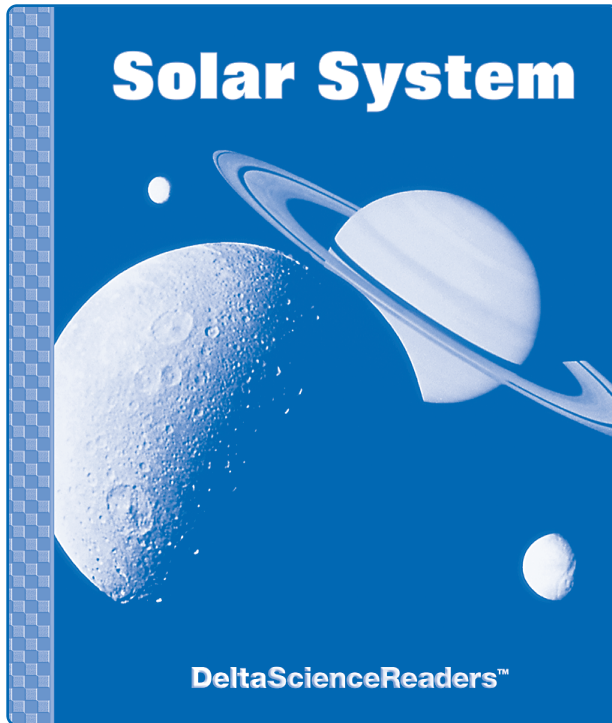


Solar System



Delta Science Readers are nonfiction student books that provide science background and support the experiences of hands-on activities. Every **Delta Science Reader** has three main sections: *Think About . . .*, *People in Science*, and *Did You Know?*

Be sure to preview the reader Overview Chart on page 4, the reader itself, and the teaching suggestions on the following pages. This information will help you determine how to plan your schedule for reader selections and activity sessions.

Reading for information is a key literacy skill. Use the following ideas as appropriate for your teaching style and the needs of your students. The After Reading section includes an assessment and writing links.

OVERVIEW

In the Delta Science Reader *Solar System*, students take a tour of the Sun and the planets. Other space objects such as dwarf planets, comets, asteroids, and meteoroids are explored. Students read about the rotation and revolution of the planets and the causes of night and day, seasonal changes, and the phases of the Moon. The book describes the work of a planetary geologist. In addition, students discover how telescopes work.

Students will:

- ▶ discover facts about the Solar System
- ▶ explore the planets and other objects in the Solar System
- ▶ discuss the function of a table of contents, headings, and a glossary
- ▶ interpret photographs and graphics to answer questions
- ▶ complete a KWL chart
- ▶ organize information in a variety of ways

READING IN THE CONTENT AREA SKILLS

- Compare and contrast planets
- Determine the main idea of a paragraph
- Recognize cause-effect relationships related to planetary conditions
- Draw conclusions about planetary facts
- Demonstrate critical thinking
- Interpret graphic devices
- Summarize
- Categorize planets

NONFICTION TEXT ELEMENTS

Solar System includes a table of contents, headings, photographs and illustrations, captions, diagrams, boldfaced terms, a biographical sketch, and a glossary.

CONTENT VOCABULARY

The following terms are introduced in context and defined in the glossary: *asteroid, astronomer, atmosphere, axis, comet, crater, day, Earth, ellipse, gas giant, gravity, inner planet, Jupiter, Mars, Mercury, meteor, meteorite, meteoroid, moon, Moon, Neptune, orbit, outer planet, phase, planet, Pluto, revolution, revolve, rotate, satellite, Saturn, solar, solar system, space probe, star, Sun, telescope, Uranus, Venus, year.*

BEFORE READING

Build Background

Access students' prior knowledge of the Solar System and its planets by displaying and discussing the cover. Ask, *Do you know what planet this is?* (Saturn) *What do you think these other objects are?* (some of Saturn's moons) Then read the title aloud and invite students to share what they know about the topic from their personal experiences and prior hands-on explorations in science.

