Professional Resources for Science Educators

NSTA RECOMMENDS
Professional Resources for Science Educators
Spring 2020
What NSTA Press Readers Love About Teaching Science!

“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.

“The excitement in the students when they discover the unexpected and want to know more!”—Deb A.

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

“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.”—Christine V.

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

“Being able to get my hands dirty with kids and study real-world topics”—Sydney Z.

“Students’ never-ending questions”—Geneva A.

“I could be teaching a future scientist who just might solve one of the problems facing us today.”—Ruth Z.

“I love my students and their passion for chemistry. To me, nothing is more invigorating than hearing them engage each other in making sense of what they are learning.”—Sarah E.

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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. 11–13), 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 level 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.


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Argument-Driven Inquiry in Physics, Volume 2
Electricity and Magnetism Lab Investigations for Grades 9–12
Todd L. Hutner, Victor Sampson, Adam LaMee, Daniel FitzPatrick, Austin Batson, and Jesus Aguilar-Landaverde

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. 18–19). 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.

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

# : PB349X5V2S Members: $16.76 Non-members: $20.95
E-book #: PKEB349X5V2S Members: $12.57 Non-members: $15.71
Book/E-book Set #: PKE349X5V2S Members: $20.11 Non-members: $25.14

Novel Engineering, K–8
An Integrated Approach to Engineering and Literacy
Elissa Milto, Merredith Portsmore, Jessica Watkins, Mary McCormick, and Morgan Hynes

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.”

# : PB449X Members: $35.24 Non-members: $44.05
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Read sample chapters and order online: www.nsta.org/store
Order by phone: 800-277-5300
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.


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.


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.

Human Impacts on Our Climate, Grade 6

**STEM Road Map for Middle School**

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


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The Changing Earth, Grade 8

**STEM Road Map for Middle School**

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

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Healthy Living, Grade 10

**STEM Road Map for High School**

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
Instructional Sequence Matters, Grades 3–5
Explore Before Explain
Patrick Brown | NSTA PRESS, GRADES 3–5

Instructional sequence definitely does matter when it comes to helping children in grades 3 to 5 learn science. That’s why this book focuses 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. Like its popular counterpart for grades 6–8 (p. 37), the book gives 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 even for elementary-age children.

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 about heat and temperature, magnetism, electric circuits, chemical changes, ecosystems, and Earth processes. Detailed examples show how specific aspects of all three dimensions of the NGSS can translate in your classroom. Reflection questions throughout the book 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, writes in the foreword. “What more could science teachers ask for?”


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 (p. 49), 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

Matter and Energy for Growth and Activity, Student Edition
© 2019; 978-1-68140-686-2; 200 pages

Order by phone: 800-277-5300 Read sample chapters and order online: www.nsta.org/store
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. Making Sense of Science and Religion is the book that will help you anticipate and respond to their questions—and help students learn science while maintaining their religious beliefs. Understanding that science and religion can co-exist can also make students more willing to learn, regardless of messages to the contrary that they may hear outside of your classroom.

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. The book’s authors are all personally and professionally invested in the subject. They are a mix of K–12 teachers, college professors, and experts from organizations such as the American Association for the Advancement of Science and the Smithsonian National Museum of Natural History.

As the preface notes, their hope is that you’ll find “the concise yet comprehensive nature of this book useful to your everyday work and to your greater understanding of science and religion.”

#: 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

It’s Still Debatable!
Using Socioscientific Issues to Develop Scientific Literacy, K–5
Sami Kahn | NSTA PRESS, GRADES K–5

Is football too dangerous for kids? Do we need zoos? Should distracted walking be illegal? These are the types of real-world questions that young scientists can explore with It’s Still Debatable! The book uses science-related societal issues, or socioscientific issues, to help your K–5 students develop scientific literacy as you encourage them to become informed citizens. A research-based framework is the basis for 14 classroom-tested lesson plans that support the Next Generation Science Standards, link to the Common Core State Standards, National Curriculum Standards for Social Studies, and C3 Framework, and are developmentally appropriate for diverse elementary classrooms. The book also includes a chapter especially for use in methods courses and professional development programs.

Like It’s Debatable! its counterpart for grades K–12 (see p. 39), this new book is practical and content-rich. It engages students through hands-on investigations, research, debates, role-playing, and discussions. Because the book is specifically for elementary grades, the author was sensitive to your need for teach-ready resources that integrate science into your packed school days. You get clear and accessible background information, practical guidance on how to use the lessons, and developmentally appropriate assessments and handouts. The goal is to enable you to make science real for students even as you empower them to become agents of change in their schools and communities.

