Society of Women Engineers Newsletter for Educators - September 2017

SWENextEd Newsletter Vol. 7 – September 2017

Welcome back from summer break! Educators it's time to get revved up for all things engineering. In this issue, we introduce a few creative ideas for teaching engineering basics, sparking innovation and getting your students excited in building engineering connections. Hope to see you and your students at the WE17 conference in Austin, Texas, this October! Get in on the conversation and join our SWENextEd Facebook page.

Engineering Fundamentals

Engineers make this world a better place in which to live, work and play. But many folks don't really know what engineers are. Crash Course Kids has an excellent engineering series, explaining how "Engineers are people who design and build things to solve problems." Once you have this fundamental concept, teaching engineering then boils down to having a good understanding of the Engineering Design Process (EDP). The EDP can even be introduced to preschoolers. For younger children, it is important to develop the basic language of problem solving and that it is fundamentally a process that all engineers use.

Dealing with the "F" Word

Many educators when just learning the Engineering Design Process (EDP) struggle with designs that don't work the first time. While some internalize failure as bad, the reality is that teaching the EDP can help build a healthy growth mindset. Failure is an opportunity to learn, to find better solutions to the problem, and to "think like an Engineer". Engineers know it is better to fail early so that we can get to the better solution sooner. Here are a few more tips in how to Succeed by Failing in using the EDP.

Educator Member Spotlight: Cassie Rivaldi

"Teaching engineering is more than just building - it's about creating creativity and inspiring innovation, problem solving, and informing students about what engineers do." Cassie Rivaldi, K-8 Engineering Teacher, Feaster Charter School."

Cassie Rivaldi, SWE K-12 Educator member, teaches engineering to all of the 1,200 K-8 students at Feaster Charter School located in the Chula Vista, California school district. She is the school's Engineering specialty teacher with her own dedicated engineering-style Maker Lab.

To help teachers manage the failure discussion, Cassie recommends eliminating the word "No" from their vocabulary and using the word "Why" instead. That way it reinforces the cyclical nature of the EDP and turns failure into an opportunity to re-evaluate and redesign. Students become more engaged, learn critical socio-emotional skills like grit, and don't let failure stop them.

What about engaging girls in Engineering? Even as a successful, visible female engineering role model, she still receives pushback. Many of her female students express interest in joining her afterschool robotics clubs,

but the primary pushback comes from their parents. "I'm hoping that by bringing in SWENext and potentially starting a SWENext Club, we can help improve the gender diversity in my robotics clubs." Read more about Cassie's Engineering experiences and insights, check out our SWE blog post here!

Engineering Connections: SWENext Club E-Challenge due Sept 15, 2017

Innovations in technology are enabling students to stay connected, even when they can't be in the classroom. To get your students engaged, have them join the SWENext Club Challenge to engineer a better experience when connecting with people online. Clubs are invited to design a plan for a physical product, app, or bot that enhances conversations when used with systems like Skype, Snapchat and/or FaceTime. The winning club will come to the SWE annual conference, WE17, in Austin, Texas to demo their prototyped product. Here is the link for registering your SWENext Club!

Be part of the SWE Community

Looking for a fun hands-on outreach event where your grades 6-12 students can meet engineers? Then get ready to attend SWE's annual conference, WE17, and its signature event, Invent it. Build it. The event takes place on Saturday, October 28, 2017 at the Austin Convention Center. Parents and educators are also welcome. You can visit our Outreach Expo and explore a special engineering programming with us. See you in Texas!

Educators are integral to attracting and engaging the next generation of engineers. Share the SWENextEd Educator Newsletter with your

colleagues. Consider becoming a SWE K-12 Educator Member for only $20/year. Benefits include access to role models, networks, magazines, training, grants, news and events. Both women and men are welcome.

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