

ARCS NEWS

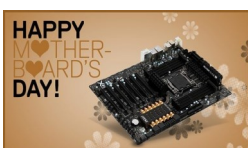
Advancing Rural Computer Science

Brought to you by The Center for Educational Partnerships at Old Dominion University

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Announcements



Greetings, and welcome to our May newsletter focusing on **hardware!**

Since the month of May includes Mother's Day, we want to cheer for all the Moms and mother figures in our lives! We also want to showcase why it is important for our young women and girls—who may become future Moms—to consider computer science as a career. Here are some facts and figures from www.computerscience.org:

- Women made up the majority of the computing workforce from World War II up until the 1960's.
- The Bureau of Labor Statistics states that computer science jobs will grow almost 20% by 2026.
- There are college scholarships available for girls who wish to study computer science.
- The American Association of University Women reports that computer science has one of the smallest gender pay gaps between male and female professionals (6%).

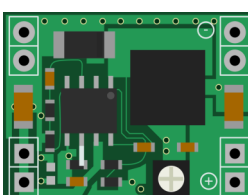
Research shows that STEM careers tend to be significantly more lucrative for women than non-STEM jobs, with women earning 33% more in STEM than in all other fields. Closing the gender gap in math and science will help to close gender gaps in income. There are quite a few organizations seeking to promote women and girls in STEM+C. You may have heard of [Girls Who Code](#), [Black Girls CODE](#), and [Coding Girls](#). These global nonprofit organizations are dedicated to increasing the presence of girls and women in computer science and other STEM fields through coding. Many women working in the STEM and computer science fields are also reaching out to bring in the next generation of girls through mentoring. One organization doing this is the [Million Women Mentors Network](#).

Our rock star ARCS Moms (and Dads, uncles, aunts, sisters, brothers, and grandparents) are also supporting this cause as they complete the self-paced Microcredentials over the summer! As you work on your Microcredentials badges, please feel free to reach out to us with your questions or concerns. We are here to help.

Best wishes,

The ARCS Team

Concept Corner



The ARCS team would like to take this opportunity to recognize the hard work and dedication of mothers everywhere. Thank you for what you do - even in computing systems.

The motherboard, like our mothers, is the main circuit board of the computer system. Also known as the "mainboard" or "baseboard," it was invented in 1981, with IBM adding it to computers later that year. It is the central "brain" of the computer, containing CPU, memory, various circuits, and ports that connect everything for both input (mouse, keyboard, mic, etc.) and output (printer, screen, speakers, etc.). All parts connect to it, and nothing works without going to it first. Why? Without a processor handling the action or memory containing information, the action would be pointless. Unlike older computers without motherboards, communication is faster; closer chips means less circuit distance for electrons to travel.

In most cases, the actual motherboard itself is simply a plastic platform with the circuits connecting replaceable CPU, memory, or other core computer parts. The user can upgrade CPU and memory chips by detaching and attaching new chips, including graphics cards for users who want to play their favorite games. Like our real mothers, the motherboard is there for its "children" no matter how they change and contains knowledge on all of life's core tasks. Whether electronic or biological - we hope all great mothers have a wonderful Mother's Day!

>> CS SOLs K.5, 1.7, 2.7, 3.8, 4.8, and 5.7.

Pedagogy Pointers



A hardware lesson with tons of resources: Hello Ruby has published many lessons on computer science subjects, including hardware. Videos to support the lessons and lesson materials (including printables!) are open source and free to use. To access the lesson materials, click "Episode 6: Hardware". Can be adapted to align with CS K.5, K.6, 1.7, 1.8, 2.7, 2.8, 3.9, 4.9, and 5.8.

[Access the Hello Ruby activity](#)



Perfect for Mother's Day: Tynker has a digital storytelling activity where students can program and share a story about an important family member in their life. This activity provides a block-coding template that students can customize. Aligns with CS 1.2, 2.2, 3.2, 4.2, 5.2.

[Access the Tynker activity](#)



ARCS Keeping in Touch Seminars (KITS) have been uploaded to YouTube! If you were not able to join us in April for the KITS sessions using Sphero indi, Sphero BOLT, and Bee-Bot classroom resources, you can now visit the [ODU TCEP YouTube channel](#) to watch as we unpack and test out our new robots. A big thanks to Brad Fessler from Sphero. We learned about some great tips and practices for using our devices.

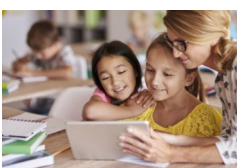
Computer Science in the Commonwealth



The Virginia Department of Education, in partnership with Virginia Public Media, has developed new K-5 media resources. These videos will serve as instructional resources when teaching the K-5 computing system standards and will be uploaded to [#GoOpenVA](#). These resources are anticipated to be released Summer/Fall 2023.

The 2017 VDOE Computer Sciences Standards of Learning are up for review and revision. The first part in this process is to collect feedback on the current standards. Your feedback is greatly appreciated and valued. Please provide your input using this [feedback form](#). Lastly, any educator who would like to serve on the standards revision committee is encouraged to [apply](#).

Engaging All Learners



Computing systems are a combination of several independent components – motherboards, processors, memory, displays, etc., each of which has a clear purpose and each of which is vital to the operation of the system. The synergy created by these computing components when they are grouped together into a system provides a great example of how independent features can combine to create fascinating and rewarding output. Classrooms present a similar concept in that they are a collection of students who represent varying backgrounds, cultures, interests, and experiences – all of which can contribute to a diverse and dynamic community of learners. Culturally responsive teaching strategies can help teachers create this environment by empowering students to recognize their value as members of the community and as meaningful contributors to the learning process. A list of strategies and examples developed by [prodigygame.com](#) for integrating culturally responsive teaching into your elementary curriculum can be [accessed here](#) to support diversity and inclusion among all students.

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Old Dominion University

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