

Outstanding Science Trade Books for Students

2023

Books published in 2022

WE INVITE YOU TO EXPLORE this year's list of Outstanding Science Trade Books, which builds upon our 50-year history of identifying the very best in science books for children. In the award-winning titles below, you'll find not only traditional science content but also engineering and design. We hope you'll enjoy enhancing your own spirit of inquiry as you and the children in your life investigate science through the year's best trade books.



About the Reviews

In addition to standard publishing information, the reviews indicate the following:

1. International Standard Book Numbers (ISBN) are included for all available editions (trade, library, and paperback).
2. The prices are current as of January 2023.
3. Reading levels (K-2, 3-5, 6-8, and 9-12) are provided by the reviewers. They are intended as guidelines and are not meant to limit the potential use of titles.
4. The reviewer's initials follow each description (see Members of the Book Selection Panel listed on page XX).
5. The most relevant Next Generation Science Standards are indicated by codes (see next page).

LS1: From Molecules to Organisms: Structures and Processes

Luminous: Living Things That Light Up the Night

JULIA KUO. Greystone Books / Greystone Kids. ISBN 9781771648882, \$18.95. (K-2, 3-5)

Explore bioluminescence (the light made from living things) in its many forms, including fireflies, and foxfire, fungi and glowworms, deep-sea fish and vampire squid. The book uses lyrical text and informative sidebars while portraying a young child and adult exploring this natural phenomenon of bioluminescence.

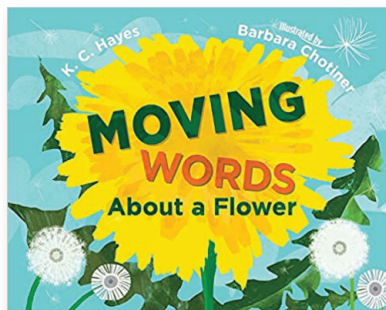
(DS) CCC1, CCC6



*Moving Words About a Flower

K. C. HAYES. Illustrated by Barbara Chotiner. Charlesbridge. ISBN 9781623541651, \$16.99. (K-2)

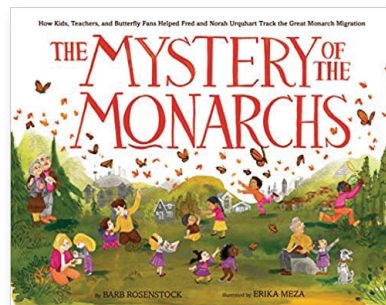
Told through moving, colorful text and bold illustrations, children will follow a dandelion seed's journey as it floats in the wind and finds a way to survive. Readers learn about a plant's life cycle. Shape poems, Diagrams, Questions/Answers. (NM) CC5, CC6



*The Mystery of the Monarchs

BARB ROSENSTOCK. Illustrated by Erika Meza. Random House Children's Books / Alfred A. Knopf BFYR. ISBN 9781984829566, \$18.99. (K-2)

Where do the Monarch butterflies go? Follow the fifty year quest to solve this migration mystery. Through inviting text and illustrations, this book tells the story of how, with the help of students, teachers, and communities, Fred and Norah Urguhart uncovered the migration mystery of the Monarch butterfly. (KMM) CCC1, SEP3

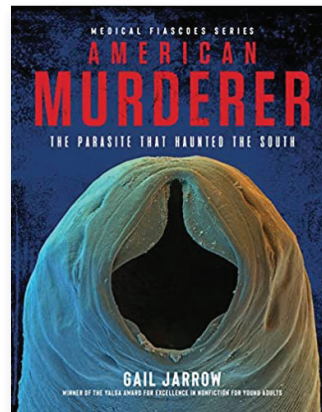


LS2: Ecosystems: Interactions, Energy, and Dynamics

*American Murderer: The Parasite That Haunted the South

GAIL JARROW. Astra Publishing House / Calkins Creek. ISBN 9781684378159, \$24.99. (9-12)

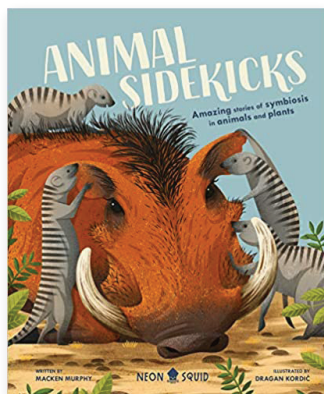
How could a parasite infect so many people living in the south without being detected? Follow along as the mystery of this devastating, murderous parasite is discovered and then explained in skin-crawling detail from the devastating infections to the tireless efforts made to educate and heal its victims. (CW) SEP1, SEP3, SEP4, SEP6, SEP7, SEP8, CCC2