#: PB347X2 Members: $37.76  Non-members: $47.20
E-book #: PKEB347X2 Members: $28.32  Non-members: $35.40
Book/E-book Set #: PKE347X2 Members: $45.31  Non-members: $56.64

Read sample chapters and order online: www.nsta.org/store
Order by phone: 800-277-5300
Physics in Motion, Grade K

*STEM Road Map for Elementary School*

What if you could challenge your kindergartners to create a mini roller coaster? *Physics in Motion* turns a fun building project into an opportunity to investigate concepts such as energy, gravity, friction, and speed. Students will use the engineering design process while working collaboratively to design, build, and test marble track roller coasters. They will measure, compare, and evaluate numbers related to their project. They’ll use technology to do research and demonstrate their awareness of motion-related concepts. They’ll even craft a plan for making the roller coaster part of a theme park and then create a flyer to advertise it. The module is an entry point for students to explore the physics of motion through play and then decide which roller coaster design is best.


#: PB425X16  E-book #: PKEB425X16  Book/E-book Set #: PKE425X16

Influence of Waves, Grade 1

*STEM Road Map for Elementary School*

What if you could challenge your first graders to create instruments they can play in their own “Show Me the Waves” musical show? *Influence of Waves* introduces children to the concept of waves as disturbances that travel through space and substances to transfer energy. With this module, your students will conduct a variety of investigations using science as well as English language arts, mathematics, and social studies. Along the way, they’ll discover that different types of waves, such as water and sound, come from different sources and travel in various ways. They’ll find out that eyes, ears, and skin respond to sound and light. Then they’ll finish the module with a bang! By combining their voices and flashlights with guitars and drums they’ve made themselves, they’ll put on a show to demonstrate how to use sound waves and light to communicate and entertain.


Natural Hazards, Grade 2

*STEM Road Map for Elementary School*

What if you could challenge your second graders to help communities prepare for disasters ranging from floods and wildfires to earthquakes and hurricanes? With *Natural Hazards*, you can! The goal is for students to learn about the effects—including the economic kind—of natural hazards on people, animals, communities, and the environment. Then they’ll consider ways to minimize those threats. Working in teams, your second graders will use science, English language arts, mathematics, social studies, and the engineering design process to create a model of tornado winds, construct models of structures that can withstand earthquakes, find out about weather predictions, and even create their own tall tales related to natural hazards. In the end, the students will produce a plan to keep a community safe if a natural hazard strikes, including a public service announcement about how to be prepared.


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

Who knew that small, plant-eating mammals called pikas helped scientists find new ways to survive extreme weather events? Your students will learn about amazing scientific advancements like this when you use the 20 lessons in *Discovery Engineering in Biology*. The book is a lively way to blend history, real-world perspectives, 21st-century skills, and engineering into your biology or STEM curriculum.

Like the physical science volume (see p. 53), 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. They conduct research, analyze data, and use the engineering design process to develop products or applications of their own. Students are sure to be intrigued by investigations with titles such as “Vindicating Venom: Using Biological Mechanisms to Treat Diseases and Disorders” and “Revealing Repeats: The Accidental Discovery of DNA Fingerprinting.”


* #: PB444X2  Members: $33.56  Non-members: $41.95
E-book #: PKEB444X2  Members: $25.17  Non-members: $31.46
Book/E-book Set #: PKE444X2  Members: $40.27  Non-members: $50.34

**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.


* #: PB451X  Members: $33.56  Non-members: $41.95
E-book #: PKEB451X  Members: $25.17  Non-members: $31.46
Book/E-book Set #: PKE451X  Members: $40.27  Non-members: $50.34

**Science Curriculum Topic Study**
*Bridging the Gap Between Three-Dimensional Standards, Research, and Practice, Second Edition*
Page Keeley and Joyce Tugel | NSTA PRESS AND CORWIN, GRADES K–12

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.


* #: PA004E2  Members: $37.76  Non-members: $47.20

Order by phone: 800-277-5300
Tens 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 12–13 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.

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 51.
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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 51.
#: PB355X Members: $31.88  Non-members: $39.85
E-book #: PKEB355X 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

See more details on page 3.
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E-book #: PKEB455X 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

See more details on page 48.
#: PB291X1 Members: $26.64  Non-members: $33.55
E-book #: PKEB291X1 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. 43)!
#: PKUSIX13 Members: $318.74  Non-members: $398.43
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.


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!

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- 1 box of resealable plastic sandwich bags
- 1 ball of string
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- 1 box of paper clips
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These all-in-one guides are both informative and practical. In addition to complete lesson plans that support the Next Generation Science Standards, they offer extensive examples, instructions, and tips. Best of all, the books provide you with what many think is the trickiest part of PBL: rich, authentic problems. The authors not only facilitated the National Science Foundation–funded PBL Project for Teachers but also perfected the lessons in their own teaching. You can be confident that the problems and the teaching methods are teacher tested and approved.
The books in NSTA’s Powerful Practices series are powerful tools in small packages! Through thoughtful text, informative photographs, and links to special videos, they provide fresh, lively strategies you and your students can learn from and enjoy and use to integrate state standards, Next Generation Science Standards, Common Core State Standards, and STEM education practices. The authors of the Powerful Practices series are veteran educators who know how busy and demanding today’s K–6 classrooms are.

