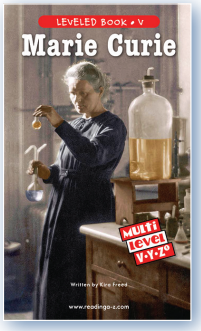
Focus Question:

Who is Marie Curie, and how did she change the world of science?



Book Summary

Text Type: Nonfiction/Biography

The work of Marie Curie revolutionized scientific understanding of the nature of atoms and opened up new frontiers in medicine. *Marie Curie* is a detailed account of this remarkable woman's legacy in the face of discrimination and struggle. The book can be used to teach students the elements of a biography.

The book and lesson are also available for levels Y and Z1.

Lesson Essentials

Instructional Focus

- ❑ Ask and answer questions to understand text
- ❑ Determine elements of a biography
- ❑ Describe information provided by photographs
- ❑ Recognize and use prepositional phrases
- ❑ Identify and use homophones

Materials

- ❑ Book: *Marie Curie* (copy for each student)
- ❑ KWLS / ask and answer questions, elements of biography, prepositional phrases, homophones worksheets
- ❑ Discussion cards
- ❑ Book quiz
- ❑ Retelling rubric

Vocabulary

Boldface vocabulary words also appear in a pre-made lesson for this title on VocabularyA–Z.com.

- **Words to Know**

  Story critical: ***element*** *(n.)*, ***Nobel Prize*** *(n.)*, ***perseverance*** *(n.)*, ***physics*** *(n.)*, ***radioactive*** *(adj.)*, ***Sorbonne*** *(n.)*

  Enrichment: ***atoms*** *(n.)*, ***breakthroughs*** *(n.)*, ***commission*** *(n.)*, ***doctorate*** *(n.)*, ***nominated*** *(v.)*, ***X-rays*** *(n.)*

- **Academic vocabulary:** *became (v.), cause (v.), demonstrate (v.), discover (v.), research (n.), topic (n.)*

Guiding the Reading

Before Reading

Build Background

Write the word *perseverance* on the board and read it aloud to students. Have students work in small groups to discuss the meaning of the word *perseverance.* Point out that *perseverance* means *commitment* or *determination*. Provide students with a sheet of lined paper and have them free write about an example of perseverance in their own lives. Have them consider what goals they were working toward, the obstacles they faced, and why they continued even when it became difficult. Invite students to share their responses in small groups. Have volunteers offer their experiences to the class.

Introduce the Book

- Give students their copy of *Marie Curie*. Guide them to the front and back covers and read the title. Have students discuss what they see on the covers. Encourage them to offer ideas as to what type of book it is (genre, text type, and so on) and what it might be about.
- Show students the title page. Discuss the information on the page (title of book, author's name).
- Preview the table of contents on page 3. Remind students that the table of contents provides an overview of the book. Ask students what they expect to read about in the book, on the basis of what they see in the table of contents. (Accept all answers that students can justify.)

Introduce the Reading Strategy: KWLS / ask-and-answer-questions

Explain to students that engaged readers ask and answer questions while they are reading and that one way to organize this information is with a KWLS chart. Give students the KWLS / ask-and-answer-questions worksheet. Have students look at the cover of the book and complete the *K* section with information they know about Marie Curie. Invite students to preview the photographs in the book with a partner to create questions about Marie Curie. Have students record this information in the *W* section of the KWLS chart. Invite volunteers to share their

Guiding the Reading *(cont.)*

questions with the class. Point out that, as they read, they should look for the answers to these questions as well as create new questions to add to the chart.

Introduce the Comprehension Skill: Elements of a biography

- Ask students to explain the difference between a biography and an autobiography *(biography: the story of a person's life written by someone else; autobiography: the story of a person's life written by that person).* Explain that this book gives a biographical account of Marie Curie. A biography includes information about a person's accomplishments, his or her influence on the world, and his or her personality.
- Write the words *Accomplishments, Influence,* and *Personality* on the board in a three-column chart. Have students turn to a partner and discuss the meaning of each word. Discuss the definitions as a class *(accomplishments: a success achieved through practice or training; influence: an effect on someone or something; personality: the qualities that makes each person unique).*
- Point out to students that as they read about Marie Curie, they should pause to consider her accomplishments, influence, and personality.

Vocabulary

Have students turn to the "Words to Know" box on the copyright page. Discuss each word with students. Then, have students turn to the glossary on page 16. Explain that the glossary provides definitions for the vocabulary words in the book. Point out the use of each content word and academic vocabulary word in the book, and then use each word in a different model sentence. Have students work in groups to create posters for these words. Have them include on each poster the word and its part of speech, the definition, the word in an example sentence, and a picture illustrating the meaning of the word.

Set the Purpose

- Have students read to find out more about Marie Curie. Write the Focus Question on the board. Invite students to look for evidence in the book to support their answer to the question.
- Have students make a small question mark in their book beside any word they do not understand or cannot pronounce. These can be addressed in a future discussion.

During Reading

Text-Dependent Questions

As students read the book, monitor their understanding with the following questions. Encourage students to support their answers by citing evidence from the book.

