NSTA RECOMMENDS
Professional Resources for Science Educators
Fall 2020
A Few Words From Our Readers

"I love when kids discover a concept on their own through an investigation and it clicks for them that this could be a passion that they can pursue as a career!"
—Kathryn L.

"I love that teaching science requires students to critically think and come up with their own interpretations. I learn as much from my students as they learn from me.
—Thad K.

"NSTA Press books are based on the latest educational research and are supportive no matter how long you have been teaching."
—Susan M.

"I love seeing my students wanting to know more!"
—Sonya J.

"Nothing makes my day better than watching a student have an aha moment."
—Laura M.

"I love that NSTA Press books provide different ways to approach a topic. I learn about coaching students through inquiry projects, teaching questioning as a way to dig deep into student interests, and developing truly integrated units to support literacy through STEM topics and activities."
—Laura L.A.
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New titles available!
Argument-Driven Inquiry
Three-Dimensional Investigations for Elementary Students

Now you can make the instructional shift to argument-driven inquiry (ADI) in your elementary classroom. Like the bestselling ADI books for middle and high school (see pp. 22–23), these volumes are written by veteran teachers and prompt students to use argument to construct, support, and evaluate scientific claims. You’ll see that these books emphasize “figuring things out” instead of just “learning about things.” Each lesson comes with teacher notes, investigation handouts, and checkout questions. The investigations support the NGSS and the Common Core State Standards for English language arts and mathematics. The books can also help emerging bilingual students meet the English Language Proficiency Standards with their tips for teaching English language learners. Your students will explore questions such as: Why do wolves live in groups? How can you make an electric car move faster? And why do people use hot water instead of cold when making tea?

Argument-Driven Inquiry in Third-Grade Science
Victor Sampson and Ashley Murphy | NSTA PRESS, GRADE 3

Includes 14 field-tested lessons covering motion and stability, molecules and organisms, heredity, biological evolution, and Earth’s systems.
#: PB349X7 E-book #: PKEB349X7 Book/E-book Set #: PKE349X7

Student Workbook (Third-Grade Science)
#: PB349X7S E-book #: PKEB349X7S Book/E-book Set #: PKE349X7S

Argument-Driven Inquiry in Fourth-Grade Science
Victor Sampson and Ashley Murphy | NSTA PRESS, GRADE 4

Includes 15 field-tested lessons covering energy, waves and their application in technologies for information transfer, molecules and organisms, and Earth’s place in the universe and systems.
#: PB349X8 E-book #: PKEB349X8 Book/E-book Set #: PKE349X8

Student Workbook (Fourth-Grade Science)
#: PB349X8S E-book #: PKEB349X8S Book/E-book Set #: PKE349X8S

Argument-Driven Inquiry in Fifth-Grade Science
Victor Sampson, Todd L. Hutner, Jonathon Grooms, Jennifer Kaszuba, and Carrie Burt | NSTA PRESS, GRADE 5

Includes 16 field-tested lessons covering matter and its interactions; motion and stability; ecosystems and their interactions, energy, and dynamics; Earth’s place in the universe; and Earth’s systems.
#: PB349X9 E-book #: PKEB349X9 Book/E-book Set #: PKE349X9

Student Workbook (Fifth-Grade Science)
#: PB349X9S E-book #: PKEB349X9S Book/E-book Set #: PKE349X9S

Order by phone: 800-277-5300 Read sample chapters and order online: www.nsta.org/bookstore
Your challenge: Integrate literacy instruction with your science lessons—even if your students struggle with reading and you don’t have a single extra minute of class time. Your solution: The Once Upon a Science Book series. These books provide everything you need to boost students’ skills in science concepts and reading at the same time. The books start with advice on teaching reading-comprehension strategies to middle school students. Then the 12 content chapters give you hands-on science lessons organized in a learning cycle.

The explorations in the new physical science volume support the NGSS and the Common Core State Standards and cover key physical science concepts such as physical and chemical properties, inertia, energy, magnets, and waves. They have engaging titles like “The Smash-Masters,” “Energy’s Wild Ride,” and “How to Not Die in Antarctica.” In addition to the writing prompts and assessment activities found in all Once Upon books, this new volume presents a “Thinking Mathematically” activity to show how science and math concepts relate.

You’ll love how practical and useful these books are. The authors are experienced teachers who know what it’s like when students struggle with science texts. They’ll help you take on the role of coaching your students in content-area reading!
Uncovering Student Ideas About Engineering and Technology
32 New Formative Assessment Probes

Page Keeley, Cary Sneider, and Mihir Ravel | NSTA PRESS, GRADES 3–12

Find out what your students know—or think they know—about the important topics of engineering and technology. Like the other 11 volumes in the popular Uncovering Student Ideas series (pp. 9–11), this book offers teacher-friendly formative assessment probes to help you reveal preconceptions and misunderstandings that students (and maybe even you) hold. But instead of exclusively concentrating on science disciplines, this book’s 32 probes focus on the disciplinary content of engineering and technology, engineering practices, and connections to crosscutting concepts with titles such as “Is Engineering Creative?,” “Working Together to Save Lives,” and “Pizza Problem.”

The probes are organized into four sections that explore what technology and engineering are, how to define problems, and how to design and test solutions. Each section includes a matrix of key ideas and the suggested grade levels for each probe. All probes are short, easy to administer, and available in both English and Spanish. You can use them to uncover students’ thinking about everything from the purpose of technology to who can become an engineer to how an engineering design process works.

Given the importance of STEM in today’s classrooms, it’s vital to present related content in ways that will help your students learn the material accurately. Uncovering Student Ideas About Engineering and Technology will help you choose the instructional path that works best with your learning goal, your students’ preconceptions about engineering and technology, and the diverse learners in your classroom.

#; PB455X Members: $31.88 Non-members: $39.85
E-book #: PEK8455X Members: $23.91 Non-members: $29.88
Book/E-book Set #: PEK8455X Members: $38.25 Non-members: $47.82

The NSTA Atlas of the Three Dimensions

Ted Willard | NSTA PRESS, GRADES K–12

Think of this book as your detailed guide to a deeper understanding of what your students are expected to learn and what you’re expected to teach them. The NSTA Atlas of the Three Dimensions provides 62 maps showing what students should know and be able to do regarding the three dimensions of science described by A Framework for K–12 Science Education, the Next Generation Science Standards, and other state standards. The linked maps illustrate how the dimensions’ elements can build on each other and connect to one another over the course of a K–12 education. Regardless of the grade levels you specialize in, this book can bring new coherence whenever you’re developing a curriculum, planning instruction, or performing assessments.

The NSTA Atlas was developed using the same techniques as the popular Atlas of Science Literacy volumes. Those books focused on the previous generation of standards when it was published in 2001 by NSTA and the American Association for the Advancement of Science. Like the earlier Atlas, this one is oversized and spiral-bound for easy use. The maps are accompanied by excerpts from the Framework that provide an overview of the topic of the maps.

Using the NSTA Atlas as a navigational tool, you’ll be able to trace the prerequisites for understanding science in every grade. You’ll make the connections to support science content. And you’ll show the way to the next steps in your students’ science education—all in the context of today’s standards.

#; PB414X Members: $61.70 Non-members: $77.12
E-book #: PEK8414X Members: $46.27 Non-members: $57.84
Book/E-book Set #: PEK8414X Members: $74.04 Non-members: $92.54

Order by phone: 800-277-5300  Read sample chapters and order online: www.nsta.org/bookstore
A guide to argument-driven inquiry (ADI) that covers electricity and magnetism is the newest book in the ADI series, which also covers mechanics-related physics, biology, and chemistry (see pp. 22–23). Like those NSTA bestsellers, this book is designed to help you build your students’ science proficiency through three-dimensional instruction. It makes labs more authentic by helping students identify questions, develop models, collect and analyze data, generate arguments, and critique and revise reports.

Argument-Driven Inquiry in Physics, Volume 2: Electricity and Magnetism Lab Investigations for Grades 9–12 is divided into three parts. First comes an introduction to ADI and information on how to use the labs. Next are 17 field-tested labs that cover electrostatics; electric current, capacitors, resistors, and circuits; and magnetic fields and electromagnetism. All labs are three-dimensional in their design and easy to use, thanks to the teacher notes, lab handout, and checkout questions provided with each investigation. Finally, helpful appendixes provide scoring rubrics and peer review guides and show how the labs support the Next Generation Science Standards, AP Physics standards (for both algebra- and calculus-based courses), and the Common Core State Standards for mathematics and English language arts.


Student Lab Manual for Argument-Driven Inquiry in Physics, Volume 2


Novel Engineering, K–8
An Integrated Approach to Engineering and Literacy

Picture your students designing a hearing aid for the main character in El Deafo—and then styling it as a fashion accessory. Or imagine them helping the shipwrecked Swiss Family Robinson build a structure to keep them cool under the hot sun. Novel Engineering shows how your students can use literary works as the basis for an engineering design challenge. This innovative resource will have your students pulling information from literature to identify a problem. Then, using details from the story as evidence, they’ll go through an engineering design process to develop functional solutions for their “clients”—the book’s characters.

Novel Engineering provides you with plenty of practical guidance for integrating engineering and English language arts (ELA), including a thorough introduction to the concept and detailed implementation advice. But the book comes to life through five in-depth case studies featuring the use of novels, a biography, and a nonfiction historical text.

You’ll see that this approach doesn’t require books outside your existing ELA or social studies curriculum. You’ll also see that Novel Engineering can help you engage students in a powerful new way. As the authors write, “We have been encouraged by the excitement that students and teachers have shown for their work during Novel Engineering units. ... Students have taken ownership of their learning and are able to navigate the steps of an engineering design process, creating functional solutions to problems they have identified in texts.”

STEM, Standards, and Strategies for High-Quality Units
Rodger W. Bybee | NSTA PRESS, GRADES K–12

Thought leader and curriculum expert Rodger W. Bybee has assembled a guide to creating coherent, high-quality classroom materials that support the standards and STEM. The book provides practical background information and activities that can be adapted by individual teachers, professional learning communities, and professional developers. It starts with a section on making foundational decisions about your STEM unit’s development. Later sections discuss getting started with preliminary designs, improving the designs with new knowledge and skills, developing the unit, and then teaching and further improving the unit as needed. Throughout, Bybee integrates contemporary educational strategies such as the 5E Instructional Model, backward design, and lesson study. The book is useful whether your school is developing a new STEM program, adapting current instructional materials, or creating new materials of its own.

