ARCS NEWS

Advancing Rural Computer Science

Announcements

Greetings, ARCS teachers!

We hope you are doing well and have had or are about to have a relaxing spring break! We trust that many of you have enjoyed the Learning Bytes sessions offered by our partner Code-VA based on the great feedback we have received so far! Please feel free to share how you have implemented these strategies and resources in your classrooms. This month's theme is augmented and virtual reality (AR/VR). Before we get to that, here are some announcements:

- Our external evaluation team led by Dr. Jenn Maeng from UVA will be reaching out to you about measuring students' understanding of CS concepts. Please read and respond to her communications!

- Check out this amazing exhibition on women in STEM at the Smithsonian: **#IfThenShe-Can - The Exhibit**. Click here to access the **Educator Hub** for this exhibition.

Concept Corner

Nearly 1 in 5 Americans have used virtual reality (VR), with a forecast market size for this technology of nearly $300 billion by 2024. Outside of gaming and entertainment, there are many areas of application in which VR can provide ease of access to people with specific needs. As data science, computer science, and other academic fields advance, more and more modern applications come to light.

One proposed application of VR is in psychotherapy. With computer-generated scenarios, clients can be placed in environments that are similar to real-world experiences, which may play an instrumental role in treating psychological disorders. VR could also revolutionize people's experiences in museums through artistic imagery and virtual tourism. In museums, it could be possible to use VR to place a visitor in the middle of a historic scene or natural habitat. In business and technical communication VR can be used to create a new era of immersive visualizations, with graphs and other data representations being created to suit first-person, 3D perspectives.

10 Virtual Reality Statistics You Should Know in 2022 [Infographic] (oberlo.com)

Virtual Reality - an overview | ScienceDirect Topics

Pedagogy Pointers

iPad AR Apps: perfect for math or literacy stations are two apps to consider using with your students; the Apple Measure app, which allows students to measure the length of objects around them in AR (comes automatically with iOS 12.0 or higher), and the Catchy Words AR app, which allows students to spell words from letters that appear in AR (completely free app). These apps are well-suited for cross-curricular alignment with SOLs such as Math 2.8, 3.7, 4,8, and 5.9; LA K.6, 1.5, 2.4, 3.9, 4.8, and 5.8.

**Apple measure app info**

Catchy Words AR app info

iPad AR Apps: let students get creative also with two additional iPad apps that use augmented reality! AR Makr is a free app that allows educators and students to build their own AR around them for class projects or creative exercises. Another creative AR app is 3DBear AR which allows students to illustrate their own stories in AR. Teachers can use this tool to facilitate problem-solving and design thinking. AR activities can be adapted to align with CS 3.15, 4.16, and 5.15.

**AR Makr app info**

3DBear AR info

Computer Science in the Commonwealth
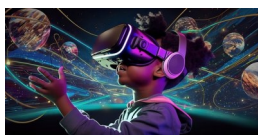
Move over "internet" - the metaverse is the 'new' revolution. If you haven't heard, the metaverse is the new digital world whose goal is to allow people to fully immerse themselves into a virtual reality beyond the use of entertainment/gaming. There is no guarantee of the long-term implementation of the metaverse or any iteration of it. Yet the keen awareness of the ever-evolving nature of our digital society should remind us of the dire need to educate all students in computer science for the life skills and career fields of today and for the future of tomorrow. One way one could begin to expose students to virtual reality is through the use of **virtual field trips**!

*The VDOE does not promote or endorse any product or vendor. Information shared is to serve as an instructional resource only.

Engaging All Learners
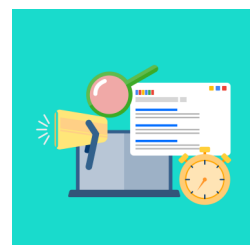
Virtual and augmented reality are becoming the hottest new trends in education, and for good reason. These tools not only provide fun ways to promote student engagement, but research indicates that AR/VR programming is advantageous for students and teachers alike as the realistic visuals and engaging, interactive components promote gains in learning in ways that until recently were not possible at the K-12 level. Innovative AR/VR technologies can improve students' digital literacy as they interact with, collaborate in, and manage digital content in an entirely new manner. AR technologies also provide opportunities for students and teachers to develop computer science skills such as coding and computational thinking as they explore activities using open source programming languages. Another bonus: AR/VR is a great way to promote culture literacy as these tools can expand students' daily experiences through global adventures.

Visit **this article** published on the International Society for Technology in Education's (ISTE) website for several free options on incorporating AR/VR into your classroom. While a couple of the apps included in the article are no longer available, there are still several recommendations for bringing AR to life with your students!

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The Center for Educational Partnerships

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