*Animal Sidekicks: Amazing Stories of Symbiosis in Animals and Plants

MACKEN MURPHY. Illustrated by Dragan Kordic. Macmillan Children's Publishing Group / Neon Squid. ISBN 9781684492015, \$19.99. (3-5)

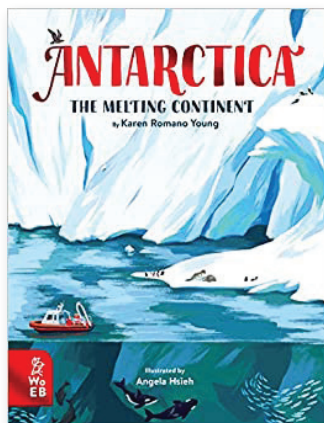
Explore the many cases of symbiosis, where different species of animals, plants, and other living organisms form interesting relationships rather than avoiding each other. Learn about seabird pirates, bloodsucking vampires and mischievous con artists to find out which relationships are a win-win for some animals, while more one-sided for others. **(DS) CCC1, CCC6**



Antarctica: A Melting Continent

KAREN ROMANO-YOUNG. Illustrated by Angela Hsieh. What on Earth Books. ISBN 9781913750534, \$24.00. (6-8)

What do we really know about the coldest continent on the planet? Do people or animals live on Antarctica? Learn about Antarctica's past hidden in its frozen layers and how an international scientific community continues to explore and research the wondrous ecosystems of one of Earth's lesser-known continents. **(CW) ESS3, SEP3, SEP8, CCC5, CCC7**



The Three Dimensions of the Framework

(from *A Framework for K-12 Science Education*, National Research Council, 2012)

SCIENTIFIC AND ENGINEERING PRACTICES

- SEP1:** Asking questions (for science) and defining problems (for engineering)
- SEP2:** Developing and using models
- SEP3:** Planning and carrying out investigations
- SEP4:** Analyzing and interpreting data
- SEP5:** Using mathematics and computational thinking
- SEP6:** Constructing explanations (for science) and designing solutions (for engineering)
- SEP7:** Engaging in argument from evidence
- SEP8:** Obtaining, evaluating, and communicating information

CROSSCUTTING CONCEPTS

- CCC1:** Patterns
- CCC2:** Cause and effect: Mechanism and explanation
- CCC3:** Scale, proportion, and quantity
- CCC4:** Systems and system models
- CCC5:** Energy and matter: Flows, cycles, and conservation
- CCC6:** Structure and function
- CCC7:** Stability and change

DISCIPLINARY CORE IDEAS

Physical Sciences

- PS1:** Matter and its interactions
- PS2:** Motion and stability: Forces and interactions
- PS3:** Energy
- PS4:** Waves and their applications in technologies for information transfer

Life Sciences

- LS1:** From molecules to organisms: Structures and processes
- LS2:** Ecosystems: Interactions, energy, and dynamics
- LS3:** Heredity: Inheritance and variation of traits
- LS4:** Biological evolution: Unity and diversity

Earth and Space Sciences

- ESS1:** Earth's place in the universe
- ESS2:** Earth's systems
- ESS3:** Earth and human activity

Engineering, Technology, and Applications of Science

- ETS1:** Engineering design
- ETS2:** Links among engineering, technology, science, and society

In keeping with the National Science Teachers Association's Strategic Goal 3 (Next Generation Science Standards and STEM), for this year's annotations, titles that have been awarded the *Outstanding Science Trade Book* award from NSTA/CBC will be aligned to the Scientific and Engineering Practices, Crosscutting Concepts, and Disciplinary Core Ideas from *A Framework for K-12 Science Education*, on which the NGSS is based.

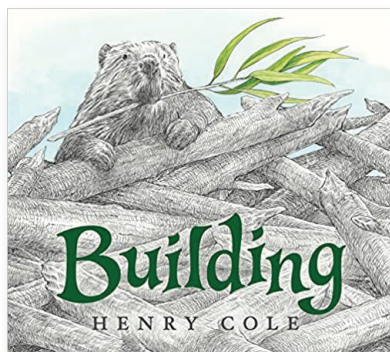
All titles will be listed primarily by the prevailing Disciplinary Core Idea (DCI). This will allow teachers to quickly identify books that may be used with specific concepts.