 #: PB453X Members: $27.26 Non-members: $34.07
 E-book #: PKEB453X Members: $20.44 Non-members: $25.55
 Book/E-book Set #: PKE453X Members: $32.71 Non-members: $40.88

Integrating STEM Teaching and Learning Into the K–2 Classroom
Jo Anne Vasquez, Michael Comer, and Jen Gutierrez | NSTA PRESS, GRADES K–2

With Integrating STEM Teaching and Learning Into the K–2 Classroom, you’ll learn how STEM can become a natural extension as students apply what they are already learning in meaningful, grade-appropriate ways. The book’s 10 chapters are designed as a mini-course on incorporating more authentic, phenomena-driven, integrated STEM teaching and learning into early elementary classrooms. The first few chapters cover what makes STEM education different, the key elements of STEM teaching and learning, and ways to blend STEM with your core reading block. From there, the chapters describe four completed STEM projects from actual classrooms—projects with names like “Baby Bear’s Chair” and “A Pond Habitat.” An easy-to-follow template shows you the process for developing your own STEM experiences. The final chapter describes how one district created a culture of STEM teaching and learning when education partners committed to working together toward a common goal.

 #: PB450X Members: $26.84 Non-members: $33.55
 E-book #: PKEB450X Members: $20.13 Non-members: $25.16
 Book/E-book Set #: PKE450X Members: $32.20 Non-members: $40.26

Universal Design for Learning Science
Reframing Elementary Instruction in Physical Science
Deborah Hanuscin and Delinda van Garderen | NSTA PRESS, GRADES 3–5

Universal Design for Learning Science shows how you can use your existing curricula and resources to make your elementary school physical science lessons more effective. Whether you’re teaching about magnets or matter, use this book to help you reframe the lessons to mirror how students learn and support the success of all students.

Using the 5E Learning Cycle and Universal Design for Learning, you’ll see how lessons that support the NGSS can provide challenging experiences for all students. Through nine real-world vignettes, experienced teachers provide you with tips for teaching science in general to all students and in particular to kids who may require modifications in the learning environment. The teachers spotlight a variety of students—including struggling learners, those with differing physical abilities, and those with executive functioning challenges—as they demonstrate how strategies from the frameworks can knock down obstacles to learning.

 #: PB452X Members: $26.84 Non-members: $33.55
 E-book #: PKEB452X Members: $20.13 Non-members: $25.16
 Book/E-book Set #: PKE452X Members: $32.20 Non-members: $40.26

Order by phone: 800-277-5300
Read sample chapters and order online: www.nsta.org/bookstore
Human Impacts on Our Climate, Grade 6

What if you could challenge your sixth graders to come up with a way to help tackle climate change in their own community? Human Impacts on Our Climate prompts students to investigate aspects of climate change that have been driven by the rise in global temperatures over the past century. Working in teams, they can then use an engineering design process to identify a local environmental problem and develop a model to help monitor and minimize it. Students will learn to recognize the differences between weather and climate and explain the causes and effects of global warming, including how humans influence it. They’ll use mathematical modeling and numerical data to explore climate change’s impact. They’ll also analyze credible resources to form scientific arguments and develop a presentation about their findings. Throughout this three-lesson module, your students will develop a deeper understanding of how climate change influences the economy, our society, and people everywhere.

© 2020; ISBN: 978-1-68140-408-0; 130 pages

The Changing Earth, Grade 8

What if you could challenge your eighth graders to help people recognize the inherent risks of living in regions that are prone to flooding, earthquakes, and volcanoes? The Changing Earth introduces the powerful idea that the Earth is shaped by ongoing geologic processes that can alter a community’s landscape in a short time. This six-lesson module also helps students appreciate the nature and process of science, including the roles of evidence, conjecture, and modeling. Students will learn about the rock cycle, including how it’s driven by the Sun’s energy and heat from the Earth’s core. They’ll develop their skills with mathematics, data analysis, and graphics and tables that summarize data. In the end, they’ll devise a museum display to explore the geology of a specific area in North America or Great Britain. Students will present scale models of influential rock formations in their assigned area and posters about topics such as geology’s impact on culture and community.

# : PB425X14  E-book #: PKEB425X14  Book/E-book Set #: PKE425X14

Healthy Living, Grade 10

What if you could challenge your 10th graders to create a product or process that helps people embrace diet and exercise and has a positive impact on society? Healthy Living builds students’ knowledge from the varied perspectives of a cell biologist, nutrition scientist, biochemist, physiologist, public health practitioner, and consumer. Students start this three-lesson module by examining cell metabolism and structure so they understand what the body needs to function properly. Working in teams, they’ll examine the physiological effects of exercise and nutrition. They’ll even interview community stakeholders about factors that harm or enhance health. Using an engineering design process, students will then create a prototype of a health-enhancing product or process they design. Through a documentary they develop, they’ll demonstrate their understanding of a healthy lifestyle and the effects of health-related choices on their community.

# : PB425X17  E-book #: PKEB425X17  Book/E-book Set #: PKE425X17
Ten of thousands of teachers have taken advantage of the *Uncovering Student Ideas* series to reveal students’ preconceptions. Each of the first four volumes provides 25 probes with easy-to-follow steps for uncovering and addressing students’ ideas by promoting learning through conceptual change instruction. Probes cover topics such as physical, life, and Earth and space science; the nature of science; and unifying themes. Each volume on pages 10–11 provides topic-specific probes. These invaluable books include teacher materials that explain content, identify links to standards, and suggest grade-appropriate ways to present materials so students learn the concepts accurately. Teachers, professional development coordinators, and college science and preservice faculty will find these resources essential and exciting.

**Volume 1, Second Edition**
*25 Formative Assessment Probes*

**Volume 2**
*25 More Formative Assessment Probes*
Francis Eberle and Joyce Tugel, Coauthors
 #: PB193X2  E-book #: PKEB193X2  Book/E-book Set #: PKE193X2

**Volume 3**
*Another 25 Formative Assessment Probes*
Francis Eberle and Chad Dorsey, Coauthors
 #: PB193X3  E-book #: PKEB193X3  Book/E-book Set #: PKE193X3

**Volume 4**
*25 New Formative Assessment Probes*
Joyce Tugel, Coauthor
 #: PB193X4  E-book #: PKEB193X4  Book/E-book Set #: PKE193X4

**About the Author**

Page Keeley is the driving force behind the *Uncovering Student Ideas in Science* series and the author of more than a dozen bestselling books—including *Science Formative Assessment, Volume 1* and *Volume 2* and *Mathematics Formative Assessment, Volume 1* and *Volume 2* (with Cheryl Rose Tobey). She began writing assessment probes in the early 1990s after being inspired by the article “Teaching for Conceptual Change—Confronting Children’s Experience,” by Bruce Watson and Dick Konicek. Page provides consulting services to school districts and organizations throughout the country and is a frequent speaker on formative assessment and teaching for conceptual change.
Uncovering Student Ideas in Astronomy
45 New Formative Assessment Probes
Cary Sneider, Coauthor

See more details on page 49.
#: PB307X Members: $31.88 Non-members: $39.85
E-book #: PKE307X Members: $23.91 Non-members: $29.88
Book/E-book Set #: PKE307X Members: $38.25 Non-members: $47.82

Uncovering Student Ideas in Earth and Environmental Science
32 New Formative Assessment Probes
Laura Tucker, Coauthor

See more details on page 49.
#: PB355X Members: $31.88 Non-members: $39.85
E-book #: PKE355X Members: $23.91 Non-members: $29.88
Book/E-book Set #: PKE355X Members: $38.25 Non-members: $47.82

Uncovering Student Ideas About Engineering and Technology
32 New Formative Assessment Probes
Cary Sneider and Mihir Ravel, Coauthors

NSTA PRESS, GRADES 3–12

See more details on page 5.
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E-book #: PKE455X Members: $23.91 Non-members: $29.88
Book/E-book Set #: PKE455X Members: $38.25 Non-members: $47.82

Uncovering Student Ideas in Life Science, Volume 1
25 New Formative Assessment Probes

#: PB291X1 Members: $26.84 Non-members: $33.55
E-book #: PKE291X1 Members: $20.13 Non-members: $25.16
Book/E-book Set #: PKE291X1 Members: $32.20 Non-members: $40.26

SAVE! Buy all 12 Uncovering books plus What Are They Thinking? (p. 41)!
#: PKUSIX13 Members: $318.74 Non-members: $398.43

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Order by phone: 800-277-5300
Uncovering Student Ideas in Primary Science, Volume 1
25 New Formative Assessment Probes for Grades K–2

This content is geared specifically for the primary grades, with an emphasis on simple vocabulary as well as drawing and speaking (instead of writing). The format of the student pages uses minimal text and includes visual representations of familiar objects, phenomena, and ideas.


| #: PB335X1 | Members: $26.84 | Non-members: $33.55 |
| E-book #: PKEB335X1 | Members: $20.13 | Non-members: $25.16 |
| Book/E-book Set #: PKE335X1 | Members: $32.20 | Non-members: $40.26 |

Uncovering Student Ideas in Physical Science, Volumes 1, 2, and 3
Page Keeley | NSTA PRESS, GRADES K–12

Volume 1 provides 45 formative assessment probes on topics related to force and motion. Volume 2 offers 39 additional probes covering electricity and magnetism. The 32 new probes in volume 3 cover matter and energy. By helping you detect students’ misconceptions and then make sound instructional decisions to address them, these books have the potential to transform your teaching. Volumes 1 and 2 are coauthored by Rand Harrington. Volume 3 is coauthored by Susan Cooper. Volume 1 was a REVERE AWARD WINNER!

