

# 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 Happy New Year!

We hope you and your students had a relaxing winter break. Virginia has seen some wild winter weather recently, and we hope you are safe and well.

Thanks to those of you who responded to our computer science classroom resources survey. We are working on our next steps and will be in touch with everyone about resource options soon.

This month, our theme is gaming. What is your favorite game to play with a computing device? How have games changed since you first played? What games do your students play? Scroll down for some interesting facts about gaming as well as some game related resources that align with the SOLs.

As ever, please feel free to reach out to us via [TCEP@odu.edu](mailto:TCEP@odu.edu).

**The ARCS Team**

## Concept Corner



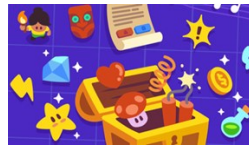
Recent developments and innovations in computer science don't only impact our lives by solving large problems, making tasks faster, and getting us more connected – they also bring new forms of entertainment. One form of this entertainment that has made one of the largest societal and cultural impacts is gaming. The gaming industry was valued at over \$178 billion globally in 2021, with 2.9 billion gamers, which accounts for 2 in 5 people in the world! Whether played on a personal computer (PC) or a PlayStation, Xbox, or Nintendo console, video games have become a thrilling and immersive pastime for many of us.

These games apply multiple concepts in computer science. Every shape, movement, and sound effect is programmed using computer code. Concepts in geometry and mathematics facilitate quality of the appearance of 3-D objects and their movement. The program in the game responds to decisions made by players and can take the game down different paths. In many cases, players face opponents that are controlled by the computer (reasonably called a “computer” opponent). This computer player makes its next move by collecting data on the human player's actions, analyzing their patterns, and predicting what move the player may do next and acting accordingly to stay competitive.

Also, regarding online multiplayer games, a secure network is required to assure that players stay connected with each other and experience fast game response and accurate interaction. In this network, there usually is a central “server” that connects every player's console and waits for enough players to connect to start a game. All in all, modern games require the contribution of hundreds, if not thousands, of developers and experts in various fields, both in computer science and in mathematics.

Sources: [Video Game Industry Statistics, Trends and Data In 2021 | WePC](#)

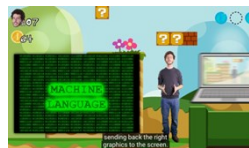
## Pedagogy Pointers



**Free Platform:** gamefroot offers a free version of its game-designing platform that allows students to use basic coding skills to design games that students can play. International curriculum guides for teachers are freely available and can be adapted to Virginia standards. The content may be challenging for K-1 students. SOLs: Aligns with CS 2.1-3, 3.1-3, 4.1-3, and 5.1-3.

[Gamefroot main site](#)

[Gamefroot educator resources](#)



**Video:** MIT explains provides a student-friendly video lesson to help students understand how games connect to coding languages like Python and Scratch. Parallels to language arts are drawn throughout the lesson to help students understand how coding is a language. Aligns with CS K.1-3, 1.1-3, 2.1-3, 3.1-3, 4.1-3, and 5.1-3.

[MIT explains how games are made](#)

## Computer Science in the Commonwealth



### CS in Your Neighborhood

CodeVA's state-wide CS In Your Neighborhood competition invites students from Kindergarten through 12th grade to submit creative “Data Selfies” representing their data footprint. Submissions can be individual, small group or by class, and take any form of shareable media including: visual art, music, video, or code/web content. Two winners from each of the eight Virginia Superintendent Regions will be part of a total of sixteen winners from across the state. **Student Deadline: April 1, 2022**

Submissions should address the following **prompt**:

*In a digital world, data is not only something that we collect and use to understand meaning but also something that we “leave behind” or give away. We create data each morning when we determine what to wear, which route to take to school/work, and what we need to do each day. Our digital footprint can allow others to learn more about us. This data is a reflection of the choices we make when we use technology.*

For full details on submission criteria and submission, please visit: <https://www.codevirginia.org/event/csweek2021/>

## Engaging All Learners



Gaming can be an effective instructional tool for a variety of content areas and is a great way to integrate computer science skills with core curricular areas. Gaming has been shown to increase engagement and promote social and emotional learning among students across K-12, with increases observed for problem solving and critical thinking skills as well as improved academic achievement overall. However, before we introduce strategies such as gaming into our classrooms, we need to ensure that the games are appropriate for all learners. For example, the games you select should be available in multiple languages and should offer differentiated support to reach students at various stages of learning. WIDA is an initiative of the University of Wisconsin – Madison that offers resources for teachers, students, and families to support learning among diverse populations, particularly those whose primary language is one other than English. [Click here](#) to visit the WIDA site to learn more about creating an inclusive elementary classroom, whether you are teaching in a face-to-face or virtual/hybrid environment.

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Old Dominion University

The Center for Educational Partnerships

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