



SWENextEd Newsletter - July 2018

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Connecting your students with camps, afterschool programs

As a teacher, you are often one of the most influential individuals in a young person's life. You can help shape ideas, interests, and expectations, often informing their future choices, academically and socially. That means keeping current on the evolving and emerging career paths that will prepare them for future success – STEM being a key component of that future.



To ensure your students have access to all available resources, it is important to know what kinds of STEM camps, afterschool programs and contests are available. You don't have to be the expert, but you will need to connect to those who are in the know. Learn about the opportunities available, especially those for the under-represented populations, like girls and minority students, who may not have easy access or confidence enough to participate in STEM programming. Look at utilizing partnerships,

accessing mentors, and creatively engaging the community in supporting STEM activities. Not every community has every national nonprofit organization and most have small local nonprofits that want to help.

When looking for partners, start with the national groups and look for their local affiliate – **4-H** (who has Google funding) – they will be found with your county extension organization; **Girl Scouts** have 116 councils, **STEM Scouts with BSA** – 30 cities across the country, **Girls Who Code**, among others. **iDTech** has camps across the United States. Be sure to see if **your local SWE section** is hosting a summer camp. Further, look at local nonprofits, national nonprofits, partnership with local libraries, makerspaces and other sources to help with grant-funding, programming, sponsorship, and mentoring.



National AfterSchool Association

The **National AfterSchool Association** is the voice of the afterschool profession. They are the national membership organization for professionals who work with and on behalf of children and youth during out-of-school time.

Check out their free **afterschool techtoolkit** with strategies and training to provide students with powerful access to technology outside of classroom hours.



Social Justice and Effective Strategies

We are going to explore strategies for engaging equitable and effective STEM education. As teachers, we may or may not recognize the need to diversify our classroom enrollment getting more women and underrepresented populations into STEM majors and careers. Getting them involved is more than a one-time event, it means changing how we teach, the tools we use and consciously showing all students they can do it. We hear lots of discussion today about social justice meaning an equitable distribution of opportunities for education and success. More often we hear the phrase the "rich are getting richer, while the poor are getting poorer." However, many times there are few actual solutions offered to impact the inequities. For those of us in education, the answer is frustratingly obvious—teach from a social justice perspective with authentic equity at its core. That perspective means understanding that effective teaching offers students equal opportunity and access to a balance of quality academic and marketable content; a pathway to higher education and/or technical and vocational training; critical thinking skills that not only empower, but enlighten, and actual role models, scenarios, learning experiences and applications in



real-life, achievable settings. This all needs to be relatable to how equitable education is transformative in the sense it invites students to make personal, familial and community change inside or beyond their community. In essence, social justice is simply "being the best you can be", with the caveat that access or equity cannot replace ambition, hard work or commitment. Certainly, there is no single solution to creating equity and therefore foster social justice, but there is basic foundational knowledge and pedagogical steps that can help facilitate that process.

The first step is truly visualizing social justice as a reality and practice to help us begin to connect with how equity in computer education can be identified and implemented. Traditionally, ideal social justice is manifested in a community model where individuals, groups - ethnic, social, religious, cultural, gender, etc., are treated equally and without bias. Therefore, it means having access to the same quality housing, infrastructure, education, opportunities, social acceptance, upward mobility, legal treatment, and representation, as those from more preferential social, ethnic, gender or religious groups. Social justice does not, by definition or implementation, mean socialism or communism (as a theory) where community members have no individual ownership or rights outside of the collective and everything is done for the greater good as defined by a "coordinating power." It instead means that individuals, regardless of affiliations, receive the same access to quality education and social experiences that allow them to grow intellectually, socially, and morally into empowered, successful citizens.

Step two is taking this vision of social justice with equity as the foundation of progressive education and then specifically imbedding it into computer science education from practice to pedagogy. By keeping our collective "eye on the prize" (social justice for all), we can craft programs, policies and daily practices that attract, support, and empower students and their families from our underrepresented and underserved populations. Further, by knowing who is missing from the planning, parenting, and practice table before, during, and after programs are launched we can better ensure both equal opportunity while supporting individual outcomes. These concepts apply to all aspects of computer science whether it is through classrooms, media, social engineering, afterschool computing and science clubs and even makerspaces, and how equity challenges are being addressed in practice. It is vital as we strive towards using the social justice paradigm as our guiding principle to acknowledge, accept and still move forward with equitable solutions, despite their variable imperfections. Change comes in degrees and evolves in phases. While not every program or practice will initially be successful, it is through the process of understanding both the effective, and less successful, strategies that we will learn how to fully embrace equity and build the foundation for long term social justice.