To stimulate discussion, ask questions such as these: *What are some of the objects in our Solar System? How many planets are there? What is Earth's closest neighbor in space?*

Begin a class KWL chart by recording facts students know about the Solar System and its planets in the K column. You may wish to copy the KWL chart and ask students to maintain their own charts as they read.

K What I Know	W What I Want to Know	L What I Learned	+ What I Want to Explore Further

Preview the Book

Take a few minutes to have students look through the book. Explain the steps involved in previewing nonfiction: think about the title, read the table of contents, read the headings, read boldfaced words, and examine any photographs, illustrations, charts, and graphics.

Call attention to the various nonfiction text elements and explain how each feature can help students understand what they read. Point out that the table of contents lists all the main headings in the book and their page numbers. Ask, *How do the headings help you know what you will learn about?* Point to some of the photographs and ask questions such as: *What does this photo show you? How do you think it will help you understand the text?* Explain that the words in boldfaced type are important words related to our Solar System that students will learn when they read the book. Point out that these words are defined in the glossary. Choose one word and have students find its definition in the glossary.

Following the preview, ask, *What questions do you have about our Solar System that you would like this book to answer?* Record students' responses in the W column of the KWL chart. Explain that they will add to the chart as they are reading and complete it when they finish reading.

Preview the Vocabulary

You may wish to preview some of the vocabulary words before reading, rather than waiting to introduce them in the context of the book. Possibilities include creating a word wall, vocabulary cards, sentence strips, or a concept web.

For example, have students categorize words. List words from the glossary that can be grouped in different ways, such as *moon*, *asteroid*, *revolve*, *comet*, *planet*, and *rotate*. After helping students define the words, ask, *Into what groups can we put these words? What would be a good name for each category?* (Objects in Our Solar System—asteroid, comet, moon, planet, dwarf planet; Ways Planets Move—revolve, rotate)

Set a Purpose

Discuss with students what they might expect to find out when they read the book, based on their preview. Encourage them to use the questions on the KWL chart to set an overall purpose for reading.

GUIDE THE READING

Preview the book yourself to determine the amount of guidance you will need to give for each section. Depending on your schedule and the needs of your class, you may wish to consider the following options:

- **Whole Group Reading** Read the book aloud with a group or the whole class. Encourage students to ask questions and make comments. Pause as necessary to clarify and assess understanding.

- **Shared Reading** Have students form pairs or small groups and read the book together. Ask students to pause after each text section. Clarify the text as needed. Discuss any questions that arise or have been answered.
- **Independent Reading** Some students may be ready to read independently. Have them rejoin the class for discussion of the book. Check understanding by asking students to explain in their own words what they read.

Tips for Reading

- If you spread out the reading over several days, begin each session by reviewing the previous day's reading and previewing what will be read in the upcoming session.
- Begin each text section by reading or having a volunteer read aloud the heading. Discuss what students expect to learn, based on the heading. Have students examine photographs, illustrations, and graphics and read accompanying captions and labels.
- Help students locate context clues to the meanings of words in boldface type. Remind them that these words are defined in the glossary. Provide help with words that may be difficult to pronounce.
- As appropriate, model reading strategies students may find helpful for nonfiction: adjust reading rate, ask questions, paraphrase, reread, visualize.

Think About . . . (pages 2–13)

Pages 2–3 *Our Solar System*

- Direct students' attention to the diagram of the Solar System on page 2. Ask questions to elicit facts about the Solar System. *How many planets are there?* (eight) *Which one is closest to the Sun?* (Mercury) *Which is the farthest?* (Neptune) *Where is Earth in the Solar System?* (third from the Sun) *Which is the biggest planet?* (Jupiter)

- Scientists now consider our Solar System to have eight planets, not nine. Pluto has been reclassified as a dwarf planet. See *Pluto and the Definition of a Planet* on page 6.
- Generate interest in the text by asking, *As you sit here, are you moving or staying still? Explain, Everyone on Earth is moving—because the Earth itself is moving! We’re being carried along by the Earth as it turns on its axis and as it travels around the Sun.* Have students read page 2 to find out about our Solar System and the ways in which the Earth moves.
- Check comprehension by asking, *What is our Solar System?* (the Sun and everything that moves around it) *What is the difference between revolving and rotating?* (*Revolving* is moving in a path around something; *rotating* is turning on an axis.)

