

FEATURE

# COLLECTI DEVELOPME

*Stocking Library Shelves for Student Success:  
Motivating Readers through Science-*

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*Focused Fun*

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By providing a wide selection of high-quality materials that will grab the attention of individual readers, school libraries can play an integral part in initiating and supporting student agency and a student-centered approach to learning. These captivating books should not only address and expand upon what kids are learning in the classroom, but also allow them to explore an array of personal interests, tastes, and passions. Every student has his or her own way of acquiring and processing factual content, and books presented in different formats nurture a variety of learning styles and specific preferences. For example, comic book fans will enjoy gleaming factual content from books that present information through cartoon-style artwork and light-hearted humor. In contrast, kids who spend hours watching documentaries on Animal Planet will relish action-packed photo-essays that follow the adventures of real-life scientists working in the field. Individuals who like to invent and create will appreciate seeing their own traits displayed in the main characters of fast-reading novels in which scientific principles—and hands-on tinkering—are used to solve a mystery or a problem. A well-rounded library collection provides

plenty of choices that will intrigue individual readers, encourage them to discover books that speak to their unique interests and needs, and allow them to chart their own personalized course through the process of acquiring knowledge.

The packed-with-kid-appeal books highlighted here focus on science and can be used to supplement classroom materials and traditional narrative nonfiction. Ranging from profusely illustrated graphic novels to captivating fiction series, these titles will appeal to a spectrum of tastes, learning styles, and interests.

- Nonfiction graphic novels provide an inviting conduit for more-visual learners, those who already have an interest in comics, and often hard-to-reach reluctant readers.
- Biographies with photo-essay profiles of scientists in the field offer readers a glimpse at how scientific investigations are conducted, introduce various scientific disciplines, and present intriguing career possibilities.
- Novels and fictional graphic novels invite readers to sample scientific ideas while enjoying an engaging and well-written story.

## Science-Based Nonfiction Graphic Novels

In these eye-alluring volumes, ebullient artwork and succinct text play off of one another to explain concepts, present information, and aid comprehension. Often enhanced with touches of humor, the inviting comic book format can make seemingly difficult topics more accessible and easier to digest. Enjoyable for anyone, graphic novels can also be used to reach reluctant readers and engage youngsters who do not respond to traditional texts.

Hosted by an amiable emcee (a “BONE-afied human skeleton,” of course), Maris Wicks’s *Human Body Theater* (First Second 2015; grades 4–8) takes readers on a vaudeville-style tour of a complex biological vessel. The narrator sings, dances, and wisecracks her way through eleven acts, chapters that begin with broad overviews of each major body system before delving more deeply into specifics. The easy-to-follow panels abound with vivacious visuals that depict the skeleton’s comical antics, along with clearly drawn and labelled diagrams, cut-away illustrations, and close-up images that expand the textual information. Meanwhile, a cast of personality-packed cells, organs, and other body parts chime in with additional tidbits (and chuckle-worthy asides). Reader-targeted tips about self-care, nutrition, safety, and puberty round out an elucidating and entertaining resource that provides much more than barebones facts.

MK Reed and Joe Flood’s *Dinosaurs: Fossils and Feathers* (First Second 2016; grades 4–8) unfolds with the suspense and excitement of an Indiana Jones adventure. Dramatic images set the scene by harking back millions of years to a time when these creatures roamed the earth. Beginning with

