

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! We appreciate you taking the time to read this newsletter — we know that this is a school year unlike any other, and that it continues to be full of unpredictable changes and stresses.

School year sessions with ARCS partner Code VA are continuing! If you have not yet signed in to the PLC, please email us at TCEP@odu.edu and we will connect you with the group.

Did you know that part of the ARCS project involves developing performance assessments that can be used by elementary teachers across the Commonwealth? This school year, we have developed a performance assessment for students in grades 3 through 5 that incorporates SOL skills in literacy, mathematics, science AND computer science! Links to the assessment and a fascinating survey that asks your students about their attitudes towards computer science have been sent to you by ARCS external evaluator, Dr. Jennifer Maeng. Please check your messages for more information about this important activity!

We are busy planning for ARCS summer professional development. PD will be offered in a virtual format and will include synchronous and self-paced work. We will be polling you soon about date and duration preferences. Along with what you have already learned, the PD will enable you to earn new microcredentials in CS Integration through the ODU School of Continuing Education.

This month's theme is Digital Citizenship. Now, more than ever, so much of our lives and our social interactions take place in a digital space. We provide several angles and resources on this complex topic below, which includes consideration of how online computing can spread both good and harmful information.

Finally, we wish you a happy Valentine's Day and hope that it is filled with treats and time spent with loved ones. As always, don't hesitate to reach out if you have comments or questions.

The ARCS team.

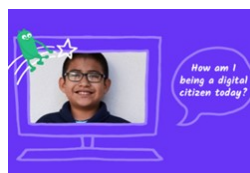
Concept Corner



Modern computers and the internet provide us with powerful tools for fast calculation and communication. These can be utilized to solve difficult and challenging problems. One such solution is the identification of the complete human genome and the development of technologies that allow us to quickly identify humans from their DNA. The latter is now routinely used in law enforcement and the justice system and has led to the exoneration of many people falsely convicted of crimes they did not commit. It has also led to techniques that can trace ancestry which has resulted in surprising discoveries and verified (or nullified) claims. Recently, fast algorithmic methods, quick exchange/dissemination of information through internet, and computational modeling played an important role in rapid development of vaccines for COVID-19. Fast and secure communication through freely available platforms can also allow people to network, organize and protest for just causes.

However, the same power that can be used for good can be abused with vast negative impact on society. Recently, a great deal of attention has been given to the role of internet based social media in spreading misinformation. Misinformation can lead people to become absorbed in harmful activities or become susceptible to polarizing messages. As a society, we have also seen the rise of cyberbullying among young people which can cause them to harm themselves or others. Digital citizenship encourages us to be mindful of identifying trustworthy sources of information, and avoid being susceptible to misinformation from unverified or unreliable internet sources. Responsible digital citizenry can include giving careful consideration before re-tweeting, sharing or forwarding posts and other forms of digital communication.

Pedagogy Pointers



For all levels: Common Sense Education provides a series of lessons, videos, and activities for elementary-aged students at all levels that help students work on ethical behavior while online, including the dangers of cyberbullying and sensible social media use. The collection of resources even includes songs for especially young students. Aligns with CS standards K.10, 1.12, 2.13-14, 3.14-16, 4.15-17, 5.14-16.

[Digital Citizenship lessons, worksheets, and planning guide](#)

[Digital Citizenship videos and songs](#)



For Valentine's Day: Customize a Google Logo with this lesson planned and provided by Google's education division. In this lesson, students can create and animate their own version of the Google logo in Scratch to share with someone they care about (be it a friend, a teacher, a family member or a pet!) on Valentine's Day. A child-friendly introduction video is provided with the lesson. Aligns with CS 1.2, 2.2, 3.2, 4.2, 5.2.

[Valentine's Day Google Logo](#)

Computer Science in the Commonwealth



As teachers, we want to prepare our students for future careers and academic pathways. This preparation includes a robust foundation in our core disciplines, development of workplace readiness skills, and opportunities for students to discover and explore areas of interest and show personal growth through electives and resource courses. This begs the question, where does computer science instruction fit into the picture? The answer is everywhere!

At this time, the world is beginning to realize the full impact of computer science on learning, communicating, entertainment, and in careers. As computer science becomes more integral to a plethora of career fields, we realize that the knowledge and skills outlined in the 2017 *Computer Science Standards of Learning* are critical to modern life. As educators, it is our responsibility to not only teach these standards through integration and standalone computer science instruction, we also need to be explicit in referring to these skills.

While we recognize the importance of integrated computer science instruction; we also have to be careful. At times, our integration is so thorough that students may not understand how the instruction includes computer science. For example, as students develop procedures for a science lab, they are really working with creating an algorithm through developing step by step directions. Yes, the teacher may indicate in the lesson plan that the lesson is cross curricular for science and computer science, but do the students realize that computers work through the use of algorithms through programs? This is where we as teachers need to be very intentional in explaining cross curricular components with our students.

I am excited about the opportunities to integrate computer science instruction into our everyday instruction; however, always keep in mind that we as teachers need to be explicit in explaining to students the connections to computer science.

Dr. Anne Petersen, VDOE

Engaging All Learners



One strategy for supporting the development of digital citizenship combines technology with culturally responsive teaching to involve and engage all learners. Integrative computer science activities across the curriculum that incorporate student voice and introduce the new concepts using familiar vocabulary are among the techniques that can promote computer science teaching and learning. [Check out](#) this brief (4 minute) video from the 2019 International Society for Technology in Education (ISTE) annual conference for ideas and examples on creating a culturally responsive learning space.

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Old Dominion University

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