

# ARCS NEWS

Advancing Rural Computer Science

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

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## Announcements



### Happy Holidays!

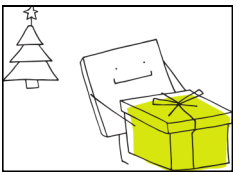
We hope this message finds everyone well and that you had a relaxing Thanksgiving. As winter break approaches, the ARCS team is eagerly looking forward to the season and imagine you are, too! This month, we celebrate [Computer Science Education Week](#) from December 9-15!

In this month's newsletter, we encourage you to explore everyday step-by-step activities as examples of algorithms. Whether it's wrapping a gift or helping to make holiday cookies we're sure your students can come up with some fantastic ideas! For a hands-on approach, check out the Scratch holiday card lesson featured in Pedagogy Pointers.

Best Regards,

The ARCS Team

## Concept Corner



### Algorithms and Everyday Life

As computers become more central to our daily lives, the term "algorithm" is being heard more often. But what exactly is an algorithm? Simply put, it's a sequence of steps designed to complete a task. While the term is often linked to computer science, algorithms are something we use regularly in our everyday activities.

For example, when wrapping a holiday gift, you follow steps like measuring the box, cutting and folding the paper, and adding a bow. This step-by-step process is essentially an algorithm for gift-wrapping. Similarly, when you play card games and organize cards by suit or numbers, you're unconsciously applying a sorting algorithm. While these are simple examples, they mirror the precise steps used in more complex algorithms, such as those for knitting a patterned sweater or the sophisticated algorithms computers use to learn our online shopping habits and make recommendations to us for buying more things. Now that you know what algorithms are, consider your daily tasks and see how you might already be using algorithms!

Here is a short video describing ["what are algorithms"](#) that you might enjoy!

## Pedagogy Pointers



### Create holiday-themed algorithms!

SCRATCH Ed has an interactive holiday lesson to help students build an interactive, animated holiday card to share with family and friends in the month of December. The holiday card lesson takes approximately one hour and includes a curriculum guide. The lesson is aligned to CS 2.2a-c, 3.2a-c, 4.2a-c, 5.2a-c.

[Ed Holiday Card Lesson](#)

[SCRATCH Ed Holiday Card Instructions](#)

CS Ed Week has an abundance of activities to get your students excited about coding! Check out their resources designed for 2nd through 5th graders [here!](#) A key part of CS Education Week is the **Hour of Code**. This initiative seeks to introduce students to the joys of computer science through bite-sized coding activities. A new favorite is coding with [The Grinch](#). Use block-based simple coding to program drones and a tech-savvy sleigh to get to Whoville! This gaming activity is perfect for students in 2nd to 5th grade.

## Computer Science in the Commonwealth



How can you find Open Educational Resources (OER) aligned with Virginia's standards? At [GoOpenVa.org](#), educators have a central hub to discover, create, and collaborate using a growing collection of high-quality OER, all tailored to align with Virginia Standards.

GoOpenVA's mission is to empower educators and partners to design and share exceptional learning experiences for students across Virginia. Open Educational Resources (OER) are freely available teaching and learning materials that educators can use, share, and often modify without cost or the need for permission. These resources include a wide range of materials, such as full courses, textbooks, modules, videos, tests, software, and other tools that facilitate access to knowledge. TCEP now has a collection of K-5 CS-integrated resources! Please explore our cross-curricular lesson plans featuring creative approaches to teaching students about algorithms ranging from helping Arnie the Doughnut sequence a story to decoding and creating your own hieroglyphs from Ancient Egypt! Visit [GoOpenVA.org](#) and search "TCEP" to review our materials.

## Engaging all Learners



Algorithms are a dominant concept in computer science, but just the term "algorithm" alone can be intimidating! In the simplest of definitions, algorithms are a set of rules or steps to be followed to complete a task. One great way to help students – particularly elementary-age students – understand the idea behind the term algorithm is to embed the concept into everyday activities. This can be accomplished through computing resources or we can use unplugged lessons to connect algorithms with recognizable aspects of daily life.

Fortunately, there are some awesome resources out there to help us integrate algorithms into the classroom or home, including [this article](#) from Sphero which defines and discusses algorithms using approachable terminology and provides explanations of how we use algorithms through both plugged and unplugged examples. Code.org's [CS Fundamentals Unplugged](#) series is another source which provides open-source materials through fully developed lesson plans, many of which include instructional videos for educators and printable materials to be used in teaching the lessons.

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