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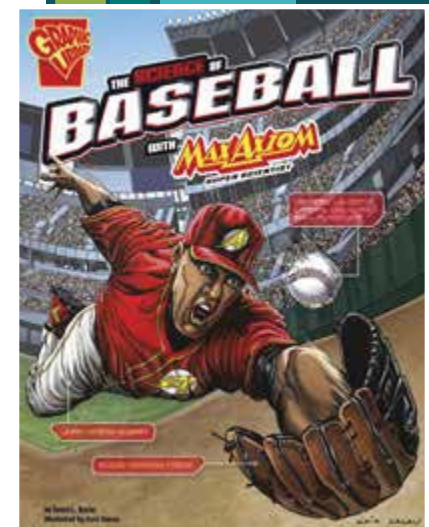
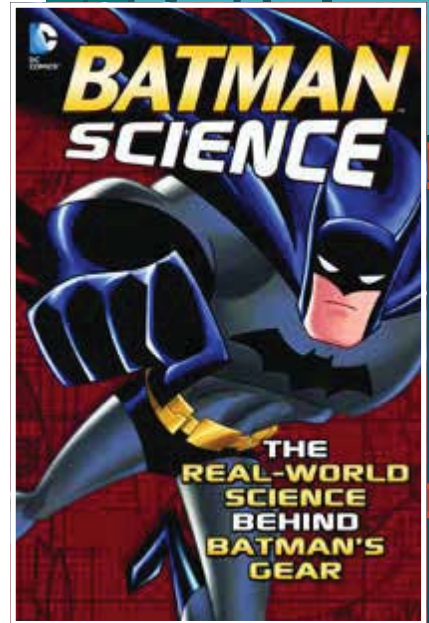
The packed-with-kid-appeal books highlighted here **FOCUS ON SCIENCE** and can be used to supplement classroom materials and traditional narrative nonfiction.

the Industrial Revolution, which ushered in a new era of inquiry, discovery—and digging—chronologically arranged chapters trace the development of human knowledge about dinosaurs and the natural world, highlighting important theories and ever-evolving investigative techniques. Also introduced is a cast of beguiling (and often eccentric) scientists, including self-trained 19th-century fossil-hunter Mary Anning; Othniel Marsh, Edward Drinker Cope, and their much-hyped bone wars; and the death-defying adventures of early-20th-century naturalist/spy Roy Chapman Andrews. The vibrant watercolor illustrations, clearly written text, and action- and humor-packed panels will keep readers riveted. Look for other volumes in this excellent new “Science Comics” series, including Maris Wicks’s *Coral Reefs: Cities of the Ocean* (2016).

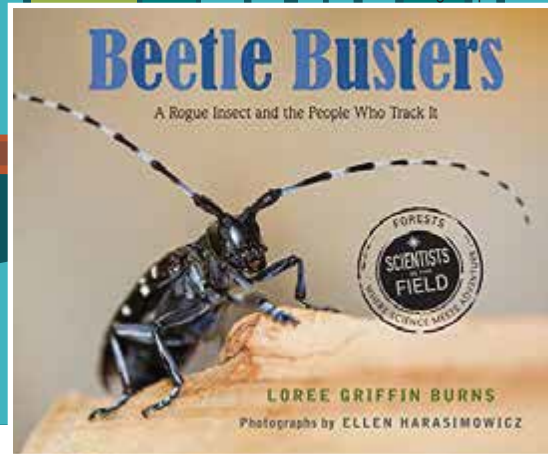
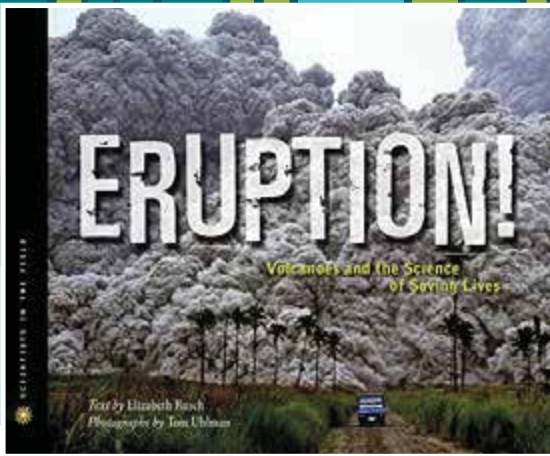
Numerous volumes in Capstone’s Graphic Library series star Max Axiom, Super Scientist, a charismatic individual imbued with incredible powers (since being struck with “a megacharged lightning bolt” during a wilderness hike), including superintelligence, the ability to shrink to atom-size, and an unquenchable thirst for knowledge. His latest adventures dynamically delve into the science behind popular sports. For example,

Nikole Brooks Bethea and Caio Cacau’s *The Science of Football* (2016; grades 3–8) introduces physics concepts as Max explains how velocity and momentum affect the running game, applies Newton’s Laws of Motion to a kicked football, discusses how the ball’s shape affects its flight when thrown, and illuminates how mass and force impact defense. Bursting with movement and color, the glossy artwork expands the text while keeping readers’ heads in the game. Other titles similarly explore baseball, basketball, and hockey, merging high-interest topics with scientific explanations (and maybe a few tips about how to be more efficient at your favorite sport).