Volume 1, 45 New Force and Motion Assessment Probes
© 2010; 978-1-935155-18-8; 214 pages

| #: PB274X1 | Members: $31.88 | Non-members: $39.85 |
| E-book #: PKEB274X1 | Members: $23.91 | Non-members: $29.88 |
| Book/E-book Set #: PKE274X1 | Members: $38.25 | Non-members: $47.82 |

Volume 2, 39 New Electricity and Magnetism Formative Assessment Probes

| #: PB274X2 | Members: $31.88 | Non-members: $39.85 |
| E-book #: PKEB274X2 | Members: $23.91 | Non-members: $29.88 |
| Book/E-book Set #: PKE274X2 | Members: $38.25 | Non-members: $47.82 |

Volume 3, 32 New Matter and Energy Formative Assessment Probes

| #: PB274X3 | Members: $31.88 | Non-members: $39.85 |
| E-book #: PKEB274X3 | Members: $23.91 | Non-members: $29.88 |
| Book/E-book Set #: PKE274X3 | Members: $38.25 | Non-members: $47.82 |

SAVE! Buy all three volumes of Uncovering Student Ideas in Physical Science!

| #: PK274X3 | Members: $90.86 | Non-members: $113.57 |

Order by phone: 800-277-5300 Read sample chapters and order online: www.nsta.org/bookstore
Map out a journey that will steer your students toward authentic problem solving as you ground them in integrated STEM disciplines. This new K–12 curriculum series was developed to meet the growing need to infuse real-world learning into classrooms. The series focuses on the following themes: Cause and Effect, Innovation and Progress, Optimizing the Human Experience, Sustainable Systems, and the Represented World.

Each book is an in-depth module that uses project- and problem-based learning. Your students are presented with a challenge, such as designing the amusement park of the future. Then, they apply what they learn to tasks such as conducting cost–benefit analyses and creating infomercials using science, social studies, English language arts, and mathematics.

The STEM Road Map Curriculum Series is anchored in the Next Generation Science Standards, the Common Core State Standards, and the Framework for 21st Century Learning. The various books cover all the STEM components as students journey through their K–12 science education. Engaging and flexible, each volume can be used as a whole unit or in part to meet the needs of districts, schools, and teachers who are charting a course toward an integrated STEM approach.

**Physics in Motion, Grade K**
*STEM Road Map for Elementary School*
Students are challenged to create a mini roller coaster to investigate concepts such as energy, gravity, friction, and speed. They use an engineering design process while working collaboratively to design, build, and test marble track roller coasters.


|  | Members: $25.16 | Non-members: $31.45 |
|  | E-book: $18.87 | Non-members: $23.58 |
|  | Book/E-book: $30.19 | Non-members: $37.74 |

**Influence of Waves, Grade 1**
*STEM Road Map for Elementary School*
Students are challenged to create instruments they can play in their own “Show Me the Waves” musical show. They’ll discover that different types of waves, such as water and sound, come from different sources and travel in various ways.


|  | Members: $25.16 | Non-members: $31.45 |
|  | E-book: $18.87 | Non-members: $23.58 |
|  | Book/E-book: $30.19 | Non-members: $37.74 |

**Patterns and the Plant World, Grade 1**
*STEM Road Map for Elementary School*
Students are challenged to relate changes in seasonal weather patterns to changes in the plant world, with an emphasis on observation, data collection, measurement, and presenting numerical data in graphic form.


|  | Members: $25.16 | Non-members: $31.45 |
|  | E-book: $18.87 | Non-members: $23.58 |
|  | Book/E-book Set: $30.19 | Non-members: $37.74 |

**Investigating Environmental Changes, Grade 2**
*STEM Road Map for Elementary School*
Students are challenged to build an outdoor STEM classroom—complete with a butterfly garden, birdbath, and sundial—to explore how plant and animal life cycles coincide with the Earth’s movement around the Sun.


|  | Members: $25.16 | Non-members: $31.45 |
|  | E-book: $18.87 | Non-members: $23.58 |
|  | Book/E-book Set: $30.19 | Non-members: $37.74 |
Curriculum Series

Natural Hazards, Grade 2
STEM Road Map for Elementary School

Students are challenged to help communities prepare for natural disasters. The goal is for students to learn about the effects of natural hazards on people, animals, communities, and the environment and to consider ways to minimize those threats.

# PB425X18 E-book #: PKEB425X18 Book/E-book Set #: PKE425X18

Swing Set Makeover, Grade 3
STEM Road Map for Elementary School

Students are challenged to design playground equipment that safely meets their own standards for fun as they learn about motion, forces, and geometric shapes and use mathematical tools to collect and record data.

# PB425X6 E-book #: PKEB425X6 Book/E-book Set #: PKE425X6

Transportation in the Future, Grade 3
STEM Road Map for Elementary School

Students are challenged to design a train of the future as they develop conceptual understanding of innovations in train technology, with a focus on maglev (magnetic levitation) trains.

# PB425X2 E-book #: PKEB425X2 Book/E-book Set #: PKE425X2

Harnessing Solar Energy, Grade 4
STEM Road Map for Elementary School

Students are challenged to design a way for solar energy to provide the world with clean water as they investigate energy, energy sources, and the greenhouse effect.

# PB425X1 E-book #: PKEB425X1 Book/E-book Set #: PKE425X1

Rainwater Analysis, Grade 5
STEM Road Map for Elementary School

Students are challenged to design rainwater recycling and delivering systems to provide water for a fictional community garden. They create a rain gauge, learn about volume calculations, and analyze data to determine the best location for a water collection system, among other activities.

© 2019; ISBN: 978-1-68140-449-3; 244 pages
# PB425X9 E-book #: PKEB425X9 Book/E-book Set #: PKE425X9

Wind Energy, Grade 5
STEM Road Map for Elementary School

Students are challenged to develop an economical, eco-friendly wind farm as they investigate the interactions of Earth’s systems, including geography, weather, and wind.

© 2018; ISBN: 978-1-68140-446-2; 220 pages
# PB425X3 E-book #: PKEB425X3 Book/E-book Set #: PKE425X3

Order by phone: 800-277-5300 Read sample chapters and order online: www.nsta.org/bookstore
The STEM Road Map Curriculum Series

Amusement Park of the Future, Grade 6
STEM Road Map for Middle School
Students are challenged to research the background and designs of amusement parks as they learn about energy transfer, create blueprints, build and test small-scale prototypes, and develop cost–benefit analyses.
#: PB425X5  E-book #: PKEB425X5  Book/E-book Set #: PKE425X5

Packaging Design, Grade 6
STEM Road Map for Middle School
Students are challenged to create packaging that’s engineered to both protect a product and make it a hot seller as they learn about geometric properties of three-dimensional shapes and engineering design.
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Improving Bridge Design, Grade 8
STEM Road Map for Middle School
Students are challenged to design bridges that last longer as they construct scale models, research and compare minerals and rocks involved in bridge building, and investigate how much bridges cost and what could make them more sustainable.
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Construction Materials, Grade 11
STEM Road Map for High School
Students explore how high-rises are constructed, their influence on society, and how to communicate complex ideas clearly; the factors involved in the collapse of the World Trade Center’s twin towers in New York, with a focus on how engineers use structural failures to learn more about the designed world; and construction innovations.
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Radioactivity, Grade 11
STEM Road Map for High School
Students will consider the safety and efficiency of using nuclear power to meet the country’s energy demands. They will model nuclear fission, create computer-generated simulations, calculate the energy yield of an individual nuclear event (decay, fission, and fusion), and use exponential functions to represent chain reactions.
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Car Crashes, Grade 12
STEM Road Map for High School
Students are challenged to research how car accidents happen—and what can be done to prevent them. They will investigate many aspects of accident prevention and response. They’ll also use mathematics to reverse-engineer car crash scenarios and synthesize the information so they can act as expert witnesses in a simulated courtroom.

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Expanded 2nd Edition
Karen Ansberry and Emily Morgan
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© 2010; ISBN: 978-1-933531-12-0; 403 pages
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Karen Ansberry and Emily Morgan
NSTA PRESS, GRADES K–4
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See page 21 for special purchasing packages and Book Collections by grade level. Visit www.nsta.org/book-series/picture-perfect-science for pricing and ordering information!
**Picture-Perfect ClassPacks**

The convenience of a ready supply of materials to conduct the lessons in the *Picture-Perfect Science* series is an unmatched time-saver, which is why we developed ClassPacks—each sufficient for a class of 28 students. The “Oil Spill!” ClassPack, for example, provides canola oil, tempera paint, gravel, plastic plants, pipe cleaners, aluminum pie pans, and other materials you’ll need to engage students in a hands-on oil spill investigation and cleanup. Each ClassPack is customized to support a specific lesson. A Classroom Supply Kit (described below) is provided with each All ClassPacks set.

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This convenient kit provides the essential supplies used with all of the *Picture Perfect Science* units and is included with your purchase of any All ClassPacks set. The Classroom Supply Kit is a must-have for any hands-on science instruction! Packaged in a handy case, the kit includes the following:

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- 2 desk-size digital scales
- 28 glass hand lenses
- 14 wooden dual-scale rulers
- 28 pairs of safety glasses
- 28 packs of sticky notes
- 14 16-oz. red plastic cups
- 14 16-oz. green plastic cups
- 1 box of resealable plastic sandwich bags
- 1 ball of string
- 1 roll of 3/4-in. masking tape
- 1 folding meterstick
- 1 box of paper clips
- 1 small bag of plastic spoons

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Picture-Perfect Science Book Collections

Collections of children’s trade books, some previously out of print, that support the Picture-Perfect Science Lessons series are now available, with each set packaged in a zippered canvas tote. The Collections include loved volumes—such as Diary of a Worm and Dr. Xargle’s Book of Earth Hounds—that will be welcome additions to your school’s science and reading resources. For a full list of the books available in each Collection, please visit www.nsta.org/book-series/picture-perfect-science.

Picture-Perfect Science Collection

Best Value: Trade book Collection + Picture-Perfect Science book

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Ted Willard, Editor | NSTA PRESS, GRADES K–12

The guides are available in grade-specific versions for elementary, middle, and high school, plus a version for K–12. Each book provides the appropriate performance expectations; disciplinary core ideas; practices; crosscutting concepts; connections to engineering, technology, and applications of science; and connections to the nature of science.

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Preparation for Three-Dimensional Instruction
Jack Rhoton, Editor | NSTA PRESS, COLLEGE

This book was written to help preservice teachers make the vision of the NGSS come alive in their future classrooms, but practicing K–12 teachers can also benefit from it. The book showcases the many shifts that higher education science faculty, teacher education faculty, and others are already making to bring the standards to life. The authors of the 18 chapters are outstanding classroom practitioners and science educators at all levels. Use this book to help your students become true practitioners of science.

