



## INTRODUCTION

**F**ocused  
**O**pportunities to  
**C**onstruct an  
**U**nderstanding of  
**S**cience

*FOCUS Books* help students dig deeper into high-interest science topics while helping you address science and language arts standards.

These twelve-page books allow students to construct their own meaning of science ideas and concepts by reading, writing, thinking, and doing.

The books use real-world examples and engaging images to describe specific concepts related to Science A–Z units. For example, after learning about forces and motion in general, students can read about the physics of soccer, bicycles, and roller coasters. Once students understand the structures of plants and how they grow, they can read about succulents, pollinators, and deforestation. *FOCUS Books* cover a wide variety of topics that were selected to spark students' curiosity and to inspire further exploration and discovery. The books may also foster an interest in STEM-related careers.

The topics in *FOCUS Books* help target important core ideas of science and engineering. Topics were selected to support U.S. state science standards as well as the disciplinary core ideas from the **Next Generation Science Standards** (NGSS). These books also support **Common Core State Standards** relating to informational text, close reading, text-dependent questions, writing, and academic vocabulary.

An **assessment** page at the end of each book gauges student comprehension of the science content, while the activity prompt on the back cover allows students to engage in science and engineering practices.

## HOW TO USE FOCUS BOOKS

Consider these options for using *FOCUS Books* in both your science and English language arts programs.

### Independent Reading

*FOCUS Books* can be used apart from other Science A–Z unit resources as stand-alone, **independent reading** opportunities. Students can select and read any book from the collection, preferably at their own reading level. They might enjoy reading all the books provided with a unit. You can assign titles from units at higher or lower grades to meet the needs of individual readers while still supporting literacy objectives related to text complexity.

*FOCUS Books* can also be used to implement the “flipped classroom” approach. Ask students to read a book as homework and then work on the assessment and hands-on activity in the classroom.

## Integrated Science Units

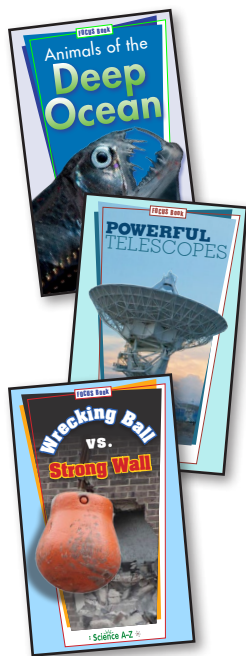
*FOCUS Books* can be used as important **supplemental components** of an integrated approach to teaching science. As with *Investigation Packs*, *Quick Reads*, *Process Activities*, *Debates*, *Career Files*, and *Game Packs*, these short books help build students' understanding of complex ideas. They also give you another option to address the multiple learning styles of your students.

Assigning *FOCUS Books* prior to introducing a unit will get students excited about the topics they are about to study and help them begin thinking about how these concepts relate to their own lives. Alternatively, have students read the books after they have mastered the broader concepts explained in the *Nonfiction Books*. This will reinforce the concepts learned during unit study while opening students' eyes to specific high-interest topics.

## Guided Reading

While *FOCUS Books* are primarily intended to deliver enriching science content, they can also be excellent tools for developing **literacy** proficiency in students. These books can be valuable assets for small-group, guided reading instruction. By providing guided reading support before, during, and after reading, you can ensure that students have the help they need to comprehend the text. You might select **reading strategies** for students to practice as they read, such as connecting to prior knowledge, asking and answering questions, visualizing, and summarizing. Similarly, these books provide opportunities to target key **comprehension skills** such as cause and effect, classify information, and compare and contrast.

## ABOUT THE RESOURCE



## *FOCUS Books*

### Front Cover and Reading Levels

Each *FOCUS Book* starts off with a cover featuring an attention-grabbing image. The **reading level** is indicated using the Science A–Z level dots system. Within a set of five books, one book is written at a higher reading level (three dots), three books are written at a middle level (two dots), and one book is written at a lower level (one dot). Domain icons designate whether the book comes from a Life, Earth, or Physical science unit.

