

2022 Indiana Science Trade Book Annual Reading List (IN-STAR): Teaching Science Through Literature

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The 2022 Indiana Science Trade Book Annual Reading List (IN-STAR) has many selections that tell a unique story providing thought-provoking, content connections when learning science. The criteria and process to identify books has been previously described (Gulley et al., 2012). Selections meet the following criteria:

1. The book has substantial science content.
2. Information is clear, accurate, and up to date.
3. Theories and facts are clearly distinguished.
4. Facts are not oversimplified to the point where the information is misleading.
5. Generalizations are supported by facts and significant facts are not omitted.
6. Books are free of gender, ethnic, and socioeconomic bias.
7. Information can be connected to the Indiana Science Standards for grades K-5.
8. Books are readily available in public libraries or bookstores.
9. Books have received at least one positive review in one of the identified professional journals: *Booklist*, *Bulletin of the Center for Children's Books*, *Horn Book*, *Kirkus Reviews*, *Publishers Weekly*, *School Library Journal*, and *Science and Children*.

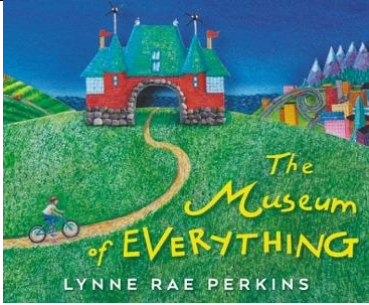
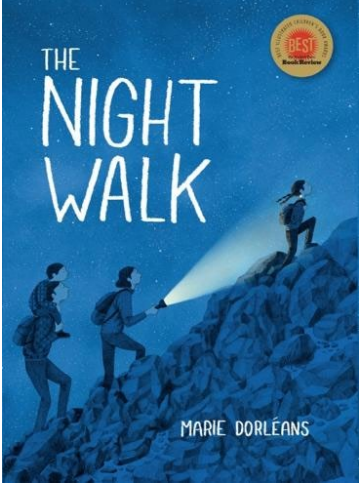
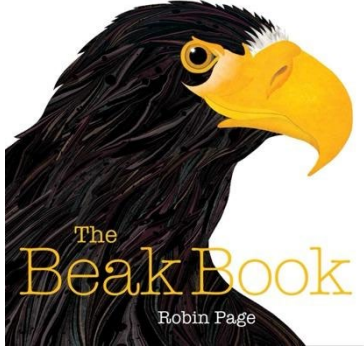
Items one through five are critical because they help teachers best choose science-focused books for classroom use. Item six ensures a teacher's universal responsibility to promote classrooms and resources which promote a variety of populations and cultures. Items seven through nine ensure the selections are high quality and easily attainable by classroom teachers.

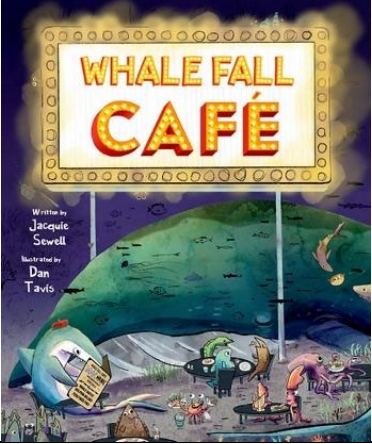
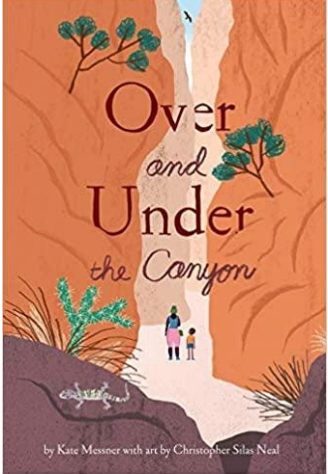

Chosen titles were published in the preceding year. Books are selected through a continuous review of resources highlighting new publications in children's literature. As interesting and appropriate books are discovered, they are purchased or acquired through local libraries for review. Their content is assessed for the nine criteria and if they address the science content listed in the Indiana Academic Standards for each grade level. The reading level of books is considered when aligning to grade levels.