Energetic images of the Caped Crusader adorn the pages of *Batman Science* (Capstone 2014; grades 3–9), a book sure to reel in superhero fans. Tammy Enz and Agnieszka Biskup explain the science behind the Dark Knight’s well-known arsenal of gadgets and provide real-world examples of similar technology currently in use. Sections focus on Batman’s body armor (drawing in everything from Kevlar to helmets made from composite materials, night-vision goggles, and wingsuits), utility belt gadgets (boomerangs, shuriken, smoke bombs, and much more), Batmobiles (rocket-propelled cars, a forklift with omnidirectional wheels,







stealth vehicles, shape-shifting technology, bullet-proof honeycomb tires, and more), and Batplanes and Batcopters (the latest in aircraft machinery, missiles, and rescue devices). Crisp full-color photos accompany the clearly written text, making the true-life examples all the more compelling. The book's striking layout and tantalizing factoid approach make it a pleasing starting point for initiating further reading and research in the fields of engineering, technology, and design.

### Illustrated Science Biographies

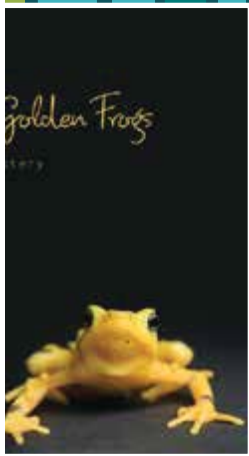
Blending handsome photographs, compellingly written fact-filled texts, and a sense of you-are-there excitement, these photo-essays offer exhilarating glances at science in action. These books provide broad overviews of their subject areas, introduce the basics of the scientific process along with real-world applications, and showcase diverse scientific careers. They also convey the challenges and triumphs of exploration in the field and the thrill of discovery.

The outstanding Scientists in the Field series (Houghton Mifflin Harcourt; grades 5–8) takes readers to locations across the globe to meet dedicated scientists doing cutting-edge research in a wide variety of disciplines. To give just a

few examples, Sy Montgomery and Keith Ellenbogen invite readers to ride along with *The Great White Shark Scientist* (2016) marine biologist Gregory Skomal as he tracks, films, tags, and collects data about these “remarkably shy” animals off the coast of New England’s Cape Cod; the book also provides the skinny on sharks, their role in the ecosystem, and conservation. Elizabeth Rusch’s *The Next Wave* (2014) looks at scientists who are working to harness an exciting—and clean—new source of renewable energy, using both their personal persistence and engineering ingenuity to invent devices capable of surviving the “punishing force” of our oceans while harnessing “the potent pulsing movement of waves.” Rusch and photographer Tom Uhlman follow the hard-working, danger-defying scientists of the Volcano Disaster Assistance Program as they helicopter to the scene of the latest *Eruption!* (2013) to investigate, assess danger levels, and make the hard call about evacuation procedures. Pamela S. Turner and Andy Comins’s *The Frog Scientist* (2009) focuses on the work of UC Berkeley biologist and environmental advocate Tyrone Hayes as he and his enthusiastic students explore a commonly used pesticide’s effects on amphibians. Loree Griffin Burns and Ellen Harasimowicz introduce the *Beetle*

*Busters* (2014), scientists dedicated to tracking and eradicating destructive Asian long-horned beetles that are currently threatening several cities and the entire hardwood forest of the northeast. Fascinating info about this invasive species, the hunt, and the life cycle of trees is supplemented by acknowledgment of the important contributions of private citizens—and even kids.