Discuss with students the meaning of the word *system*. (a group of objects that work together as one unit) Discuss that in a system, the parts usually have an effect on one another. Ask, *What would happen if the Sun were removed from the Solar System?* (The planets would fly off into space, because there would not be enough gravity to keep them in orbit.)

- Before reading the first paragraph on page 3, have students read the caption at the top and study the diagram of the Sun and the Earth. Discuss what the diagram shows. Ask, *When it is summer in the northern part of the world, what season is it in the southern part of the world?* (winter) Read the paragraph below the diagram. Ask, *How does the diagram help you understand the text?* (It shows in picture form what the words describe.)
- If necessary, provide help with the pronunciation of *Mercury* (MER-kyuh-ree), *Jupiter* (JOO-puh-tur), *Uranus* (YOOR-un-uhss), and *ellipse* (i-LIPS).

Further Facts

The planets were named after ancient mythological characters:

Mercury messenger of the ancient Roman gods

Venus Roman goddess of love and beauty

Mars Roman god of war

Jupiter king of the Roman gods

Saturn Roman god of agriculture and time

Uranus the sky personified as a god and father of the Titans (a family of giants) in Greek mythology

Neptune Roman god of the sea

Page 3 *What Is the Sun Like?*

- Before reading “What Is the Sun Like?” have students study the photograph of the Sun. Invite volunteers to describe what they see. Have students read the caption to find out about the Sun’s size and some of its features. Ask, *What is shown coming off the Sun’s surface?* (cloud of matter erupting) You may wish to share with students that these giant eruptions of matter are called solar prominences. Ask, *What are the light and dark areas shown on the Sun?* (The light areas are hotter places, and the dark areas are cooler places.)
- Have students read the text about the Sun on page 3. Ask, *Why is the Sun so important for life on Earth?* (It provides heat and light.) Point out that most living things get their food energy from green plants. Green plants use the Sun’s energy to make this food.
- Check understanding by asking, *What is a star?* (a huge ball of glowing gas that produces light and heat)

As appropriate, tell students that the Sun is an average star in terms of its temperature and the material that it is made of. In terms of its mass, the Sun is a fairly large star. In fact, it is the central

and largest body in the Solar System. Most of the mass (99.8 percent) in the Solar System is in the Sun.

- Ask, *What is the most surprising thing you learned from reading this section?* (Responses will vary.)

Page 4 *The Inner Planets: Mercury*

- Have students read the introduction. Then discuss the Mercury Facts feature with them. You may wish to use the facts provided to begin a Planetary Facts table that contains information about all the planets. Explain, *A table is a good way to organize information. It makes facts easy to read and compare.*
- Have students read page 4 to find out about Mercury. Ask, *Why do you think Mercury takes less time than any other planet to revolve around the Sun?* (It is the planet closest to the Sun and has a shorter distance to travel.) *Why can't Mercury be seen at night?* (Students may infer that because Mercury is between Earth and the Sun, the night side of Earth faces away from it.) *Why do you think Mercury gets so hot during the day and so cold at night?* Explain that Mercury has no atmosphere around it to trap heat, so it gets very hot while the Sun is shining, but loses its heat quickly when the Sun sets.
- If necessary, provide help with the pronunciation of *atmosphere* (AT-muhss-fih-r).

Page 5 *Venus*

- Discuss the Venus Facts with students and add the facts to the table. Ask, *What do you notice about the length of a day and a year on Venus?* (A day lasts longer than a year.)
- Have students read page 5. Then say, *Venus is sometimes called Earth's twin, but it is different from Earth in many ways. What are some of the differences?* (Venus rotates in the opposite direction;

its day lasts 243 Earth days; it is covered with clouds; it is much hotter.)

