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The Science of Why **The Science of Why** *The Book of Why* The Book of Why The Science of Why 2 **The Science of Why, Volume 5** Why Us? **Why Science Matters How Pleasure Works: The New Science of Why We Like What We Like** *The Science of Why, Volume 3* A Little Book for New Scientists *Riveted: The Science of Why Jokes Make Us Laugh, Movies Make Us Cry, and Religion Makes Us Feel One with the Universe* **Why We Buy The Science of Sin Why Trust Science? The Science of Song** *Why Science and Faith Need Each Other* **Ha! The Science of Good and Evil** **Failure The Science of Everyday Life** Big Hero 6 Super-Brain Science Book of Why **Open Science: the Very Idea Why?** **The Science of Storytelling** *Why Religion is Natural and Science is Not* **The War on Science** *Why We Sleep* *The Science of Good and Evil* **Gay, Straight, and the Reason why** The Right to Science **The Science of Why 2** The Alchemy of Us Deviante *The Science of Fear* **Why Science Is Sexist Borrowed Time** *Why We Feel* **Why Science? Why I Am Not a Scientist**

"An illustrated, popular science reader for any age."-- How the study of causality revolutionized science and the world Cause and effect: it's at the center of scientific inquiry, and yet for decades scientists had no way of answering simple questions, such as whether smoking causes cancer. In *The Book of Why*, Judea Pearl and Dana Mackenzie show how Pearl's work on causality has broken through this stalemate, unleashing a revolution in our knowledge of the world. Anyone who wants to understand how science, the human mind, or artificial intelligence works needs *The Book of Why*. "Illuminating. . . a valuable lesson on the history of ideas." --New York Times "This book really gets you thinking about

cause and effect as it applies to issues of our time. . . . Extraordinary." -- Science Friday An entertaining tour of the science of humor and laughter Humor, like pornography, is famously difficult to define. We know it when we see it, but is there any way to figure out what we really find funny? In this fascinating investigation into the science of humor and laughter, neuroscientist Scott Weems uncovers what's happening in our heads when we giggle, guffaw, or double over with laughter. Beginning with the premise that humor arises from inner conflict in the brain, Weems explores such issues as why surprise is so important for humor, why computers are terrible at recognizing what's funny, and why cringe-worthy stereotypes make us laugh the hardest. From the role of insult jokes to the benefit of laughing for our immune system responses, Ha! reveals why humor is so idiosyncratic, and why how-to books alone will never help us become funnier people. Packed with the latest research, amusing anecdotes (and even a few jokes), Ha! is a delightful tour of why humor is so important to our daily lives. A new theory explains why we have feelings--and why we need them to survive. Have you ever wondered why ice floats and water is such a freaky liquid? Or why chillies and mustard are both hot but in different ways? Or why microwaves don't cook from the inside out? In this fascinating scientific tour of household objects, *The One Show* presenter and all-round Science Bloke Marty Jopson has the answer to all of these, and many more, baffling questions about the chemistry and physics of the everyday stuff we use every day. The first serious, extended effort to use a human rights-based approach to address the scientific issues affecting society and the often-neglected human right to science. Many young Christians interested in the sciences have felt torn between two options: remaining

