

Startalk Everything You Ever Need To Know About Space Travel Sci Fi The Human Race The Universe And Beyond

“Who can ask for better cosmic tour guides to the universe than Drs. Tyson and Goldsmith?” —Michio Kaku, author of *Hyperspace* and *Parallel Worlds* Our true origins are not just human, or even terrestrial, but in fact cosmic. Drawing on recent scientific breakthroughs and the current cross-pollination among geology, biology, astrophysics, and cosmology, *Origins* explains the soul-stirring leaps in our understanding of the cosmos. From the first image of a galaxy birth to Spirit Rover's exploration of Mars, to the discovery of water on one of Jupiter's moons, coauthors Neil deGrasse Tyson and Donald Goldsmith conduct a galvanizing tour of the cosmos with clarity and exuberance.

A picture-book biography about science superstar Neil deGrasse Tyson, the groundbreaking American astrophysicist whose work has inspired a generation of young scientists and astronomers to reach for the stars! Perfect for STEM curricula and readers of all ages. Young Neil deGrasse Tyson was starstruck when he first visited the sky theater at the Hayden Planetarium in New York City. He couldn't believe the crowded, glittering night sky at the planetarium was real--until a visit to the country

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years later revealed the impossible. That discovery was like rocket fuel for Neil's passion about space. His quest for knowledge took him from the roof of his apartment building to a science expedition in northwest Africa, to a summer astronomy camp beneath a desert sky, and finally back home to become the director of the Hayden Planetarium, where it all began. Before long, Neil became America's favorite guide to the cosmos. This story of how one boy's quest for knowledge about space leads him to become a star astrophysicist is perfect for young readers who are fascinated by the universe, aspiring scientists, and the dreamer in all of us. It will ignite your own sense of wonder.

Explore the dark side of space in *Out of this World*, a new and exciting series for struggling readers. Is outer space quiet? What did the "Big Bang" sound like? These and other fascinating questions are discussed in the *Noises in Space* title using considerate text that is written at a higher maturity level with a lower reading level to engage struggling readers. A table of contents, glossary with simplified pronunciations, and index all enhance reading comprehension. Sidebars include hands-on experiments, spotlight biographies on women in science, tech connections, and far out facts.

From the duo behind the massively successful and award-winning podcast *Stuff You Should Know* comes an unexpected look at things you thought you knew. Josh Clark and Chuck Bryant started the podcast *Stuff You Should Know* back in 2008 because

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they were curious—curious about the world around them, curious about what they might have missed in their formal educations, and curious to dig deeper on stuff they thought they understood. As it turns out, they aren't the only curious ones. They've since amassed a rabid fan base, making *Stuff You Should Know* one of the most popular podcasts in the world. Armed with their inquisitive natures and a passion for sharing, they uncover the weird, fascinating, delightful, or unexpected elements of a wide variety of topics. The pair have now taken their near-boundless "whys" and "hows" from your earbuds to the pages of a book for the first time—featuring a completely new array of subjects that they've long wondered about and wanted to explore. Each chapter is further embellished with snappy visual material to allow for rabbit-hole tangents and digressions—including charts, illustrations, sidebars, and footnotes. Follow along as the two dig into the underlying stories of everything from the origin of Murphy beds, to the history of facial hair, to the psychology of being lost. Have you ever wondered about the world around you, and wished to see the magic in everyday things? Come get curious with *Stuff You Should Know*. With Josh and Chuck as your guide, there's something interesting about everything (...except maybe jackhammers).

Move over, *Moneyball* -- a cutting-edge look at major league baseball's next revolution: the high-tech quest to build better players. As bestselling authors Ben Lindbergh and Travis Sawchik reveal in *The MVP Machine*, the *Moneyball* era is over. Fifteen years after Michael Lewis brought the Oakland Athletics' groundbreaking team-building

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strategies to light, every front office takes a data-driven approach to evaluating players, and the league's smarter teams no longer have a huge advantage in valuing past performance. Lindbergh and Sawchik's behind-the-scenes reporting reveals: How the 2017 Astros and 2018 Red Sox used cutting-edge technology to win the World Series How undersized afterthoughts José Altuve and Mookie Betts became big sluggers and MVPs How polarizing pitcher Trevor Bauer made himself a Cy Young contender How new analytical tools have overturned traditional pitching and hitting techniques How a wave of young talent is making MLB both better than ever and arguably worse to watch Instead of out-drafting, out-signing, and out-trading their rivals, baseball's best minds have turned to out-developing opponents, gaining greater edges than ever by perfecting prospects and eking extra runs out of older athletes who were once written off. Lindbergh and Sawchik take us inside the transformation of former fringe hitters into home-run kings, show how washed-up pitchers have emerged as aces, and document how coaching and scouting are being turned upside down. The MVP Machine charts the future of a sport and offers a lesson that goes beyond baseball: Success stems not from focusing on finished products, but from making the most of untapped potential. In this inspiring coming-of-age memoir, a world-renowned astrophysicist emerges from an impoverished childhood and crime-filled adolescence to ascend through the top ranks of research physics. "You'll encounter one extraordinary turn of events after another, as the extraordinary chess player, puzzle solver, and occasional grifter works