Venus is the easiest planet to see without the aid of a telescope. It can be seen in the direction of the Sun, near the horizon, just before sunrise or just after sunset. Because of this, we sometimes call Venus the morning or evening star.

- If necessary, provide help with the pronunciation of *carbon dioxide* (KAR-buhn dye-OK-side).

Page 6 *Earth*

- After discussing the Earth Facts with students, add the facts to the table. Point out that the year is 365 $\frac{1}{4}$ days long. Ask, *What happens to that extra quarter of a day?* If necessary, explain that we add a day to our calendar every four years. We call the year in which that takes place a Leap Year.
- Read the first paragraph and ask, *What is the main idea—the most important idea—expressed in this paragraph?* (Earth is the only planet that has the atmosphere, water, and temperature that most living things need.) *What conclusion can you draw from this?* (Earth is the only planet that people can live on.)
- Ask students to examine the diagram on page 6, then read the text. Ask, *What did you learn by studying the diagram and reading the text?* (how day and night are caused) *What is the name for Earth's movement that causes day and night?* (rotation)

Page 7 *Earth's Moon*

- Have students look at the photograph of the Moon on page 7. Before reading the text, invite students to share what they know about the Moon. Remind students that our knowledge of the Moon comes not only from telescopes and space probes; astronauts actually landed on the Moon and brought back Moon rocks. The Moon is the only planetary body that

people have visited. On July 20, 1969, Neil Armstrong and Buzz Aldrin became the first people to walk on the Moon. Six U.S. spacecrafts (Apollos 11, 12, 14, 15, 16, and 17) landed on the Moon between 1969 and 1972.

- Ask students to read the text on page 7 and examine the diagram of the Moon's phases. Guide them to see that when the Moon is between the Earth and the Sun, it is difficult to see because the side facing us is dark. When the Moon is to one side of the Sun, we see a crescent or half moon. When the Moon is exactly opposite the Earth and the Sun, it is full. Ask, *Did you find the diagram helpful? Try explaining in words what the diagram shows. Which do you think is the better way of presenting this information? Why?* (Students will probably say the diagram is the better way because you can quickly see what causes the changes; an explanation in words takes longer.)
- Encourage students to use the diagram of views of the Moon from Earth to determine the meanings of *waxing* and *waning*. Students should be able to see that the lighted portion of the Moon's surface that we see increases in size when the crescent is waxing and decreases when it is waning. Explain that *gibbous* means that more than half but not all of the Moon's disk is lighted.
- Point out that, like the Earth and the Moon, most objects in the Solar System move in regular and very predictable ways. Because of this, we can predict the length of each day and year, the phases of the moon, and when events like solar and lunar eclipses may happen.
- If necessary, provide help with the pronunciation of *gibbous* (GIB-us).

Page 8 Mars

- Discuss the Mars Facts with students and add them to the table. Show students how they can use the table to compare and contrast the inner planets. Say, *Think about the facts about the surfaces of the inner planets. What do they all have in common?* (rocky crust, plains, high places, craters) *What type of landform is found on many of the inner planets?* (volcanoes)

Mars's Olympus Mons is the largest volcano in the Solar System. It is 24 kilometers (about 15 miles) high and 600 kilometers (about 372 miles) across.

- Direct students to look at the photograph of Mars. Ask, *Why do you think Mars is called the "Red Planet"?* (The rocks and soil look red.)
- Read the text and caption on page 8. Tell students that although there may be no liquid water on the surface of Mars now, scientists believe that the planet once had rivers and oceans as Earth does.
- Ask, *Why do you think so many space probes have been sent to Mars?* Explain, if needed, that Mars used to be much like Earth, and scientists have been trying to find signs that it once had life. Have students draw conclusions about whether people could live on Mars without special equipment. (No, because the air doesn't have much oxygen; it is also very cold.)
- You may wish to tell students that the names of Mars's moons mean "fear" (Phobos) and "panic" (Deimos). They were named after the two sons of the god Mars in Greek mythology.
- If necessary, provide help with the pronunciation of *Sojourner* (SOH-jer-ner), *Phobos* (FOH-buhss), and *Deimos* (DEE-muhss).

