# ARCS NEWS

**Advancing Rural Computer Science**

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

VOL. 2, ISSUE 1 OCTOBER 2021

## Announcements

**Greetings, and welcome to our October newsletter!**

We hope you enjoyed your summer and the ARCS related PD. The beginning of any school year is a busy and challenging time, and we thank you for your commitment to ARCS this year.

**ARCS monthly newsletters** are one way in which we keep in touch with you. The newsletter is created by our project leaders: ODU Center for Educational Partnerships, Virginia Department of Education, and Code VA. Each month we focus on a theme that matches one or more Computer Science SOLs, and bring you some ideas and resources that we hope are useful to you as an educator.

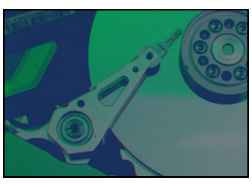
Our topic this month is **data**. What do your students think of when they hear the word "data"? They might be surprised to learn that the concept of data pre-dates computers by more than 20,000 years! Below you can learn more about this topic and how it connects to our everyday lives.

If you have any questions about ARCS or CS integration, or have any innovative ideas you would like to share with us, please don't hesitate to reach out to us via email at **TCEP@odu.edu**.

Sincerely,

***The ARCS Team***

## Concept Corner



Data collection dates back to as early as 19000 BC, when tallies were marked on a baboon's bone (called the "Ishango" bone). Archaeologists have also found examples of data in the Ancient Egyptians' cuneiform tablets.

A high quality table that organizes information is critical for data use. Go to your favorite movie theater; you'll likely find information on movie times when you first step into the establishment. Usually, the first column has the names of the movies, with the other columns listing the available times to see the movie, with the time moving forward in sequence from left to right. Imagine if it wasn't this organized! Imagine how much harder and time-consuming it would be finding the movie you're interested in if one of the movie names is on the right, while the other has the name on the left. Imagine if they didn't neatly organize the names under the same column. Worse than that, imagine if the movie times weren't all in the same format. It would not be fun to search through the available times of "6:30 pm", "20:30", "half past 10", and "twelve thirty".

The same goes with teacher gradebooks: imagine if, for some students, you wrote an "A" or "C+", while, for other students, you wrote the actual number grade. In other words, the type of data in a particular column must be kept the same. The student names on the left makes it easy to find the corresponding row to add an assignment's grade, with one column dedicated for that specific assignment. This makes it easy to find the "block" to write that grade in - spot the column, spot the row, then close in on the correct spot. This way of organizing your students' records makes it easier to sort information, spot errors, and report on progress.

Source: **The history of data - ThinkAutomation**

## Pedagogy Pointers

**Designing Data Talks in your Classroom:** You Cubed and Tech & Learning have a number of resources including strategies, suggestions for implementation, and potential resources to use in elementary classrooms to facilitate Data Talk activities, which can help students improve their skills in interpreting and understanding different ways data can be presented. The activities align with CS K.9, 1.11, 2.11, 3.12, 4.12, and 5.11.

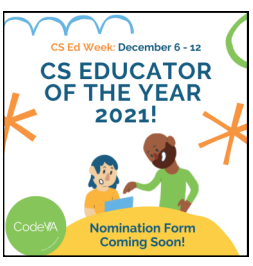
**Cubed Data Talk Prompt**

**Tech & Learning Data Talk Introduction**

**Digital Interactives: The National Center for Education Statistics (NCES)** has a platform designed for K12 students that provides several resources and online interactives. Students can develop different kinds of data representations with the NCES's create-a-graph tool. Educator resources are also available. The activities align with CS 1.11, 2.11, 3.12, 4.12, and 5.11.

**Access NCES Kids' Zone**

## Computer Science in the Commonwealth




**Computer Science Teacher Webinars**

To support computer science teachers during the 2021-22 academic year, the VDOE computer science team will conduct monthly instructional webinars. The Computer Science Teacher Webinars will focus on instructional practices of teaching computer science or on a strategy/resource to support standard implementation. Register in advance for this webinar.

Please see below for upcoming topics

**October 28:** Deconstructing the Computer Science Standards (Target Audience: K-5)

**November 18**: Deconstructing the Computer Science Standards (Target Audience: 6-8)

**December 16:** Computer Science Integration

Lastly, The CS Educator of the Year nomination form opens soon, so be sure to consider the educators you want to recognize, who are doing amazing work bringing equitable computer science education to students in Virginia!

## Engaging All Learners

A new school year brings both excitement and challenges as we get to know new students and discover how embracing our differences can support teaching and learning. Now more than ever, it is important to support diversity in the classroom through strategies that will broaden participation in science, technology, engineering and mathematics – including computer science – particularly among underrepresented students in STEM. Throughout the year, we will be sharing information, resources, and strategies designed to support computer science teaching and learning to engage all learners through culturally responsive teaching. This month, we provide an explanation of culturally responsive teaching and the theory behind it, developed by Dr. Geneva Gay, Professor of Education at the University of Washington-Seattle. Click **here** to access the theory that we draw from and read more about Dr. Gay's philosophy on culturally responsive teaching.

United States Education Department Grant U411C190032. The contents of this newsletter were developed under a grant from the Department of Education. However, those contents do not necessarily represent the policy of the Department of Education, and you should not assume endorsement by the Federal Government.

Old Dominion University

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