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Disciplinary Core Ideas
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Ravit Golan Duncan, Joseph Krajcik, and Ann E. Rivet, Editors | NSTA PRESS, GRADES K–12

Building on the foundation provided by the Framework, which informed the development of the NGSS, this book helps your students make sense of seemingly unrelated phenomena. Disciplinary Core Ideas covers four broad areas: physical science; life science; Earth and space science; and engineering, technology, and applications of science. It aims to make science lessons at all grade levels more coherent and memorable. Think of it as your conceptual tool kit.

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Helping Students Make Sense of the World Using Next Generation Science and Engineering Practices
Christina V. Schwarz, Cynthia Passmore, and Brian J. Reiser | NSTA PRESS, GRADES K–12

Written in clear, nontechnical language, this book provides a nuts-and-bolts understanding of the practices strand of the Framework and the NGSS. It addresses three important questions: How will engaging students in science and engineering practices help improve class? What do the eight practices look like in the classroom? And exactly how can educators teach and support the NGSS using the practices? The book is a helpful resource for K–12 science teachers, curriculum developers, teacher educators, and administrators.

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NGSS for All Students
Okhee Lee, Emily Miller, and Rita Januszyk, Editors | NSTA PRESS, GRADES K–12

NGSS for All Students shows you how to teach diverse students and connect your lessons to the Next Generation Science Standards (NGSS). The emphasis is on show. At the core of the book are case studies that vividly illustrate research- and standards-based classroom strategies to engage seven diverse demographic groups: economically disadvantaged students, students from major racial and ethnic groups, students with disabilities, English language learners, girls, students in alternative education, and gifted and talented students. The case studies span all grade levels and science disciplines.

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Introducing Teachers and Administrators to the NGSS
A Professional Development Facilitator’s Guide
Eric Brunsell, Deb M. Kneser, and Kevin J. Niemi | NSTA PRESS, GRADES K–12

This book is a natural companion to Translating the NGSS for Classroom Instruction (below) and ideal for science specialists, curriculum coordinators, instructional coaches, and others who provide professional development. The book’s 24 activities introduce educators to the NGSS terms, structure, and conceptual shifts; explore the practices and crosscutting concepts; help teachers work within the standards to support students challenged by traditional teaching; develop science road maps, essential questions, and assessments; and more.

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Translating the NGSS for Classroom Instruction
Rodger W. Bybee | NSTA PRESS, GRADES K–12

This book provides essential guidance to everyone from teachers to school administrators to district and state science coordinators. It includes an introduction to the NGSS; examples of the standards translated to classroom instruction; and background, directions, and activities to help adapt current units of instruction to support the standards.

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Next Generation Science Standards
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NGSS Lead States | NATIONAL ACADEMIES PRESS, GRADES K–12

Not since the release of A Framework for K–12 Science Education has a document held such promise and significance for science education as do the Next Generation Science Standards (NGSS). Science—and therefore science education—is central to the lives of all Americans. When tracking current events, choosing and using technology, or making informed decisions about health care, science understanding is key. Science is also at the heart of the country’s ability to innovate, lead, and create the jobs of the future. All students—whether they become chefs, doctors, or researchers—must have a solid science education. The NGSS have been packaged as a two-volume set. The first volume includes the standards themselves—with spiral binding—and the second contains the appendixes.

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The NSTA Reader’s Guide to the Next Generation Science Standards
Harold Pratt | NSTA PRESS, GRADES K–12

The NGSS aim to better prepare U.S. students for the rigors of career and college-level scientific study by stressing the importance and integration of three dimensions: science and engineering practices, crosscutting concepts, and disciplinary core ideas. They will provide for a more integrated and cohesive approach to science instruction, leading to a more scientifically literate citizenry. The NGSS also mark a change in how we think about science instruction. The adoption of these new standards and their incorporation into instruction will require a significant amount of support. This easy-to-use Reader’s Guide offers teachers, principals, and district and state administrators—anyone with a vested interest in improving the quality of science education—the tools they need to fully absorb the new standards and begin to implement them effectively.

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National Research Council | NATIONAL ACADEMIES PRESS, GRADES K–12

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Next Generation Science Standards (NGSS)

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*Bridging the Gap Between Three-Dimensional Standards, Research, and Practice, Second Edition*

**Page Keeley and Joyce Tugel**  
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The second edition of this bestseller is newly mapped to the Framework and NGSS and has been updated with new standards and research-based resources. It will help science educators make the shifts needed to reflect current practices in curriculum, instruction, and assessment. The new edition also has an increased emphasis on STEM, particularly engineering. The methodical study process described in this book will help readers intertwine content, practices, and crosscutting concepts.


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*Integrating Assessment and Instruction in the Classroom*

**Alexandra Beatty and Heidi Schweingruber**  
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The introduction of new science standards has led many states, schools, and districts to change curricula, instruction, and professional development. Assessment needs to change as well to measure active, engaged learning. *Seeing Students Learn Science* is meant to help educators create and implement classroom assessments so that they can better understand students’ progress in a new vision of science learning. It includes examples of innovative assessment formats, ways to embed assessments in engaging classroom activities, and ideas for interpreting and using novel kinds of assessment information.


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Creating Engineering Design Challenges
Success Stories From Teachers
Helen Meyer, Anant R. Kukreti, Debora Liberi, and Julie Steimle, Editors
NSTA PRESS | GRADES 6–12

The 13 units in Creating Engineering Design Challenges provide innovative ways to make science and math relevant to middle and high school students through challenge-based learning and the engineering design process. Content areas include biology, chemistry, physical science, and environmental science. Topics range from developing a recipe for cement to implementing geocaching to calculating accurate aim with slingshots and water balloons.

You can be sure the units are classroom-ready because they were contributed by the same teachers who developed, used, and revised them. They provide detailed accounts of their units as well as lesson plans and handouts. The book also offers guidance on fostering professional development to support and grow your school’s engineering education practice. Use it to help you change your classroom environment, empower students, and move toward a more student-centered classroom culture that leads to deeper learning.


STEM Education Now More Than Ever
Rodger W. Bybee | NSTA PRESS, GRADES K–12

In this book, veteran educator Rodger W. Bybee has written a book that’s as thought-provoking as it is constructive. He explains that science educators must address STEM issues at local, national, and global levels. And teachers should help students tackle today’s problems with new approaches to STEM learning that complement traditional single-discipline programs. Parts of the book are what you might expect from a longtime thought leader in science education. In light of the 2016 election and recent assaults on science’s validity, Bybee strongly asserts the need for making a new case for STEM education. Other parts may not seem typical for a book on STEM. He writes about the Enlightenment, the U.S. Constitution, democracy, and citizenship as reminders of the effects of STEM disciplines on America’s foundational ideas and values. In the end, Bybee ties it all together with positive, practical recommendations. A major one involves newer, faster ways to help teachers develop STEM units that address contemporary challenges in their classes. Another involves the importance of strong leadership from teachers and the STEM education community.


Designing Meaningful STEM Lessons
Milton Huling and Jackie Speake Dwyer | NSTA PRESS, GRADES 3–8

This book shows you how to take lessons you’re already familiar with and, through small changes, do what the title says: Design STEM lessons that are actually meaningful for teaching and learning science. You can also make sure your STEM lessons contain the content students need to learn. The book’s foundation is a conceptual framework that keeps science front and center, showing you how to embed engineering, technology, and science applications in your lessons—similar to how you would embed literacy skills in your classwork. Designing Meaningful STEM Lessons provides 13 ready-to-use lessons in physical science, life science, and Earth and space science. The lessons have titles such as “Cell-fie” and “Aircraft Catapult.” All correlate with the Framework, take a constructivist approach, and operate within the 5E instructional model.

The Case for STEM Education
Challenges and Opportunities
Rodger W. Bybee | NSTA PRESS, GRADES K–12

This book outlines the challenges facing STEM education. It is a must-read for national and state policy makers, state-level educators, college and university faculty who educate STEM teachers, administrators who make decisions about district and school programs, and teachers who represent STEM disciplines.


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Doing Good Science in Middle School, Expanded 2nd Edition
A Practical STEM Guide
Olaf Jorgenson, Rick Vanosdall, Vicki Massey, and Jackie Cleveland | NSTA PRESS, GRADES 6–8

Doing Good Science is a comprehensive resource that covers big-picture concepts such as understanding the middle school learner and exploring the nature of science. It provides 10 sample activities to develop engaging lessons integrating STEM and 5E instruction with the standards. The authors give specific guidance on classroom management, safety, and how to use collaborative table groups and science lab notebooks. The new edition shares the same goal as the popular first edition: to prove that good science is compatible with noisy, bustling, insatiably curious middle schoolers.


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Darci J. Harland | NSTA PRESS, GRADES 9–12

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Page Keeley and Cheryl Rose Tobey | CORWIN AND NCTM PRESS, GRADES K–12
Award-winning author Page Keeley and mathematics expert Cheryl Rose Tobey apply the format of Keeley’s bestselling Science Formative Assessment (p. 41) to mathematics. They show teachers how to use formative assessment strategies to inform instructional planning and better meet the needs of all students and provide guidance with each technique. Research shows that formative assessment has the power to significantly improve learning, and its many benefits include stimulation of metacognitive thinking, increased student engagement, insights into student thinking, and development of a discourse community. Volume 1 includes 75 strategies, and volume 2 provides 50 more strategies.
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Jo Anne Vasquez, Cary Sneider, and Michael Comer | HEINEMANN, GRADES 3–8
This book provides all the strategies you’ll need to design integrated, interdisciplinary STEM lessons and units that are relevant and exciting to your students. The book shows teachers how to begin the STEM integration journey with five guiding principles for effective STEM instruction, classroom examples of what these principles look like in action, sample activities that put all four STEM fields into practice, and lesson planning templates for STEM units. Explicit connections are made among the STEM practices, including the Common Core State Standards for mathematics and the Framework.
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STEM Lesson Guideposts
Creating STEM Lessons for Your Curriculum
Jo Anne Vasquez, Michael Comer, and Joel Villegas | HEINEMANN, GRADES 3–8
This companion to the bestselling STEM Lesson Essentials (above) will help you move from thinking about what STEM is to the how of constructing impactful STEM lessons and units. The authors developed the W.H.E.R.E. planning model—five interrelated guideposts that provide structure and guidance for conceiving, creating, and organizing STEM experiences. You’ll learn to create hands-on, inquiry-focused experiences using your own curriculum and standards and develop STEM lessons that are not only rigorous but also relevant to your students.
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Instructional Sequence Matters
Patrick Brown | NSTA PRESS, GRADES 3–8

Instructional sequence definitely does matter when it comes to helping children learn science. That’s why these books focus on showing you how to do two things: (1) make simple shifts in the way you arrange and combine activities and (2) put the Next Generation Science Standards (NGSS) into practice. Both the elementary and middle school volumes give you a complete self-guided tour to becoming an “explore-before-explain” teacher. When you adopt this teaching mindset, you’ll help your students construct accurate knowledge firsthand—an important part of science learning at all grade levels.