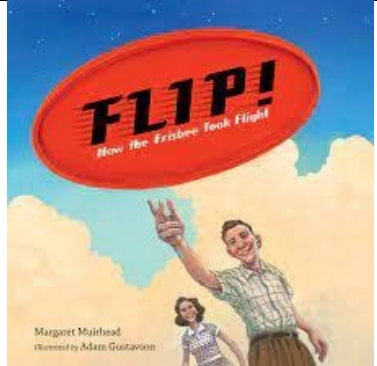
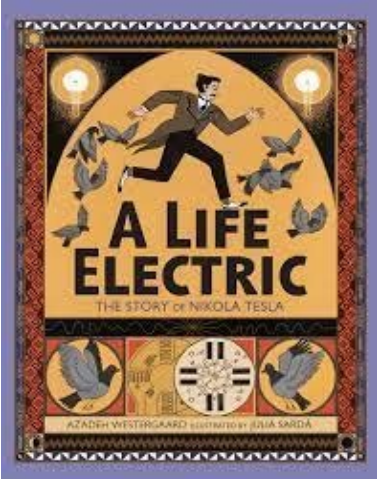
Because teachers possess students along the reading continuum it can be beneficial to explore selections at adjacent grade levels. One might consider how titles might serve as a classroom read aloud versus used for independent reading. The authors anticipate teachers will employ their existing, creative reading strategies while using these titles. Examples include retell lessons, identifying key science vocabulary when summarizing content, and using the material to explore the nature of science or engineering by characters. Below are overviews of this year's titles.

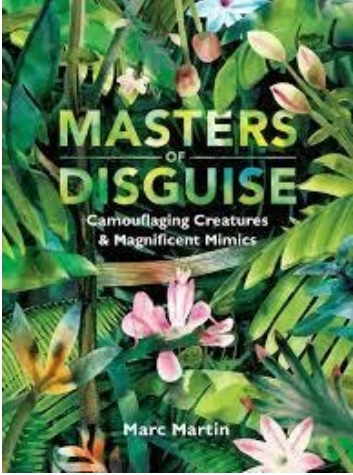
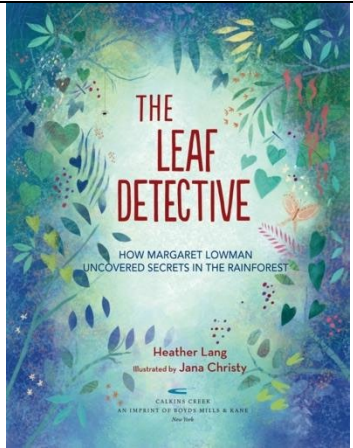
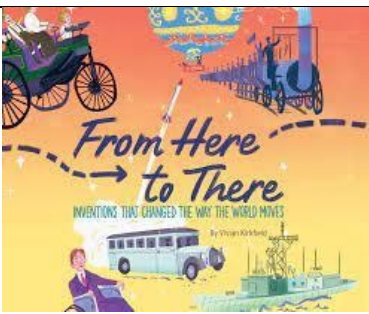
The 2022 Indiana Science Trade Book Annual Reading List (IN-STAR)

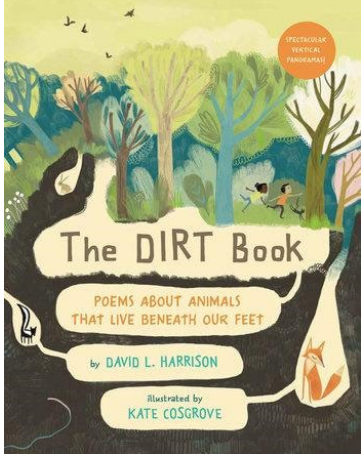
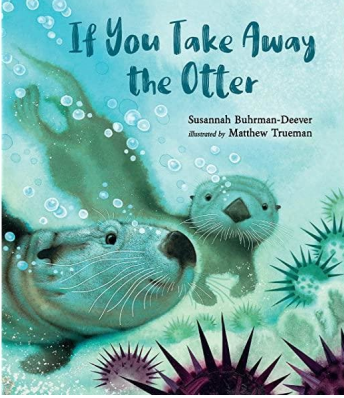