Titles will receive notations of secondary DCIs, Science and Engineering Practices (SEPs), and Crosscutting Concepts (CCCs) at the end of each notation. Titles are not being listed primarily by SEPs and CCCs as these should be woven throughout all science concepts.

Building

HENRY COLE. HarperCollins Children's Books / Katherine Tegen Books. ISBN 9780063136557, \$17.99. (K-2)

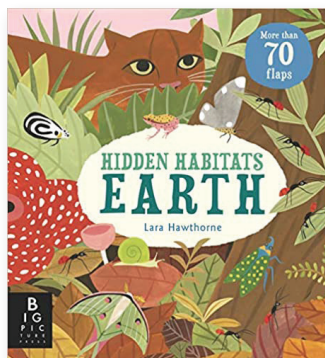
How do beaver families live and work together to survive? This question is answered as children learn how a pair of beavers use engineering skills to build their lodge which creates a wetland environment that protects the beaver family and other aquatic species. Author's Note. (NM) CC4 CC5 CC6



Hidden Habitats: Earth

CAMILLA DE LA BEDOYERE. Illustrated by Lara Hawthorne. Candlewick Press / Big Picture Press. ISBN 9781536226690, \$18.99. (3-5)

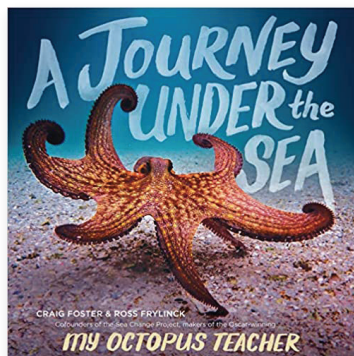
The interdependence living creatures have within habitats is described by asking the reader to look for the relationships that exist in eight different habitats. Within each, flaps reveal information about different components of ecosystems. (CAR) CCC5



A Journey Under the Sea

CRAIG FOSTER. HarperCollins Children's Books/ Clarion Books. ISBN 9780358677864, \$18.99. (K-2)

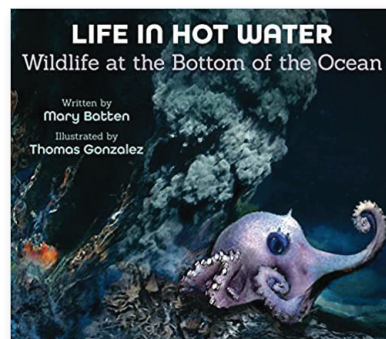
Focusing on a particular area of the ocean, the reader is immersed in an amazing environment as they learn about animals and plants that are found in the Great African Sea Forest. The pictures provide a glimpse into another world. (CAR)



Life in Hot Water: Wildlife at the Bottom of the Ocean

MARY BATTEN. Illustrated by Thomas Gonzalez. Peachtree. ISBN 9781682631522, \$18.99. (3-5)

Dive into the fascinating discovery of the ocean's deep sea vents and the extraordinary ecosystem surrounding them. Through captivating illustrations and clear, informative text, *Life in Hot Water* tells the story of the exploration of deep sea vents and life in this extreme environment. (KMM) LS4, ESS2, CCC5



About CBC and NSTA

The Children's Book Council (CBC) is the nonprofit trade association for children's book publishers in North America, dedicated to supporting and informing the industry and fostering literacy. The CBC offers children's publishers the opportunity to work together on issues of importance to the industry at large, including educational programming, literacy advocacy, and collaborations with other national organizations. The anchor sponsor of Children's Book Week, the CBC is proud to partner with other national organizations on co-sponsored reading lists, educational programming, and literacy initiatives. For more information, visit www.cbcbooks.org.

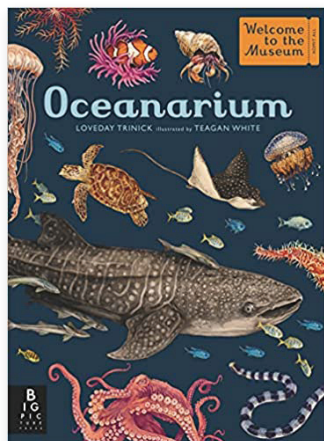
The books that appear in these lists were chosen by a review panel made up of educators and other subject-area experts, all appointed by the National Science Teachers Association. NSTA and CBC have joined forces on developing this annual list since 1973, and over the years it has become the go-to resource for school librarians, science teachers, and parents eager to cultivate a love of science in young readers. Initially, the list was primarily targeted at grades K through 8. Beginning in 2002, it expanded to include high school. Down through the years, this effort has had but a single mission—to highlight the very best in science trade books for young audiences.