Published by Millbrook, Sandra Markle’s engaging series draws readers in by presenting a problem and illustrating the investigative approach scientists employ to solve it. *The Case of the Vanishing Little Brown Bats* (2015; grades 4–8) describes the efforts of researchers to understand—and, they hope, halt—a recent and severe drop in population of this species in eastern North America. Accessible text and handsome full-color photos cover this scientific mystery from first discovery, through the step-by-step elimination of possible causes (climate change, pesticides, a virus), to a breakthrough that relied upon a variety of experts, careful sample collection, and tenacious experimentation. Though the culprit has been identified as white-nose syndrome, caused by a fungus that affects hibernating bats, scientists are still searching for ways to help save bat populations from this devastating (and still spreading) disease.



This book successfully draws readers into the puzzle, while also conveying basics of scientific procedures and an appreciation for the role bats play in our ecosystem. Other volumes focus on *The Case of the Vanishing Golden Frogs* (2012; grades 4–8) and *The Case of the Vanishing Honeybees* (2014; grades 4–6).

Anita Silvey's *Untamed: The Wild Life of Jane Goodall* (National Geographic Kids 2015; grades 4–8) combines insightful and inviting text, well-integrated primary quotes, and an array of stunning archival photos to chronicle the life and career of this groundbreaking primatologist. A chapter on Goodall's childhood in England highlights hours spent observing and admiring animals, whether taming a British robin with windowsill crumbs or befriending the dog next door. The bulk of the book focuses on Goodall's work in Gombe where, though untrained in survival skills or scholarly theory, she tracked chimpanzees through dangerous terrain, employed her own methods for observation and building trust with her subjects, and made incredible breakthroughs. Also covered are Goodall's unexpected fame and role as respected scientist, and eventual transformation from researcher to advocate for education, conservation, and improved treatment of chimps in captivity. Photos of Goodall in the

field, perched in a tree or quietly watching a group of chimps, as well as more-recent images of her poignant interactions with captive or rescued animals, make her work seem breathtakingly immediate. This well-written account not only introduces an accomplished scientist but also inspires readers to follow their dreams.

### Science-Based Novels

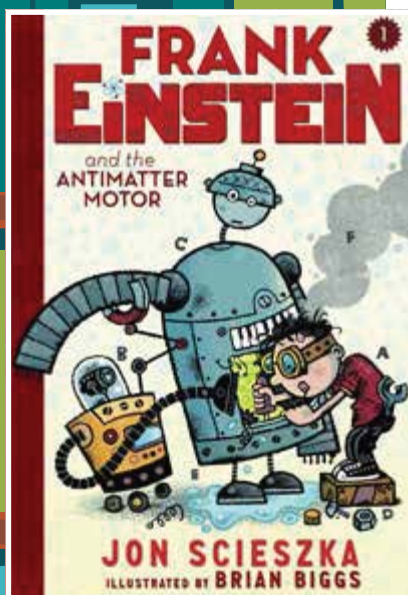
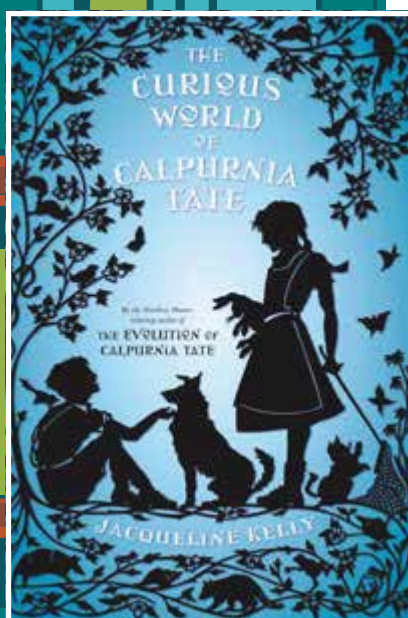
Representing an array of literary tones and genres, these lively offerings integrate science into their plots. They can pique the interest of kids who are intrigued by scientific topics or stir up curiosity about the highlighted themes and concepts for general readers.