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The NSTA Quick-Reference Guides to the NGSS
K–12, Elementary School, Middle School, and High School
Ted Willard, Editor | NSTA PRESS, GRADRES 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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E-book #: PKEB354X
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Preparing Teachers 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.

© 2018; ISBN: 978-1-68140-393-9; 166 pages
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NGSS for All Students
Okhee Lee, Emily Miller, and Rita Januszyk, Editors | NSTA PRESS, GRADRES 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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Disciplinary Core Ideas
Reshaping Teaching and Learning
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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Dive In!
Immersion in Science Practices for High School Students
Karen J. Graham, Lara M. Gengarelly, Barbara A. Hopkins, and Melissa A. Lombard | NSTA PRESS, GRADES 9–12

Dive In! provides detailed examples of how veteran teachers and their students can make the leap to implementing the recommendations of the Framework and the NGSS. Its vignettes offer authentic perspectives about conducting student investigations and integrating science practices. Its field-tested activities illustrate a range of investigations you can adopt or adapt. This book is the resource you need to help students shift from only knowing about science to actually investigating and making sense of it.

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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 (p. 32) 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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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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A Framework for K–12 Science Education
Practices, Crosscutting Concepts, and Core Ideas
National Research Council | NATIONAL ACADEMIES PRESS, GRADES K–12

*A Framework for K–12 Science Education* outlines an approach that will capture the interest of teachers and students and better prepare future generations. Written for science teachers, standards developers, curriculum designers, assessment developers, teacher educators, state and district science administrators, and informal educators, the Framework is the first step toward a research-grounded basis for improving science teaching and learning. Intended to be used with the *Next Generation Science Standards*, the Framework enables a deeper and more thorough understanding of the new standards and describes a broad set of expectations for students in science and engineering. These expectations have informed fundamental revisions to curriculum, instruction, assessment, and professional development for educators.

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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. Author Rodger Bybee notes that the success of the standards depends greatly on teachers’ ability to give students opportunities to learn the science and engineering practices, crosscutting concepts, and disciplinary core ideas of the NGSS.

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Seeing Students Learn Science
Integrating Assessment and Instruction in the Classroom
Alexandra Beatty and Heidi Schweingruber | NATIONAL ACADEMIES PRESS, GRADES K–12

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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Developing Assessments for the Next Generation Science Standards
National Research Council | NATIONAL ACADEMIES PRESS, GRADES K–12

Developing Assessments for the Next Generation Science Standards develops an approach to assessment to meet the vision of science education for the future as it has been elaborated in A Framework for K–12 Science Education and the Next Generation Science Standards (NGSS). These documents are fairly new, and the changes they call for are recently under way, but the new assessments will be needed as soon as states and districts begin the process of implementing the NGSS and changing their approach to science.

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Guide to Implementing the Next Generation Science Standards
National Research Council | NATIONAL RESEARCH COUNCIL, GRADES K–12

The Framework and the NGSS describe a new vision that is catalyzing improvements in science classrooms. Guide to Implementing the Next Generation Science Standards helps district and school leaders and teachers charged with developing a plan and implementing the NGSS as they change curriculum, instruction, professional learning, policies, and assessment to address the standards. This report lays out recommendations for action, cautions about potential pitfalls, and identifies overarching principles that should guide the planning and implementation process.

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

In response to “these unconventional and uncertain years,” veteran educator Rodger W. Bybee has written a book that’s as thought-provoking as it is constructive. Now more than ever, he writes, “America needs reminders of both the themes that made it great in the first place and STEM’s contributions to its citizens.” 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.

STEM Education Now More Than Ever addresses these themes through four wide-ranging sections. 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—leadership Bybee believes we need now more than ever.


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

Sure, there are lots of cool STEM activities you can use in class. But do they really help your students learn science? 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 classroom. To make it easy to use this conceptual framework, Designing Meaningful STEM Lessons provides 13 ready-to-use lessons in physical science, life science, and Earth and space science. True to the authors’ promise to be both relevant and exciting, the lessons have titles such as “Cell-fie” and “Aircraft Catapult.” All correlate with A Framework for K–12 Science Education, take a constructivist approach, and operate within the 5E instructional model. By presenting STEM as a “process and not a thing,” Designing Meaningful STEM Lessons helps you bring STEM learning to life in your classroom, easily and effectively.


“I love the professional development opportunities NSTA Press books provide me. I am the only STEM teacher in my school so these resources are a huge help. This year I am leading my school’s Science, Technology, and Engineering Professional Learning Community. These books will provide resources for other teachers in my building as well.”

