:00 p.m.
Chief Strategy & Growth Officer | National Center for Women & Information Technology (NCWIT)

Ruthe Farmer has focused her efforts on increasing girls’ participation in technology and engineering since 2001. She provides strategic planning and direction at NCWIT, fund development, and cultivation of new partnerships, and leads the NCWIT K-12 Alliance. Farmer is the driving force behind the hugely successful Aspirations in Computing talent development initiative, served as the 2012 Chair of Computer Science Education Week, was named a Champion of Change for Technology Inclusion by the White House in July 2013, received the Ulla Popken Phenomenal Woman Award for her work to increase girls’ participation in technology and engineering, and received the Anita Borg Institute Award for Social Impact.

Farmer has a history of scaling up innovative STEM projects. She was responsible for establishing a national Lego Robotics program at Girl Scouts of the USA, scaling out the Intel Design & Discovery engineering program to 63 locations, and forming a national partnership between FIRST Robotics and Girl Scouts of the USA. She created GirlFEST, a one-day resource expo celebrating “everything cool about being a girl.” The inaugural event drew 10,000 girls; the event has been replicated in 15 Girl Scout councils and has been adopted as the girl engagement model at the Triennial Girl Scout convention. Farmer developed “On the Road: the Savvy Girl’s Guide to Cars,” a comprehensive program on automotive careers, safety, and maintenance sponsored by Firestone and the US Department of Labor. She received the 2007 Education Publisher’s Award for the program guidebook. She also published the “Guide to Promising Practices in Informal IT Education” in partnership with Girl Scouts and NCWIT in 2007, and advised on the WGBH Design Squad and All Terrain Brain resources.

Farmer frequently speaks and presents on the topic of girls and women in technology and has been an invited speaker at the White House, the United Nations International Telecommunications Union, the European Union Energy Committee, the WebSummit in Dublin, and many more. Farmer served on the National Girls Collaborative Project Champions Board, the FIRST Robotics Girls FIRST Advisory Board, and was a founding board member of Springboard Innovation, a non-profit dedicated to incubating grass roots social entrepreneurs. From 2001-2005, she was on the founding committee of the Oregon Robotics and Tournament Outreach Program (ORTOP), one of the largest and most successful FIRST Lego League programs in the US. She sits on the Lewis & Clark College Board of Alumni and is an ambassador for the University of Oxford Said Business School. Farmer holds a Bachelor of Arts in Communications & German from Lewis & Clark College and an MBA in Social Entrepreneurship from the University of Oxford’s Said Business School and is passionate about integrating innovative entrepreneurial strategies into her work.
Maria Klawe | Tuesday, June 23 | 9:00 to 10:00 a.m.
President | Harvey Mudd College

Maria Klawe began her tenure as Harvey Mudd College’s fifth president in 2006. A renowned computer scientist and scholar, President Klawe is the first woman to lead the College since its founding in 1955. Prior to joining HMC, she served as dean of engineering and professor of computer science at Princeton University. Klawe joined Princeton from the University of British Columbia (UBC) where she served as dean of science from 1998 to 2002, vice president of student and academic services from 1995 to 1998, and head of the Department of Computer Science from 1988 to 1995. Prior to UBC, Klawe spent eight years with IBM Research in California, and two years at the University of Toronto. She received her Ph.D. (1977) and B.Sc. (1973) in mathematics from the University of Alberta.

Klawe has made significant research contributions in several areas of mathematics and computer science, including functional analysis, discrete mathematics, theoretical computer science, human-computer interaction, gender issues in information technology and interactive-multimedia for mathematics education. Her current research focuses on discrete mathematics.

Klawe is a renowned lecturer and has given talks at international conferences, national symposia, and colleges across the US and Canada about diversity in science, technology, engineering, and mathematics disciplines and industries, gender and gaming, and lessons from her own career in STEM industry and education. She has devoted particular attention in recent years to improving K-12 science and mathematics education.