What would happen if your grandfather discovered the fountain of youth? Concepts of immortality and the natural cycle of life are insightfully treated in Jennifer L. Holm's *The Fourteenth Goldfish* (Random House 2014; grades 4–7). Eleven-year-old Ellie's life is turned upside down when her cantankerous grandfather moves into her family's house; not only is he always crabby, but the seventy-seven-year-old scientist has discovered a way to reverse the aging process through cellular regeneration and now inhabits the body of a thirteen-year-old boy. Enrolled in Ellie's middle school (he hates it even more than she does), Grandpa

Melvin enlists Ellie's help in gaining access to his lab and retrieving his research for publication and replication. Meanwhile, he also opens her eyes to the work of famous scientists, including Jonas Salk, Robert Oppenheimer, and Marie Curie and their unwavering "belief in the possible." As her own passion for discovery is unleashed, Ellie begins to wonder about the true implications of her grandfather's achievement. Filled with strong characterizations and spot-on humor, this buoyant novel mixes realistic family and friendship issues with discussable themes of both the wonders—and momentous consequences—of science.

The adventures of *The Wild Robot* (Little, Brown 2016; grades 3–6) begin when a hurricane sinks a cargo ship, a crate is washed ashore on a remote island, and ROZZUM unit 7134 is accidentally activated by a group of curious otters. With no knowledge of where she is or how she came to be there, Roz, a robot capable of learning and equipped with self-preservation instincts, begins to explore her surroundings, barely surviving close calls with steep sea cliffs, a mudslide, and aggressive bear cubs as she gradually adapts to her environment. The island's animal inhabitants view her as a monster and keep their distance until Roz adopts an orphaned baby goose after an accident and





eventually proves herself to be an excellent mother and member of the community. In fact, the animals band together to help when unwanted (also automated) visitors arrive to forcibly collect Roz. Told with lovely language and atmospheric illustrations, Peter Brown's charming novel makes a satisfying read-aloud and can initiate discussion of the latest breakthroughs in artificial intelligence, the role of robots in human society, and the startling realization that wild animals and robots just might have something in common.

It's the year 2041, and twelve-year-old Dashiell Gibson lives with his little sister and scientist parents on Moon Base Alpha, "the first permanent extraterrestrial human habitat" in space. Life is surprisingly mundane at the outpost, until the well-liked base physician Ronald Holtz turns up dead under mysterious circumstances, and Dash is the only one who suspects murder. Determined to take on this *Space Case* (Simon & Schuster 2014; grades 4–7), the boy launches into an investigation that involves multiple suspects, difficult-to-decipher clues, the occasional red herring, and, after a danger-fraught climactic scene on the lunar surface, a truly surprising (and out of this world) resolution. Dash's entertaining first-person narration written by Stuart Gibbs embroils readers in a well-plotted and suspense-filled mystery while also providing a detailed, carefully imagined account of what life would be like in a space colony and explanations of the science involved. Dash's adventures continue in *Spaced Out* (2016).

Set in a small town in Texas in 1899, Jacqueline Kelly's beguiling historical novel traces *The Evolution of Calpurnia Tate* (Holt 2009; grades 5–8), an eleven-year-old girl who embraces her passion for investigating the natural world and ultimately learns much about her

surroundings and herself. Callie is the only sister "spliced midway" between three older and three younger brothers (all colorfully named for Texas heroes). Though her mother insists that Callie dedicate herself to improving her needlework or perfecting her apple pie, Callie much prefers to spend her time adventuring outdoors, differentiating between grasshopper species, and wondering why dogs have eyebrows, always observing and carefully recording her revelations in her red leather notebook. When her interest in Charles Darwin's *The Origin of Species* catches her grandfather's attention, the usually aloof (and somewhat curmudgeonly) man, a self-trained naturalist himself, takes notice of his granddaughter. As the two spend time together exploring the nearby river, pursuing inquiries in his laboratory, and even possibly discovering a new species of vetch, Callie's zeal for scientific discovery—and self-confidence—burgeon. Charmingly written and abounding with droll humor and vivid details of time and place, as well as a clear depiction of turn-of-the-20th-century societal attitudes toward girls, this book introduces an unforgettable character. Callie's story continues in *The Curious World of Calpurnia Tate* (2015).

