

## UPDATED FOR 2002-03!

# Wonderful Rocket

A planetarium program designed for grades K to 3.

### learning objectives for each student

1. Describe each planet and give one fact about it.
2. Describe how we study these far away places.
3. Find and locate at least one planet in the current sky IF any are visible.

### pre-visit activities

1. Have the students discuss the two major types of planets.
2. Have the students discuss each planet and decide which ones could support life as we know it. Have small groups of students pick (or assign them) a planet and write up a brief report that can be presented to the class.
  - I. Jupiter
    - A. Has a faint ring system and a moon (IO) with active volcanoes.
  - II. Mercury
    - A. Has surface temperatures ranging from -300 degrees to +800 degrees Fahrenheit.
  - III. Sun
    - A. Gives off not only visible light but energy from across the entire range of the electromagnetic spectrum.
    - B. Has temperatures ranging from 10,000 degrees F. on the surface to 27 million degrees at the core.
  - IV. Saturn
    - A. Gives off twice as much heat as it receives from Sun, is very light compared to its size, and has a very complex ring system.
  - V. Uranus
    - A. Has a dark ring system, an axis of rotation is nearly parallel to the plane of the solar system and it has a magnetosphere that is tilted and off-center.
  - VI. Neptune
    - A. Displays a very thin ring system of varying thicknesses and widths, has visible atmospheric features such as the Great Dark Spot, and has a turbulent atmosphere with winds of up to 1400 miles per hour.
  - VII. Pluto
    - A. Is usually the farthest planet from the Sun, but its unusual orbit

occasionally takes it inside the orbit of Neptune.

- B. Is the smallest planet with a diameter of only 1500 miles (that's the distance from Denver to New York), and has one known moon nearly half its size.

VIII. Mars

- A. Has surface features that include huge ridged gullies and trenches, indicating the possibility of water once existing on the planet.

IX. Venus

- A. Has a thick atmosphere of carbon dioxide and sulfuric acid that traps heat close to the planet (like a greenhouse) creating surface temperatures of 900 degrees F.

X. Earth

- A. Is made of rocks and metals with a molten core that creates the strong magnetic field.
- B. Has a tilted axis that causes seasonal changes on the planet.
- C. Has an abundance of liquid water making life possible.
- D. Has increasing amounts of carbon dioxide in the atmosphere which may contribute to global warming, harm the environment, or threaten all life on the planet.

**vocabulary**

These words or terms are used in "Wonderful Rocket". Some may be new to your students.

planet	galaxy	nebula
telescope	moon	crater
sunset	planetarium	gas
robot	asteroid	

**program summary**

"Wonderful Rocket" is a taped and live program in which we introduce Rachel, the Wonderful Rocket. Rachel takes the audience on an imaginary trip through to the Moon and through the solar system. Along the way we learn a little about each of the planets that orbit the Sun. We also learn that there are other interesting objects in space well beyond the last planet. A brief live sky discussion follows in which we point out a few familiar constellations and any planets that may be visible that night.

Please note that by the late spring of the year, this program may no longer be appropriate for third graders. Always feel free to contact the Planetarium Director, Matthew Linke, with questions at 734-647-1381 or by e-mail at [mlinke@umich.edu](mailto:mlinke@umich.edu).