Klawe is one of the ten members of the board of Microsoft Corporation, a board member of Broadcom Corporation and the nonprofit Math for America, a fellow of the American Academy of Arts & Sciences, a trustee for the Mathematical Sciences Research Institute in Berkeley and a member of the Stanford Engineering Advisory Council, the Advisory Council for the Computer Science Teachers Association, and the Canada Excellence Research Chairs Selection Board. She is co-chair of the Scientific Advisory Board of the Simons Institute at UC Berkeley. She is the recipient of the 2014 Women of Vision ABIE Award for Leadership and was ranked 17 on Fortune's 2014 list of the World’s 50 Greatest Leaders.

Rebecca Kamen | Tuesday, June 23 | 11:30 a.m. to 12:30 p.m.
Artist, Lecturer, and Professor Emeritus of Art | Northern Virginia Community College

Rebecca Kamen's work explores the nexus of art and science informed by wide-ranging research into cosmology, history, philosophy, and various scientific fields. She has investigated scientific rare books and manuscripts at the libraries of the American Philosophical Society, the Chemical Heritage Foundation, and most recently the Cajal Institute in Madrid, utilizing these significant scientific collections as a catalyst in the creation of her work.

Kamen received an MA in art education from the University of Illinois, and an MFA in sculpture from Rhode Island School of Design. She has exhibited and lectured both nationally and internationally including China, Hong Kong, Chile, Korea, Egypt, and Spain. She has been the recipient of a Virginia Museum of Fine Arts Professional Fellowship, a Pollack Krasner Foundation Fellowship, two Strauss Fellowships, and a Travel Grant from the Chemical Heritage Foundation. Recently, as an artist in residence in the neuroscience program at National Institutes of Health, Kamen has interpreted and transformed neuroscience research into sculptural form. Her artwork is represented in many private and public collections including, National Institutes of Health, KPMG Peat Martwick Corporation, Gannett Corporation, IBM, Capital One, and the Institute for Defense Analysis.

Currently as professor emeritus of art at Northern Virginia Community College, Kamen continues to investigate how the arts and creativity can be used to enhance our understanding of science. This project was initiated in 2011 when she was nominated as a Chancellor’s Commonwealth Professor. An outcome of Kamen's research has included the development of an art component for George Mason University’s Aspiring Scientist Summer Internship Program (ASSIP), encouraging science interns to use the arts as an innovative way of interpreting their research.

Kamen has been a Nifty Fifty Speaker for the USA Science and Engineering Festival, since 2013. The Nifty Fifty are over 200 of the most dynamic scientists and engineers in the US. They are selected for their unique ability to inspire the next generation of students to pursue careers in STEM fields. Kamen is the first visual artist selected as a Nifty Fifty Speaker.
Speakers

**Dorothy Bennett | Tuesday, June 23 | 4:00 to 5:00 p.m.**
*Senior Researcher, Design Lab | New York Hall of Science (NYSCI)*

Dorothy Bennett has over 25 years of experience researching and developing educational media, curricula and teacher enhancement programs that explore how design can serve as a powerful pathway into science and engineering for children. She has collaborated with a broad range of institutions to research and develop media rich, inclusive science and technology programs, including the American Museum of Natural History, the Australian Children’s Television Foundation, IBM, CUNY Schools of Engineering, and K–12 school districts across the country. As principal investigator on a body of NSF-funded work, she investigated the role that narrative context plays in opening up engineering and computer programming to diverse groups of children. She holds a MS from Bank Street College of Education, with a focus on adolescent development.