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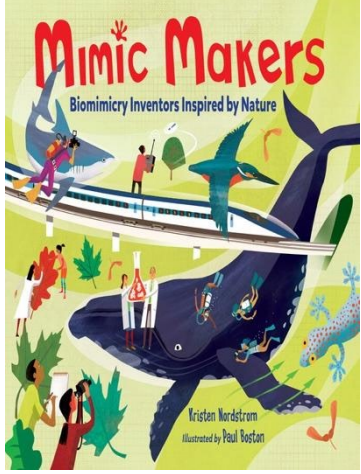
	<p style="text-align: center;">Kindergarten</p> <p>THE MUSEUM OF EVERYTHING. 2021. Lynne Rae Perkins. Greenwillow Books. 40 pp. ISBN-13: 978-0062986306. A wonderful read aloud to focus students’ minds on making observations in their world and during science lessons. By noticing the details in the small things, students can begin asking their own questions and discover patterns around them. STANDARD: EARTH AND SPACE SCIENCE AND ENGINEERING DESIGN</p>
	<p>THE NIGHT WALK. 2021. Marie Dorléans. Florish Books. 32 pp. ISBN-13: 978-1782506393. Wake up students’ learning with this book! It can be used to share the liveliness of nighttime when teaching the day versus night cycle. Drawings and digital illustrations set an adventurous tone for a family’s nighttime jaunt through their environment. STANDARD: LIFE SCIENCE AND EARTH AND SPACE SCIENCE.</p>
First Grade	
	<p>THE BEAK BOOK. 2021. Robin Page. Beach Lane Books. 40 pp. ISBN-13: 978-1534460416. Robin Page’s illustrations once again inspire close inspection of nature’s details. Large, colorful illustrations help teachers and students explore the important form and function concept in life science. Happy pecking! STANDARD: LIFE SCIENCE.</p>

	<p>WHALE FALL CAFÉ. 2021. Jacquie Sewell. Illus. Dan Tavis. Tilbury House Publishers. 40 pp. ISBN-13: 978-0884488484. What a fascinating look at an aquatic food chain! This book follows a whale corpse as it descends from the surface to its final resting place at the bottom of the sea. A wonderful companion to teach about unique food chains. STANDARD: LIFE SCIENCE.</p>
<p>Second Grade</p>	
	<p>OVER AND UNDER THE CANYON. 2021. Kate Messmer. Illus. Christopher Silas Neal. Chronical Books. 56 pp. ISBN-13: 978-1452169392. Another in the impressive contribution to the Over and Under series that can help students learn about unique ecosystems and how the earth can change in slow ways. Primary teachers will appreciate incorporation of microhabitats for the canyon’s smallest creatures. STANDARD: EARTH AND SPACE SCIENCE.</p>
	<p>SUMMERTIME SLEEPERS: ANIMALS THAT ESTIVATE. 2021. Melissa Stewart. Illus. Sarah Brannen. Charlesbridge. 40 pp. ISBN-13: 978-1580897167. We often teach about winter hibernation, but this title shares how animals also use summer “hibernation” (estivation) during the hottest days of the year. The stories and images will capture students’ attention and they won’t be sleeping through this interesting read. STANDARD: LIFE SCIENCE</p>
<p>Third Grade</p>	

	<p>FOSSILS FROM LOST WORLDS. 2021. Damien Laverdunt. Illus. H��l��ne Rajcak. Gecko Press. 72 pp. ISBN-13: 978-1776573158. The discovery and features of various prehistoric creatures are presented in this exploration of the fossil record. Rich visual supports include labeled technical drawings, full-page illustrations, and graphic novel formats for detailing discoveries. STANDARD: LIFE SCIENCE.</p>
	<p>FLIP! HOW THE FRISBEE TOOK FLIGHT. 2021. Margaret Muirhead. Illus. Adam Gustavson. Charlesbridge. 32 pp. ISBN-13: 978-1580898805. Although Fred Morrison was not the first person to imagine a flying disc toy, he sought to create an optimum design and ultimately created the ubiquitous Frisbee. This text demonstrates how continual improvement of prototypes leads to great results. STANDARD: ENGINEERING DESIGN.</p>
<p>Fourth Grade</p>	
	<p>A LIFE ELECTRIC: THE STORY OF NIKOLA TESLA. 2021. Azadeh Westergaard. Illus. J��lia Sarda. Viking Books for Young Readers. 40 pp. ISBN-13: 978-0593114605. Students may only be familiar with the name “Tesla” as a car brand; this book will enlighten them about Nikola Tesla’s discovery of alternating current and his impact on our electrical system. Crisp illustrations support the text. STANDARD: PHYSICAL SCIENCE</p>