Oceanarium: Welcome to the Museum

LOVEDAY TRINICK. Illustrated by Teagan White. Candlewick Press / Big Picture Press. ISBN 9781536223811, \$37.99. (6-8, 9-12)

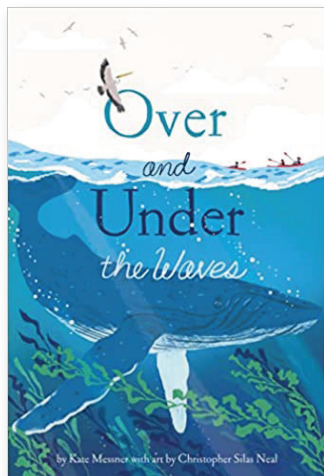
The eighth book in the *Welcome to the Museum* series takes readers on a visually stunning and informative tour of the world's oceans and the spectacular organisms living there, with the ultimate goal of emphasizing the importance of protecting this diverse ecosystem. Index. (CB) LS4, SEP1, SEP2, CCC1, CCC2, CCC3, CCC5, CCC6, CCC7



Over and Under the Waves

KATE MESSNER. Illustrated by Christopher Silas Neal. Chronicle Books. ISBN 9781797203478, \$18.99. (K-2)

Part of the *Over and Under* series where readers explore the interconnected ocean ecosystem. Learn about the marine creatures who make their home above the waves and within the depths of the kelp forest. Author's note, Animal descriptions, Websites. (NM) CC4 CC5

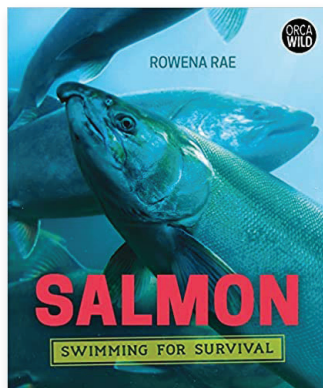


Salmon: Swimming for Survival

ROWENA RAE. Orca Book Publishers. ISBN 9781459826533, \$24.95. (6-8, 9-12)

Salmon are living with increasing challenges to their survival. Explore the importance of these fish to both ecosystem and community while learning about the scientists working to conserve their populations.

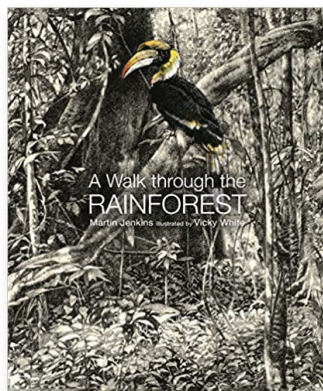
Glossary, Resources, Index. (SC) SEP 6, CCC2, CCC7



*A Walk Through the Rain Forest

MARTIN JENKINS. Illustrated by Vicky White. Candlewick Press. ISBN 9781536211207, \$18.99. (3-5)

Subdued images and descriptive text take the reader on a journey through the Malaysian rainforest. Details about this exotic habitat inform about and transport the reader to the location. Back material provides a full-color guide to animals found within the pages. (CAR) CCC4, LS4

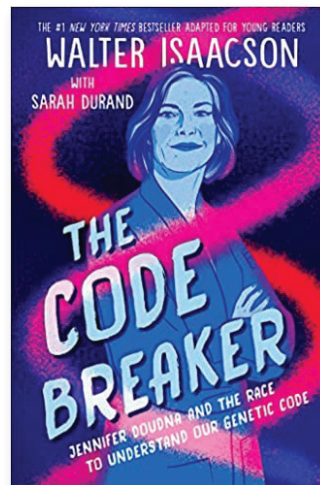


LS3: Heredity: Inheritance and Variation of Traits

The Code Breaker—Young Readers Edition: Jennifer Doudna and the Race to Understand Our Genetic Code

WALTER ISAACSON. Simon & Schuster / S&S Books for Young Readers. ISBN 9781665910668, \$17.99. (6-8, 9-12)