**Amy Leidtke | Tuesday, June 23 | 4:00 to 5:00 p.m.**
*Industrial Designer and Artist; Adjunct Professor of Industrial Design | Rhode Island School of Design (RISD); Design and Education Consultant | Leidtke Design*

Amy Leidtke, MID, is an industrial designer, education consultant, RISD faculty, and master teaching artist, who works closely with businesses, non-profit organizations, school administrators, teachers, and students. Fostering a culture of creativity, collaboration, and design thinking is one way Leidtke inspires people to explore their capacity and potential to use multidisciplinary approaches to conduct research, brainstorm, build teams, and solve problems. Providing thought leadership in the realm of arts education is another way Leidtke advocates for innovative literacy; she believes all children should have equal access to high quality art and design education. Leidtke states, “Building strong visual literacy skills in future citizens will help create a capable country with confident innovators, fluent communicators, and empathetic business leaders.”

Leidtke is a proponent of STEAM education, as she notes, “STEAM is an exciting education initiative throughout the US and acknowledges that the subjects of science, technology, engineering, and math (STEM) can benefit immensely by infusing the arts to increase student engagement, learning, and understanding. STEAM-based curriculum effectively connects children’s minds and hands, making learning immersive and fun.”

**Jacque Fetrow | Wednesday, June 24 | 8:45 to 9:45 a.m.**
*Provost and Vice President for Academic Affairs | University of Richmond*

Jacque Fetrow assumed the role of Provost and Vice President of Academic Affairs on July 1, 2014. As Provost at the University of Richmond, Fetrow serves as the University’s chief academic officer with responsibilities that include oversight of the University’s academic mission, tenure and promotion processes, and budget planning. She works closely with the academic deans of the five schools and serves as a member of the President’s Cabinet.

Fetrow earned a Ph.D. in biological chemistry from Pennsylvania State University in 1986 and a BS in biochemistry from Albright College in 1982. Prior to her appointment at Richmond, she served as Dean of the College and Reynolds Professor of Computational Biophysics at Wake Forest University. At Wake Forest, she led the creation of the College’s strategic plan and the development of the College’s capital campaign. Notable accomplishments supporting excellence in undergraduate education included establishing the Office of Academic Advising to coordinate and enhance the faculty’s advising activities, overseeing the early development of the Undergraduate Research and Creative Activities (URECA) Center to provide exceptional opportunities to undergraduate students, and fostering the development of specific programs focused on boosting the success of first-generation and at-risk students.

Before her time at Wake Forest, Fetrow served as Chief Scientific Officer and Director (and co-founder) of GeneFormatics, Inc., a company that developed software and databases for the pharmaceutical industry. She co-invented GeneFormatics’ primary patented technologies and, as part of the executive management team, she played key roles in developing company strategy, raising over $50 million in three funding rounds, building to a 65-person organization, and merging the company with another biotechnology software company in 2003.
Fetrow previously served on the Executive Council and currently serves as the Secretary/Treasurer of the Protein Society, an international professional organization. She also serves on the Board of Trustees of Albright College, on the Board of Directors of QuantumBio, Inc., an early stage biotechnology software company, and on the Editorial Boards of the professional journals “PLoS Computational Biology” and “Proteins: Structure, Function, and Bioinformatics.” She has also served on the NSF BIO Directorate Advisory Council and on numerous NIH study sections, including charter memberships.

Fetrow’s ongoing research program focuses on understanding the relationships between protein structure, function, and dynamics, with a long-range goal of understanding disease mechanisms and improving processes for structure-based drug discovery. She has published over 80 peer-reviewed or invited articles and is listed as an inventor on five US patents. She enjoys involving undergraduate students and research associates in her research projects and has won three awards for her excellence and innovation in teaching.

**Ellen Stofan | Wednesday, June 24 | 8:45 to 9:45 a.m.**

*Chief Scientist | NASA*

Dr. Ellen Stofan was appointed NASA chief scientist on August 25, 2013, serving as principal advisor to NASA Administrator Charles Bolden on the agency’s science programs and science-related strategic planning and investments.