—NSTA Press reader Joanne R.
Creating a STEM Culture for Teaching and Learning

Jeff Weld | NSTA PRESS, GRADES K–12

Author Jeff Weld channels the wisdom of professionals in education, business, and government to bring you the theory and policy behind nationally recognized education models for STEM. Sprinkled with lighthearted case studies, the book covers everything from why STEM matters to what STEM means.

© 2017; ISBN: 978-1-68140-396-0; 180 pages

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Richard H. Moyer and Susan A. Everett | NSTA PRESS JOURNALS COLLECTIONS, GRADERS 6–8

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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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“[The author] is a veteran classroom teacher and educator, was aware of the need to include not only well–designed lessons, but also the strategies that elementary teachers need to implement the lessons and additional resources such as websites and references. Bringing STEM to the Elementary Classroom is an excellent resource for elementary classrooms as well as educators who work with elementary-aged children.”
—NSTA Recommends

STEM Student Research Handbook
Darci J. Harland | NSTA PRESS, GRADES 9–12

This valuable handbook outlines the stages of large-scale science research projects. Twelve chapters cover all aspects of development—generating ideas, creating research design, writing proposals, conducting experiments, interpreting data, and presenting results. Also included are student handouts as well as an appendix with checklists, observations sheets, and sample assessment rubrics.


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*Practical Strategies for Linking Assessment, Instruction, and Learning*

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. 43) 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.

**Volume 1:** © 2011; ISBN: 978-1-4129-6812-6; 256 pages


#: OP905X (Vol. 1) / OP905X2 (Vol. 2)  
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**STEM Lesson Essentials**

*Integrating Science, Technology, Engineering, and Mathematics*

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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Supporting Emergent Multilingual Learners in Science, Grades 7–12
Molly Weinburgh, 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
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Instructional Sequence Matters, Grades 6–8
Structuring Lessons With the NGSS in Mind
Patrick Brown | NSTA PRESS, GRADES 6–8

Instructional Sequence Matters shows how to make simple shifts in the way you arrange and combine activities to improve student learning. It also makes it easy for you to put the NGSS into practice. After explaining why sequencing is so important, author Patrick Brown provides a complete self-guided tour to becoming an “explore-before-explain” teacher. He explains that this teaching mindset helps students construct accurate knowledge firsthand, which is an important component of all science learning.

The book focuses on two popular approaches for structuring science lessons: POE (Predict, Observe, and Explain) and 5E (Engage, Explore, Explain, Elaborate, and Evaluate). You get guidance on how to create your own 5Es that translate the NGSS. And you get ready-to-use lessons featuring either a POE or 5E sequence to teach about heat and temperature, magnetism, electric circuits, and force and motion. Throughout, reflection questions spark thinking and help you develop the knowledge to adapt these concepts to your own classroom. Instructional Sequence Matters 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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E-book #: PKEB438X  Members: $16.35  Non-members: $20.43
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The BSCS 5E Instructional Model
Creating Teachable Moments
Rodger W. Bybee | NSTA PRESS, GRADES K–12

This book can help you structure and sequence lessons so you experience more teachable moments in your classroom. 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
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Yet More Everyday Science Mysteries
Richard Konicek-Moran | NSTA PRESS, GRADES 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/publications/press/mysteries.aspx.


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“What makes this book so special is the unique way science is integrated into the story line, using characters and situations children can easily identify with.”

—Page Keeley, author of the Uncovering Student Ideas in Science series (pp. 11–13)

The Feedback Loop
Using Formative Assessment Data for Science Teaching and Learning
Erin Marie Furtak, Howard M. Glasser, and Zora M. Wolfe | NSTA PRESS, GRADES 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.


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Rise and Shine
A Practical Guide for the Beginning Science Teacher
Linda Froschauer and Mary L. Bigelow | NSTA PRESS, GRADES K–12

The easy-to-read book offers candid advice from seasoned science teachers and plenty of widely applicable techniques for managing the classroom, maintaining discipline, and working with parents. It also covers important science-specific topics such as laboratory setup, classroom safety, and initiating inquiry.


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Becoming a Responsive Science Teacher
Focusing on Student Thinking in Secondary Science
Daniel Levin, David Hammer, Andrew Elby, and Janet Coffey | NSTA PRESS, GRADES 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.

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Teaching for Conceptual Understanding in Science
Richard Konicek-Moran and Page Keeley | NSTA PRESS, GRADES 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.

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It’s Debatable!
Using Socioscientific Issues to Develop Scientific Literacy, K–12
Dana L. Zeidler and Sami Kahn | NSTA PRESS, GRADES K–12

Students will explore real-world questions using the Socioscientific Issues Framework. This book encourages scientific literacy and supports the NGSS by giving students practice in research, analysis, and argumentation and by confronting just how messy the questions raised by science (and pseudo-science) can be. See the new volume, It’s Still Debatable!, on page 8.

