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Authentic Data Integration

Methods of STEM, Fall 2023

Title: Exploring Martian Landscapes with Authentic Data

Data Source:

- Data Title: Mars Data from NASA's TREK Mars Data Portal
- Data Access Link: [TREK Mars Data Portal](#)

Lesson Enhancement: The data from NASA's TREK Mars Data Portal can significantly enhance the topic of geology and planetary science. It allows students to explore real Martian landscapes, including features like craters, canyons, and volcanoes. By engaging with authentic Martian data, students can gain a deep understanding of the geology and geography of Mars, fostering their curiosity and critical thinking skills. Personally, I am excited about using this data source as it provides an opportunity for students to connect with cutting-edge scientific research and encourages them to see the relevance of Earth and planetary science in the real world.

Interdisciplinary Context (STEM):

Science: Students can analyze Martian data to learn about the planet's geology, climate, and the potential for past or present life. My third graders have been asking questions about life outside of earth, and we have been talking about exobiology a bit. I think this would help them understand more of that topic. They can also investigate Martian topography and atmospheric conditions, as well as the characteristics of the planet's surface.

Mathematics: Math can be integrated into the lesson by having students analyze data sets, calculate distances, or graph trends in Martian features. This reinforces their mathematical skills in a real-world context.

Technology: The use of NASA's TREK Mars Data Portal itself involves technology. Students can also learn about the technology used in space exploration, such as rovers

and satellites, that collect this data. We are a 1:1 device school as well, so this gives them the opportunity to further their understanding of iPad usage, troubleshooting, critical thinking, and utilizing current technology.

Engineering: Students can explore how engineering plays a crucial role in designing and building spacecraft and instruments for planetary exploration. They can discuss the engineering challenges of landing on Mars and collecting data in such an extreme environment. I would love to incorporate some time of hands on building with this as well.

Further Connections:

Language Arts: I could language arts by having students create a short presentation on Flip or Canva about Martian features or hypothetical missions to Mars. This encourages communication and scientific writing skills.

Social Studies: Students can explore the history of Martian exploration and international cooperation in space missions. They can also discuss the potential future colonization of Mars and its social, economic, and ethical implications.

By integrating data from the TREK Mars Data Portal, I can create lessons, discussions, and activities that connect to multiple content areas, making learning a holistic and interdisciplinary experience. Students not only engage with scientific concepts but also develop critical skills necessary for 21st-century learning. I'm excited to use this awesome tool with my students, and look forward to exploring this topic with them.