Page 9 *The Outer Planets: Jupiter*

- Read the introduction with students. You may wish to tell students that not long ago, Saturn was the only planet known to have rings.
- Discuss the Jupiter Facts on page 9 and add them to the table. Explain that almost four hundred years ago a scientist named Galileo used a telescope to observe the night sky. In 1610, he saw Jupiter's four largest moons. The known number of Jupiter's moons increased as space probes or improvements in telescopes provided us with more information. In 2002, astronomers found 11 new moons, bringing the total to 63.
- Read the text on page 9. Ask students to describe what Jupiter looks like in the photograph. Ask, *How is Jupiter's appearance different from that of the inner planets?* (It does not have craters, mountains, and other landforms.) Explain that scientists believe that Jupiter has a liquid metal interior with a rocky core.

Jupiter's Great Red Spot is located in the lower right of the photograph. The small black spot in the lower left of the photograph is actually the shadow of Europa, one of Jupiter's moons.

- Tell students that Jupiter's four largest moons are the size of small planets. In fact, all are bigger than the dwarf planet Pluto, and the largest, Ganymede, is bigger than Mercury. Ask, *Why isn't Ganymede called a planet?* (It revolves around Jupiter, not the Sun.)

Page 10 *Saturn*

- Have students look at the photograph of Saturn on page 10. Read the Saturn Facts and add them to the table. Ask, *How are Jupiter and Saturn alike?* (huge size, made of gas, lots of moons, length of day)
- Read the text on page 10. Then say, *Before you read the text, you named some ways in which Jupiter and Saturn are alike.*

What else do these planets have in common? (both have strong winds and storms, both give off more heat than they get from the Sun) *What conclusion can you draw from the fact that Jupiter and Saturn give off more heat than they receive from the Sun?* (They produce their own heat.)

Page 11 *Uranus*

- Read and discuss the Uranus Facts on page 11 and add them to the table. Ask, *What do you notice about the length of the planets' years?* (They keep getting longer.) *What is the cause of this?* (Each planet is farther away from the Sun and has a longer distance to travel to go around it.)
- Read the text on page 11. Remind students that they learned that almost all of the planets have a tilted axis. Tell them that Uranus's axis is so tilted (97.9 degrees) that the planet circles the Sun lying on its side. Since it takes 84 years to complete one orbit, Uranus's polar regions each have 42 years of darkness and 42 years of light. Uranus, like Venus, also rotates "backward," or clockwise, instead of counterclockwise.
- Inform students that until *Voyager 2* flew past Uranus in 1986, only five of its moons were known. Ask, *Why do you think Uranus's other moons were not discovered before then?* (Students may speculate that the moons are too small and faint to be seen through a telescope.)

Uranus's moons are named after characters from Shakespeare's plays and a famous poem by Alexander Pope. Other moons in our Solar System are named after characters from Greek mythology.

- Students may be interested to know that Uranus was almost named Herschel after the astronomer (William Herschel) who discovered it. However, some astronomers felt that the planet should have a name from classical mythology like the rest.

Page 12 *Neptune, Dwarf Planets*

- Read and record the Neptune Facts. Then read the text about Neptune. Ask, *What other planets did Voyager 2 visit?* (Jupiter, Saturn, Uranus)
- Guide students to compare and contrast the gas giant planets. Ask, *Which of the other gas giant planets is most similar to Neptune?* (Uranus) *How are they alike?* (size, length of day, color, made of similar gases, ring system) *In what ways are Uranus and Neptune different?* (number of moons, length of year, Uranus gives off little heat and rotates in a different direction)
- Have students read about dwarf planets. Discuss this new category of Solar System objects. Explain that in August 2006 astronomers agreed on a new definition of a planet. A planet (1) orbits the Sun, (2) is massive enough that it is nearly round in shape; and (3) clears, or sweeps up all other objects in, the area in which it orbits. On the basis of this definition, Pluto is no longer classified as a planet.
- Ask, *How are dwarf planets like true planets?* (They orbit the Sun and they are nearly round.) *How are they different from true planets?* (They are much smaller.)
- After students have read about Ceres (SIH-reez), Pluto, and Eris (AIR-iss), have students describe where they are located in the Solar System. (Ceres is in the asteroid belt, a region between the orbits of Mars and Jupiter. Pluto and Eris are beyond Neptune.) This region, called the Kuiper Belt, contains many icy objects.
- Point out that every 248 Earth years, Pluto moves inside Neptune's orbit, where it stays for about 20 years. The last time Pluto moved inside Neptune's orbit was in February 1979. Pluto stayed inside Neptune's orbit until February 1999. Now Pluto is back outside