© 2014; ISBN: 978-1-938946-00-4; 304 pages
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E-book #: PKEB347X
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Designing Effective Science Instruction
What Works in Science Classrooms
Anne Tweed | NSTA PRESS AND MCREL, GRADES K–12

Science teachers in every grade band will benefit from this research-based text with practical steps to improve science instruction. Author Anne Tweed recommends a C-U-E framework—Content, Understanding, and Environment—demonstrating to educators that all three elements must be part of lesson design and implementation to successfully achieve high-quality science instruction. Providing a review of the research related to each element, strategies to be incorporated into the lesson, and tools that assess teachers’ practices, this is a must-have resource.

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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.


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The New Science Teacher’s Handbook
What You Didn’t Learn From Student Teaching
Sarah Reeves Young and Mike Roberts | NSTA PRESS, GRADES K–12

This book aims to help you become the teacher you’ve always aspired to be. It covers the day-to-day stumbling blocks your methods classes didn’t, including organizing the jungle of science materials your predecessor left, making grading manageable, and coping with cranky parents. Each of the 12 chapters is set up to make the book fun to read. You get a story of a struggle from the authors’ own classroom experience; the moral of the story; steps for success to overcome the struggle; what success looks like for you and your classes when you follow the steps; and resources for further reading.


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Members: $32.20  Non-members: $40.26

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.


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.


Members: $21.56  Non-members: $23.95
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).


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“Reimagining the Science Department is very useful for any head of science trying to bring about change in the way science is taught in their school.”

— _Education in Chemistry_
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.


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“This guide is very user-friendly and a must for every science teacher’s library. Our program uses this excellent resource for the professional development we hold for our graduates. Even seasoned grant proposal writers will learn valuable tips when following this guide.”

—Amazon customer (verified purchaser)

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

Here’s the ideal statistics book for teachers with no statistics background. Written in an informal style with easy-to-grasp examples, *The Basics of Data Literacy* teaches you how to help your students understand data. Then, in turn, they learn how to collect, summarize, and analyze statistics inside and outside the classroom. The book’s 10 succinct chapters provide an introduction to types of variables and data, ways to structure and interpret data tables, simple statistics, and survey basics from a student perspective. The appendices include hands-on activities tailored to middle and high school investigations. Because data are so central to many of the ideas in the Next Generation Science Standards, the ability to work with such information is an important science skill for both you and your students. This accessible book will help you get over feeling intimidated as your students learn to evaluate messy data on the Internet, in the news, and in future negotiations with car dealers and insurance agents.


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
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. 11–13), has added a set of study group questions.


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“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.


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*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.


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

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For a full list of the books available in each Collection, visit www.nsta.org/publications/press/eureka.aspx.

**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. 20–25), you’ll love the convenience of having these ready-to-teach lessons in one handy volume.


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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. 47), 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.”


SAVE! Buy with A Head Start on Life Science!

A Head Start on Science, Second Edition
Encouraging a Sense of Wonder
William C. Ritz and William Straits, Editors | NSTA PRESS, GRADES PREK–2

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.

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—NSTA Press reader Doreen B.

Creative Writing in Science
Activities That Inspire
Katie Coppens | NSTA PRESS, GRADES 3–12

Creative Writing in Science offers activities that integrate writing with content in life science, Earth and space science, and engineering and physical science. Each activity comes with strategies for teaching a writing style, whether prose or poetry. Also included are reproducible handouts, graphic organizers, writing models, rubrics, and connections to standards. With this book, you’ll inspire students to be better writers while you enjoy new strategies to assess their scientific understanding.

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E-book #: PKEB411X

Science Learning in the Early Years
Activities for PreK–2
Peggy Ashbrook | NSTA PRESS, GRADES PREK–2

Science Learning in the Early Years provides you with 40-plus classroom activities and an understanding of how to use them with young students. The book shows you how to go beyond demonstrations to experiences that actually get children engaged. The activities focus on important science concepts, connect to the NGSS, and highlight safety concerns. Author Peggy Ashbrook has been called a mover and shaker in promoting high-quality science content for grades preK–2. ● REVERE AWARD WINNER!

#: PB407X
E-book #: PKEB407X

Predict, Observe, Explain
Activities Enhancing Scientific Understanding
John Haysom and Michael Bowen | NSTA PRESS, GRADES 7–12

This research-based book provides more than 100 student activities to learn about scientific concepts through the use of Predict, Observe, Explain sequences. Accompanying the activities are worksheets, scientific explanations, sample student responses obtained during the field tests, a synopsis of the relevant research findings, and a list of required materials.

#: PB281X
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**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 existing courses. It also provides wide-ranging material from each of the major content areas in biological sciences, including structures and processes, ecosystems, heredity, and biological evolution. Spark your high school students’ interest with lesson titles such as “Designer DNA,” “Ecosystem Board Game,” and “B-pocalypse.” 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.