**: Science A-Z** 🦋 **: Science A-Z** 🌍 **· Science A-Z** ⚗️

### Title Page

A key feature of *FOCUS Books* is the **FOCUS Question**. This essential question is found on the title page of each book. It provides students with a framework for what they are about to read. The FOCUS Question encourages close reading by asking a question that students will answer on the assessment page after reading the book.

The FOCUS Question is tagged with a **crosscutting concept** from the Next Generation Science Standards. This connection allows you to select books that are related to concepts you are addressing in your curriculum. Help students understand why these concepts truly are “crosscutting” by asking them to read books that cover a wide range of science topics but have the same crosscutting concept cited. Then discuss the meaning of that concept in the context of different science topics.

**FOCUS Question**

How can we use patterns to predict weather?

Patterns

**FOCUS Question**

How do cells in your body work together to fight disease?

Systems and System Models

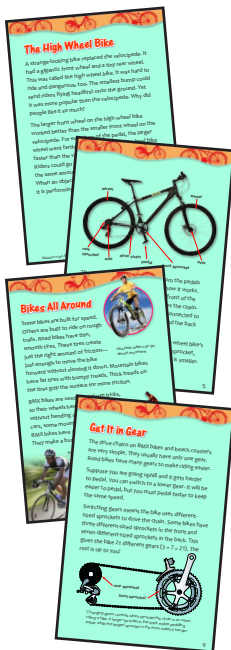
### Content Pages

Each *FOCUS Book* has eight content pages that deliver in-depth information about the book’s topic. The books dig deeper into **specific** topics by providing interesting examples and intriguing details. For example, the *Let’s Ride a Bike* book within the Machines unit discusses the simple machines used in bicycles. It also teaches students about the history of bicycles and how forces—such as friction—affect a bike’s motion.

Photographs, illustrations, diagrams, tables, graphs, and maps support the text. These **visual devices** allow students to practice analyzing and interpreting visual, or *nonlinguistic*, representations of information.

Certain **vocabulary** terms that students may find unfamiliar or critical to understanding are *italicized* for emphasis. Most of these terms are not part of the overall unit vocabulary list. Encourage students to determine the meanings using context clues.

Like many other Science A–Z student resources, *FOCUS Books* include **sidebars and special features** that stimulate critical thinking and discussion. These include Think About It, Science in Your World, Engineering, Technology, and Do You Know? sidebars. Math Moments support **STEM** initiatives by presenting students with word problems that require an application of **math** skills—including calculation and logical reasoning—to solve.



### Math Moment


Apollo astronauts collected 380 kilograms of Moon rocks. One kilogram is equal to 2.2 pounds. How many pounds of Moon rocks did the astronauts collect?



### Read-Think-Write Page

The Read-Think-Write (RTW) page is an assessment tool that allows you to gauge students' comprehension of the material presented in the *FOCUS Book*. It contains a variety of question types selected to span Webb's **Depth of Knowledge (DOK)** criteria, including Level 3 DOK questions, which require critical thinking and application of knowledge. At least one vocabulary question is included in the assessment, and there is often a question relating to interpreting a visual device as well. Encourage students to answer these **text-dependent questions** by referring back to the content pages and citing **evidence from text** to support their claims.

The final question on the RTW page is a **writing** prompt related to the FOCUS Question that was presented at the beginning of the book. It asks students to synthesize what they have learned and summarize key details of the book with an open-ended written response.

 Allow students to preview the RTW assessment questions prior to reading. Then, as they read, encourage them to highlight places in the book where they think they have found details that will help them answer the questions later.

### Back Cover

The back cover of each *FOCUS Book* includes an age-appropriate activity prompt that allows students to apply what they have learned and behave like a scientist and/or an engineer! These activities will extend the learning and encourage hands-on experimentation. Each activity was designed to incorporate the science and engineering practices of the **NGSS** while integrating **STEM** subjects. They are open-ended and inquiry-based; students select appropriate materials, design the procedures, manipulate variables, and decide how to analyze and communicate the results.

Because these activities will often require a teacher's guidance, instructional support is provided in the Teaching Tips that accompany each book (see page 5).

The back cover also includes Beyond the Book. This brief section provides students with an extension opportunity to learn more about the topic, such as an Internet exploration, a firsthand experience, or an interview with an expert. These activities can be an in-class extension or be assigned as homework.