Neptune's orbit and will remain there until 2227, when the switch will happen again.

Page 13 *Other Objects in Our Solar System*

- Before reading page 13, ask what other objects in the Solar System students know about. Encourage them to share their ideas.
- Tell students to read the text on page 13 and look at the photograph of Halley's comet. You may wish to share with students that comets have been called "dirty snowballs." Ask, *What makes that a good description of a comet?* (Comets are made of dust and ice mixed together.) *What causes a comet's long, glowing tail?* (The Sun's heat starts to vaporize the comet, forming its tail. The Sun's light reflects off the tail.)
- Ask, *What is the difference between a meteor and a meteorite?* (A meteor is a meteoroid that burns when it enters Earth's atmosphere. A meteorite is part of a meteor that doesn't burn up completely and hits the ground.)
- If necessary, provide help with the pronunciation of *asteroids* (ASS-tuh-roids), *meteoroids* (MEE-tee-ur-roids), *meteor* (MEE-tee-ur), and *meteorite* (MEE-tee-ur-rite).

During certain times of the year, we may be able to see more meteors, or "shooting stars." We call these clusters of activity *meteor showers*. Meteor showers happen when Earth passes through trails of debris created by comets as they pass by the Sun. The particles of debris fall through Earth's atmosphere and burn up with a streak of light that we can see. The last part of the year is typically a strong time for meteor showers. The Perseid (late July to mid-August), Leonid (mid-November), and Geminid (mid-December) meteor showers all happen during this time.

People in Science (page 14)

Adriana C. Ocampo, Planetary Geologist

- Ask whether students know what a geologist is. If necessary, explain that a geologist is a scientist who studies the Earth and the Earth's history as shown in its layers of rock. Ask, *What do you think a planetary geologist is?* (a scientist who studies planets and other objects in our Solar System; sometimes this helps them learn more about Earth and Earth's history)
- After reading the text on page 14, ask, *What is an impact crater?* (the hole in the ground made when a meteorite hits the Earth's surface) *How do you think a meteorite impact may have caused the dinosaurs to become extinct?* (Accept reasonable responses.)
- If necessary, provide help with the pronunciation of *Adriana Ocampo* (ay-dree-AHN-na oh-KOMP-oh), *geologist* (jee-OL-uh-jist), *Chicxulub* (CHIK-shoo-loob), and *Yucatán* (you-kuh-TAN).

Students may be interested to know that one of the astronauts who walked on the moon, Harrison Schmitt, is a geologist. He collected Moon rocks on the last *Apollo* mission to the Moon in 1972.

Further Facts

- Hypotheses about how the Chicxulub impact may have caused the extinction of the dinosaurs vary. Some scientists think that gases, debris, and dust may have clouded the Earth, causing changes in Earth's climate.
- Earth is constantly being hit by space debris, but most of it burns up before it reaches Earth's surface. Nevertheless, some space scientists look for, track, and categorize asteroids and comets that may travel near Earth. A scale called the Torino Scale has been developed to describe the potential for collision with a comet or an asteroid.