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**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,” with its ingenious experiments, frustrating dead ends, and incredible finds that eventually contribute to our understanding of living things. 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 45 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  Members: $23.48  Non-members: $29.35
E-book #: PKEB435X  Members: $17.81  Non-members: $22.01
**Argument-Driven Inquiry in Biology**  
*Lab Investigations for Grades 9–12*  
Victor Sampson, Patrick Enderle, Leeanne Gleim, Jonathon Grooms, Melanie Hester, Sherry Southerland, and Kristin Wilson  
NSTA PRESS, GRADES 9–12

The 27 field-tested labs cover molecules and organisms, ecosystems, heredity, and biological evolution. Supporting the NGSS and Common Core, the investigations are more authentic than traditional labs and enable students to practice how to read, write, speak, and use math in the context of science.

#: PB349X1  
Members: $40.28  
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E-book #: PKEB349X1  
Members: $30.21  
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Members: $48.33  
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**Student Lab Manual for Argument-Driven Inquiry in Biology**  
© 2016; ISBN: 978-1-68140-014-3; 256 pages  
#: PB349X1S  
Members: $16.76  
Non-members: $20.95  
E-book #: PKEB349X1S  
Members: $12.57  
Non-members: $15.71  
Book/E-book Set #: PKE349X1S  
Members: $20.11  
Non-members: $25.14

**Argument-Driven Inquiry in Life Science**  
*Lab Investigations for Grades 6–8*  
Patrick J. Enderle, Ruth Bickel, Leeanne Gleim, Ellen Granger, Jonathon Grooms, Melanie Hester, Ashley Murphy, Victor Sampson, and Sherry A. Southerland  
NSTA PRESS, GRADES 6–8

These 20 field-tested labs help students learn how to read, write, speak, and use math in the context of science. Students design methods, develop models, collect and analyze data, and critique information. The labs cover topics related to molecules and organisms, ecosystems, biological evolution, and heredity. Labs include student pages, teacher notes, and checkout questions.

#: PB349X3  
Members: $40.28  
Non-members: $50.35  
E-book #: PKEB349X3  
Members: $30.21  
Non-members: $37.76  
Book/E-book Set #: PKE349X3  
Members: $48.33  
Non-members: $60.42

**Student Lab Manual for Argument-Driven Inquiry in Life Science**  
#: PB349X3S  
Members: $16.76  
Non-members: $20.95  
E-book #: PKEB349X3S  
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Non-members: $15.71  
Book/E-book Set #: PKE349X3S  
Members: $20.11  
Non-members: $25.14

**Uncovering Student Ideas in Life Science, Volume 1**  
*25 New Formative Assessment Probes*  
Page Keeley  
NSTA PRESS, GRADES K–12

Author Page Keeley provides teachers with her popular formula for uncovering and addressing preconceptions in this book. It covers life and diversity; structure and function; life processes and needs of living things; and more. Each probe is supported by Teacher Notes, providing background information, related concepts, explanations, related ideas in national science standards, research on misconceptions, and suggestions for instruction and assessment. ● REVERE AWARD WINNER!

#: PB291X1  
Members: $26.84  
Non-members: $33.55  
E-book #: PKEB291X1  
Members: $20.13  
Non-members: $25.16  
Book/E-book Set #: PKE291X1  
Members: $32.20  
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Read sample chapters and order online: [www.nsta.org/store](http://www.nsta.org/store)  
Order by phone: 800-277-5300
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*

| #: PB434XT | Members: $37.76 | Non-members: $47.20 |
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*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 |

*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 26 for an overview of the Problem-Based Learning series.


| #: PB408X2 | Members: $29.36 | Non-members: $36.70 |
| E-book #: PKEB408X2 | Members: $22.02 | Non-members: $27.52 |
| Book/E-book Set #: PKE408X2 | Members: $35.23 | Non-members: $44.04 |

*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.


| #: PB304X | Members: $33.56 | Non-members: $41.95 |
| E-book #: PKEB304X | Members: $25.17 | Non-members: $31.46 |
| Book/E-book Set #: PKE304X | Members: $40.27 | Non-members: $50.34 |

*Once Upon a Life 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 science concepts and support the NGSS; writing activities that prompt students to connect what they did with what they read; and assessment exercises to give you feedback on what your students are learning. Topics include cell cycle, food chains, genetics, plant structure and function, and more!

© 2010; 978-1-935155-09-6; 161 pages

| #: PB275X | Members: $19.28 | Non-members: $24.10 |
| E-book #: PKEB275X | Members: $14.46 | Non-members: $18.07 |
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.

#: PB445X
E-book #: PKEB445X
Members: $26.84; Non-members: $33.55
Book/E-book Set #: PKE445X
Members: $32.20; Non-members: $40.26

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. 18–19).

