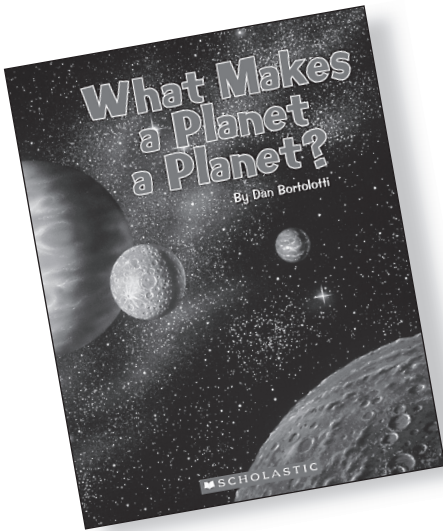


What Makes a Planet a Planet?



Written by Dan Bortolotti

Text Type: Non-fiction: Description/Explanation — Report
Guided Reading Level: R

Summary: For many years, scientists used the same the definition for what a planet is. After the discovery of a shiny object at the edges of the solar system, everything changed, including the definition of what makes a planet.

Text Features

- ▶ table of contents
- ▶ index

Visual Literacy

- ▶ photographs
- ▶ diagrams
- ▶ illustrations
- ▶ speech/thought balloons
- ▶ labels
- ▶ time-lapse photographs

Text Supports

- ▶ colour photographs
- ▶ scientific terms defined on page
- ▶ illustrations
- ▶ bulleted material

Possible Text Challenges

- ▶ vocabulary
- ▶ layout
- ▶ bullets
- ▶ scientific content

First Session (pages 3-7)

Reading Strategies

Comprehension

- ▶ analyzing
- ▶ evaluating

Working with Words

- ▶ using chunking, syllabication, context, and the index to solve scientific words

Assessment Opportunities

Note each student's ability to:

- ▶ analyze to find facts and provide supporting details
- ▶ evaluate the information to create an informed opinion
- ▶ solve new words using chunking, syllabication, and context

Oral Language Opportunities

- ▶ stating opinions
- ▶ discussing with a group or a partner



BEFORE READING

Text features/visual literacy

Activating and Building Prior Knowledge

Display the front cover of the book and read the title. Turn to the back cover and read the book summary. Read the section of the back cover containing the speech balloons. In the middle of a piece of chart paper print the word *planet*. Ask students to brainstorm ideas about the word. Record student responses on the chart paper in the form of a web. Make another web with the word *stars* at the centre.

Text features

Overcoming Text Challenges

Direct students' attention to the table of contents. Read the table of contents together. Scan the first two chapters as a group. Say, *The book contains a lot of information on the history of how planets were named, the way in which planets were discovered, and how planets are defined.* Ask, *What are some ways we can read and understand the large amount of scientific information in the book?*

Allow students to respond based on their previous readings of Description/Explanation texts. If not mentioned by students, include using the chapter titles, subheadings, pictures, and diagrams.

Synthesizing

Encourage students to pause at the end of each page to try to summarize in their minds what they read. Discuss the importance of rereading a page if they have difficulty understanding and remembering the information.

Language predictability/ text features

Read the first sentence on page 5 and ask students the meaning of the word *astronomers*. Draw students' attention to the text box containing the definition of the word *astronomers*. Point out to students that the text contains several text boxes that define scientific terms.

Direct students' attention to the index. Find the word *Greek*. Ask students to locate the word *Greek* on the pages, in the book, listed in the index. Ask, *How can using the index to find the same word in different places in the book help you figure out the meaning?* Remind students that the context of a word can help them figure out its meaning.

ESL Note:

This will be a challenging book for ESL students. Anything you can do to give students something tactile or large and colourful will be helpful. Try to display a large poster of the solar system, or have students (ESL and others) make a large frieze based on pages 12–13. This will give ESL students a basis for their learning.

Analyzing

Setting a Purpose

Read the title of the first chapter. Ask, *Why do think this question is asked?* Tell students they are about to read about a discovery called *Xena*. Ask students to read the first two chapters (stop at the end of page 7) and find out what *Xena* is and how it was discovered.