### Science-Based Fiction and Graphic Novel Series

*Nick and Tesla's High-Voltage Danger Lab* (Quirk 2013; grades 3–6) introduces a pair of precocious eleven-year old twins who have been sent to spend the summer with their absent-minded inventor uncle in California while their parents are off in Uzbekistan irrigating soybeans (or so they say). Brazenly self-confident Tesla and more-sensitive Nick quickly find themselves embroiled in a mystery that involves a creepy old house at the end of the street, a ghost-like girl in the window, and a menacing black

SUV that follows them everywhere. Fortunately, the science-loving duo are able to use their deductive reasoning abilities and penchant for designing useful gadgets (as in the “Mints-and-Soda-Fueled RoboCat Dog Distracter” needed to divert a pair of Rottweilers) to crack the crime. Bob Pflugfelder and Steve Hockensmith’s zany, page-turning adventure includes Scott Garrett’s lively illustrations and step-by-step directions for the featured made-from-everyday-objects contraptions. (Teachers can share a book in the series aloud in class and then build the projects.)

In Jon Scieszka’s *Frank Einstein and the Antimatter Motor* (Harry N. Abrams 2014; grades 3–6), the titular kid genius and his best friend, Watson, are trying to animate a made-from-odds-and-ends SmartBot via lightning surge when a power outage scraps the project—that is until the next morning when Klink, a self-assembled, self-teaching, super-smart artificial-intelligence entity rolls into the kitchen along with his clunkier, corny-joke cracking, hug-giving, maybe-not-quite-as-intelligent sidekick Klank. The two robots are determined to help Frank win the Midville Science Prize and, they hope, save Grampa Al’s shop with the prize money. The young inventor’s Antimatter Motor Fly Bike is looking like a shoe-in for first place, until the friends discover that the technology has been stolen by Frank’s classmate and archenemy, T. Edison. Illustrated with Brian Biggs’s madcap

cartoons, the books in this series are infused with snicker-inducing humor, scientific concepts and landmarks, and an effervescent spirit of scientific inquiry.

The middle child in an overachieving bunch of siblings, D. J. Lim feels as though he’s not “really super good” at anything. Then a mysterious boy falls from the sky and into his life. Wearing only a pair of silver underpants and a gigantic smile, *Hilo* (Random House 2015; grades 3–6) can’t remember anything about who he is or where he came from, is totally clueless about the details of day-to-day life, and has the ability to learn at lightning speed. When a terrifying cybernetic ant and a slew of other automated insects begin to invade Earth, both Hilo’s super abilities and details about his past begin to emerge. Along with his science-loving pal Gina, D. J. does everything he can to help Hilo prevail against ever-increasing danger. Ultimately D. J. discovers that he excels at courage, quick-thinking, and being a good friend. Starring a diverse cast of characters, Judd Winick’s irresistible graphic novel is told through delightfully punchy dialogue and sparkling artwork awash in bright color and nonstop action. In this series, themes such as the importance of friendship, individuality, and facing difficult challenges are wrapped into stories that also touch upon the interface between artificial intelligence and human society. (Hailing from a parallel dimension, Hilo is, in fact,

a robot created to protect people from robots gone wrong.)

## Stocking Library Shelves to Motivate Students

School libraries that provide an array of engaging high-quality materials enable students to choose books that appeal to their individual interests, reading preferences, and abilities. The titles featured above are a small sampling of the wide range of offerings that can be used to explore and expand upon science curriculums, and a similar spectrum of selections for other subject areas should also be made available. These materials can be identified by consulting professional review sources, library catalogs, and readers’ advisory resources such as CLCD (*Children’s Literature Comprehensive Database*) or EBSCO’s NoveList. Whether graphic novels, day-in-the-life biographies, humorous novels, or imagination-stretching fantasies, stock your shelves with a variety of books that have the ability to captivate and stimulate each and every student in your school community, no matter the skill level or learning preference. When you enable a child to discover a book to love, you empower that person to become a self-motivated reader and lifelong learner.

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**LIFELONG LEARNER.**



**Joy Fleishhacker** is a children’s librarian in the Pikes Peak Library District in Colorado Springs, Colorado. She is a frequent

contributor to *School Library Journal e-newsletters Curriculum Connections, Extra Helping, and SLJTeen*. She also authored the article “Ground Work: Green Thumbs and Bountiful Imaginations: Great Books about Gardens” in the June 2016 issue of *School Library Journal*.