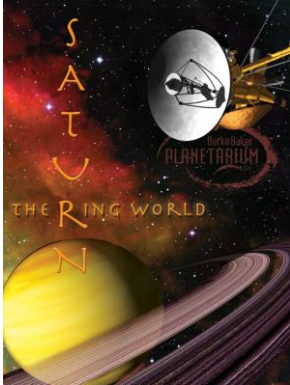


## Educator Viewing Guide



### *Saturn: The Ring World (2007)*

22 minutes

Saturn is the true “Lord of the Rings.” After nearly seven years in transit, the two-story Cassini-Huygens spacecraft began orbiting Saturn on July 1, 2004. Cassini continues to explore Saturn and its moons during its extended mission, while the Huygens probe landed on the surface of Titan, Saturn’s largest moon. The Cassini Saturn encounter began with a flyby of Saturn’s farthest moon, Phoebe.

### **Topics covered:**

Cassini-Huygens, space science, exploration of Saturn, its rings and satellites, Huygens probe

**Interdisciplinary connections:** geology, chemistry

### **Key Terms and Concepts:**

Atmosphere, Gravity, Gravity Assist, Magnetic Field

### **Combine with these KidSpace Activities:**

#### **Engineering Lab**

Discover the six simple machines and other engineering principles used in designing spacecraft while operating wheels, levers, pulleys, and more.

#### **Launch Lab**

Learn the force needed to send rockets into the air. Take aim with our stomp rockets while investigating science concepts: rocket design, force, gravity, altitude, resistance, and more.

#### **PlaySpace!**

Science begins with imagination. The space-themed playground offers many opportunities for space-themed play, space-related discoveries, and demonstrations of science concepts: gravity, friction, force, laws of motion, and more.



## **Learning Resources and Activities:**

Create learning units designed around a visit to KidSpace! These web resources and activities are designed to illustrate concepts and ideas presented in the show. Many of these can be adapted to various age groups.

### **Cassini Huygens: Reading, Writing and Rings 1-2;** NASA

This resource contains ten lessons for grades 1-2 about Saturn and the Cassini Huygens mission. Includes PDF downloads of all lesson plans, assessment techniques, and science standards. Lessons are designed to develop literacy skills while expanding knowledge about Saturn.

[https://www.nasa.gov/audience/foreducators/topnav/materials/listbytype/Cassini\\_Huygens\\_Reading\\_Writing\\_and\\_Rings\\_1-2.html](https://www.nasa.gov/audience/foreducators/topnav/materials/listbytype/Cassini_Huygens_Reading_Writing_and_Rings_1-2.html)

### **Cassini Huygens: Reading, Writing and Rings 3-4;** NASA

This resource contains twelve lessons for grades 3-4 about Saturn and the Cassini Huygens mission. Includes PDF downloads of all lesson plans, assessment techniques, and science standards. Lessons are designed to develop literacy skills while expanding knowledge about Saturn.

[https://www.nasa.gov/audience/foreducators/topnav/materials/listbytype/Cassini\\_Huygens\\_Reading\\_Writing\\_and\\_Rings\\_3-4.html](https://www.nasa.gov/audience/foreducators/topnav/materials/listbytype/Cassini_Huygens_Reading_Writing_and_Rings_3-4.html)

### **Exploring the Universe: Objects in Motion;** NISE Network

This resource contains all downloads needed for participants to explore the complex and predictable ways objects in the universe interact with each other. Includes learning goals and videos (Spanish and English available).

<http://www.nisenet.org/catalog/exploring-universe-objects-motion-2018>

### **Exploring Magnetic Fields;** American Association for the Advancement of Science (AAAS)

This site contains lesson plans and directions for two activities designed to explore magnetic fields. Includes material list, directions, student worksheets, assessment and extensions.

<http://sciencenetlinks.com/lessons/exploring-magnetic-fields/>

### **Space Scoop Storytelling;** Universe Awareness (European Union)

This site contains description, directions, learning objectives, background information, and links to an astronomy news site for children. Learners use astronomy news stories for creative writing and art activities.

<http://www.unawe.org/activity/eu-unawe1316/>

### **Solar System Size Scale Model Demo;** McDonald Observatory

This site is a reference sheet describing how to create a demonstration of the relative size of the planets in our solar system using common objects, such as basketballs, softballs, and marbles.

<http://mcdonaldobservatory.org/sites/default/files/SolarSystemSizeScaleModelDemo.pdf>



## Comprehension Questions

Help learners process the concepts and ideas presented in the show with these questions.

1. Before Cassini, what information did scientists have about Saturn and its rings?
2. How did scientists gather information about Saturn before Cassini?
3. What additional information did scientists gain from the Cassini-Huygens mission?
4. Describe the differences in information gathered from the Huygens probe with that of Cassini.

## Further Research and Discussion

Ask learners to discuss the potential scientific applications to what is learned from missions like Cassini-Huygens. What information is learned in these missions that can benefit humanity on Earth? After the discussion, encourage students to conduct research about how space research has been applied to benefit humanity and future applications of space research.

*This show covers content that addresses Colorado Academic Standard in Science (Physical Science and Earth Systems Science). See [Planetarium Show Academic Standard Chart](#) for details by grade.*