The young readers' adaptation of the *New York Times* bestselling biography about the inspiring life and work of Dr. Jennifer Doudna, a female biochemist whose groundbreaking Nobel Prize-winning research in genetics led to the development of the genome editing tool, CRISPR. Glossary, Sources. (CB) ETS2, SEP1, SEP2, SEP3, SEP4, SEP5, SEP6, SEP8, CCC1, CCC2, CCC3, CCC6

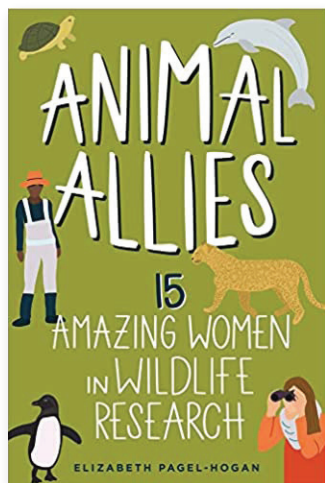


LS4: Biological Evolution: Unity and Diversity

Animal Allies: 15 Amazing Women in Wildlife Research

ELIZABETH PAGEL-HOGAN. Chicago Review Press. ISBN 9781641606226, \$16.99. (6-8)

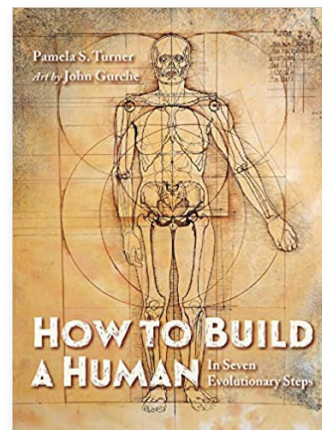
This book offers much-needed access to women doing awesome science while navigating various challenges. From studying Persian Leopards in Turkmenistan to spying on Emperor penguins from space to mucking in the swamps with Appalachian Hellbenders, these women push back on discrimination, mentor others, and use their voices in their scientific pursuits. (AH) LS2, SEP3, SEP8, CCC7, NOS1, NOS8.



How to Build a Human: In Seven Evolutionary Steps

PAMELA S. Turner. Illustrated by John Gurche. Charlesbridge. ISBN 9781623542504, \$21.99. (6-8)

Written with a humor that will engage the middle grades, this book has seven sections describing the major evolutionary steps of our journey to becoming human. The book also contains portraits and photos to help readers envision our ancestors. Includes in-depth notes, bibliography, and index. (KMM) CCC6



About the Books and the Selection Process

The books that appear in this annotated bibliography selected as Outstanding Science Trade Books were published in 2022. They are intended primarily for grades K-12. They were selected by members of a book review panel appointed by the National Science Teachers Association (NSTA) and assembled in cooperation with the Children's Book Council (CBC). NSTA and CBC have cooperated on this bibliographic project since 1973.

The panel looks at both content and presentation. Selection is based generally on the following criteria:

- The book has substantial science content.
- Information is clear, accurate, and up-to-date.
- Theories and facts are clearly distinguished.
- Facts are not oversimplified to the point that the information is misleading.
- Generalizations are supported by facts, and significant facts are not omitted.
- Books are free of gender, ethnic, and socioeconomic bias.

The panel also uses rigorous selection guidelines relating to the presentation of material, including the following: logical presentation and a clear sequence of ideas; appropriate content level for the intended audience; compatible text and illustrations; illustrations that are accurate representations in size, color, and scale; appropriate trim size and format of the book for the subject and audience; and well-organized layout that advances the text. The panel also gives attention to the quality of binding, paper, reproduction, and the appropriateness of typeface. Each panel member reads all the books, but reviews reflect only the appraisal of the individual panelist whose initials appear at the end of each entry.

Publishers' names appear in abbreviated form; complete names and addresses are available from the CBC and in standard reference works such as Children's Books in Print. CBC's Member List is available at www.cbcbooks.org/publishers/our-members.

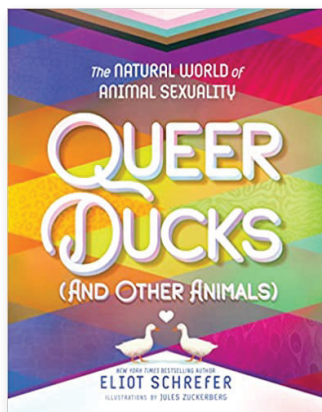
Titles are arranged by subject category. Although some titles are appropriate for more than one category, the books have been placed where their usefulness in science education appears greatest. Panelists have also indicated the Next Generation Science Standard (see About the Reviews on page XX) to which the books relate. Where more than one standard is listed, the most applicable standard is given first.