faithful to Christ or studying science. In this concise introduction, Josh Reeves and Steve Donaldson provide both advice and encouragement for Christians in the sciences to bridge the gap between science and Christian belief and practice. In this groundbreaking book, author David Forbes explains human motivation and provides ways that marketers can effectively reach the consumer. The book uses decades of psychology research and the author's own tool, the Forbes Matrix that identifies, organizes, and explains the nine core motivations. Beau Lotto, the world-renowned neuroscientist, entrepreneur, and two-time TED speaker, takes us on a tour of how we perceive the world, and how disrupting it leads us to create and innovate. Perception is the foundation of human experience, but few of us understand why we see what we do, much less how. By revealing the startling truths about the brain and its perceptions, Beau Lotto shows that the next big innovation is not a new technology: it is a new way of seeing. In his first major book, Lotto draws on over two decades of pioneering research to explain that our brain didn't evolve to see the world accurately. It can't! Visually stunning, with entertaining illustrations and optical illusions throughout, and with clear and comprehensive explanations of the science behind how our perceptions operate, *Deviante* will revolutionize the way you see yourself, others and the world. With this new understanding of how the brain functions, *Deviante* is not just an illuminating account of the neuroscience of thought, behavior, and creativity: it is a call to action, enlisting readers in their own journey of self-discovery. "Highly readable and informative, this critical series of vignettes illustrates a long history of the corruption of science by folk beliefs, careerism, and sociopolitical agendas. Marks repeatedly brings home the message that we should challenge scientists, especially molecular geneticists, before we accept their results and give millions of dollars in public and private funds toward their enterprises."—Russell Tuttle, The University of Chicago "Jonathan Marks has produced a personal and compelling story of how science works. His involvement in scientific endeavor in human biology and evolution over the past three decades and his keen sense of the workings of science make this book a must read for both scientists and

lay readers. In this sense, the lay reader will learn how scientists should and shouldn't think and some scientists who read this book will come away thinking they are truly not scientists nor would they want to be."—Rob DeSalle, American Museum of Natural History "Jonathan Marks's *Why I Am Not a Scientist* provides food for thought, and as expected, it's digestible. In unusually broad perspective, this anthropology of knowledge considers science and race and racism, gender, fraud, misconduct and creationism in a way that makes one proud to be called a scientist."—George J. Armelagos, Emory University A pioneer of artificial intelligence shows how the study of causality revolutionized science and the world 'Correlation does not imply causation.' This mantra was invoked by scientists for decades in order to avoid taking positions as to whether one thing caused another, such as smoking and cancer and carbon dioxide and global warming. But today, that taboo is dead. The causal revolution, sparked by world-renowned computer scientist Judea Pearl and his colleagues, has cut through a century of confusion and placed cause and effect on a firm scientific basis. Now, Pearl and science journalist Dana Mackenzie explain causal thinking to general readers for the first time, showing how it allows us to explore the world that is and the worlds that could have been. It is the essence of human and artificial intelligence. And just as Pearl's discoveries have enabled machines to think better, *The Book of Why* explains how we can think better. Science and faith are often seen as being in opposition. In this book, award-winning sociologist Elaine Howard Ecklund questions this assumption based on research she has conducted over the past 15 years. She highlights the ways these two spheres point to universal human values, showing readers they don't have to choose between science and Christianity. Breathing fresh air into debates that have consisted of more opinions than data, Ecklund offers insights uncovered by her research and shares her own story of personal challenges and lessons. In the areas most rife with conflict--the origin of the universe, evolution, climate change, and genetic technology--readers will find fascinating points of convergence in 8 virtues of human existence: curiosity, doubt, humility, creativity, healing, awe, shalom, and

gratitude. The book includes discussion questions for group use and to help pastors, small group leaders, and congregants broach controversial topics and bridge the science-faith divide. What causes a child to grow up gay or straight? In this book, neuroscientist Simon LeVay summarizes a wealth of scientific evidence that points to one inescapable conclusion: Sexual orientation results primarily from an interaction between genes, sex hormones, and the cells of the developing body and brain. In this revised edition LeVay broadens his horizons. He adds a new chapter on bisexuality, reviews some uncommon forms of sexuality such as asexuality and pedophilia, and considers whether there could be a biological basis for subtypes of gay people such as "butch" and "femme" lesbians. An "insightful" and in-depth look at anti-science politics and its deadly results (Maria Konnikova, New York Times–bestselling author of *The Biggest Bluff*). Thomas Jefferson said, "Wherever the people are well informed, they can be trusted with their own government." But what happens when they aren't? From climate change to vaccinations, transportation to technology, health care to defense, we are in the midst of an unprecedented expansion of scientific progress—and a simultaneous expansion of danger. At the very time we need them most, scientists and the very idea of objective knowledge are being bombarded by a vast, well-funded war on science, and the results are deadly. Whether it's driven by identity politics, ideology, or industry, the result is an unprecedented erosion of thought in Western democracies as voters, policymakers, and justices actively ignore scientific evidence, leaving major policy decisions to be based more on the demands of the most strident voices. This compelling book investigates the historical, social, philosophical, political, and emotional reasons why evidence-based politics are in decline and authoritarian politics are once again on the rise on both left and right—and provides some compelling solutions to bring us to our collective senses, before it's too late. "If you care about attacks on climate science and the rise of authoritarianism, if you care about biased media coverage and shake-your-head political tomfoolery, this book is for you."—*The Guardian* "Sleep is one of the most important but least understood aspects of our life, wellness, and longevity ... An