#: PB349X6
E-book #: PKEB349X6
Members: $40.28; Non-members: $50.35
Book/E-book Set #: PKE349X6
Members: $48.33; Non-members: $60.42

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

#: PB349X6S
E-book #: PKEB349X6S
Members: $16.76; Non-members: $20.95
Book/E-book Set #: PKE349X6S
Members: $20.11; Non-members: $25.14

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. 26.)

#: PB408X1
E-book #: PKEB408X1
Members: $29.36; Non-members: $36.70
Book/E-book Set #: PKE408X1
Members: $35.23; Non-members: $44.04
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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E-book #: PKEB409X Members: $28.32 Non-members: $35.40
Book/E-book Set #: PKE409X Members: $45.31 Non-members: $56.64

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.

#: PB421X Members: $37.76 Non-members: $47.20
E-book #: PKEB421X Members: $28.32 Non-members: $35.40
Book/E-book Set #: PKE421X Members: $45.31 Non-members: $56.64

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. 11–13) offers field-tested teacher materials that provide science background and link to national standards.

#: PB355X Members: $31.88 Non-members: $39.85
E-book #: PKEB355X Members: $23.91 Non-members: $29.88
Book/E-book Set #: PKE355X Members: $38.25 Non-members: $47.82

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.

#: PB307X Members: $31.88 Non-members: $39.85
E-book #: PKEB307X Members: $23.91 Non-members: $29.88
Book/E-book Set #: PKE307X Members: $38.25 Non-members: $47.82

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Solar Science
Exploring Sunspots, Seasons, Eclipses, and More
Dennis Schatz and Andrew Fraknoi | NSTA PRESS, GRADES 5–8

The more than 30 hands-on activities cover the Sun’s motions, space weather caused by the Sun, and much more. The book contains ideas for writing projects; grade-appropriate math examples; and connections to music, art, fiction, and history. It also supports the NGSS and connects to the Common Core State Standards. ● AM&P GOLD EXCEL AWARD WINNER!


“ariously 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

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. 49 for the life science volume.)


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.


Read sample chapters and order online: www.nsta.org/store Order by phone: 800-277-5300
Problem-Based Learning in the Physical Science Classroom, K–12

Tom J. McConnell, Joyce Parker, and Janet Eberhardt NSTA PRESS, GRADES K–12

This book will help your students truly understand concepts such as motion, energy, and magnetism in true-to-life contexts. It offers a comprehensive description of why, how, and when to implement problem-based learning (PBL) in your curriculum. Its 14 developmentally appropriate lessons cover forces and motion, energy transformation, and electricity and magnetism. The lessons’ inviting titles include “Cartoon Cliff Escape” and “Rube Goldberg Machine.” This volume is the third in NSTA’s PBL series, which also covers Earth and space science and life science (p. 26). In addition to complete lesson plans that support the Next Generation Science Standards, the book offers extensive examples, instructions, and tips for implementing open-ended inquiry. It also provides rich, authentic problems you can use as is or adapt.


#: PB408X3  E-book #: PKEB408X3  Book/E-book Set #: PKE408X3
Members: $29.36  Members: $22.02  Members: $35.23
Non-members: $36.70  Non-members: $27.52  Non-members: $44.04

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.


#: PB432X  E-book #: PKEB432X  Book/E-book Set #: PKE432X
Members: $37.76  Members: $28.32  Members: $45.31
Non-members: $47.20  Non-members: $35.40  Non-members: $56.64
Teaching Energy Across the Sciences, K–12
Jeffrey Nordine, Editor | NSTA PRESS, GRADES K–12

This book gives you the strategies and tools you need to help your students understand energy as a concept that cuts across all sciences. The result will be a clear lens for interpreting how energy works in many contexts, both inside and outside the classroom. Teaching Energy Across the Sciences, K–12 is accessible to teachers with varying science backgrounds.


#: PB401X  
Members: $29.36  
Non-members: $36.70

E-book #: PKEB401X  
Members: $22.02  
Non-members: $27.52

Book/E-book Set #: PKE401X  
Members: $35.23  
Non-members: $44.04

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!