- *How did Marie being a woman affect her education?* (level 1) page 6
- *What did Marie study for her doctoral research?* (level 2) pages 8 and 9
- *What achievements and recognition did Marie receive for her work on radiation?* (level 1) page 10
- *How did Marie and Pierre help each other with their research?* (level 2) pages 7–10
- *In what ways did Marie influence the treatment of soldiers during World War I?* (level 1) page 12
- *How did Marie show perseverance throughout her life?* (level 3) multiple pages
- *What made Marie unique during her time?* (level 3) multiple pages
- *In what ways did Marie Curie affect modern medicine?* (level 3) multiple pages

Text Features: Photographs

Explain that photographs are helpful when reading because they provide the reader with important information about the text. Have students work in small groups to review the photograph on page 12. Ask students: *Why does the author include this photograph of the mobile* x-ray truck? *How does this photograph help you to connect more with the text? What information can you gather from this photograph that was not included in the text?* Have students work with a partner to review other photographs in the book and discuss as a class why the author chose to include each photo.

Skill Review

- Have students refer back to the KWLS / ask-and-answer-questions worksheet. Ask students to review their questions recorded prior to reading the book. Have them circle any questions that were answered and record this information in the *L* section of the chart. Ask students to share what they learned with the class. Have students record new questions in the *W* section of the chart. Point out that effective readers continually create new questions as they are reading in order to stay engaged with the text.
- Review with students the elements of biography: accomplishments, influence, and personality. Point out that identifying these aspects of the life of a historical figure will help readers understand that person's place and importance in history.
- Model identifying the elements of a biography. **Think-aloud:** *I know that the elements of a biography include a person's accomplishments, influence, and personality. For example, I know that Marie Curie was a pioneer in the field of science. For example, Marie discovered two new elements, radium and polonium, through her research. As a result, she was awarded a second Nobel Prize in chemistry. Marie was clearly a very intelligent, determined, hard-working person who showed courage by*

Guiding the Reading *(cont.)*

continuing her research during a time when women were not widely accepted in the sciences.

- Record the above information about Marie Curie in the chart on the board. Invite volunteers to add any additional information.
- Model how to complete the elements-of-biography worksheet. Remind students to use details from the text to support their answers.
- Invite students to return to the KWLS / ask-and-answer-questions worksheet. Have them complete the *S* section of the chart with the information they still want to know about Marie Curie. Encourage volunteers to share the information they still want to know.

After Reading

Ask students what words, if any, they marked in their book. Use this opportunity to model how they can read these words using decoding strategies and context clues.

Skill Review

Graphic Organizer: Elements of a biography

Review the elements-of-biography worksheet that students completed. Have students share their work in groups. Invite volunteers to share with the rest of the class the details they chose.

Comprehension Extension

Discussion cards covering comprehension skills and strategies not explicitly taught with the book are provided for extension activities.

Response to Focus Question

Have students cite specific evidence from the book to answer the Focus Question. (Answers should include the following: *Marie Curie was a groundbreaking scientist. As a result of her research, she improved scientific understanding of atoms, helped create new treatments in medicine, and led the way to the discovery of radiocarbon dating.)*

Comprehension Checks

- Book quiz
- Retelling rubric

Book Extension Activities

Build Skills

Grammar and Mechanics: Prepositional phrases

- Write the following sentence on the board: *Marie earned her Doctor of Science in June 1903.* Circle the word *in.* Point out that the word *in* is a preposition. Explain or review that prepositions are words that show a relationship between things. They provide information about *where, when, how, why,* and *with what* something happens.
- Record the following list of prepositions on the board: *about, across, after, against, along, among, around, at, before, behind, below, beneath, beside, between, beyond, but, by, down, during, expect, for, from, in, inside, into, like, near, of, off, on, out, over, past, since, through, throughout, to, toward, under, underneath, until, up, upon, with, within, without.* Explain to students that these are common prepositions and invite volunteers to add to the list.
- Explain that a *phrase* is a short group of words and that a *prepositional phrase* is a group of words beginning with a preposition and ending with the object of the preposition. Refer to the sentence: *Marie earned her Doctor of Science in June 1903.* Ask students to identify the prepositional phrase.
- **Check for understanding:** Have students work with a partner to reread the section "Paris at Last" to identify and circle all of the prepositional phrases. Review students' findings as a class.
- **Independent practice:** Introduce, explain, and have students complete the prepositional phrases worksheet. If time allows, discuss their answers.

Word Work: Homophones

- Write the following sentence on the board: *Two important physics discoveries had been made not long before.* Circle the word *two. Ask* students to explain what the word *two* refers to *(a number, an amount).*
- Write the following sentence on the board: *It wasn't clear whether the cause was working too hard or radiation.* Circle the word *too*. Ask students to explain what the word *too* means *(excessive).*
- Write the words *two* and *too* on the board. Explain that words that sound the same but are spelled differently and have different meanings are called *homophones.*
- **Check for understanding:** Write the homophones *for, four, be, bee, know,* and *no* on the board. Have students use each word in a sentence on a separate sheet of paper. Invite them to share their sentences aloud.
- **Independent practice:** Introduce, explain, and have students complete the homophones worksheet. If time allows, discuss their answers

Connections

- See the back of the book for cross-curricular extension ideas.