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his way from grinding poverty and deep despair to worldwide acclaim as a physicist.”—Bill Nye, CEO of The Planetary Society Navigating poverty, violence, and instability, a young James Plummer had two guiding stars—a genius IQ and a love of science. But a bookish nerd is a soft target, and James faced years of bullying and abuse. As he struggled to survive his childhood in some of the country’s toughest urban neighborhoods in New Orleans, Houston, and LA, and later in the equally poor backwoods of Mississippi, he adopted the persona of “gangsta nerd”—dealing weed in juke joints while winning state science fairs with computer programs that model Einstein’s theory of relativity. Once admitted to the elite physics PhD program at Stanford University, James found himself pulled between the promise of a bright future and a dangerous crack cocaine habit he developed in college. With the encouragement of his mentor and the sole Black professor in the physics department, James confronted his personal demons as well as the entrenched racism and classism of the scientific establishment. When he finally seized his dream of a life in astrophysics, he adopted a new name, Hakeem Muata Oluseyi, to honor his African ancestors. Alternately heartbreaking and hopeful, *A Quantum Life* narrates one man’s remarkable quest across an ever-expanding universe filled with entanglement and choice. In this thought-provoking follow-up to his acclaimed *StarTalk* book, uber astrophysicist Neil deGrasse Tyson tackles the world's most important philosophical questions about the universe with wit, wisdom, and cutting-edge science. For science geeks, space and

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physics nerds, and all who want to understand their place in the universe, this enlightening new book from Neil deGrasse Tyson offers a unique take on the mysteries and curiosities of the cosmos, building on rich material from his beloved StarTalk podcast. In these illuminating pages, illustrated with dazzling photos and revealing graphics, Tyson and co-author James Trefil, a renowned physicist and science popularizer, take on the big questions that humanity has been posing for millennia--How did life begin? What is our place in the universe? Are we alone?--and provide answers based on the most current data, observations, and theories. Populated with paradigm-shifting discoveries that help explain the building blocks of astrophysics, this relatable and entertaining book will engage and inspire readers of all ages, bring sophisticated concepts within reach, and offer a window into the complexities of the cosmos.

Presents a comprehensive guide to religions throughout history, from the origins of spiritual belief to modern organized religions and churches, and discusses how religion has affected and helped shape the history of the world.

StarTalkEverything You Ever Need to Know About Space Travel, Sci-Fi, the Human Race, the Universe, and BeyondNational Geographic Books

"From the world-renowned physicist, co-founder of the World Science Festival, and best-selling author of The Elegant Universe comes this utterly captivating exploration of deep time and humanity's search for purpose. Brian Greene takes readers on a breathtaking journey from the big bang to the end of time and invites us to ponder meaning in the face of this unimaginable

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expanse. He shows us how, from its original orderly state the universe has been moving inexorably toward chaos, and, still, remarkable structures have continually formed: the planets, stars, and galaxies that provide islands in a sea of disorder; biochemical mechanisms, including mutation and selection, animate life; neurons, information, and thought developed into complex consciousness which in turn gave rise to cultures and their timeless myths and creativity. And he describes, as well, how, in the deep reaches of the future, the nature of the universe will threaten the existence of matter itself. Through a series of nested stories Greene provides us with a clearer sense of how we came to be, a finer picture of where we are now, and a firmer understanding of where we are headed. Taken together, it is a completely new perspective on our place in the universe and on what it means to be human"--

Tyson looks at the most confounding mysteries of Earth, space, and what it means to be human. He attempts to answer all of your most pressing questions, from how the brain works to the physics of comic book superheroes.

Answers to the most popular astronomy questions of today. Over the course of their illustrious work in astronomy, Heather Couper and Nigel Henbest collected hundreds of the most popular astronomy questions that they've been asked. In this book they explain the scientific answers to these questions with expertise and a healthy dose of humor. Below are just a few of the 185 questions they answer: What would happen to an astronaut exposed to space? Can people live on Mars? Can an amateur astronomer make useful discoveries? Why do we have leap years and leap seconds? What are the most extreme conditions life can survive? Is there an edge to the Universe? What happens inside a black hole? Is Pluto a planet? The Universe Explained answers questions about space travel; telescopes; the solar system; comets,

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asteroids and meteors; stars; black holes; the Milky Way and other galaxies; the big bang and space and time. As well, Couper and Henbest explore the possibility of life beyond our planet with up-to-date space discoveries and debunk persistent myths and legends. The Universe Explained is a fun and informative book for anyone curious about astronomy.