explosion of scientific discoveries in the last twenty years has shed new light on this fundamental aspect of our lives. Now ... neuroscientist and sleep expert Matthew Walker gives us a new understanding of the vital importance of sleep and dreaming"--Amazon.com. The compelling, groundbreaking guide to creative writing that reveals how the brain responds to storytelling Stories shape who we are. They drive us to act out our dreams and ambitions and mold our beliefs. Storytelling is an essential part of what makes us human. So, how do master storytellers compel us? In *The Science of Storytelling*, award-winning writer and acclaimed teacher of creative writing Will Storr applies dazzling psychological research and cutting-edge neuroscience to our myths and archetypes to show how we can write better stories, revealing, among other things, how storytellers—and also our brains—create worlds by being attuned to moments of unexpected change. Will Storr's superbly chosen examples range from Harry Potter to Jane Austen to Alice Walker, Greek drama to Russian novels to Native American folk tales, King Lear to *Breaking Bad* to children's stories. With sections such as "The Dramatic Question," "Creating a World," and "Plot, Endings, and Meaning," as well as a practical, step-by-step appendix dedicated to "The Sacred Flaw Approach," *The Science of Storytelling* reveals just what makes stories work, placing it alongside such creative writing classics as John Yorke's *Into the Woods: A Five-Act Journey into Story* and Lajos Egri's *The Art of Dramatic Writing*. Enlightening and empowering, *The Science of Storytelling* is destined to become an invaluable resource for writers of all stripes, whether novelist, screenwriter, playwright, or writer of creative or traditional nonfiction. The newest volume in the beloved *Science of Why* series—full of fascinating science that will amuse and astonish readers of all ages. Have you wondered why you cringe when fingernails are scratched along a chalkboard? Or why some people are left-handed? Or if a shark can smell a drop of blood a mile away? Then you're in luck! Bestselling author Jay Ingram is back to answer all those questions and more as he explores and explains the world around us in all of its head-scratching curiosity. From the smallest parts inside us to the biggest questions about our universe, Jay tackles pressing

topics, such as: Could we use a laser to shoot an asteroid that was about to hit earth? What exactly was a dodo and why did it go extinct? What makes peppers spicy? Touching on everything from food to robots to space to the animal kingdom, *The Science of Why 3* is perfect for anyone who has stayed up late into the night pondering the weird and wonderful world we live in. Full of captivating science questions (and answers!), this book is sure to surprise and delight science readers of all ages. As featured on BBC Radio 4's Start the Week 'A rich, timely study for the era of "global ageing"' Nature The ageing of the world population is one of the most important issues facing humanity in the 21st century - up there with climate change in its potential global impact. Sometime before 2020, the number of people over 65 worldwide will, for the first time, be greater than the number of 0-4 year olds, and it will keep on rising. The strains this is causing on society are already evident as health and social services everywhere struggle to cope with the care needs of the elderly. But why and how do we age? Scientists have been asking this question for centuries, yet there is still no agreement. There are a myriad competing theories, from the idea that our bodies simply wear out with the rough and tumble of living, like well-worn shoes or a rusting car, to the belief that ageing and death are genetically programmed and controlled. In *Borrowed Time*, Sue Armstrong tells the story of science's quest to understand ageing and to prevent or delay the crippling conditions so often associated with old age. She focusses inward - on what is going on in our bodies at the most basic level of the cells and genes as the years pass - to look for answers to why and how our skin wrinkles with age, our wounds take much longer to heal than they did when we were kids, and why words escape us at crucial moments in conversation. This book explores these questions and many others through interviews with key scientists in the field of gerontology and with people who have interesting and important stories to tell about their personal experiences of ageing. Astrophysicist and author Mario Livio investigates perhaps the most human of all our characteristics—curiosity—in this “lively, expert, and definitely not dumbed-down account” (Kirkus Reviews) as he explores our innate