Prior to her appointment, Dr. Stofan was vice president of Proxemy Research and honorary professor in the department of Earth sciences at University College London. Her research has focused on the geology of Venus, Mars, Saturn’s moon Titan, and Earth. Dr. Stofan is an associate member of the Cassini Mission to Saturn Radar Team and a co-investigator on the Mars Express Mission’s MARSIS sounder. She also was principal investigator on the Titan Mare Explorer, a proposed mission to send a floating lander to a sea on Titan.

Her appointment as chief scientist marks a return to NASA for Dr. Stofan. From 1991 through 2000, she held a number of senior scientist positions at NASA’s Jet Propulsion Laboratory in Pasadena, CA, including chief scientist for NASA’s New Millennium Program, deputy project scientist for the Magellan Mission to Venus, and experiment scientist for SIR-C, an instrument that provided radar images of Earth on two shuttle flights in 1994.

Dr. Stofan holds master and doctorate degrees in geological sciences from Brown University in and a bachelor’s degree from the College of William and Mary. She has received many awards and honors, including the Presidential Early Career Award for Scientists and Engineers. Dr. Stofan has authored and published numerous professional papers, books and book chapters, and has chaired committees including the National Research Council Inner Planets Panel for the recent Planetary Science Decadal Survey and the Venus Exploration Analysis Group.

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**STEM Facts on Women and Girls**

- Women comprise more than 20% of engineering school graduates, yet only 11% of practicing engineers are women.
- Of 100 female bachelor students, 12 graduate with a STEM major, but only 3 continue to work in STEM fields 10 years after graduation.
- Although women fill close to half of all jobs in the U.S. economy, they hold less than 25% of STEM jobs.
About NCGS

Mission: Our daily focus
The National Coalition of Girls’ Schools (NCGS) is a leading advocate for girls’ education with a distinct commitment to the transformative power of all-girls schools. The Coalition acts at the forefront of educational thought, collaborating and connecting globally with individuals, schools, and organizations dedicated to empowering girls to be influential contributors to the world.

Vision: Our singular goal
The National Coalition of Girls’ Schools envisions a world where every girl will have access to the education and resources she needs to develop into a competent and confident woman, one who is equipped to assume whatever role she seeks for herself, wherever in the world.

Values: Our motivating philosophy
We believe in girls.
We believe in being visionary.
We believe in the power of many voices.
We believe in pushing boundaries.
We believe in proving it works.
We believe in conducting ourselves with respect and integrity.

NCGS Team
Megan Murphy, Executive Director
Olivia Haas, Director of Strategic Communications & Research
Eliza McGehee, Program Associate
Paige Rannigan, Director of Member & Administrative Services
Jen Shakeshaft, Director of Strategic Initiatives & Professional Development

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MEMBER BENEFITS

About NCGS

• Serves 200 national and international PK-12 schools (independent, public, charter, and religiously-affiliated), 60,000 students, 700,000 alumnae, and 10,000 educators
• Provides resources such as research on girls’ education, performance outcomes, best practices, and facts and figures
• Offers member discounts on high-quality programming and services for schools
• Creates forums for rich, informed conversation through networking, events, and social media
• Unites and builds a community of thought leaders

Professional Development

• Convenes regional, national, and international conferences as “go-to” places on girls’ education and offers opportunities for member schools to showcase their signature programs
• Connects members with global experts on girls’ education
• Gives members access to pilot programs and unique curricular opportunities
• Provides online and in-person professional development opportunities
• Offers resources for educating girls and promotes best practices

Research

• Conducts NCGS-directed research projects with academic partners
• Provides benchmarking data and analyses of trends
• Collaborates with researchers working on issues of importance to girls’ education and girls’ schools
• Tracks prevailing research to keep member schools up-to-date with latest findings via “IN THE NEWS” column in The Coalition Connection and on ncgs.org
• Offers member schools opportunities to participate in major research initiatives
• Provides quick access to single-sex research reports grouped by topic on website