- One famous example of a crater on Earth that is visible today is Meteor Crater near Winslow, Arizona. This huge pit—1.2 kilometers (0.8 miles) wide and over 180 meters (600 feet) deep—is believed to have been made by a meteorite that crashed to Earth about 50,000 years ago. Another example is Chubb Crater in Canada. A 200-meter (820-foot) deep lake fills this 1.4 million-year-old crater.

Did You Know? (page 15)

How Telescopes Work

- Direct students' attention to the diagrams of the refracting and reflecting telescopes. Read the labels with students, and call on volunteers to describe what they see.
- Have students read page 15 to determine how the two types of telescopes work. Ask, *What is the difference between a refracting telescope and a reflecting telescope?* (A refracting telescope uses lenses to collect light; a reflecting telescope uses mirrors. A refracting telescope is more powerful than a reflecting telescope of the same size.) *How is the way you look through the telescopes different?* (You look straight through a refracting telescope; you look into the side of a reflecting telescope.)
- Ask, *How does a telescope help us see more stars than we can see with our eyes alone?* (A telescope's lenses are bigger and can gather more light than our eyes can.)

Further Facts

- Galileo Galilei was the first to apply the telescope to the study of the night sky. Galileo published an account of his explorations with the telescope, *Sidereus Nuncius (Starry Messenger)*, in 1610.
- The largest optical telescope in the world is located in Mauna Kea, Hawaii, at the Keck Observatory. The telescope sits on top of a dormant volcano. The telescope is about 8 stories high, and its primary mirror is 10 meters (32.8 feet) across.
- Other large telescopes are located in Chile at the Paranal Observatory. When its four 8-meter-mirrored telescopes work together, it is known as the VLT, short for “Very Large Telescope.”
- The Hubble Space Telescope is in orbit 579 km (360 miles) above the Earth. It was launched in 1990. Hubble is not affected by conditions in Earth’s atmosphere, such as clouds, pollution, or light from cities, the way telescopes on Earth are affected. It therefore can provide sharp images of distant objects in space.

AFTER READING

Summarize

Complete the KWL chart you began with students before reading by asking them to share the answers to their questions. Call on volunteers to retell each text section. Then have students use the information in the KWL chart and the Planetary Facts table to write brief summary statements.

Discuss with students how using the KWL strategy helped them understand and appreciate the book. Encourage them to share any other reading strategies that helped them understand what they read.

Direct attention to the fourth column in the chart and ask, *What questions do you still have about the Solar System, its planets, and other objects in the Solar System? What would you like to explore further? Record students’ responses. Then ask, Where do you think you might be able to find this information?* (Students might mention an encyclopedia, science books, and the Internet.) Encourage students to conduct further research.

Review/Assess

Use the questions that follow as the basis for a discussion of the book or for a written or oral assessment.

1. What is the Solar System? (the Sun, the planets, and other space objects that move around the Sun)
2. What are the names of the inner planets? (Mercury, Venus, Earth, Mars) How are they alike? (They all have hard, rocky surfaces.)
3. What are the names of the outer planets? (Jupiter, Saturn, Uranus, Neptune) How are these planets alike? (They are huge balls of glowing gas, have many moons, and have rings.)
4. If you could travel to each planet in the Solar System, which one would take you the longest to reach? Why? (Neptune, because it's the farthest away from Earth.)
5. What other objects are in our Solar System? (dwarf planets, comets, asteroids, meteoroids)

Writing Links/Critical Thinking

Present the following as writing assignments.

1. In this book, the planets are divided into two groups, the inner planets and the outer planets. What is another way the planets can be grouped? Explain how the planets in each group are alike. (Students may classify planets according to size or composition. Other possibilities include the length of a planet's day, the existence of rings, or large and small numbers of moons.)
2. What is the connection between Earth's axis and the seasons? (Earth's axis is tilted. Part of Earth points toward the Sun and part of Earth points away from it. As Earth moves around the Sun, some parts of Earth get more direct sunlight than other parts do. This causes the seasons.)

Science Journals: You may wish to have students keep all the writing activities related to the Delta Science Reader in their science journals.

References and Resources

For trade book suggestions and Internet sites, see the References and Resources section of this teacher's guide.