desire to know why. Experiments demonstrate that people are more distracted when they overhear a phone conversation—where they can know only one side of the dialogue—than when they overhear two people talking and know both sides. Why does half a conversation make us more curious than a whole conversation? “Have you ever wondered why we wonder why? Mario Livio has, and he takes you on a fascinating quest to understand the origin and mechanisms of our curiosity. I thoroughly recommend it.” (Adam Riess, Nobel Prize Winner in Physics, 2011). Curiosity is not only at the heart of mystery and suspense novels, it is also essential to other creative endeavors, from painting to sculpture to music. It is the principal driver of basic scientific research. Even so, there is still no definitive scientific consensus about why we humans are so curious, or about the mechanisms in our brain that are responsible for curiosity. In the ever-fascinating *Why?* Livio interviewed scientists in several fields to explore the nature of curiosity. He examined the lives of two of history's most curious geniuses, Leonardo da Vinci and Richard Feynman. He also talked to people with boundless curiosity: a superstar rock guitarist who is also an astrophysicist; an astronaut with degrees in computer science, biology, literature, and medicine. What drives these people to be curious about so many subjects? An astrophysicist who has written about mathematics, biology, and now psychology and neuroscience, Livio has firsthand knowledge of his subject which he explores in a lucid, entertaining way that will captivate anyone who is curious about curiosity. This open access book provides a broad context for the understanding of current problems of science and of the different movements aiming to improve the societal impact of science and research. The author offers insights with regard to ideas, old and new, about science, and their historical origins in philosophy and sociology of science, which is of interest to a broad readership. The book shows that scientifically grounded knowledge is required and helpful in understanding intellectual and political positions in various discussions on the grand challenges of our time and how science makes impact on society. The book reveals why interventions that look good or even obvious, are often met with resistance and are hard to realize in practice.

Based on a thorough analysis, as well as personal experiences in aids research, university administration and as a science observer, the author provides - while being totally open regarding science's limitations- a realistic narrative about how research is conducted, and how reliable 'objective' knowledge is produced. His idea of science, which draws heavily on American pragmatism, fits in with the global Open Science movement. It is argued that Open Science is a truly and historically unique movement in that it translates the analysis of the problems of science into major institutional actions of system change in order to improve academic culture and the impact of science, engaging all actors in the field of science and academia. Science changes the world because the creation of knowledge opens up new pathways for us to explore new ways of doing things, and new questions to ask. My optimism lies in the fact that I think that the answer to why science is sexist does all of these things. In this eye-opening BWB Text, Nicola Gaston, President of the New Zealand Association of Scientists, reveals the ways in which the discipline of science is sexist. From the under-representation of women to the argument that mental capabilities are gendered, Gaston demonstrates the extent of our unconscious bias against female scientists, and warns of its damaging consequences for science and for society. In asking what can be done to combat this bias, she calls for us to rethink not just our attitudes towards gender, but also towards scientific knowledge and inquiry. Chock-full of peculiar puzzles, mind-bending mythbusters, and quirky questions, the fifth pop science book in the bestselling Science of Why series is perfect for anyone curious about the weird and wondrous world we live in. Have you ever wondered if octopuses are from outer space? What Mexican jumping beans are? Or if banana peels are really slippery? If questions like these are keeping you up at night, you can rest easy. Bestselling author Jay Ingram is here to answer all the whimsical and whacky wonderings that have baffled people since the dawn of time. From our bodies to our pets (and other beasts) to the natural world around us, Jay tackles science topics big and small, such as: Did dinosaurs sit on their eggs? What is our funny bone? Is there a specific muscle that makes dogs cute? Because who hasn't