Engineering connections: Civil Engineer

Civil Engineering is one of the oldest engineering disciplines, which dates back to the first time



someone built a shelter or laid a tree trunk over a stream to get across. If you've traveled on a road, crossed over a bridge, or stepped inside a building, you've used something designed by a Civil Engineer. Civil Engineering deals with the science of designing, overseeing construction, and maintenance of building structures and

facilities. This important work is combined with a desire to make beautiful and environmentally sound structures, which are also functional and cost-effective. Civil Engineers help keep our lives safe and running smoothly. They work to improve travel and commerce, provide people with safe drinking water and sanitation, and protect communities from earthquakes and floods.

If you are interested in exploring a career in Civil Engineering, check out the video below from the American Society of Civil Engineers, explaining "What Do Civil Engineers Do?"



Want to know more about Civil Engineering? Check out our profiles of Civil Engineers [Kelly Fearon](#) and [Emily Munday](#).



2018 SWENext Awards

Encourage your students to apply for the SWENext Awards!

2018 SWENext Global Innovator Award – for rising juniors and seniors

If you are a rising junior or senior in high school, you are eligible to submit a video and four short essays that highlight your STEM and leadership accomplishments. The award recipients are selected

by SWE members. Up to 6 SWENexters will be selected.

SWENext Global Innovator Award Recipients receive the following:



- All-expenses paid trip to WE18, SWE's global conference in Minneapolis, MN in October 2018 for the recipient and one adult chaperone.
- Recognition for their accomplishments during the SWE Awards Banquet.
- Participation in the SWENext High School Leadership Academy.
- Participation in the **Invent it. Build it.** event as an engineer's assistant.
- A 3D printed trophy and certificate of achievement.
- SWE Commemorative Shirts: "Watch Me Change the World" and other goodies.

[Click here to apply to the 2018 SWENext Global Innovator Award Program. The deadline is July 31, 2018 at 11:59 PM CT \(Midnight\).](#)



2018 SWENext Northrop Grumman Community Award – Minneapolis – for rising freshman and sophomores

If you are a **rising freshman or sophomore**, you are eligible to design and submit a poster detailing your proposed STEM-based solution to this problem:

For 52 years, the Upper St. Anthony Lock in Minneapolis allowed ships to transport goods past the only waterfall on the Mississippi River. **In 2015, the lock closed to prevent invasive Asian Carp from spreading any further up the Mississippi River.** These fish reproduce quickly, jump over barriers, and push out native species as they make their way up the river. Closing the lock seemed essential to stop the fish, but it pushed all cargo into trucks, increasing road traffic through Minneapolis and changing the city's relationship to the river.

Put yourself in the shoes of an engineer. How would you stop Asian Carp from progressing further up the Mississippi River and into Minnesota's other waterways in a way that would allow the Upper St. Anthony Lock to be reopened? Alternatively, how would you alleviate the cargo shipment traffic on Minneapolis roadways caused by the lock closure?

SWENext High School Community Award Recipients receive the following:

- Registration to WE18, SWE's global conference in Minneapolis, MN in October 2018 for the recipient and one adult chaperone.
- Participation in the SWENext High School Leadership Academy.
- Participation in the **Invent it. Build it.** event as an Engineer's Assistant.
- Participation in Community Award poster presentations during the STEM EXPO where they will present their poster to middle school girls, parents, educators, and professional engineers.
- A 3D printed trophy and certificate of achievement.
- SWE Commemorative Shirts: "Watch Me Change the World" and other goodies.

SWENext Northrop Grumman Community Award recipients are selected by SWE members.

[Click here to view a selection of the SWENext Northrop Grumman Community Award winning posters from 2017.](#)

Visit here to apply to the 2018 SWENext Northrop Grumman Community Award Program. The deadline is July 31, 2018 at 11:59 PM CT (Midnight).

Take on the SWENext Club Challenge



SWE is challenging the next generation to create an exciting engineering demo and to celebrate women engineers who broke boundaries in their field. The winning club will come to the SWE annual conference, WE18, in Minneapolis, MN., this October and show their demo to women engineers.

Find out more about how to **[start a SWENext Club](#)** and take on the **[SWENext Club Challenge](#)**.

Register for Invent it. Build it.

Now's the time to [register for Invent it. Build it.](#), our largest hands-on engineering event. [Invent it. Build it.](#) is an experience designed to encourage middle school and high school girls to choose a career in engineering. Students participate in a hands-on engineering experience with members of the Society of Women Engineers.



While the girls are having fun building and inventing, parents and educators learn about engineering careers, scholarships, college admission and resources. All attendees learn about engineering clubs, camps, after-school programs and competitions at the Invent it. Build it. EXPO.

Become a SWE K-12 Educator Member

SWE values educators as integral to attracting and engaging the next generation of engineers. SWE has created an [Educator Membership](#) for only \$20/year. Benefits include access to role models, networks, magazines, training, grants, news and events. Both men and women are welcome.

[Join or renew your membership today >>](#)



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