

# 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 December newsletter!

We hope you and your students enjoyed a relaxing Thanksgiving! How many computing devices and systems helped you to shop for your Thanksgiving dinner or bring your loved ones together to eat it?!

This month, our theme is **coding**. We elaborate on the concept of how fast software needs to run and provide links to [Code.org](#) curriculum resources below. We also celebrate CS Ed Week, a national week that showcases computer science education! The [CSEdWeek](#) theme this year is "Impacts of Computing". It refers to the positive and negative effects that computer science has on various aspects of our lives and helps us recognize that understanding computer science is also about understanding its ethical, social, economic, and environmental implications. Scroll down for more information about Commonwealth events during the week of December 4-10th.



Members of the TCEP team will be at the 2023 VSTE (Virginia Science for Technology in Education) Annual Conference on December 3-5 in Roanoke, Virginia. If you are there, please take a moment to stop by and chat and to pick up some swag!



**\*\*\*Important Newsflash!\*\*\* Coming in the New Year - KITS: Keeping In Touch Seminars.** These one-hour Zoom-based training sessions have been designed to help new ARCS participants use their Sphero robotics classroom resource kits. The Sphero BOLT KITS is scheduled for January 18, and the Sphero indi KITS is scheduled for February 1. Registration links will be shared by email on December 11.

We wish you all safe and happy holidays and look forward to being in touch again in the New Year. If you are in the Microcredentials group, you can still reach us over the winter break for questions, technical assistance, or content related support at [TCEP@odu.edu](mailto:TCEP@odu.edu).

Happy Holidays!

**The ARCS Team**

## Concept Corner

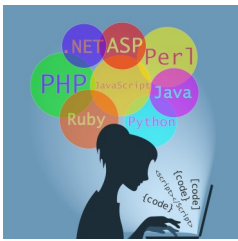


One of the major factors that a software programmer needs to consider is how fast their code works. To the non-programmer, this might be a confusing concept to understand. The best way to explain this is with a few practical examples.

Let's say that you are programming a mail delivery robot for the Post Office. You have 10 mailboxes to fill with mail. Each mailbox is to get a bill from 3 different companies. You could program the robot to deliver the bill from the first company at each mailbox, then deliver the bill from the second company, then deliver the bill from the third company. However, that would mean the robot would have to make the same trip three times, or 30 mailbox stops for 10 houses! In this case, it is a better option to program the robot to drop off all the bills that belong to the address at each mailbox. That way, the delivery robot only stops once at each mailbox.

Suppose you have 100 people that are trying to run for president of the United States. You are programming a robot to check if these candidates meet the 3 eligibility criteria to become president: they're at least 35, have been a U.S. resident for at least 14 years, and have been born in the U.S. or have at least one U.S. citizen parent. If any of these requirements aren't met, you cannot run for president. You could program the robot to always check all three criteria, but what if somebody misses the first criteria? Why should the robot waste time and energy to continue to check the other two criteria? The best way to program this robot is to have it continue to the next candidate the second that it finds a criteria that is not met.

## Pedagogy Pointers



Free Curriculum: Code.org provides a comprehensive K5 fundamentals of coding curriculum complete with videos, online and unplugged activities, and guides for educators to help facilitate teaching code in their classroom. Each grade level has its own course of material to cover. Aligns with CS K.1-3, 1.1-3, 2.1-3, 3.1-3, 4.1-3, and 5.1-3.

[Code.org fundamentals curriculum: Learning for Ages 5 to 11](#)

Student interest lessons in coding from Code.org are available to appeal to students' specific interests and keep coding relevant and engaging with Hour of Code activities. Popular examples include lessons based on video games, favorite movies, and different school subject areas. Aligns with CS K.1-3, 1.1-3, 2.1-3, 3.1-3, 4.1-3, and 5.1-3.

["Plugged" Hour of Code activities](#)

["Unplugged" Hour of Code activities](#)

## Computer Science in the Commonwealth



### Exploring the World of Computer Science: New Resources Unveiled for Educators During CSEdWeek

In celebration of Computer Science Education Week (CSEdWeek) December 4-10, 2023, the Virginia Department of Education is thrilled to introduce a suite of new media resources designed to enrich computer science education both in the classroom and beyond. Developed in collaboration between the Virginia Department of Education and VPM, these instructional resources aim to empower educators with valuable insights and tools.

#### What's In Store:

1. [Virginia's Computer Science Careers](#): Discover the diverse landscape of computer science careers across the Commonwealth of Virginia. This video series provides a look into exciting careers that utilize computer science concepts and skills.
2. [Learning with Techne](#): This fun-filled and engaging video series introduces K-5 learners to the world of computers and computing systems.
3. [Making Meaningful Connections - CS Integration](#): Explore the newly developed Computer Science Integration Course\* designed to equip teachers with the skills and knowledge needed to seamlessly integrate computer science into their K-8 curriculum. This course serves as a valuable resource for educators looking to enhance their teaching toolkit.

*\*Thank you to University of Virginia for facility use of the Design Lab and to Loudoun County Public Schools for educator and student direct involvement in the development of this course.*

**CodeVA**, sponsored by Meta and Verizon, will also be hosting a full week of events, including speakers, kids activities, and PD sessions for educators to get as many people across Virginia using, playing with, and learning about how computer science affects their everyday lives. For a schedule of events starting December 3rd and to register, go to [CodeVA Computer Science Education Week 2023](#).

**Celebrate Computer Science Education Week With NASA** by exploring their collection of coding projects and standards-aligned lessons inspired by real NASA missions and science. They also offer additional educational resources designed to get students of all ages coding. Visit [CodeVA Computer Science Education Week 2023](#) to learn more.

## Engaging All Learners



Just as computer programmers test the code they write until it works properly, educators must continually improve our instructional strategies to support the success of all students. The Wisconsin Center for Educational Research at the University of Wisconsin – Madison hosts the WIDA, an initiative that provides information and opportunities for professional development designed to help multilingual learners excel, though many of the resources found on their site can be used with a wide variety of diverse learners. [Click here](#) to visit the WIDA site and learn how strategies such as creating an engaging classroom and connecting with families can support an inclusive environment and capitalize on students' strengths and diversities to promote a multicultural setting where all students feel welcome.

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Old Dominion University

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