	<p>MASTERS OF DISGUISE: CAMOUFLAGING CREATURES AND MAGNIFICENT MIMICS. 2021. Marc Martin. Candlewick Studio. 56 pp. ISBN-13: 978-1536214055. Twelve animals from around the globe are featured for their unique abilities to blend in with their background or disguise their identity. The hide-and-seek feature is sure to engage students. STANDARD: LIFE SCIENCE.</p>
<p>Fifth Grade</p>	
	<p>THE LEAF DETECTIVE: HOW MARGARET LOWMAN UNCOVERED SECRETS IN THE RAINFOREST. 2021. Heather Lang. Illus. Jana Christy. Calkins Creek. 48 pp. ISBN-13: 978-1684371778. This book is sure to pique students' interest in the role of plants in the ecosystem. Meg Lowman's quest to study the rainforest canopy is beautifully captured in both the narrative and informative end pages. STANDARD: LIFE SCIENCE.</p>
	<p>FROM HERE TO THERE: INVENTIONS THAT CHANGED THE WAY THE WORLD MOVES. 2021. Vivian Kirkfield. Illus. Gilbert Ford. Clarion Books. 96 pp. ISBN-13: 978-1328560919. Each chapter of this book provides insight into how seemingly ordinary people have invented extraordinary modes of transportation over time. Sidebar information adds to the narrative content. STANDARD: ENGINEERING DESIGN.</p>
<p>Primary Honorable Mention</p>	

	<p>THE DIRT BOOK. 2021. David Harrison. Illus. Kate Cosgrove. Holiday House. 40 pp. ISBN-13: 978-0823438617. There is more than dirt under our feet and this book helps young readers explore the types of creatures that make their homes there. Information is shared through poetry making it easy to use as a read aloud or for students to enjoy individually. STANDARD: LIFE SCIENCE.</p>
	<p>IF YOU TAKE AWAY THE OTTER. 2021. Susannah Buhrman-Deever. Illus. Matthew Trueman. Candlewick Press. ISBN-13: 978-0763689346. While the otter takes center stage, this book is about much more. Navigating the intricacies of a Pacific coast food web, the author explores what happens when a keystone species is removed from the web. Beautiful illustrations will help teachers teach form and function of organisms in aquatic environments.</p>
	<p>THE SHARK BOOK. 2021. Steve Jenkins & Robin Page. Illus. Steve Jenkins. Houghton Mifflin Harcourt. ISBN-13: 978-1328569493. For many years, Steve Jenkins dazzled us with his extraordinary talent as an author and illustrator to teach us “all things animals.” Jenkins and Page create another vividly impressive montage (using cut-paper collages) of many different shark species that are the apex predators in our oceans. Thank you for everything, Steve. STANDARD: LIFE SCIENCE.</p>
<p>Intermediate Honorable Mention</p>	

	<p>COUGAR CROSSING: HOW HOLLYWOOD'S CELEBRITY COUGAR HELPED BUILD A BRIDGE FOR CITY WILDLIFE. 2021. Meeg Pincus. Illus. Alexander Vidal. Beach Lane Books. 40 pp. ISBN-13: 978-1534461857. How can wildlife survive in urban areas? This book describes one community's innovative approach for supporting the co-existence of wildlife and people in the midst of a busy city. STANDARD: EARTH AND SPACE SCIENCE.</p>
	<p>SECRETS OF THE SEA: THE STORY OF JEANNE POWER, REVOLUTIONARY MARINE SCIENTIST. 2021. Evan Griffith. Illus. Joanie Stone. Clarion Books. 40 pp. ISBN-13: 978-0358244325. Jeanne Powers, a 19th century dressmaker-turned-marine biologist, used glass aquarium tanks to observe features of sea creatures more closely and carefully documented her discoveries. Watercolor illustrations and additional end page information make this an enlightening text about marine science. STANDARD: LIFE SCIENCE.</p>
	<p>MIMIC MAKERS: BIOMIMICRY INVENTORS INSPIRED BY NATURE. 2021. Kristen Nordstrom. Illus. Paul Boston. Charlesbridge. 48 pp. ISBN-13: 978-1580899475. What can we learn from shark skin or gecko feet? As it turns out, inventors have often looked to nature for inspiration when creating new materials or improving design solutions. Brief backgrounds are provided for each of the diverse scientists and engineers. STANDARD: ENGINEERING DESIGN.</p>

References

Gulley, J., Rearden K., Broemmel, A., & Thomas, J. (2012). Spotlight on science: Introducing the Indiana science trade book annual reading list. *The Indiana Reading Journal*, 45(1), 31-35.

Author Information

Jeff Thomas, Professor of Teacher Education, works with emerging and current elementary teachers to promote integration of inquiry-based science, children's literature, and technology.

Joyce Gulley, Professor of Teacher Education, works with teacher candidates to identify high quality children's literature to promote literacy and student engagement with text.

Kristin Rearden, Clinical Professor of Science Education, strives to promote effective practices in teacher preparation, the impact of place-based education, and the integration of children's literature and science.

Amy Broemmel, Associate Professor of Education, works to integrate children's literature into the curriculum to help teachers hone their beliefs toward reading and writing instruction.