Planetarium/Star Show: **Ring World**

**Description:**
The glittering rings of Saturn have made this the favorite planet of many... *Ring World* tells the story of humanity's interest in Saturn from ancient times to the present. From Galileo's first look at “a planet with ears,” to Cassini's discovery of the ring system, to the Voyager missions of the 1970s, our knowledge has steadily improved.

*Ring World* explains Cassini-Huygens’ convoluted path to Saturn highlighting major events and milestones in the mission timeline including Cassini's thrilling July 2004 Saturn orbit insertion, the successful descent and landing of the Huygens probe on Titan in January 2005, plus images from the first exploration of Saturn's icy moon Enceladus in February 2005. Along the way audiences learn about the various on-board scientific instruments which continue to reveal Saturn’s mysterious features in exquisite detail.

The show includes a live customized Digistar tour of the current evening sky and basic astronomy lessons.

**Basic Information:**
- **Age Level:** General Audience (Grades 6 +)
- **Maximum participants per session:** 210
- **Location:** Planetarium Theater
- **Running time:** 40 minutes (add 20 min. for Star Walk)

**Sunshine State Standards Addressed:**

**Kindergarten:**
- **Big Idea #5 - The Earth in Space and Time**
  - K.E.5.1 Explore the Law of Gravity by showing how objects are pulled to the ground unless something holds them up.
  - K.E.5.5 Note that some things look big and others look small as seen from Earth.
  - K.E.5.6 Note that some things are far away and others are nearby as seen from Earth.
  - K.P.12.1 Investigate that things move in different ways, such as fast and slow.
  - K.P.13.1 Observe that a push or a pull can change the way an object is moving.

**1st Grade:**
- **Big Idea #5 - The Earth in Space and Time**
  - 1.E.5.3 Explain how magnifiers make things look bigger & allow us to see things not visible to our
eyes alone.

- 1.E.5.4 Identify harmful & beneficial properties of the Sun.

**Big Idea #6 – Earth Structures**
- 1.E.6.1 Recognize that water, rocks, soil & living organisms are found on Earth's surface.

**Big Idea #13 – Forces and Changes in Motion**
- 1.P.13.1 Demonstrate the way to change the motion of an object is to apply a push or a pull.

**2nd Grade:**

- **Big Idea #8 – Properties of Matter**
  - 2.P.8.2 Identify objects and materials as solid, liquid or gas.

- **Big Idea #13 – Forces and Changes in Motion**
  - 2.P.13.3 Recognize that objects are pulled toward the ground unless something holds them up.
  - 2.P.13.4 Demonstrate that the greater the force applied to an object, the greater its change in motion.

**3rd Grade:**

- **Big Idea #5 - The Earth in Space and Time**
  - 3.E.5.4 Demonstrate that gravity is a force that can be overcome.

- **Big Idea #6 – Earth Structures**
  - 3.E.6.1 Demonstrate that radiant solar energy heats objects and when sun is absent, heat may be lost.

- **Big Idea #10 – Forms of Energy**
  - 3.P.10.1 Identify some basic forms of energy such as light, heat, sound electrical and mechanical.
  - 3.P.10.2 Recognize that energy has the ability to cause motion or create change.
  - 3.P.10.3 Demonstrate that light travels in a straight line until it strikes an object or travels from one medium to another.
  - 3.P.10.4 Demonstrate that light can be reflected, refracted and absorbed.

**4th Grade:**

- **Big Idea #5 - The Earth in Space and Time**
  - 4.E.5.3 Daily rotation of Earth about its axis; yearly revolution of Earth around the Sun.

- **Big Idea #10 – Forms of Energy**
  - 4.P.10.1 Observe & describe some basic forms of energy including light, heat sound, electrical and energy of motion.

**5th Grade:**

- **Big Idea #5 - The Earth in Space and Time**
  - 5.E.5.3 Identify solar system objects: Sun, planets, moons, asteroids & comets. Identify Earth's place in the Solar System.

- **Big Idea #10 – Forms of Energy**
  - 5.P.10.1 Investigate & describe some basic forms of energy including light, heat sound, electrical, chemical and mechanical.
6th Grade:
Big Idea #13 – Forces and Changes in Motion
- 6.P.13.1 Investigate & describe types of forces including contact forces and forces acting at a distance such as electrical, magnetic and gravitational.
- 6.P.13.2 Explore the Law of Gravity by noting that every object exerts a gravitational force on every other object and that the force depends on the masses of the objects and the distance between them.
- 6.P.13.3 Investigate & describe that an unbalanced force acting on an object changes its speed, direction of motion or both.

7th Grade:
Big Idea #11 – Energy Transfer and Transformations
- 7.P.11.2 Investigate & describe the transformation of energy from one form to another.

8th Grade:
Big Idea #5 - The Earth in Space and Time
- 8.E.5.1 Recognize the huge distances between objects in space; relate these distances to our knowledge of light & space travel.
- 8.E.5.3 Distinguish hierarchical relationships between planets, sun, solar system, galaxy & universe;
- Include distance, size & composition.
- 8.E.5.10 Assess how technology is essential to access to space & other remote locations, sample collection, measurement, data storage and communication of information.

9th – 12th Grade:
Big Idea #5 - The Earth in Space and Time
- 912.E.5.8 Explain how historical tools as well as new observational tools utilize electromagnetic radiation.

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