

# THE PLANETS

## OBJECTIVES:

- To explore the diversity we have in our local planetary system
- To formulate how we think the planets formed in our solar system
- To compare and contrast the features we see on the planets

This show conforms to the following Illinois state science standards: 12.f.1a, 12.F.2a, 12.F.1b, 12.F.2a, 12.F.2b, 12.F.2c, 12.F.3b, 12.D.5b. Next Generation Science Standards: HS.ESS1.4, MS.ESS1.3

## BRIEF SHOW DESCRIPTION:

Join us for a breathtaking tour of our own planetary system, including some of the latest discoveries. See how our solar system may have formed and then visit planets in other star systems far beyond our own. The show originally written and distributed by the Southeastern Planetarium Association and is narrated by Kate Mulgrew of *"Star Trek: Voyager"* fame. Now converted to fulldome!

## PRE-VISIT ACTIVITIES/TOPICS FOR DISCUSSION:

- Start a discussion of the solar system with some basic facts? Which planet is the largest (Jupiter)? Smallest (Mercury)? Closest to the Sun (Mercury)? Farthest (Neptune)?
- Engage the class in a debate on whether Pluto is a "planet" or not. It was officially called a "dwarf planet" in 2006.
- How many moons are in our solar system? The number can change. Research the number online. Which planet has the most moons?

## POST-VISIT ACTIVITIES/TOPICS FOR DISCUSSION:

- Find out if there are any planets currently visible in the current sky. Venus, Jupiter, Mars, Saturn, and Mercury (in order from brightest to dimmest) are often visible. Set up a viewing session to see a planet through a telescope or contact the local astronomy club (see web links below).
- Walk the Staerke Planetarium's scale model solar system while you are on your field trip. It is directly across the street (to the west) of the planetarium. Look for the large yellow sphere as the Sun. There are several activities online (see below).
- Create a scale model solar system at your school. A good scale is to use 10 million miles as a unit. For example, attach paperclips together with each clip being 10 million miles or use sheets of toilet paper. Then Mercury is 3.6 sheets of toilet paper from the Sun.
- Every time the Earth revolves around the Sun we have a birthday. Research how long it takes the other planets to trek around the Sun. How many birthdays would you have had if you lived on Mercury (4x as many, so multiply your age by 4)? How about Saturn (divide your age by 30)?
- Gravity is different on each of the planets. Determine how high you can jump on the Earth by attaching a tape measure on the wall. As a little math exercise, how high could you jump on the Moon? (6x as high). What about the other planets?

- Participate in “Moon Zoo” . . . <http://www.planetary.org/blogs/emily-lakdawalla/2010/2481.html>
- What current missions are exploring planets? Have the class (or groups) choose a mission and report on it. What are the goals of the mission? Timeline? Major discoveries so far?

#### **VOCABULARY LIST:**

Asteroids  
Comets

Gravity  
Moon

Planet  
Voyager

#### **INTERNET RESOURCES:**

- Encyclopedia of planets around other stars: <http://exoplanet.eu/>
- Jet Propulsion Lab’s extra-solar planet page: <http://planetquest.jpl.nasa.gov/>
- NASA’s planet page: <http://solarsystem.nasa.gov/index.cfm>
- Tour of the solar system: <http://nineplanets.org/>
- Champaign-Urbana Astronomical Society: <http://www.cuas.org>
- The planetarium’s scale model solar system: <https://www.parkland.edu/Audience/Community-Business/Parkland-Presents/Planetarium/Educational-Resources/Campus-Solar-System>
- The Planetary Society: <http://planetary.org>
- Raw images of the planets: <http://photojournal.jpl.nasa.gov/>
- Current missions to the planets: <https://www.jpl.nasa.gov/missions/>