Networking

• Sends bi-monthly e-newsletter The Coalition Connection containing valuable information for all administrators and faculty
• Posts complimentary job openings for member schools on website
• Hosts regional and national gatherings for member schools and their alumnae
• Collaborates with strategic partners to offer custom designed programs for students and faculty
• Manages LinkedIn Group discussion forum for girls’ school educators to engage around informative, strategic topics

Advocacy

• Promotes a common language that clearly conveys the distinctive value of girls’ schools
• Provides a list of common claims against single-sex schools and talking points that refute each claim
• Builds strategic partnerships with a network of individuals and agencies in education, government, business, research, and other girl-serving organizations
• Represents girls’ schools at national and international conferences
• Offers materials and outreach programs for prospective families on the advantages of girls’ schools
• Maintains searchable web-based directory of member schools for prospective families
• Facilitates collaborative Raising Girls’ Voices blog to advance thought-leadership of NCGS and its member schools
• Engages members and alumnae in issues related to the education and healthy development of girls via Facebook and Twitter

Our Mission

The National Coalition of Girls’ Schools (NCGS) is a leading advocate for girls’ education with a distinct commitment to the transformative power of all-girls schools. The Coalition acts at the forefront of educational thought, collaborating and connecting globally with individuals, schools, and organizations dedicated to empowering girls to be influential contributors to the world.
Research

- “High School Survey of Student Engagement” (HSSSE) conducted by Indiana University Center for Evaluation & Education Policy to provide data that can be used to generate discussions on teaching and learning and guide student improvement activities (annual)
- “The Influence of Peers on Adolescent Students’ Academic Interest and Aspirations in STEM” supported by the National Science Foundation and conducted by University of Massachusetts, Amherst, 2014-2019
- “Women Graduates of Single-Sex and Coeducational High Schools: Differences in their Characteristics and the Transition to College” supported by NCGS and conducted by UCLA Graduate School of Education & Information Studies, 2009
- “Independent School Health Check Database: A Comprehensive Look at Student Behavior and Attitudes, Risk and Protective Factors” (ISHC) offered in collaboration with and conducted by The Institute of Living at Hartford Hospital (annual)
- “Enrollment Surveys for Prospective Families” offered by NCGS as a set of three electronic surveys to assess decision-making of non-enrolling, enrolling, and prospective families (annual)
- “Data and Analysis for School Leadership” (DASL) [formerly StatsOnline] offered by NAIS as a data tool for building custom comparison reports from over 30 years of independent school statistics (annual)

Networking

- Collaborates with mission-similar organizations, like the Girls’ School Association (U.K.), Alliance of Girls’ Schools Australasia, Young Women’s Leadership Network, etc.
- Holds leadership positions on advisory boards of mission-similar organizations, such as the National Center for Women & IT, National Girls Collaborative Project, Center for Advancement of Girls at The Agnes Irwin School, Girl Up (Founding Partner Role), TABS North American Boarding Initiative, etc.
- Supports unique member forums, such as the Harpeth Hall STEM Think Tank, Laurel School’s Center for Research on Girls Biennial Symposium, The Agnes Irwin School’s Center for the Advancement of Girls Symposiums, Greenwich Academy’s GAINS Scholar Network, etc.
- Collaborates with strategic partners like Girl Up, Grand Classroom, and CIEE to offer summer enrichment leadership programs custom designed for girls and faculty

Professional Development

- Online course “Introduction to Girls’ Schools” for both seasoned and less experienced teachers new to girls’ schools, co-offered by Online School for Girls (OSG) and NCGS
- Informs members through the website and The Coalition Connection about regional member school-hosted roundtables, symposiums, and conferences as well as NCGS vetted girls’ education and global awareness opportunities