Using Physical Science Gadgets & Gizmos, Grades 3–5

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Members: $26.84  
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E-book #: PKEB345X3  
Members: $20.13  
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Using Physical Science Gadgets & Gizmos, Grades 6–8

#: PB345X2  
Members: $26.84  
Non-members: $33.55

E-book #: PKEB345X2  
Members: $20.13  
Non-members: $25.16

Book/E-book Set #: PKE345X2  
Members: $32.20  
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Using Physics Gadgets & Gizmos, Grades 9–12

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E-book #: PKEB345X1  
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Order by phone: 800-277-5300
Like the NSTA Press bestsellers for high school biology and chemistry (see p. 18), 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.


| #: PB349X5V1 | Members: $40.28 | Non-members: $50.35 |
| E-book #: PKEB349X5V1 | Members: $30.21 | Non-members: $37.76 |
| Book/E-book Set #: PKE349X5V1 | Members: $48.33 | Non-members: $60.42 |

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


| #: PB349X5V1S | Members: $16.76 | Non-members: $20.95 |
| E-book #: PKEB349X5V1S | Members: $12.57 | Non-members: $15.71 |
| Book/E-book Set #: PKE349X5V1S | Members: $20.11 | Non-members: $25.14 |

*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. 18–19.)


| #: PB349X4 | Members: $40.28 | Non-members: $50.35 |
| E-book #: PKEB349X4 | Members: $30.21 | Non-members: $37.76 |
| Book/E-book Set #: PKE349X4 | Members: $48.33 | Non-members: $60.42 |

**Student Lab Manual for Argument-Driven Inquiry in Physical Science**


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| Book/E-book Set #: PKE349X4S | Members: $20.11 | Non-members: $25.14 |

“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. Southland, Carol Stallworth, and Kiesha Williams

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.

#: PB349X2 Members: $40.28 Non-members: $50.35
E-book #: PKEB349X2 Members: $30.21 Non-members: $37.76
Book/E-book Set #: PKE349X2 Members: $48.33 Non-members: $60.42

Student Lab Manual for Argument-Driven Inquiry in Chemistry
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E-book #: PKEB349X2S Members: $12.57 Non-members: $15.71
Book/E-book Set #: PKE349X2S Members: $20.11 Non-members: $25.14

Uncovering Student Ideas in Physical Science, Volumes 1, 2, and 3
Page Keeley

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!
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Never Stop Wondering
Emily Morgan | NSTA KIDS, GRADES K–4

Keep curiosity alive! That’s the message of Never Stop Wondering, which inspires children to develop an enduring interest in the mysteries of the universe. Illustrated with whimsical drawings and written in lively verse by Emily Morgan (author of the Next Time You See series, pp. 60–61), the book is a vibrant ode to the power of asking questions and the endeavor of science. It prompts kids to be inquisitive and persistent like the great scientists of history and provides activities to get their questions flowing; it motivates them to appreciate scientific inquiry; and most important, it encourages them to never stop in their quest to explore the “whys” of the world.

Never stop wondering, never stop questioning.  
Never stop trying to figure things out.  
Always keep searching, always keep asking.  
That’s what science is all about.


#: PB440X  
Members: $10.36  
Non-members: $12.95

E-book #: PKEB440X  
Members: $8.84  
Non-members: $10.20

Book/E-book Set #: PKE440X  
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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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Notable Notebooks
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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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National Science Teaching Association | NSTA KIDS, GRADES K–5

From feet to color to teeth, animals have many special structures that help them survive. This book allows children to use their powers of observation to compare the physical characteristics of animals to figure out how the characteristics help the animals survive in their environments.


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**Mrs. Carter’s Butterfly Garden**
Steve Rich | NSTA KIDS, GRADES K–3

This is the story of how former First Lady Rosalynn Carter started a front yard project that grew into a butterfly-friendly trail through her hometown of Plains, Georgia. Learn why it’s good for people when butterflies have welcoming spaces and how kids can create their own.


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**My School Yard Garden**
Steve Rich | NSTA KIDS, GRADES K–3

This colorful book takes students on a ramble through a school yard garden—past the seeding beds, along the compost bin, and over to the birdhouse and birdbath. Along the way, children learn what insects, animals, and plants need to thrive and discover the fun of observing and recording it all.


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Emily Morgan | NSTA KIDS, GRADES K–5

A sense of wonder can be awakened in a child with the Next Time You See series. Rather than providing facts to memorize, the books’ engaging text and eye-catching photography inspire children to experience the enchantment of everyday phenomena in the natural world. Free supplementary activities are available on NSTA’s website for teachers who want to go one step further. Specifically designed to be experienced with an adult—whether a parent, teacher, or friend—Next Time You See books serve as a reminder that you don’t have to look far to find something remarkable in nature. (Next Time You See books in Spanish are translated by Alicia B. Fuentes.)

Next Time You See a Bee
This book will get young readers buzzing about bees! Next Time You See a Bee reveals the big impact these little insects have on the world. It shows how the physical features of bees make them pros at collecting and spreading pollen. It explains how bees pollinate flowers, allowing the plants to produce delicious foods such as apples, almonds, and peaches. It also introduces readers to the wide variety of North America’s native bee species, discusses why bees are threatened, and shares what readers can do to help. After reading Next Time You See a Bee, curious kids can partner with adults to observe these remarkable creatures without fear—and take bee-friendly measures to protect the insects for the benefit of us all.

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Lawrence F. Lowery
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