

Mars Explorer 3D

Teaching Mars, Astronomy, and Science through 3D simulation

Lesson

Teaching the Planet Mars, Science, and Astronomy through 3D simulation

Objectives

- 1) Students will gain a basic understanding of the Planet Mars through 3D simulation and visualization,
- 2) Students will gain a deeper understanding of the important features of the Planet Mars.

Activity

Students travel to the Planet Mars in real-time 3D, helping them to visualize and understand its structure and location.

Materials

Planet Mars3D Homepage

(cut and paste URL into browser, or Ctrl+click on picture above)

<http://www.sunrisevr.com/mars3d>



3D Simulation and Investigation

3D simulations are designed to make subject matter more engaging to today's technology-savvy kids, and help them bridge the gap between the "concrete" world and the abstract world of concepts. When students experience complex subject matter in real-time 3D it becomes clearer. Students learn best when they are actively immersed in subject matter from a variety of different viewpoints; 3D simulation is designed to help students visualize difficult ideas and objects through investigation at any scale (atomic, cellular, planetary, conceptual, etc), and doing things that would normally be impossible.

Required Technology

- PC/Tablet

Optional Technology

- Projector
- Multiple Computers
- Internet Connection

Grouping

- Large Group Instruction
- Small Group Instruction

Staging

Check computer/Tablet for Internet access if needed

Procedure

1. Access program
 2. Pick a lead student navigator to control movement through the 3D environment
 3. Pick a lead student reader to read information about the Planet Mars as it appears on-screen
 4. Begin the lesson by asking students what they already know about the Planet Mars; write responses on the board
 5. Review basic facts about the Planet Mars including:
 - Mars is the fourth planet from the Sun in the Solar System
 - It is called the "Red Planet" because of its reddish appearance
 6. Start traveling through the program, facilitate discussion by asking students where the class should go.
 7. Use the 3D simulation as a visual aid; explain information as needed
 8. Have students pay special attention to:
 - Mars has two moons, Phobos and Deimos
 - Polar Caps
 - Dust Storms
 9. Have a final wrap-up with students with a question and answer period about the Planet Mars. Ask them where it is located, what its distinguishing components are, how we have studied it, and why it is unique in the Solar System. Ask what parts of Mars they found interesting.
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Optional Activity: 3D Scavenger Hunt + Discussion

Have students find a particular part of the Planet Mars, such as the polar caps. If students are on multiple computers, have them "race" to the part of the planet the teacher wishes to highlight. Once students find/arrive at the location, the teacher may commence discussion. Repeat in other areas of the simulation as desired to build understanding.

Homework/Review

Students may also access the program outside the classroom to supplement textbook questions

Functional Notes

- The program is available on multiple platforms
- If using the program online, please ensure the Unity3D Player is installed on the computer; through the Internet Explorer Browser; download the latest at <https://unity3d.com/webplayer>.
- If you see something in **red** you can probably click on it
- For ease of use you can go through most 3D objects, and even the ground
- The school library can request and access programs (free) at www.sunrisevr.com for off-line use via PC and Mac if there is no internet connection