Advocacy

- Promotes member accolades, news, and events on website and social media
- Gives speeches and presentations at member schools on the value of all-girls education
- Develops talking points for schools, submits Op-Eds, and responds to the media to address myths about girls’ schools
- Brings together member schools in response to national and international events of significance
- Creates aggregated library of national and international headlines and research reports related to the development and education of girls
- Organizes Girls’ School Advantage outreach events in major metro areas for prospective families and community-based organizations to learn about the unique benefits of all-girls schools

Publications to Promote Girls’ Schools:

- “The Girls’ School Advantage” brochure
- “The Girls’ School Advantage: By the Numbers” slide presentation
- “Women Graduates of Single-Sex and Coeducational High Schools: Differences in their Characteristics and the Transition to College” Dr. Linda Sax, UCLA executive summary report

New!

- “Steeped in Learning: The Student Experience at All-Girls Schools” HSSSE executive summary report

New Look!

- “Essentials” UCLA pamphlet report

New Look!

- “Questions to Ask About Your Daughter’s Current School Experience” pamphlet
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Kaylyn G. | Software Engineer, Capital One
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**Overview**

- Our materials target grades 4th-8th (ages 9-14).
- Clubs are run by teachers and/or community volunteers. No computer science experience necessary!
- CS First materials are video-based.
- Student projects are built in Scratch, a block-based coding tool (scratch.mit.edu).
- Themed clubs attract students with varied interests.

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![Impact Map](cs-first.com/impact)

**Our Goals**

- Increase **confidence** when using computers
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- Provide a **sense of belonging** in technology for underrepresented students
- Demonstrate the **impact** that CS has in careers and communities

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- Reliable internet/wifi connection
- Access to students

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—Bluma Drebin, Director of General Studies, YULA Girls High School

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“First Republic has improved the financial health of our school.”

THE HAMLIN SCHOOL
Cristina Conruwerta, Director of Finance and Operations (left)
Wanda M. Holland Green, Head of School (right)
At Capital One, we enjoy being a part of a diverse, creative team. We are a bank, but operate more like a tech company; writing our own code and creating products that surpass the needs of our 65+ million customers. Currently, there’s a strong decline in women in tech, and we’re encouraging everyone to help us share a more expansive vision of how girls can be successful in STEM and later in the lucrative growing field of tech.

Google's core mission is to organize the world’s information and make it universally accessible and useful. We create products to increase access to opportunity, break down barriers and empower people through technology. To help us reach these goals, we work to inspire young people around the world—particularly girls—not just to use technology, but to create it.

Diamond Mind is the leading provider of payment solutions for independent K–12 schools. We help business officers at over 950 schools to simplify, streamline and accelerate payments with campus-wide payment solutions for tuition, online giving, summer programs, purchase card programs and more. Learn how to boost revenues, increase flexibility and improve the payment experience for parents: diamondmindinc.com.

Founded in 1985, First Republic Bank offers private banking and wealth management, including investment, trust and brokerage services to businesses and individuals. First Republic specializes in delivering exceptional, relationship-based service, with a solid commitment to responsiveness and action. The bank offers financing and day-to-day banking for independent schools in all of our markets.

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ERB is a global not-for-profit organization providing admission and achievement assessments for PreK – Grade 12. For over 85 years, ERB has been a trusted source to inform admission decisions and to support curriculum and instruction.
The NCGS Board of Trustees Salutes

Ann Pollina
2014-2015 RANSOME PRIZE WINNER

The Ransome Prize is an annual award presented in honor of the National Coalition of Girls’ Schools (NCGS) co-founder Whitty Ransome, which was established by her husband Tom Wilcox in 2009. NCGS presents this award to a woman who has made outstanding contributions to the Coalition and one of its member schools to further the NCGS mission to be “a leading advocate for girls’ education with a distinct commitment to the transformative power of all-girls schools.”

Former NCGS Trustee Ann Pollina served as Head of Westover School from 1997 to 2015 after becoming a member of the school’s faculty in 1972, and has served as chair of the NCGS Board.

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Thank you for attending!

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