Instructional Sequence Matters is grounded in two research-based approaches: POE (Predict, Observe, and Explain) and 5E (Engage, Explore, Explain, Elaborate, and Evaluate). Author Patrick Brown starts by describing why the order in which you structure your lessons is so critical. Then you’ll learn how to plan and design these instructional sequences yourself. Ready-to-use lessons will help you turn theory into action when you’re teaching. Detailed examples show how specific aspects of all three dimensions of the NGSS can translate in your classroom. Reflection questions throughout the books challenge you to embrace and adapt the new approaches.

“Not only is Instructional Sequence Matters a delightful read, but it is also practical and helpful,” Rodger W. Bybee, author of The BSCS 5E Instructional Model (p. 36), writes in the foreword. “What more could science teachers ask for?” Each of these books is a one-stop teaching resource for developing lessons that support both the NGSS and contemporary research on how students learn science best.

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Supporting Emergent Multilingual Learners in Science, Grades 7–12
Molly Weinbugh, Cecilia Silva, and Kathy Horak Smith | NSTA PRESS, GRADES 7–12

Here’s the resource you need for down-to-earth help for emergent multilingual learners—students learning science as well as English. Based on solid research findings, this book shows you how to put into practice the 5R Instructional Model: Replace, Reveal, Repeat, Reposition, and Reload. The model provides a framework for creating instructional strategies that offer authentic language-learning opportunities within your inquiry-based science classroom. This book provides useful context about the need for integrating science and language and lets you learn from colleagues who’ve used the 5R model.
#: PB446X  Members: $26.84  Non-members: $33.55
E-book #: PKEB446X  Members: $20.13  Non-members: $25.16
Book/E-book Set #: PKE446X  Members: $32.20  Non-members: $40.26
The BSCS 5E Instructional Model
Creating Teachable Moments
Rodger W. Bybee | NSTA PRESS, GRADES K–12

The popular BSCS 5E Instructional Model includes five phases: engage, explore, explain, elaborate, and evaluate. In addition to offering a clear explanation of how to use the model, the book elaborates on how the model connects to the NGSS, STEM education, and 21st-century skills.

© 2015; ISBN: 978-1-941316-00-9; 126 pages
#: PB356X | Members: $29.36 | Non-members: $36.70
E-book #: PKEB356X | Members: $22.02 | Non-members: $27.52
Book/E-book Set #: PKE356X | Members: $35.23 | Non-members: $44.04
The Feedback Loop
Using Formative Assessment Data for Science Teaching and Learning

Erin Marie Furtak, Howard M. Glasser, and Zora M. Wolfe | NSTA PRESS, GRADERS 6–12

This book introduces the Feedback Loop framework; highlights the four elements of goals, tools, data, and inferences; explores how to connect inferences and goals through feedback; and shows how to use the loop to inform instruction. The book supports the NGSS.


#: PB405X
E-book #: PKEB405X
Book/E-book Set #: PKE405X

E-book: $22.65
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E-book: $28.31
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Yet More Everyday Science Mysteries

Richard Konicek-Moran | NSTA PRESS, GRADERS K–8

Everybody loves a mystery—and thousands of teachers love how Yet More Everyday Science Mysteries gets students engaged in real phenomena about science content. It includes activities about physical science, biology, Earth systems, technology, and more! Author Richard Konicek-Moran uses each mystery to present opportunities for students to ask questions, form hypotheses, test ideas, and come up with explanations. Konicek-Moran engages students by grounding the stories in familiar experiences that provide a foundation for discussion.

The popular Everyday Science Mysteries series is available in two different sets to fit teachers’ needs: The original four-volume series covers an array of topics in each book, and a three-volume set comprises topic-specific books for physical, life, and Earth and space science. Chapters include science concepts to explore, grade-appropriate strategies for using the stories, and explanations of how the lessons support standards. Learn more about all seven books in the series at www.nsta.org/book-series/everyday-science-mysteries.


#: PB220X4
E-book #: PKEB220X4
Book/E-book Set #: PKE220X4

E-book: $16.35
E-book Set: $26.16

E-book: $20.43
E-book Set: $32.70

Teaching for Conceptual Understanding in Science

Richard Konicek-Moran and Page Keeley | NSTA PRESS, GRADERS K–12

This book will make you think about what the authors call “the major goal of science education in the 21st century”: to help students understand science at the conceptual level so they can see its connections to other fields, other concepts, and their lives.


#: PB359X
E-book #: PKEB359X
Book/E-book Set #: PKE359X

E-book: $22.65
E-book Set: $36.24

E-book: $28.31
E-book Set: $45.30

Becoming a Responsive Science Teacher
Focusing on Student Thinking in Secondary Science

Daniel Levin, David Hammer, Andrew Elby, and Janet Coffey | NSTA PRESS, GRADERS 9–12

Through five case studies, learn how you can shift from the traditional method—presenting material that you hope students will retain—to “responsive listening”—attuning your teaching to the substance of students’ reactions to your lessons and helping them learn how to learn science.


#: PB323X
E-book #: PKEB323X
Book/E-book Set #: PKE323X

E-book: $18.87
E-book Set: $30.19

E-book: $23.58
E-book Set: $37.74

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Hard-to-Teach Science Concepts
A Framework to Support Learners, Grades 3–5
Susan Koba and Carol T. Mitchell | NSTA PRESS, GRADES 3–5

Four actions make up the methodology in this book: Engage students about their preconceptions and address and dispel misconceptions, target lessons to be learned, determine appropriate strategies, and use standards-based teaching that builds on student understandings. With the framework comes examples of application, specifically on the flow of energy and matter in ecosystems, force and motion, matter and its transformation, and Earth’s shape.

#: PB238X2 Members: $28.52 Non-members: $35.65
E-book #: PKEB238X2 Members: $21.39 Non-members: $26.73
Book/E-book Set #: PKE238X2 Members: $34.22 Non-members: $42.78

“Teaching science for me is a passion. I love wondering and asking questions. Passing this passion on to my students is both fun and challenging! There is absolutely never a dull moment.”

—NSTA Press reader Christine V.

Science Notebooks, Second Edition
Writing About Inquiry
Lori Fulton and Brian Campbell | HEINEMANN, GRADES K–5

This book inspires teachers to use science notebooks to support implementation of the standards and help students reveal and develop their thinking about scientific concepts, engage in the work of scientists and engineers, and exercise language skills. Chapter materials include strategies to scaffold science notebook instruction, approaches for collecting and analyzing notebooks for formative assessment, student samples and classroom vignettes, and new interviews with scientists and engineers that spotlight the use of notebooks in their work.

#: OP914X Members: $21.36 Non-members: $23.75

Reading Science
Practical Strategies for Integrating Instruction
Jennifer L. Altieri | HEINEMANN, GRADES 4–8

Filled with practical strategies customized for science classrooms, this book supports teaching students to be critical consumers of scientific information; developing students’ interest in scientific vocabulary; and encouraging collaboration as students seek answers to scientific questions and communicate their findings. With Reading Science, teachers can use literacy as a tool to help students access science content, communicate their ideas precisely, and apply their discoveries in new contexts.

#: OP940X Members: $21.56 Non-members: $23.95
Making Sense of Science and Religion
Strategies for the Classroom and Beyond
Joseph W. Shane, Lee Meadows, Ronald S. Hermann, and Ian C. Binns | NSTA PRESS, GRADES K–12

It’s inevitable: If your lessons deal with evolution, genetics, the origin of the universe, or climate change, some students are bound to question whether they can reconcile what you teach with what they believe about religion. This book is divided into three parts: (1) some historical and cultural background as well as a framework for addressing science-religion issues in a legal, constitutional manner; (2) guidance on teaching specific scientific concepts at every grade level; and (3) advice for engaging families, administrators, school boards, policy makers, and faith communities.

#: PB447X Members: $21.80 Non-members: $27.25
E-book #: PKEB447X Members: $16.35 Non-members: $20.43
Book/E-book Set #: PKE447X Members: $26.16 Non-members: $32.70

Staging Family Science Nights
Donna Governor and Denise Webb | NSTA PRESS, GRADES K–12

This is your playbook for generating enthusiasm and enjoyment of science among the entire family. It’s useful for teachers, homeschoolers, and informal education programs. The book’s first section covers planning, recruiting volunteers, setting up, troubleshooting, and injecting pizzazz. The second section offers guidance and templates for science night activities at all levels.

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E-book #: PKEB443X Members: $20.13 Non-members: $25.16
Book/E-book Set #: PKE443X Members: $32.20 Non-members: $40.26

Perspectives on Science Education
A Leadership Seminar
Rodger W. Bybee and Stephen L. Pruitt | NSTA PRESS, GRADES K–12

Authors Rodger W. Bybee and Stephen L. Pruitt are two of science education’s most prominent thought leaders. Writing in a conversational style, they encourage you to ponder central concerns of the science education community in general and science teachers in particular. The book starts with an introduction to perspectives, challenges, standards, and leadership—themes that weave throughout the book. After a brief history of science education, Bybee and Pruitt cover some of the current issues and topics in education, such as state standards and district leadership, curriculum programs, professional development, and assessment and accountability. Perspectives on Science Education is certain to launch professional conversations that will contribute to a deeper understanding of science education and strengthen your desire and ability to lead.