pondered whether plants have feelings? Or if Robin Hood was a real person? Or what humans will look like in the future? Teeming with amusing answers to bemusing questions—and handy and hilarious illustrations—this latest volume separates fact from fiction, lesson from legend, and myth from marvel. Endlessly illuminating and entertaining, The Science of Why, Volume 5 is five times the fun for new and old readers of the series. “Engaging, evocative. . . . [Bloom] is a supple, clear writer, and his parade of counterintuitive claims about pleasure is beguiling.”—NPR Why is an artistic masterpiece worth millions more than a convincing forgery? Pleasure works in mysterious ways, as Paul Bloom reveals in this investigation of what we desire and why. Drawing on a wealth of surprising studies, Bloom investigates pleasures noble and seamy, lofty and mundane, to reveal that our enjoyment of a given thing is determined not by what we can see and touch but by our beliefs about that thing's history, origin, and deeper nature. Explores how and why people made the leap from social primate to moral primate, discussing how humans transformed the moral sentiments displayed in many primate species into ethical principles. Guide to ever-evolving consumer culture, offering advice on how to keep current customers and attract new ones. Why the social character of scientific knowledge makes it trustworthy Are doctors right when they tell us vaccines are safe? Should we take climate experts at their word when they warn us about the perils of global warming? Why should we trust science when so many of our political leaders don't? Naomi Oreskes offers a bold and compelling defense of science, revealing why the social character of scientific knowledge is its greatest strength—and the greatest reason we can trust it. Tracing the history and philosophy of science from the late nineteenth century to today, this timely and provocative book features a new preface by Oreskes and critical responses by climate experts Ottmar Edenhofer and Martin Kowarsch, political scientist Jon Krosnick, philosopher of science Marc Lange, and science historian Susan Lindee, as well as a foreword by political theorist Stephen Macedo. In his sequel to Ignorance (Oxford University Press, 2012), Stuart Firestein shows us that the scientific enterprise is riddled with mistakes and errors - and

that this is a good thing! Failure: Why Science Is So Successful delves into the origins of scientific research as a process that relies upon trial and error, one which inevitably results in a hefty dose of failure. A comparison of the cognitive foundations of religion and science and an argument that religion is cognitively natural and that science is cognitively unnatural. The coolest facts about the music we make, listen to and love. This illustrated book explores how music and the ways we experience it has transformed over the years and the science behind all of it. It starts with the basics — how does sound work? and what, exactly, is music? — then follows the progression of music-recording technology, from the phonograph to streaming. It covers how everyday items like headphones were created, and includes a look at the science of how we experience music (like why we can't get certain songs out of our heads). All while suggested playlists accompany the text so that readers can listen along! Kids know that music moves them. Now they can learn how! This volume is based on lectures given at the highly successful three-week Summer School on Geometry, Topology and Dynamics of Character Varieties held at the National University of Singapore's Institute for Mathematical Sciences in July 2010. Aimed at graduate students in the early stages of research, the edited and refereed articles comprise an excellent introduction to the subject of the program, much of which is otherwise available only in specialized texts. Topics include hyperbolic structures on surfaces and their degenerations, applications of ping-pong lemmas in various contexts, introductions to Lorenzian and complex hyperbolic geometry, and representation varieties of surface groups into $PSL(2, \mathbb{R})$ and other semi-simple Lie groups. This volume will serve as a useful portal to students and researchers in a vibrant and multi-faceted area of mathematics. "An invaluable resource for anyone who aspires to think clearly" (The Guardian) from the New York Times bestselling author of Superforecasting and Future Babble From terror attacks to collapsing economies, from painkiller epidemics to mass gun violence and poisonous toys from China, our list of fears seems to be exploding. Yet we are the safest and healthiest humans in history. Why are we so worried? The Science of Fear is an introduction to the new brain science

