

# 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 hope everyone had a restful break and that you were able to spend quality time with friends and family.

As we step into 2025, a year filled with new possibilities and exciting challenges, we invite you to explore the transformative world of **data analysis**. This month's newsletter is dedicated to equipping you with the skills and knowledge to bring data analysis into your classrooms in meaningful and engaging ways. By harnessing the power of data, we can inspire curiosity, foster critical thinking, and empower our students to make informed decisions. Let's embrace this new beginning and embark on a journey that will enhance our teaching and enrich our students' learning experiences. Together, we can make this year a groundbreaking one for education and innovation!



We have also added new Keep in Touch Sessions (KITS) to the ARCS calendar! KITS are one-hour Zoom-based training sessions specifically designed to assist teachers in effectively utilizing their ARCS robotics classroom resources. These sessions will offer comprehensive setup training, provide innovative lesson suggestions, and introduce a variety of online resources. Additionally, participants will gain access to take-away activities that align with the Virginia Department of Education Standards of Learning (VDOE SOLs), enabling the seamless integration of computer science into your classrooms.

Click [here](#) to register.

January 7 @ 6 PM: Sphero RVR+ I Introduction

January 9 @ 6 PM— Sphero indi I (Introduction)

January 28 @ 6 PM—Sphero BOLT+ (Introduction)

January 30 @ 6 PM—Sphero indi II (Extended Skills)

February 18 @ 6 PM—Sphero BOLT+ II (Extended Skills)

February 20 @ 6 PM: Sphero RVR+ II (Extended Skills)

As always, we welcome your comments, questions, and ideas. We look forward to working with you all. Happy New Year!

The ARCS team

## Concept Corner



### Data -- Analysis, Analytics, and Mining

**Data Analysis** is a process of examining, curating, transforming, and modeling data with the goal of discovering useful information, which informs conclusions and supports decision-making. Examples of data analysis that you might have already encountered or carried out are the creation and use of data tables, bar graphs, or pie-charts. Each of these allow us to arrange our data in a systematic way which makes it easy to obtain useful information about the data. The advent of powerful computing devices, high-capacity data storage devices and high-speed communication networks has transformed the way we collect, analyze and utilize data.

There are many other Data X terms that we hear about these days; for example, Data Analytics and Data Mining. As you might expect, they are related to Data Analysis.

**Data Analytics** is an overarching discipline that encompasses the complete management of data. This not only includes data analysis, but also data collection, organization, storage, and all the tools and techniques used.

**Data Mining** is the process of discovering patterns in large data sets – data sets that cannot be looked at, let alone analyzed by humans in any reasonable amount of time. Companies like Amazon and Google collect data on what people search, then use Data Mining techniques on this data to come up with recommendations for products for you to buy or show you targeted advertisements based on your searches.

## Pedagogy Pointers



**For all levels: Data Nuggets** is an open-source, free, quantitative lesson planning collection that has resources available for all levels of learning that can be integrated into almost any curriculum. The lessons are designed to present students with data and provide them opportunities to draw conclusions and support those conclusions with evidence. The lessons align with CS 3.12.

[Data Nuggets Main Page](#)

[Data Nuggets Lesson Collection](#)



**Free Video Lesson: BrainPOP Jr.'s** free lesson on data analysis includes an overview for elementary-age children on reading and interpreting bar and tally graphs. The video lesson includes a quiz and other interactive activities once the video is complete. If your school or school district has access to BrainPOP Jr., the site has a number of other useful data-related video lessons. The lesson aligns with CS 2.11.

[BrainPOP Jr. Data Videos Lessons](#)



**CS Unplugged: Binary Bracelets/Bookmarks**—The concept of binary can be hard to grasp, but this [activity](#) uses math and the common material of Perler beads to help students turn decimal system numbers and the alphabet into binary (0's and 1's). There's even a "cheat sheet" for quick reference! The lesson aligns with CS 4.12 and 5.13.

## Computer Science in the Commonwealth

### Virginia Computer Science Educator of the Year (CSEOY) 2025

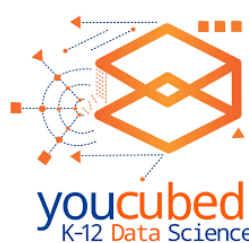


The Virginia Department of Education is excited to announce that the **Computer Science Educator of the Year** nomination window is officially open. This is an opportunity to recognize an exceptional educator who inspires students, drives innovation, and champions the growth of computer science education. Whether it's through innovative lessons, fostering creativity, or making computer science accessible to all, these educators deserve to be celebrated and honored. Submit your nomination by **January 31, 2025**.

#### Nomination Details

- **Who Can Nominate:** Students, parents, colleagues, administrators, and community members.
- **Eligibility:** Virginia Educators for the following categories
  - PreK- Grade 2 Classroom Teacher
  - Grade 3-5 Classroom Teacher
  - Grade 6 - 8 Classroom Teacher
  - Grade 9-12 Classroom Teacher
  - Instructional Technology Coach and STEM Coach
  - Administrators (Building and Division Leaders) and School Counselors
- **Nomination Deadline:** [CSEOY Nomination Form](#) submissions close **January 31, 2025**

## Engaging All Learners



A key part of data analysis involves the presentation of the findings that result from the analysis. Often, data that may not be easily distinguishable or interpretable in narrative format can be effectively presented in visual displays that illustrate relationships between variables, allowing students to make comparisons, investigate cause and effect, and describe characteristics of data. Using graphs and charts has also proven to be a useful tool for engaging and supporting diverse learners across the curriculum.

Click [here](#) to visit Stanford Graduate School of Education's youcubed® website which offers free online resources to support teaching and learning of data science and data analytics. The site provides links to lessons and materials to help K-12 teachers and students incorporate graphing into their data analysis lessons, whether they are plugged or unplugged. Most of the lessons focus on math and computer science standards, but there are some lessons that incorporate civics and physical education content as well.

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Old Dominion University

The Center for Educational Partnerships

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