*Queer Ducks (and Other Animals): The Natural World of Animal Sexuality

ELIOT SCHREIFER. Illustrated by Jules Zuckerberg. HarperCollins Children's Books / Katherine Tegen Books. ISBN 9780063069497, \$17.99. (9-12)

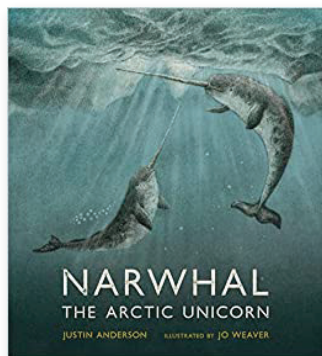
Alternating between informative text supported by research, amusing comics, and interviews with contemporary scientists (some of whom identify as queer), this book explores the animal kingdom's naturally diverse queer behavior with wonder, humor, and accessibility. Glossary, Sources, Index. **(CB) ETS2, SEP1, SEP3, SEP4, SEP6, SEP7, SEP8, CCC1, CCC6, CCC7**



Narwhal: The Arctic Unicorn

JUSTIN ANDERSON. Illustrated by Jo Weaver. Candlewick Press. ISBN 9781536225129, \$17.99. (K-2)

Follow a pod of narwhals during their treacherous journey north, where they find fish to eat, avoid a hungry polar bear, and navigate the maze of sea ice. Learn about how they communicate via clicking calls and consider what is the purpose of the long tusk that gives them the name of Arctic Unicorn. **(DS) CCC1, CCC6**

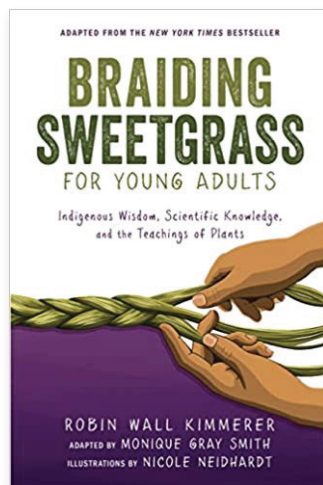


ESS3: Earth and Human Activity.

Braiding Sweetgrass for Young Adults: Indigenous Wisdom, Scientific Knowledge, and the Teaching of Plants

BY ROBIN WALL KIMMERER, ADAPTED BY MONIQUE GRAY SMITH. Illustrated by Nicole Neidhardt. Lerner Publishing Group/Zest Books. ISBN 9781728458984, \$39.99. (9-12)

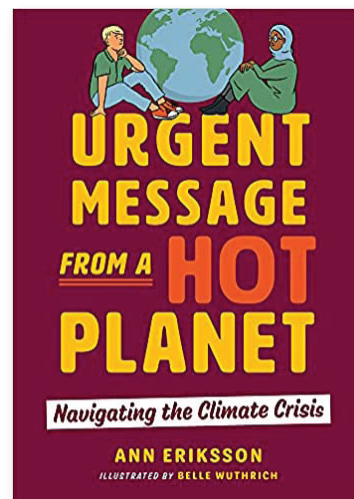
This masterful adaptation of the original book presents multiple opportunities for readers to connect the ideas to their own lives. Indigenous knowledge and wisdom are interwoven with western canonical science in exploring the juxtaposition of the commodity and gift economies. It inspires authentic connections to and revitalization of the land. **(AH) LS2, SEP1, SEP3, CCC5, CCC7, NOS1, NOS3**



*Urgent Message from a Hot Planet: Navigating the Climate Crisis

ANN ERIKSSON. Illustrated by Belle Wuthrich. Orca Book Publishers. ISBN 9781459826328, \$26.95. (9-12)

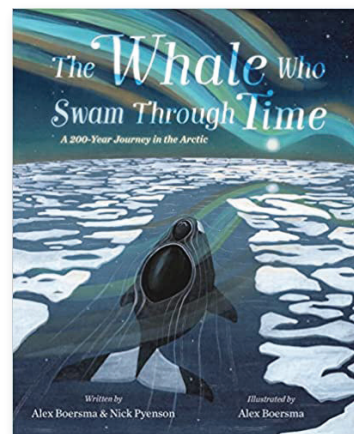
Urgent Message provides an incredibly informative, interconnected, and hopeful perspective of the climate crisis grounded in science. It contains multiple examples of broad-ranging climate heroes. "Burning Question" boxes address timely issues. This book provides youth with the truth, along with many ideas about potential solutions and actions they can engage in. **(AH) SEP4, SEP7, CCC5, CCC7, NOS2, NOS3**