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of risk, dissecting the fears that misguide and manipulate us every day. Award-winning journalist Dan Gardner demonstrates how irrational fear springs from the ways humans miscalculate risks based on our hunter-gatherer brains. With the exclusive cooperation of risk-science pioneer Paul Slovic and other leading experts, Gardner reveals how our "gut" reactions lead us astray. Understanding our irrational fears frees us from political and corporate manipulation, and makes our choices better. Ultimately, The Science of Fear will make you brave. "Excellent... Analyzes everything from the media's predilection for irrational scare stories to the cynical use of fear by politicians... [A] cheery corrective to modern paranoia."—The Economist "An entertaining, often jolting account of why trivial risks terrify us, even as we engage in wildly dangerous activities with hardly a qualm."—Kirkus (starred review) "Elegantly weaves academic research and everyday experience, exposing the secrets of emotion and reason, and the essential roles they play on our lives. An excellent book."—Dan Ariely, New York Times bestselling author of Predictably Irrational In this daring treatise on the current state of scientific inquiry, James Le Fanu challenges the common assumption that further progress in genetic research and neuroscience must ultimately explain all there is to know about life and man's place in the world. On the contrary, he argues, the most recent scientific findings point to an unbridgeable explanatory gap between the genes strung out along the Double Helix and the beauty and diversity of the living world—and between the electrical activity of the brain and the abundant creativity of the human mind. His exploration of these mysteries, and his analysis of where they might lead us in our thinking about the nature and purpose of human existence, form the impassioned and riveting heart of Why Us? An analysis of the psychological and evolutionary reasons why people are drawn to elements ranging from religion and sports to conspiracy theories and disasters draws on case studies and up-to-date science to explain how the brain instinctively collects potential survival information. An all-new volume of science questions to delight, entertain, and inform readers of all ages, from bestselling author Jay Ingram. Bestselling author and commentator Jay Ingram is back to explain the

magic and mysteries of the world around us. Jay takes readers on a tour of the universe, exploring wonders big and small. From the farthest reaches of space to the most perplexing historical riddles to the marvels of who we are and what we're made of, Jay answers the important questions, such as: What's inside a black hole? Will machines ever learn to feel? How much pee is in the average swimming pool? Because who hasn't wondered whether we're living in a computer simulation? Or whether Atlantis existed? Or why cats always land on their feet? With wit, wisdom, and whimsical illustrations, *The Science of Why 2* will delight readers of all ages with the answers to all these questions and more. Full of fun science facts (and fictions), this is the book that everyone's inner science geek needs to read. From bestselling author Michael Shermer, an investigation of the evolution of morality that is "a paragon of popularized science and philosophy" *The Sun* (Baltimore) A century and a half after Darwin first proposed an "evolutionary ethics," science has begun to tackle the roots of morality. Just as evolutionary biologists study why we are hungry (to motivate us to eat) or why sex is enjoyable (to motivate us to procreate), they are now searching for the very nature of humanity. In *The Science of Good and Evil*, science historian Michael Shermer explores how humans evolved from social primates to moral primates; how and why morality motivates the human animal; and how the foundation of moral principles can be built upon empirical evidence. Along the way he explains the implications of scientific findings for fate and free will, the existence of pure good and pure evil, and the development of early moral sentiments among the first humans. As he closes the divide between science and morality, Shermer draws on stories from the Yanamamö, infamously known as the "fierce people" of the tropical rain forest, to the Stanford studies on jailers' behavior in prisons. *The Science of Good and Evil* is ultimately a profound look at the moral animal, belief, and the scientific pursuit of truth. 'Entertaining and enlightening ... offers ways to temper our anti-social tendencies.' Dr Michael Mosley, science journalist and TV presenter It can often seem that we are utterly surrounded by temptation, from the ease of online shopping and the stream of targeted

