deSTEMber

SCIENCE ★ TECHNOLOGY ★ ENGINEERING ★ MATH

PRESENTED BY: girlstart

Augmented Reality

Enhance real-world experiences through interactive augmented reality. Explore the structure and functions of the Mars Curiosity Rover and other spacecrafts through a smartphone app.

TEKS:

TECH 6-8.1 C: The student is expected to explore complex systems or issues using models, simulations, and new technologies to make predictions, modify input, and review results.
TECH 6-8.4 F: The student is expected to transfer current knowledge to the learning of newly encountered technologies.
TECH 6-8.6 H: The student is expected to discuss how changes in technology throughout history have impacted various areas of study.

Materials:

- Printed Marker Page (attached)
- Smartphone with the Spacecraft 3D app

How To:

1. Download the Spacecraft 3D app from the App Store or Google Play.
2. Print a copy of the Marker Page (included below).
3. In the app, click "Select Spacecraft," then click on "Mars," then "Curiosity."
4. Point the camera at the marker page to see the 3D image of the spacecraft.
5. Explore Curiosity and use the manual rotating feature to visualize different aspects of the Mars rover.
6. The "Animations" button in the lower left corner highlights different parts of the spacecraft. Test this feature to investigate the various components of the rover and think about what they are likely used for.
7. Once you've learned about Curiosity, take some time to explore other spacecrafts in the app!

STEM Explanation:

Augmented reality is the interaction between computer enhancements and reality, blending digital components with the real world. The Spacecraft 3D app allows its users to view different types of satellites that are used for various known terrains in our solar system. The mission of the Curiosity was to help researchers study whether Mars could have supported small life forms by detecting rocks and minerals containing organic materials. Landing on Mars was a difficult challenge, but it was successful because of the team of engineers that developed new landing systems for the rover.

Career Connection:

Astronautical engineers focus on the design of spacecrafts or aircraft, mainly on the designs of missiles, probes, or satellites. There are many specialties that astronautical engineers focus on designing: either flight electronics, spacecraft structure, or on-board research tools.

Resources:

https://www.youtube.com/watch?v=N9hXqzkH7YA
https://www.jpl.nasa.gov/apps/images/3dtarget.pdf
https://en.wikipedia.org/wiki/Augmented_reality

Marker Page:

AR Target for SPACECRAFT 3D

Jet Propulsion Laboratory/California Institute of Technology

Photo: NASA/JPL-Caltech/Malin Space Science Systems