DURING READING

Ask students to read the first two chapters independently. Remind them to think about their purpose for reading. Encourage students to pause during their reading to think about the information, making sure they understand what they have read, and rereading any sections causing them difficulty.

Observe and listen to students as they read the text, noting their ability to handle the scientific content. Encourage students to use the index if they come across new words that present difficulty.

Note students' successful use of reading strategies and any difficulties they encounter.

Encourage students who finish early to reread the chapters independently or with a partner, reviewing the information about how *Xena* was discovered.



AFTER READING

Analyzing

Ask, *Who discovered Xena? How did he discover Xena?*

Ask students, *What group of people named most of the planets in our solar system? What were the planets named after?* Encourage students to provide examples from the text.

Analyzing/evaluating

Discuss with students whether or not they think *Xena* is a planet. Ask students for reasons for their responses.

Text features

Have students look again at the photographs on page 5. Ask, *Why is the movement of an object across the sky important? What does it tell an astronomer?*

Optional Approach

You may wish to have students read the rest of the text independently. Set a purpose for reading, and choose a date to come back together to discuss and work with the text using the Optional After Reading session (see page 7). You may choose to do some diagnostic work with students or to hold a book discussion halfway through to check their comprehension of text.

Setting a Purpose

Analyzing

Tell students to read to find out what the definition of a planet is and how it has changed.

Second Session (pages 8-15)

Reading Strategies

Comprehension

- ▶ synthesizing
- ▶ evaluating

Working with Words

- ▶ using chunking, syllabication, context, and the index to solve scientific terms

Assessment Opportunities

Note each student's ability to:

- ▶ analyze to find facts and provide supporting details
- ▶ synthesize: integrate information to create a new understanding
- ▶ evaluate the information to create an informed opinion
- ▶ use chunking, syllabication, context, and the index to solve unfamiliar words

Oral Language Opportunities

- ▶ stating opinions
- ▶ discussing with a group or a partner



BEFORE READING

Synthesizing

Activating and Building Prior Knowledge

Ask students to recall the five planets they read about in the first session. (Encourage them to remember that Earth is also a planet!)

Text features

Overcoming Text Challenges

Scan pages 8 and 9 with students. Ask students to identify some features on the two pages (text, text box with definitions, pictures, and illustrations). Discuss how the layout of the pages can help with reading the text. Encourage students to preview the pictures and illustrations. Remind them that all of the information, text (text boxes with definitions, chapter title, labels), and visuals (pictures, illustrations) are important parts of the chapters and need to be read and viewed.

Direct students to the bulleted list on page 12. Ask, *Why do you think the author put this information in a list?* (easier to read when author is making points) Explain that bullets can help them when reading a large amount of information, breaking it down into smaller parts, and making the text easier to understand.

Word solving and building

Turn back to pages 4 and 5. Ask, *How did you figure out some of the big words like photograph, different, telescopes, scientific, and celebrated?* Discuss the use of chunking and syllabication (*ce-le-brat-ed*). Remind students that this is one strategy they can use when trying to figure out unfamiliar words.

Synthesizing

Setting a Purpose

Inform students that they will be reading about the discovery of three more planets. Say, *One of the three planets is very different from the other planets. Read to find out what makes this planet so different.*



DURING READING

Ask students to read the next three chapters (“Uranus and Neptune,” “The Discovery of Pluto,” and “Why Is Pluto an Oddball?”) independently.

Observe and listen to students as they read the text, noting any successful use of strategies related to understanding and comprehension. For example, say, *I liked the way Khaled read the text box containing the definition for comets before he read the main text. Khaled, did it help your understanding as you read?*

Note students’ successful use of reading strategies and any difficulties they encounter.

Encourage students who finish early to reread the chapters, looking at the factors that make one of the planets very different from the other planets.