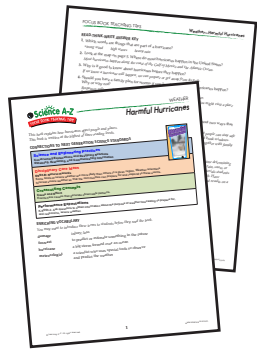
**Be a Scientist!**



**Be an Engineer!**



**Beyond the Book**



## FOCUS Book Teaching Tips

*FOCUS Book Teaching Tips* are provided with *each* student book. This brief document begins with a summary of the book, the reading level designation, and a preview of the cover.

## Satisfying Science Standards

A table provides connections to the Next Generation Science Standards.

- Students will develop and engage in **science and engineering practices** by reading the text, analyzing graphic elements, communicating their findings, and—primarily—by performing the activity on the back cover.
- **Disciplinary core ideas** are addressed throughout the text of each book.
- Each FOCUS Question addresses a selected **crosscutting concept**.
- *FOCUS Books* support various NGSS **performance expectations** by having students analyze what they have read and participate in hands-on experiments and explorations.

## CONNECTIONS TO NEXT GENERATION SCIENCE STANDARDS

Science and Engineering Practices
Disciplinary Core Ideas
Crosscutting Concepts
Performance Expectations

**NOTE:** Even teachers who are not responsible for satisfying the Next Generation Science Standards will likely find this table useful. The language and organization of the NGSS are similar to that of science standards used in U.S. states and in other countries.

## Vocabulary

The *FOCUS Books Teaching Tips* include up to five enriching vocabulary terms for preteaching. When introduced prior to reading, these words will help students more easily comprehend the science content and provide for a richer reading experience.

## Answer Keys

The answer key for the Read-Think-Write page includes suggested responses to all assessment questions, including the FOCUS Question writing prompt. Solutions to Math Moments are provided when a book contains this feature.


## Instructional Support

This section explains the purpose for the Be a Scientist! and/or Be an Engineer! activity, offers background information, and provides tips for running the activity in your classroom. It suggests materials and expected results. However, these activities are intended to let **students direct their own learning!** Whenever possible, allow students to select materials, establish a research plan, and independently carry out the investigation.



## EXTENSIONS AND VARIATIONS

Below are additional ideas to maximize the value of *FOCUS Books* in the classroom.

- Writing/Arts: Have students create their own *FOCUS Book* on a topic of their choice, using their favorite Science A–Z book as a model. They can include their own drawings and photos or paste them in from other sources. Encourage students to ask a FOCUS Question at the beginning of their book. They might even ask RTW-type questions on the last page and exchange books with a classmate.
- Writing: Provide students with a Science A–Z *Graphic Organizer*, such as *Classify Information*, *KWL Chart*, *Main Idea and Details*, or *Summarize*. Have students complete the worksheet during and after reading.
- Centers: Place each of the books from one Science A–Z unit at different centers and ask students to read one of the books. Then organize book clubs for students to discuss the books they have read.
- Listening and Speaking: Form groups of five students. Have each student in the group read a different book from a unit. After reading, have each student summarize the book for the group. Then students can trade books and repeat the activity. If the subject matter lends itself to debate, encourage students to practice scientific argumentation to settle disagreements about the subject matter of the book.
- Arts: Have students create a poster, mobile, diorama, 3-D model, or other visual display about the topic of a *FOCUS Book*. Alternatively, students might design a machine, wear a costume, sing a song, recite a poem, or share a food related to the book. Invite students to present their projects to the class.
- Math: Encourage students to write a mathematical word problem based on information they read about in a *FOCUS Book*. The problem should require calculation or logic to solve. Then ask them to exchange questions with a classmate to be solved.
- Field Trip/Guest: Take a class field trip or invite a guest speaker to help students learn more about the topics presented in *FOCUS Books*.
-  Technology: To develop digital literacy, have students conduct supervised online research on the topics from *FOCUS Books*. They might discover weird facts, historical milestones, or fascinating statistics. Students can then present their findings to the class using digital presentation software.
- Research/Home Connection: Encourage students to learn even more about the book's topic, or related topics, through further research. The Beyond the Book section may provide a good starting point.