#: PB424X Members: $35.96 Non-members: $44.95
E-book #: PKEB424X Members: $26.97 Non-members: $33.71
Book/E-book Set #: PKE424X Members: $43.15 Non-members: $53.94

Be a Winner!
A Science Teacher’s Guide to Writing Successful Grant Proposals
Patty McGinnis and Kitchka Petrova | NSTA PRESS, GRADES K–12

Formatted as a handy workbook, Be a Winner! takes you step by step through the writing process. You’ll learn the top 10 reasons to write a grant proposal, how to identify and refine proposal ideas, the basic components of every proposal, the ins and outs of submitting a proposal, and how to manage a funded project. Appendixes provide you with writing templates, a grant proposal rubric, science-related grant listings and teaching awards, and more.

#: PB412X Members: $30.20 Non-members: $37.75
E-book #: PKEB412X Members: $22.65 Non-members: $28.31
Book/E-book Set #: PKE412X Members: $36.24 Non-members: $45.30
Reimagining the Science Department
Wayne Melville, Doug Jones, and Todd Campbell  NSTA PRESS, GRADES 6–12

Reimagining the Science Department invites you to reassess past and current practices in science departments. The text offers rich historical perspective, and you’ll come away with sensible strategies—bolstered by practitioner vignettes and related research—that your entire department can put to work right away. See also the authors’ latest NSTA Press book, Building the Science Department (above).

#: PB357X  Members: $25.16  Non-members: $31.45
E-book #: PKEB357X  Members: $18.87  Non-members: $23.58
Book/E-book Set #: PKE357X  Members: $30.19  Non-members: $37.74

Building the Science Department Stories of Success
Wayne Melville, Doug Jones, and Todd Campbell  NSTA PRESS, GRADES 6–12

This book explains how your science department can become a site for developing science teachers’ professional learning. The first part of the book covers scientific activity as represented in the Framework and the NGSS and its role in making the science department a place for building professional learning. The second part uses teacher vignettes to work through the components of a professional learning framework—context, content, activities, and processes. After each vignette is a commentary and questions to challenge teachers to improve their instructional practices and align them with current reform initiatives.

#: PB426X  Members: $25.16  Non-members: $31.45
E-book #: PKEB426X  Members: $18.87  Non-members: $23.58
Book/E-book Set #: PKE426X  Members: $30.19  Non-members: $37.74

The Basics of Data Literacy Helping Your Students (and You!) Make Sense of Data
Michael Bowen and Anthony Bartley  NSTA PRESS, GRADES 6–12

This is the ideal book for teachers with no statistics background. The Basics of Data Literacy teaches you how to help your students understand, collect, summarize, and analyze statistics inside and outside the classroom. The 10 chapters provide an introduction to types of variables and data, ways to structure and interpret data tables, simple statistics, and survey basics, and appendixes include hands-on activities.

E-book #: PKEB343X  Members: $20.76  Non-members: $25.95

The 6 Principles for Exemplary Teaching of English Learners
TESOL International Association Writing Team  TESOL PRESS, GRADES K–12

The 6 Principles are universal guidelines drawn from decades of research in language pedagogy and language acquisition theory. They provide an evidence-based foundation for schools to examine their own instructional practice and work collaboratively to enable English learners to acquire strong social and academic language proficiency. The principles are applicable across different educational settings. The book includes essential information on language development and second language acquisition, practical applications of the 6 Principles for K–12 classrooms, access to informational videos and additional online resources for educators and educational personnel, and more.

#: OP946X  Members: $26.05  Non-members: $28.95

Order by phone: 800-277-5300
Read sample chapters and order online: www.nsta.org/bookstore
What Are They Thinking?  
Promoting Elementary Learning Through Formative Assessment

Page Keeley | AN NSTA PRESS JOURNALS COLLECTION, GRADES PREK–5

This compendium of 30 “Formative Assessment Probes” columns from NSTA’s *Science and Children* provides sample probes—sets of interesting questions that root out commonly held (and often mistaken) ideas. Students’ answers will help you figure out how to guide them from where they are conceptually to where they need to be. Teacher notes tell you how to encourage evidence-based discussion and monitor students’ progress. For each column, Page Keeley, the award-winning author of NSTA’s bestselling *Uncovering Student Ideas in Science* series (pp. 9–11), has added a set of study group questions.


# #: PB348X  
E-book #: PKE348X  
Book/E-book Set #: PKE348X  
Members: $31.88  
Non-members: $39.85

“*I just love using probes and uncovering misconceptions students have [about] science concepts. Science topics are not always easy for non-science oriented educators to wrap their heads around, and we need all the resources we can get!*”

—NSTA Press reader Susan P.

Science Formative Assessment, Volume 1, Second Edition  
75 Practical Strategies for Linking Assessment, Instruction, and Learning

Page Keeley | CORWIN AND NSTA PRESS, GRADES K–12

Page Keeley wrote *Science Formative Assessment* to help educators weave formative assessment into instruction and learning. In the second edition of the bestselling first volume, she provides new examples, links the strategies to current research and standards, and shows how these techniques can be used across other disciplines. The formative assessment classroom techniques (FACTs) include descriptions of how each FACT promotes learning and informs instruction, implementation guidance, modifications for different learners, and more.


#: PA011X1E2  
Members: $31.04  
Non-members: $38.80

Science Formative Assessment, Volume 2  
50 New Strategies for Linking Assessment, Instruction, and Learning

Page Keeley | CORWIN AND NSTA PRESS, GRADES K–12

This book shows how to use assessment to inform instruction and learning in the science classroom. Volume 2 presents 50 new strategies linked to the NGSS that will help teachers determine students’ understanding of key concepts and design learning opportunities. These assessments can be used with any science curriculum and include a description of how each technique promotes learning; considerations for design and implementation; modifications for different types of students or purposes; caveats for using each technique; and ways the techniques can be used in other content areas.


#: PA011X2  
Members: $31.04  
Non-members: $38.80

SAVE! Buy the Science Formative Assessment volumes together!

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Members: $57.38  
Non-members: $71.73

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Read sample chapters and order online: www.nsta.org/bookstore

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**Eureka! Series**

Introduce skill-building inquiry investigations with the *Eureka! series*. At the books’ core are more than two dozen lessons that connect science content to children’s trade book biographies of scientists and engineers. Some of these individuals are famous (such as George Washington Carver, Albert Einstein, and Jane Goodall), whereas others are not as well known (such as paleontologist Mary Anning, astronomer Annie Jump Canon, and engineer William Kamkwamba). The lessons are designed to support the NGSS and be appealing and easy to use. Chapters delve into the practices of science and engineering, such as how to ask questions and define problems, plan and conduct investigations, and analyze and interpret data. With engaging lessons, even the youngest students can make an important discovery: Scientists aren’t stereotypes wearing goggles and lab coats. They are both women and men whose work and success stem from their life experiences and character traits.

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**Eureka, Again! K–2 Science Activities and Stories**

Donna Farland-Smith and Julie Thomas | GRADES K–2

#: PB423X2  E-book #: PKEB423X2  Book/E-book Set #: PKE423X2

**Eureka! Grade 3–5 Science Activities and Stories**

Donna Farland-Smith and Julie Thomas | GRADES 3–5

#: PB423X1  E-book #: PKEB423X1  Book/E-book Set #: PKE423X1

**Eureka! Book Collections**

For each *Eureka!* volume, NSTA offers a collection of the related children’s trade books. The books fit inside a zippered canvas tote bag with a screened image of the book cover on it. This bundled set is a great value, especially compared with the retail cost (and effort) of buying the books separately. The Collection includes much-admired volumes that will become frequently enjoyed additions to your school’s science and reading resources.

For a full list of the books available in each Collection, visit www.nsta.org/book-series/eureka.

**Teaching Science Through Trade Books**

Christine Anne Royce, Emily Morgan, and Karen Ansberry

AN NSTA PRESS JOURNALS COLLECTION, GRADES K–6

This collection of popular “Teaching Through Trade Books” columns from NSTA’s award-winning journal *Science and Children* will help you engage reluctant scientists (through books) while also enticing struggling readers (through science). Each lesson includes a targeted K–3 activity and a grade 4–6 activity. If you are a fan of *Picture-Perfect Science Lessons* (see pp. 15–20), you’ll love the convenience of having these ready-to-teach lessons in one handy volume.


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Order by phone: 800-277-5300
A Head Start on Science, Second Edition
Encouraging a Sense of Wonder
William C. Ritz and William Straits, Editors | NSTA PRESS, GRADES PREK–2

Imagine what fun it could be for 3- to 7-year-olds to engage in a game of Prism Play or Magnetic Scavenger Hunt or Where Did the Shadows Go? Then imagine how convenient it would be for you if such activities came with the connections, standards, and assessments today’s early childhood educators need most. Your dream resource comes to life in this revised and expanded edition of A Head Start on Science: Encouraging a Sense of Wonder. It builds on children’s innate curiosity through 89 developmentally appropriate, teacher-tested activities in life, Earth, and physical science.

Like A Head Start on Life Science (p. 46), this book emphasizes child-centered development of science practices and skills. Children can explore the natural world as they take advantage of lively opportunities for science learning. But here’s what sets this book apart: It’s an all-in-one resource for caregivers and teachers from preK to grade 2. Each lesson includes a follow-up activity, connections to centers and children’s literature, assessment guides, and bonus activities written in Spanish and English that let families continue the fun—and the learning—at home. Each activity also supports both the 2015 Head Start Early Learning Outcomes Framework and the Next Generation Science Standards.

Whether your young scientists are building bird nests or making bubbles, A Head Start on Science, Second Edition will enrich what the editors call “your noble and indispensable work—providing children with opportunities to follow their own curiosity as they joyfully explore the natural world.”

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E-book #: PKEB208E2 Members: $23.91 Non-members: $29.88
Book/E-book Set #: PKE208E2 Members: $38.25 Non-members: $47.82

SAVE! Buy with A Head Start on Life Science!
#: PKHSOX2 Members: $60.56 Non-members: $75.72

Inquiring Scientists, Inquiring Readers
Using Nonfiction to Promote Science Literacy
Jessica Fries-Gaither and Terry Shiverdecker | NSTA PRESS, GRADES 3–8

These resources will help you integrate inquiry-based science with literacy. A learning-cycle framework helps students deepen their understanding with data collection and analysis before reading about a concept. Investigations support standards and encompass life, physical, and Earth and space sciences.

