ARCS NEWS

Advancing Rural Computer Science

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

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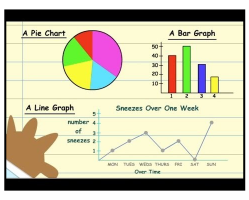
Announcements



Greetings! We are writing this as Teacher Appreciation Week comes to a close and want to extend a huge thank you for all that you do! We hope your week was filled with thank you's and special moments.

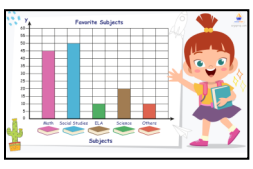
As this school year draws to a close, some of you are completing the K-5 CS Integration Microcredentials (congratulations!), while others will begin them next month. The ARCS team has been busy gathering information from you and your students. The data you provide will help improve and sustain the program. We are excited to see how much learning has been taking place—thank you for sharing and being part of the CS integration movement in the Commonwealth!

Later this fall, we will be inviting another cohort of K-5 educators to join ARCS and participate in the Code VA Coaches Academy followed by the K-5 CS Integration Microcredentials. We hope that wherever you are in your CS integration journey that you will share your experiences with others and encourage them to join in, earn a stipend and digital badges to recognize their professional learning, and receive CS resources for the classroom.

Now, to this month's theme, which is graphing and visualizations…

The ARCS team

Concept Corner



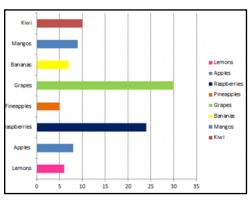
Graphs are useful as a means to view data in an alternative form than a table. Graphs help analysts discover patterns and trends, and make solid insights and predictions.

It is important to understand the basics; each type of graph has a common purpose in presenting data. Line graphs typically show information changing over time - finding the value of the horizontal position of a place on the line can explain what point in time it took place. Scatterplots can be used to represent many observations and reveal relationships between variables.

For example, one could plot how many miles are driven on how much gas. The amount of gas affects the number of miles driven, making the x-axis variable "gallons of gas" and the y-axis variable "number of miles driven". If you drove 100 miles on 4 gallons of fuel, you would place a point at (4, 100). After several points have been plotted, it's likely that this example graph would end up having a general positive slope, as more gallons of gasoline usually mean more distance to travel. This is called a positive relationship or correlation. A positive slope shows an upward trend as one reads from left to right. A negative slope, on the other hand, would be revealed by the increase in one variable being associated with a decrease in another. This would appear on the graph as a downward trend from left to right.

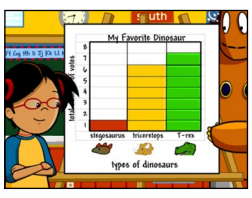
Data can be recorded and graphed with the same software program, such as Microsoft Excel. It is important that students learn to label their x– and y-axes and examine the scales that the computer often chooses as a default.

Pedagogy Pointers



Excel for Elementary School: the K5 Technology Lab is a site with free activities and resources to access and use in STEM education. One major component includes an elementary school-friendly introduction to creating graphs with excel. Learning to use excel to make graphs and charts can be adapted for SOLs such as Math K.11, 1.12, 2.15, 3.15, and 4.14.

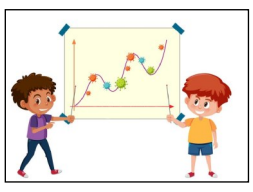
Access the K5 Technology Lab



Free Brainpop Jr. Content: Brainpop Jr.'s video and related lessons and activities for graphing are one of the always-free subject lessons the site offers, regardless of your school's subscription status. The Brainpop Jr. content aligns with Math K.11, 1.12, 2.15, 3.15, and 4.14.

Brainpop Jr. - Graphs

Engaging All Learners



One technique that educators can use to engage and support diverse learners across the curriculum involves graphing of data or information. Graphs provide a visual display that illustrates relationships between variables which allow users to make comparisons, investigate cause and effect, and describe characteristics of data that may not be easily distinguishable or interpretable in a narrative format. **Click here** to visit the American Institutes for Research's *PowerUp What Works* site for free online tools and resources to support graphing activities. The site also offers ideas on how to incorporate graphing into your lessons, whether they are plugged or unplugged.

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