AFTER READING

Analyzing/synthesizing

Ask, *How was Uranus discovered? How did the discovery of Uranus lead to the discovery of Neptune?*

Analyzing

Ask, *What was it about the planet Pluto that made it so different from the other planets?*

Evaluating/infering

Direct students to the last paragraph on page 13. Read the three questions in the paragraph together. Ask, *What do you think the answers to these questions should be?*

Third Session (pages 16–22)

Reading Strategies

Comprehension

- ▶ synthesizing
- ▶ evaluating

Working with Words

- ▶ using chunking, syllabication, context, and the index to solve scientific terms

Assessment Opportunities

Note each student’s ability to:

- ▶ analyze to find facts and provide supporting details
- ▶ synthesize: integrate information to create a new understanding
- ▶ evaluate information to create an informed opinion
- ▶ use chunking, syllabication, context and the index to understand unfamiliar words

Oral Language Opportunities

- ▶ stating opinions
- ▶ discussing with a group or a partner



BEFORE READING

Synthesizing

Activating and Building Prior Knowledge

Review the last paragraph read previously. Discuss students' answers to the questions. Ask, *Have you changed your mind about the answers to these questions?* Encourage students to give reasons for their responses.

Synthesizing

Overcoming Text Challenges

Ask students to discuss the main things they have read about the discovery of planets. Commend any students who recall facts about the discovery of each planet. Say, *There is a lot of scientific information in the chapters you have read. What helped you recall the main points about the discovery of each planet?* Encourage students to continue using any strategies they have found helpful as they read the remaining chapters.

World solving and building

Direct students to the text box "What Do These Names Mean?" on page 17. Have them find the following words: *Sedna*, *Quavor*, and *Tongva*. Together, use chunking to figure out the words (*Sed-na*, *Qua-vor*, *Tong-va*).

ESL Note: Provide and help ESL students fill in a KWL chart about planets, with the headings "What I Know About Planets," "What I Want to Know About Planets," and "What I Learned About Planets."

Synthesizing

Setting a Purpose

Say, *One of the final chapters you are going to read has the same title as the title of the book: "What Makes a Planet a Planet?" You have some ideas about what makes a planet a planet. Read and find out if you are correct.*



DURING READING

Ask students to begin reading page 16 and the remainder of the book.

Observe and listen to students as they read the text, noting their ability to read all of the text and information presented in each chapter. Encourage students who find the information in the text challenging to pause, think about the information, and reread to increase their understanding.

Note students' successful use of reading strategies and any difficulties they encounter.

Encourage students who finish early to reread the chapters, reviewing the factors that make a planet a planet.



AFTER READING

Synthesizing/infering

Encourage students to discuss what makes a planet a planet. Discuss with students whether or not they think there will ever be a ninth planet discovered in our solar system. Encourage students to provide reasons for their answers.

Evaluating

Ask, *Do you think Pluto is not a planet? Do you think the scientists made the right decision?*

Optional After Reading

Analyzing

If students have completed the text independently, use the following After Reading discussion and activity suggestions to support comprehension, word solving, and good reader strategies.

Ask students what ancient cultures discovered about the planets. Ask, *How is it different today than in the past when it comes to studying planets?*

Synthesizing

Ask students to discuss how each planet was discovered and how it was named.

Evaluating

Discuss the decision made by scientists not to call Pluto a planet. Ask, *What is your opinion on the decision of the scientists? Why do you feel this way?*

Word solving and building/ language predictability

Ask students if any of the features of the text (text box with definitions, index) helped them figure out challenging words. Discuss any other strategies students used to decode and understand new words.

Rereadings

Provide opportunities for each student to reread a favourite chapter of the book independently or with a partner.

Focused Follow-up

The following activities are optional. Choose those that best meet the needs of your students.

Synthesizing

Planet Profile

Ask students to select one of the planets they have read about and prepare a profile on that planet. Students can use the information contained in the book or they can research (using the Internet, other information text, videos, etc.) additional facts about the planet. Have students use the BLM to complete the activity.

Evaluating/analyzing

The Great Debate

Ask students to imagine they are scientists deciding whether or not Pluto should be considered a planet. Divide the class into two groups: one group argues for keeping Pluto a planet, the other group argues against naming Pluto a planet. Encourage students to use the information from the book to support their reasoning in the debate.

Planet Profile

Name: _____

Planet Name: _____

Planet Facts:

▶ _____

▶ _____

▶ _____

▶ _____

▶ _____

Planet Picture

