Authentic Data Integration

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Methods of STEM Education

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Implementing resources from code.org's Computer Science Discoveries has been my focus for 21st Century Skills this rotation. Code Studio already contains a wide variety of authentic data sets, many continuously updated on a daily basis, for implementation in classrooms. The current topic in our class is "input and output" and how computers receive information they need to solve problems and "processing". They are investigating questions used in the development of apps and specifically where the information comes from. Students will be asked to develop ideas for their own apps and determine the types of input and output that are required. Currently, students are using block-based coding within the coding language to design and animate. The data source selected is from NASA's Jet Propulsion Laboratory titled "Code a Mars Helicopter Video Game".

https://www.jpl.nasa.gov/edu/learn/project/code-a-mars-helicopter-video-game/

The lesson selected will enhance our learning and understanding of computer programming beyond javascript for design and animation. Gaming is an important component of many of their routines right now, and most will find the activity engaging and entertaining. Broader research will lead to discussions on how scientists land a rover on another planet to look for resources or retrieve samples to test. The use of data is important in STEM classes, although I have found that middle school students often fail to see the relevance it has in their lives. Being able to understand and evaluate information that impacts your daily life is critical for data literacy.

Computational thinking and programming help improve logical thinking processes and will enhance learning across multiple disciplines, not just mathematics. As coding is the language of computers, students can learn to "speak" the technology they operate. Students will be required to explain how they arrived at the code they created to win a challenge; determining locations for take-off and landing requires knowledge of terrain and the use of location services.

Creating tables to import or export .csv files for the inclusion or exclusion of data works not only for app development but for visualization and organization of information.

References

JPL Education. (2020, November 24). *Student project: Code A mars helicopter video game*.

NASA. Retrieved October 18, 2021, from

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