

Where Is Saturn in the Solar System? Where Am I in the Solar System?

A photomontage of Saturn and some of its moons.



LESSON TIME

40 minutes

PREPARATION TIME

Allow time to locate reading materials and make copies of the handouts.

MATERIALS CHECKLIST

- Read-alouds (see Teacher Preparation)
- Chalkboard, whiteboard, or easel with paper; chalk, or markers
- “What I Wonder About Saturn” for each student
- “My Place on Earth! My Place in the Solar System!” worksheet for each student
- Science Notebooks

STUDENT PREREQUISITES

Students should be able to write independently or with some teacher support.

LESSON NO. 2

*Language Arts Focus — Nonfiction Texts: Listening and Structured Writing
Science Focus — Learning About the Structure of the Solar System*

OVERVIEW

This lesson introduces students to Saturn and its place in the solar system. Students see Saturn as part of the larger system of the Sun and its orbiting planets. A whole-class read-aloud provides students practice in listening to nonfiction text and a KWL chart supports the discussion of the text. Also included in the lesson is a structured writing activity that leads students to understand and explain their own place in the solar system.

BACKGROUND

The notion of a system characterizes many aspects of our solar neighborhood. Students begin to understand the workings of our solar system by learning that the Sun is at its center and the nine known planets and asteroid belt are in constant orbit around it. Saturn is also part of a system. Much like our own Sun, Saturn is at the center of a system — the Saturnian system. Saturn too has objects in constant orbit around it. Revolving around Saturn are its many beautiful and complex rings and numerous icy moons. For more information on the solar system, visit — <http://www.solarsystem.nasa.gov>

Objectives

Students will:

1. Learn that Saturn, the other planets, and the Sun are part of the solar system.
2. Practice listening to and understanding nonfiction text.
3. Write about their place in the solar system.

Teacher Preparation

For each student, make a copy of “What I Wonder About Saturn” by NASA Scientists (see page 4) and the “My Place on Earth! My Place in the Solar System!” worksheet. For read-alouds, the following books are excellent choices: *Me and My Place in Space* by Joan Sweeney; *My Place in Space* by Robin Hirst and Sally Hirst; *What’s Out There: A Book About Space* by Lynn Wilson; *Our Solar System* by Seymour Simon; *The Planets in Our Solar System* by Franklyn Branley.



Procedure

1. Gather students together for a whole-class read-aloud activity.
2. Form pairs and ask students to brainstorm with their partners about what they know about the solar system and Saturn. Using chalkboard, whiteboard, or easel with paper, create a KWL chart to organize their comments. List student responses in the first column of the KWL chart, What We Know.
3. Ask students if they have any questions about the solar system or Saturn.
4. You may want to model how to ask questions. A list of question words (who, what, when, where, why, how) is a helpful language prompt in the classroom to encourage inquiry. Asking students, “What do you wonder about the solar system or Saturn?” is another way to prompt inquiry in young students. List 3 or 4 questions or wonderings in the second column of your KWL chart, What We Want to Know or What we Wonder.
5. Give a copy of “[What I Wonder About Saturn](#)” by NASA Scientists to each student. Explore the list of “wonderings,” taking a few minutes to read them with your students and see what scientists are wondering about Saturn and its largest moon, Titan.
6. Introduce the solar system and Saturn by reading one of the books listed in the materials section.
7. As you read, stop and ask students to raise their hands when they hear new vocabulary words, words that they find difficult, or words that they want to know more about. Write words on the board and explain them as you read.
8. After reading and discussion, review questions that students generated and ask if anyone can answer any of the questions. Be sure to allow students some “think time.” Place students’ answers in the last column of the KWL chart, What We Learned.
9. Ask the students if they have any new questions. Add these to the KWL chart and encourage students to look for answers in future reading and discussions.
10. After you have completed the reading, distribute the “[My Place on Earth! My Place in the Solar System!](#)” worksheet for students to complete.
11. Depending on the skill levels of students, the worksheets can be done as a guided writing activity using an overhead projector, or an independent writing activity.

Using Science Notebooks

Writing prompts for this lesson:

1. Focus questions: Where is Saturn in the solar system? Where are you in the solar system?
2. Process questions: How do you know where Saturn is? How did you find your place in the solar system?



Extension

For additional activities focusing on the locations of objects in the solar system and their sizes and distances, visit:

<http://stardust.jpl.nasa.gov/classroom/activities/3-stardst-ch03.pdf>

Why This Works

The reading genre that young children encounter most often in classrooms and at home is overwhelmingly narrative in nature. When primary teachers were asked what type of text they last used in their classroom read-alouds, 84% reported fiction, 14% reported nonfiction, and the remaining 2% reported other (such as spelling lists). Parents exhibit a similar preference for fiction over nonfiction in their reading choices for their children.

To develop robust literacy skills, students must be exposed to a variety of text types. While narrative reading is important, content reading is essential to success in the classroom as well as in the workplace. Many of the lessons in *Reading, Writing & Rings!* reference nonfiction reading resources to increase student's exposure to informational texts.

Not to be overlooked is how motivating content reading can be for beginning readers. Young students are curious about the world, and nonfiction reading is a very effective way to bring the real world into the classroom.

Assessment

Student writing in Science Notebooks and writing and illustration in their worksheets will give an indication of what they have learned during this lesson.

Standards

NCTE Standards for the English Language Arts

- Students read a wide variety of print and nonprint texts to build an understanding of texts, themselves, and the world.
- Students apply knowledge of language structure, language conventions (e.g., spelling and punctuation), and genre to create, critique, and discuss print and nonprint texts.
- Students participate as knowledgeable, reflective, creative, and critical members of a variety of literacy communities.
- Students use spoken, written, and visual language to accomplish their own purposes (learning, the exchange of information).

National Science Education Standards

Physical Science

- Position and motion of objects

Earth and Space Sciences

- Objects in the sky



"What I Wonder About Saturn"

by NASA Scientists



The journey to learn more about Saturn is just beginning! We asked two NASA Cassini-Huygens scientists what they wonder about Saturn. Here is what they said:

Jim Fraunick of Mission Planning wonders:

- I wonder how thick Saturn's rings are.
- I wonder what will happen to the spacecraft as it passes through the rings.
- I wonder what causes storms in Saturn's atmosphere.
- I wonder if we will get some good pictures showing the particles in the rings.
- I wonder what the mission probe will find out about the moon Titan.
- I wonder if there is an ocean on Titan.
- I wonder how fast the winds are on Titan.

Dr. Bonnie Buratti, Investigation Scientist for the Visible and Infrared Mapping Spectrometer (VIMS) instrument wonders:

- I wonder what the rings are made of.
- Saturn has a moon called Iapetus. One side is very bright, almost as bright as fresh snow, and the other side is as dark as soot. I wonder how it got that way.