advertising encouraging us to greedily acquire yet more stuff, to the coffee, cake and fast-food shops that line our streets, beckoning us in to over-indulge on all the wrong things. It can feel like a constant battle to stay away from the temptations we know we shouldn't give in to. Where exactly do these urges come from? If we know we shouldn't do something, for the sake of our health, our pockets or our reputation, why is it often so very hard to do the right thing? Anyone who has ever wondered why they never seem to be able to stick to their diet, anyone to whom the world seems more vain and self-obsessed than ever, anyone who can't understand why love-cheats pursue their extra-marital affairs, anyone who struggles to resist the lure of the comfy sofa, or anyone who makes themselves bitter through endless comparison with other people, anyone who is addicted to their smartphone - this book is for you. *The Science of Sin* brings together the latest findings from neuroscience research to shed light on the universally fascinating subject of temptation - where it comes from, how to resist it and why we all tend to succumb from time to time. With each chapter inspired by one of the seven deadly sins, neurobiologist Jack Lewis illuminates the neural battles between temptation and restraint that take place within our brains, suggesting strategies to help us better manage our most troublesome impulses with the explicit goal of improving our health, our happiness and our productivity - helping us to say 'no!' more often, especially when it really counts. *Why Science Matters: Understanding the Methods of Psychological Research* rises above standard research methods texts by presenting an up-to-date view of contemporary psychological science as it is currently understood and practiced. Explores not only the procedural aspects of psychological research, but also delves into the issue of how to accomplish effective science. Explicates how hypotheses and theories are to be evaluated. Suggests that the proper approach to devising and evaluating theories is by abduction, not by induction or deduction alone. Incorporates new investigatory procedures, current methodologists, conflicts and issues, implications of the philosophy of science, and a lively prose style. Provides a picture of science that will engage students and expand their

abilities as both scientists and psychologists. Jay Ingram takes us on a tour of the universe, and explores scientific wonders big and small. In this fun, fascinating and full-color guide, the fan-favorite heroes of Big Hero 6 introduce young readers to the most fascinating, unusual and downright mind-boggling concepts from science, technology, engineering and math - and of the critical thinking skills they'll need to become super-brain superheroes in their own right! Jam-packed with answers to hundreds of fascinating "why?" and "how?" and "what?" questions inspired by the Big Hero 6 TV-series, this book is sure to keep kids turning pages for hours. In the bestselling tradition of *Stuff Matters* and *The Disappearing Spoon*: a clever and engaging look at materials, the innovations they made possible, and how these technologies changed us. In *The Alchemy of Us*, scientist and science writer Ainissa Ramirez examines eight inventions—clocks, steel rails, copper communication cables, photographic film, light bulbs, hard disks, scientific labware, and silicon chips—and reveals how they shaped the human experience. Ramirez tells the stories of the woman who sold time, the inventor who

inspired Edison, and the hotheaded undertaker whose invention pointed the way to the computer. She describes, among other things, how our pursuit of precision in timepieces changed how we sleep; how the railroad helped commercialize Christmas; how the necessary brevity of the telegram influenced Hemingway's writing style; and how a young chemist exposed the use of Polaroid's cameras to create passbooks to track black citizens in apartheid South Africa. These fascinating and inspiring stories offer new perspectives on our relationships with technologies. Ramirez shows not only how materials were shaped by inventors but also how those materials shaped culture, chronicling each invention and its consequences—intended and unintended. Filling in the gaps left by other books about technology, Ramirez showcases little-known inventors—particularly people of color and women—who had a significant impact but whose accomplishments have been hidden by mythmaking, bias, and convention. Doing so, she shows us the power of telling inclusive stories about technology. She also shows that innovation is universal—whether it's splicing beats with two turntables and a microphone or splicing genes with two test tubes and CRISPR.