Inquiring Scientists, Inquiring Readers (Grades 3–5)
Topics include matter, forces and motion, fossils, adaptation, and more!
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Inquiring Scientists, Inquiring Readers in Middle School (Grades 6–8)
Topics include cells, genetics, thermal energy, chemistry, and more!
● REVERE AWARD WINNER!
#: PB325X2 E-book #: PKEB325X2 Book/E-book Set #: PKE325X2

Order by phone: 800-277-5300 Read sample chapters and order online: www.nsta.org/bookstore
“Science books are important in my classroom because I use them with authentic inquiry-based activities, and this supports my students’ learning of science, enhances science vocabulary, counteracts scientific misconceptions, and promotes literary skills in explaining, justifying, and summarizing.”

—NSTA Press reader Doreen B.
Matter and Energy for Growth and Activity
AAAS/Project 2061 | NSTA PRESS, GRADES 9–12

How do our bodies get the “stuff” we need to repair a broken leg? Where do we get the energy—even while we sleep—to keep us alive and functioning? Matter and Energy for Growth and Activity helps your high school students explore questions like these while learning essential ideas about food, human body systems, matter and energy changes, and chemical reactions. The book provides 14 lessons that were developed by a team of scientists and science educators and then tested in classrooms. Building on the middle school unit Toward High School Biology (below), Matter and Energy for Growth and Activity helps students deepen their understanding of changes in plants and animals and the role of chemical reactions in the growth, repair, and activity of living organisms.

Matter and Energy is teacher-friendly and designed to engage students in a rich variety of phenomena. It integrates all three dimensions of the NGSS. It targets important ideas in both physical and biological systems while prompting students to build their skills in computation and data interpretation. And it comes in a Student Edition as well as a Teacher Edition, which shows sample student answers and explains the design rationale of each activity. The detailed guidance for teachers is complemented by online resources, including interactive media, videos, and handouts.

Matter and Energy for Growth and Activity, Teacher Edition
© 2019; 978-1-68140-685-5; 420 pages
#: PB448XT Members: $37.76  Non-members: $47.20  
E-book #: PKEB448XT Members: $28.32  Non-members: $35.40  
Book/E-book Set #: PKE448XT Members: $45.31  Non-members: $56.64

Matter and Energy for Growth and Activity, Student Edition
© 2019; 978-1-68140-686-2; 200 pages
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E-book #: PKEB448XS Members: $12.57  Non-members: $15.71  
Book/E-book Set #: PKE448XS Members: $20.11  Non-members: $25.14

Toward High School Biology
AAAS/Project 2061 | NSTA PRESS, GRADES 6–8

This 19-lesson unit connects core ideas about chemical reactions to the biological phenomena of growth and repair in plants and animals. Legos, ball-and-stick models, videos, and a variety of print manipulatives help students overcome many common conceptual difficulties and provide the foundation in biochemistry they will need for high school biology and beyond.

Toward High School Biology, Teacher Edition
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E-book #: PKEB434XT Members: $28.32  Non-members: $35.40  
Book/E-book Set #: PKE434XT Members: $45.31  Non-members: $56.64

Toward High School Biology, Student Edition
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E-book #: PKEB434XS Members: $12.57  Non-members: $15.71  
Book/E-book Set #: PKE434XS Members: $20.11  Non-members: $25.14

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Order by phone: 800-277-5300
Life Science

Discovery Engineering in Biology
Case Studies for Grades 6–12
Rebecca Hite, Gina Childers, Megan Ennes, and M. Gail Jones | NSTA PRESS, GRADES 6–12

Like the physical science volume (see p. 51), this book features case studies about observations and accidental discoveries that led to the invention of new products and problem-solving applications. After reading a historical account of an actual innovation, students explore related activities that connect to such topics as molecules and organisms, ecosystems, heredity, and biological evolution. The book is a lively way to blend history, real-world perspectives, 21st-century skills, and engineering into your biology or STEM curriculum.

#: PB44X2 Members: $33.56 Non-members: $41.95
E-book #: PKEB44X2 Members: $25.17 Non-members: $31.46
Book/E-book Set #: PKE44X2 Members: $40.27 Non-members: $50.34

Engineering in the Life Sciences, 9–12
Rodney L. Custer, Jenny L. Daugherty, Julia M. Ross, Katheryn B. Kennedy, and Cory Culbertson
NSTA PRESS, GRADES 9–12

The six standards-based lessons in this book show how to infuse engineering concepts into your existing courses on structures and processes, ecosystems, heredity, and biological evolution. Inspired by extensive field testing, the authors made the book easy to use in diverse settings by supplementing the lessons with detailed support materials, teaching tips, connections to standards, and case studies about how engineering concepts and science intersect to address human needs.

#: PB43X3 Members: $33.56 Non-members: $41.95
E-book #: PKEB43X3 Members: $25.17 Non-members: $31.46
Book/E-book Set #: PKE43X3 Members: $40.27 Non-members: $50.34

Reading Nature
Engaging Biology Students With Evidence From the Living World
Matthew Kloser and Sophia Grathwol | NSTA PRESS, GRADES 6–12

This unique supplemental resource reflects the true “endeavor of science.” It draws on and adapts peer-reviewed articles from scientific journals that tie into one of five disciplinary core ideas—from molecules to organisms, ecosystems, heredity, biological evolution, and human impacts on Earth systems. With its supplementary teacher questions and prompts, this resource is both practical and flexible.

#: PB427X Members: $20.96 Non-members: $26.20
E-book #: PKEB427X Members: $15.72 Non-members: $19.65
Book/E-book Set #: PKE427X Members: $25.15 Non-members: $31.44

A Head Start on Life Science
Encouraging a Sense of Wonder
William Straits | NSTA PRESS, GRADES PREK–2

The 24 inquiry-based lessons in this lively collection show you how to nurture curiosity in the youngest scientists, with a focus on animals, plants, and nature walks, and include at-home activities written in English and Spanish. See page 43 for the Head Start volume that includes activities for all science disciplines.

#: PB428X Members: $31.88 Non-members: $39.85
E-book #: PKEB428X Members: $23.91 Non-members: $29.88
Book/E-book Set #: PKE428X Members: $38.25 Non-members: $47.82
Adventures With Arthropods
Eco-Friendly Lessons for Middle School
Ron Wagler | NSTA PRESS, GRADES 6–8

This book will help you and your students get up close and personal with amazing arthropods such as tarantulas, roly polys, and Madagascar hissing cockroaches. It provides 26 middle school lessons that teach students everything from anatomy, growth, and behavior to eating preferences and environmental needs of three arthropod groups. You’ll also learn which arthropods are classroom-safe and what’s involved in caring for them humanely.


#: PB435X
E-book #: PKEB435X
Book/E-book Set #: PKE435X

Members: $23.48 | Non-members: $29.35
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Problem-Based Learning in the Life Science Classroom, K–12
Tom J. McConnell, Joyce M. Parker, and Janet Eberhardt | NSTA PRESS, GRADES K–12

Problem-Based Learning in the Life Science Classroom, K–12 will help you prompt learners to immerse themselves in analyzing problems, asking questions, posing hypotheses, finding information, and constructing a proposed solution. The book’s 13 lessons cover life cycles, ecology, genetics, and cellular metabolism. See page 24 for an overview of the Problem-Based Learning series.


#: PB408X2
E-book #: PKEB408X2
Book/E-book Set #: PKE408X2

Members: $29.36 | Non-members: $36.70
Members: $22.02 | Non-members: $27.52
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Scientific Argumentation in Biology
30 Classroom Activities
Victor Sampson and Sharon Schleigh | NSTA PRESS, GRADES 6–12

Scientific Argumentation in Biology combines theory, practice, and biological content. This book starts by giving you solid background in why students need to be able to go beyond expressing mere opinions when making research-related biology claims. Then, it provides 30 field-tested activities. Detailed teacher notes suggest specific ways to use the activities to enrich and supplement (not replace) what you’re doing in class already.


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© 2010; 978-1-935155-09-6; 161 pages

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Understanding Climate Change, Grades 7–12
Laura Tucker and Lois Sherwood | NSTA PRESS, GRADES 7–12

This practical nine-session module provides both extensive background and step-by-step instructions for using three-dimensional methods to explore climate change. The module includes an in-depth look at sources of carbon dioxide and the greenhouse effect and devotes an entire session to evaluating information. The module is designed with the Learning Cycle and the BSCS 5E Instructional Model in mind as students conduct their own scientific research, discuss ripple effects, and examine solutions. Your students will be ready to use critical thinking skills to draw their own conclusions about what should be done and to come up with ways they can take action to mitigate the effects of climate change.

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Argument-Driven Inquiry in Earth and Space Science
Lab Investigations for Grades 6–10
Victor Sampson, Ashley Murphy, Kemper Lipscomb, and Todd L. Hutner | NSTA PRESS, GRADES 6–10

This book provides 23 field-tested labs that cover the universe, Earth, and weather. It also helps you make the instructional shift to ADI. The labs cover five disciplinary core ideas in Earth and space science: Earth’s place in the universe, the history of Earth, Earth’s systems, weather and climate, and Earth and human activity. Your students will explore important content and learn scientific practices. They can investigate everything from how the seasons work to what causes geological formations and even consider where NASA should next send a space probe to look for signs of life. This volume is part of NSTA’s teacher-friendly ADI series (pp. 22–23).

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Student Lab Manual for Argument-Driven Inquiry in Earth and Space Science
The manual includes everything students need to complete the investigations.

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Problem-Based Learning in the Earth and Space Science Classroom, K–12
Tom J. McConnell, Joyce Parker, and Janet Eberhardt | NSTA PRESS, GRADES K–12

The scenarios cover Earth’s landforms and water, the rock cycle and plate tectonics, weather, and astronomy. They’ll prompt students to work collaboratively on analyzing problems, asking questions, posing hypotheses, and constructing solutions. In addition to complete lesson plans that support the NGSS, they offer extensive examples, instructions, and tips. (See more about the series on p. 24.)

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Learning to Read the Earth and Sky  
*Explorations Supporting the NGSS, Grades 6–12*  
Russ Colson and Mary Colson | NSTA PRESS, GRADES 6–12

This book offers inspiration for reaching beyond prepared curricula, engaging in discovery along with your students, and using your lessons to support the NGSS. The book provides examples of labs and activities you and your students can do together and guidance on how to translate the core ideas of the NGSS into specific examples.