The Whale Who Swam Through Time: A 200-Year Journey in the Arctic

ALEX BOERSMA & NICK PYENSON. Macmillan Children's Publishing Group / Roaring Brook Press. ISBN 9781250803023, \$19.99. (K-2)

Follow the longest-living mammal, a bowhead whale, as she swims through her life of two centuries. A rare perspective on changes and human impact in the Arctic. Information on Bowheads and other Arctic creatures. **(SC) SEP1, CCC2, CCC7.**

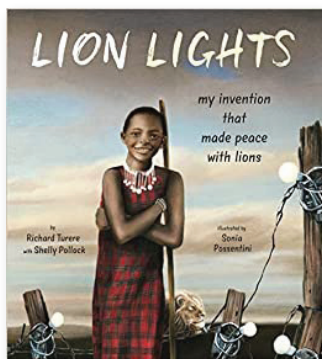


ETS2: Links Among Engineering, Technology, Science, and Society

Lion Lights: My Invention That Made Peace with Lions

RICHARD TURERE & SHELLY POLLOCK.
Illustrated by Sonia Possentini. Tilbury House. ISBN 9780884488859, \$18.95.
(K-2, 3-5)

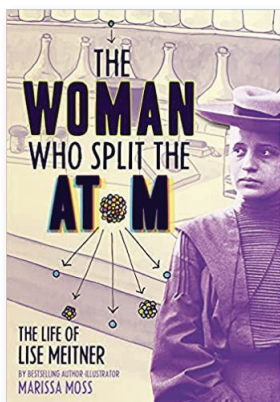
Can farmers and lions live side by side without loss of life happening on both sides? A young Massai herder, tasked with taking care of his family's cows, finds an ingenious way to keep them safe to help his family and the community live peacefully with the neighboring lions. **(CW) SEP1, SEP3, SEP6**



*The Woman Who Split the Atom: The Life of Lise Meitner

MARISSA MOSS. ABRAMS /
Abrams Books for Young Readers.
ISBN 9781419758539, \$19.99. (6-8, 9-12)

Lise Meitner overcame many obstacles to solve some of the most perplexing problems in nuclear science. Discoveries that took a lifetime for the world to recognize as hers. Timeline of life and achievements, Glossary, Profiles of scientists, Bibliography, Index. **(SC) SEP8, CCC7**



Call for Submissions

for 2024 Outstanding Science Trade Books for Students K-12

Deadline for submissions: July 8, 2023

ELIGIBILITY

- Titles should be for grades K-12.
- All titles must originate from a children's publishing company or division and must be published (not simply distributed) by a publisher incorporated in the United States.
- Titles must be published in 2023.
- Titles originally published abroad are eligible only if they have a 2023 U.S. publication date; reprints or licensed editions of titles initially published in the United States before 2023 are not eligible.
- Original paperbacks are eligible; paperback reprints are not. If a book is published simultaneously in hardcover and paperback, either edition may be submitted. If both editions are submitted, they constitute separate entries.
- Revisions are eligible only if the book has been newly illustrated or if substantial text, constituting at least 25% of the book, has been changed or added.
- Math books are not eligible unless the mathematical principles are applied to scientific functions such as measuring for experiments, using statistical models for scientific research, and so on.
- Textbooks, workbooks, kits, experiment-only books, and activity books are not eligible.
- Spanish-language editions of titles published in English before 2023 are not acceptable. Spanish-language editions published simultaneously with English-language editions in 2023 are eligible.
- Fiction is eligible if the book has substantial science content.

NUMBER OF TITLES YOU MAY SUBMIT

Each participating publisher may submit an unlimited number of titles.

SUBMISSION GUIDELINES

Books should have value for both classroom studies and library collections supporting students' work.

Full submission guidelines will be available throughout the month of June, 2023 at **www.cbcbooks.org/curated-reading-lists**.

FEES

There is no submission fee for CBC Regular and Affiliate Members. The fee is \$75 per title for Associate and Initiating Members and \$300 per title for non-members. All fees are non-refundable. Titles may not be substituted. There is no refund if a title is canceled or postponed.