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Big Data, Small Devices  
*Investigating the Natural World Using Real-Time Data*  
Donna Governor, Michael Bowen, and Eric Brunsell | NSTA PRESS, GRADES 3–12

This book is designed for Earth and environmental science teachers who want to help students tap into, organize, and deploy large data sets via their devices to investigate the world around them. Using the many available websites and free apps, students can learn to detect patterns among phenomena related to the atmosphere, biosphere, geosphere, hydrosphere, and seasons.

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Uncovering Student Ideas in Earth and Environmental Science  
*32 New Formative Assessment Probes*  
Page Keeley and Laura Tucker | NSTA PRESS, GRADES 3–12

Authors Page Keeley and Laura Tucker give you 32 engaging questions, or probes, that can reveal what your students already know—or think they know—about core Earth and environmental science concepts. These probes are organized into four sections: land and water; water cycle, weather, and climate; Earth history, weathering and erosion, and plate tectonics; and natural resources, pollution, and human impact. This 10th installment in the bestselling *Uncovering Student Ideas in Science* series (see pp. 9–11) offers field-tested teacher materials that provide science background and link to national standards.

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Uncovering Student Ideas in Astronomy  
*45 New Formative Assessment Probes*  
Page Keeley and Cary Sneider | NSTA PRESS, GRADES K–12

The 45 astronomy probes provide situations that will pique your students’ interest while helping you understand how your students think about key ideas related to the nature of planet Earth, the Sun-Earth system, the Moon, the solar system, and the universe.

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Once Upon an Earth Science Book
12 Interdisciplinary Activities to Create Confident Readers
Jodi Wheeler-Toppen | NSTA PRESS, GRADES 6–8

This book starts with advice on teaching reading comprehension strategies. Then, the 12 content chapters give you hands-on science activities, readings that cover important Earth science concepts and support the NGSS, writing activities, and assessment exercises. (See p. 47 for the life science volume.)


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“...The book is gloriously illustrated and beautifully produced. The high-quality imagery from NASA completely engages both teacher and student. The activities chosen are the best of the best, coming from years of experience and use. Most are standalone and could be used in informal educational settings. Personally, I have used many of these activities for years, in both my NASA education work and in a 4H Astronomy Project (ages 9–19), with wonderful success.”

—Deborah Scherrer, Stanford Solar Center

Everyday Earth and Space Science Mysteries
Richard Konicek-Moran | NSTA Press, Grades K–8

Everybody loves a mystery—and thousands of teachers love how Everyday Earth and Space Science Mysteries gets students engaged in real phenomena about science content. It includes activities about astronomy, microclimates, greenhouse gases, decomposition, and more! Author Richard Konicek-Moran uses each mystery to present opportunities for students to ask questions, form hypotheses, test ideas, and come up with explanations. Konicek-Moran engages students by grounding the stories in familiar experiences that provide a foundation for discussion.


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Beyond the Egg Drop
Infusing Engineering Into High School Physics
Arthur Eisenkraft and Shu-Yee Chen Freake, Editors  | NSTA PRESS, GRADES 9–12
Problem: You’re eager to expand your physics curriculum and engage your students with engineering content, but you don’t know how. Solution: Use the approach and lessons in Beyond the Egg Drop to infuse engineering into what you’re already teaching, without sacrificing time for teaching physics concepts. In addition to a thorough discussion on the rationale, justification, meaning, and implementation of integrating engineering into your science curriculum, this book provides 24 flexible, engineering-infused physics lessons that cover mechanics, optics, electricity, and thermodynamics. Lessons also include examples of student work; incorporate strategies for assessment, teaching, and student learning; and connect to the Framework and the NGSS. The lessons in Beyond the Egg Drop will make it easier to include engineering concepts and skills without having to restructure your existing physics curriculum.


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Using Physical Science Gadgets & Gizmos
Matthew Bobrowsky, Mikko Korhonen, and Jukka Kohtamäki | NSTA PRESS, GRADES 3–12

The Gadgets & Gizmos books feature water rockets, Drinking Birds, Dropper Poppers, Boomwhackers, and more. The experiments let students explore phenomena involving pressure and force, thermodynamics, light and color, resonance, buoyancy, and more.

The phenomenon-based learning (PBL) approach is as educational as the demonstrations are attention-grabbing. PBL encourages students to first experience how gadgets work and then grow curious enough to find out why. The result: Your students learn physics by doing what scientists do. (For information about materials for these books, visit Arbor Scientific at www.arborsci.com/products/nsta-kit-1, www.arborsci.com/products/nsta-kit-2, www.arborsci.com/products/nsta-kit-middle-school, www.arborsci.com/products/nsta-elementary-school-kit-1, and www.arborsci.com/products/nsta-elementary-school-kit-2.) The volume for grades 3–5 was an AM&P SILVER EXCEL AWARD WINNER!

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Argument-Driven Inquiry in Physics, Volume 1
Mechanics Lab Investigations for Grades 9–12
Victor Sampson, Todd L. Hutner, Daniel FitzPatrick, Adam LaMee, and Jonathon Grooms
NSTA PRESS, GRADES 9–12

Like the NSTA Press bestsellers for high school biology and chemistry (see p. 22), this book helps you build your students’ science proficiency. Argument-Driven Inquiry in Physics, Volume 1 focuses on mechanics and has two parts. The first part describes the ADI instructional model and the components of ADI lab investigations. The second part provides 23 field-tested labs covering a wide variety of topics related to forces and interactions, energy, work, and power. Some investigations are introductory labs that expose students to new content; others are application labs to help students try out a theory, law, or unifying concept. All are easy to use, thanks to teacher notes, student handouts, and checkout questions, and all align with the NGSS and the Common Core State Standards.


Student Lab Manual for Argument-Driven Inquiry in Physics, Volume 1

Argument-Driven Inquiry in Physical Science
Lab Investigations for Grades 6–8
Jonathon Grooms, Patrick J. Enderle, Todd Hutner, Ashley Murphy, and Victor Sampson
NSTA PRESS, GRADES 6–8

Argument-Driven Inquiry in Physical Science will make middle school labs much more active and engaging. Its 22 investigations teach students to use argument to construct, support, and evaluate scientific claims. The labs cover four core ideas in physical science: matter, motion and forces, energy, and waves. Students dig into important content and discover scientific practices as they figure out everything from how thermal energy works to what could make an action figure jump higher.

Easy-to-use features include reproducible student pages, teacher notes, checkout questions, and standards-alignment matrices. Its labs are versatile enough to introduce a topic or to act as a unit capstone. No matter how you use these authentic experiences, they’ll change the focus of your lab instruction. (See more about the series on pp. 22–23.)


Student Lab Manual for Argument-Driven Inquiry in Physical Science

“I’ve used Argument-Driven Inquiry in Chemistry in my class to create three projects that have proven to be top notch! My students enjoyed the project, and most importantly, mastered more of the content than ever before. I’ve always been amazed at the level of quality of all the NSTA material. I want to get my hands on even more things to increase the learning and engagement in my class.”

—NSTA Press reader Ed G.
Argument-Driven Inquiry in Chemistry
Lab Investigations for Grades 9–12
Victor Sampson, Peter Carafano, Patrick Enderle, Steve Fannin, Jonathon Grooms, Sherry A. Southerland, Carol Stallworth, and Kiesha Williams
NSTA PRESS, GRADES 9–12

Transform your chemistry labs with this guide to argument-driven inquiry. Students will learn to identify questions, develop models, collect and analyze data, generate arguments, and critique and revise reports. The 30 field-tested labs cover a broad range of topics related to chemical reactions and matter’s structure and properties. The book contains introduction labs to acquaint students with new content and application labs to try out a theory, law, or unifying concept. All labs include reproducible student pages, teacher notes, and checkout questions.

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Uncovering Student Ideas in Physical Science, Volumes 1, 2, and 3
Page Keeley
NSTA PRESS, GRADES K–12

Volume 1 provides 45 formative assessment probes on topics related to force and motion. Volume 2 offers 39 additional probes covering electricity and magnetism. The 32 new probes in volume 3 cover matter and energy. By helping you detect students’ misconceptions and then make sound instructional decisions to address them, these books have the potential to transform your teaching. Volumes 1 and 2 are coauthored by Rand Harrington. Volume 3 is coauthored by Susan Cooper. Volume 1 was a REVERE AWARD WINNER!

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Emily Morgan | NSTA KIDS, GRADES K–4

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Never stop wondering, never stop questioning.
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Always keep searching, always keep asking.
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Exemplary Evidence
Scientists and Their Data
Jessica Fries-Gaither | NSTA KIDS, GRADES 3–5

With this follow-up to the award-winning Notable Notebooks (see below), you can help kids discover what data—and scientists—can do! Exemplary Evidence highlights how a diverse range of scientists, including Marie Tharp and Russell Stands-Over-Bull, have used measurements, mapping, and even sketches to make all kinds of breakthroughs. ● OUTSTANDING SCIENCE TRADE BOOK FOR STUDENTS K–12!

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Jessica Fries-Gaither | NSTA KIDS, GRADES 3–5

This book brings to life the many ways in which trailblazers from Galileo to Jane Goodall have used a science notebook. You will also get four steps to starting your own notebook, plus mini-biographies of the diverse featured scientists. Written in captivating rhyme, the text is sprinkled with lively illustrations. ● OUTSTANDING SCIENCE TRADE BOOK FOR STUDENTS K–12!

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The Beaks of Birds

Why do some birds have beaks like straws, or pouches, or even daggers? Invite students to find out by reading this story of a child and two grown-up friends on a jaunt that sparks all kinds of questions. In addition to kindling kids’ curiosity, the colorful book shows how the structure of birds’ beaks plays a significant role in how birds function to find and capture their food. Bonus background material and eight age-appropriate activities round out the contents. The authors are husband-and-wife naturalists who also wrote and illustrated From Flower to Fruit (see below).

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From Flower to Fruit
Richard Konicek-Moran and Kathleen Konicek-Moran | NSTA KIDS, GRADES K–4

Spark curiosity about the parts of a flower and the vital roles of bees and seeds in plant reproduction as you explore several mysteries: How does a seed change as it sprouts into a plant? Why do scientists call a tomato a fruit? Can some fruits really fly, float, and stick to your socks? This book will transform curious readers—children and adults—into budding botanists.

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