A new window opens onto the cosmos... Almost every day we are challenged by new information from the outermost reaches of space. Using straightforward language, One Universe explores the physical principles that govern the workings of our own world so that we can appreciate how they operate in the cosmos around us. Bands of color in a sunlit crystal and the spectrum of starlight in giant telescopes, the arc of a hard-hit baseball and the orbit of the moon, traffic patterns on a freeway and the spiral arms in a galaxy full of stars--they're all tied together in grand and simple ways. We can understand the vast cosmos in which we live by exploring three basic concepts: motion, matter, and energy. With these as a starting point, One Universe shows how the physical principles that operate in our kitchens and backyards are actually down-to-Earth versions of cosmic processes. The book then takes us to the limits of our knowledge, asking the ultimate questions about the origins and existence of life as we know it and where the universe came from--and where it is going. Glorious photographs--many seen for the first time in these pages--and original illustrations expand and enrich our understanding. Evocative and clearly written, One Universe explains complex ideas in ways that every reader can grasp and enjoy. This book captures the grandeur of the heavens while making us feel at home in the cosmos. Above all, it helps us realize that galaxies, stars, planets, and we ourselves all belong to One Universe.

Explore the dark side of space in Out of this World, a new and exciting series for struggling

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readers. What is dark matter? How does it move our galaxy? These and other fascinating questions are discussed in the Dark Matter title using considerate text that is written at a higher maturity level with a lower reading level to engage struggling readers. A table of contents, glossary with simplified pronunciations, and index all enhance reading comprehension. Sidebars include hands-on experiments, spotlight biographies on women in science, tech connections, and far out facts.

"Throughout her career, astrophysicist Janna Levin has focused, alongside her research, on making the science she studies not just accessible, but, perhaps more important, intriguing to the nonscientist. And that is what she has done again here, helping us to understand the black hole: perhaps the most opaque theoretical construct ever imagined by physicists. She explains how their existence came to be proven decades after they were first predicted in Einstein's 1915 general theory of relativity. And she explores the ways in which what we know about them has changed our most basic understanding of the galaxy, the universe, the whole expanse of reality that we inhabit."--Publisher's description.

From the author of *Astrophysics for People in a Hurry* and the host of *Cosmos: A Spacetime Odyssey*, a memoir about growing up and a young man's budding scientific curiosity. This is the absorbing story of Neil deGrasse Tyson's lifelong fascination with the night sky, a restless wonder that began some thirty years ago on the roof of his Bronx apartment building and eventually led him to become the director of the Hayden Planetarium. A unique chronicle of a young man who at one time was both nerd and jock, Tyson's memoir could well inspire other similarly curious youngsters to pursue their dreams. Like many athletic kids he played baseball, won medals in track and swimming, and was captain of his high school wrestling

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team. But at the same time he was setting up a telescope on winter nights, taking an advanced astronomy course at the Hayden Planetarium, and spending a summer vacation at an astronomy camp in the Mojave Desert. Eventually, his scientific curiosity prevailed, and he went on to graduate in physics from Harvard and to earn a Ph.D. in astrophysics from Columbia. There followed postdoctoral research at Princeton. In 1996, he became the director of the Hayden Planetarium, where some twenty-five years earlier he had been awed by the spectacular vista in the sky theater. Tyson pays tribute to the key teachers and mentors who recognized his precocious interests and abilities, and helped him succeed. He intersperses personal reminiscences with thoughts on scientific literacy, careful science vs. media hype, the possibility that a meteor could someday hit the Earth, dealing with society's racial stereotypes, what science can and cannot say about the existence of God, and many other interesting insights about science, society, and the nature of the universe. Now available in paperback with a new preface and other additions, this engaging memoir will enlighten and inspire an appreciation of astronomy and the wonders of our universe.

Explore the dark side of space in *Out of this World*, a new and exciting series for struggling readers. What is antimatter? If we've never seen antimatter, how do we know it exists? These and other fascinating questions are discussed in the *Antimatter* title using considerate text that is written at a higher maturity level with a lower reading level to engage struggling readers. A table of contents, glossary with simplified pronunciations, and index all enhance reading comprehension. Sidebars include hands-on experiments, spotlight biographies on women in science, tech connections, and far

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out facts.

A treasury of 125 archival articles covers more than a century of scientific breakthroughs, setbacks and mysteries and includes pieces by Pulitzer Prize-winning writers, includes Malcolm W. Browne on antimatter, James Glanz on string theory and George Johnson on quantum physics.

This illustrated companion to the popular podcast and National Geographic Channel show is an eye-opening journey for anyone curious about our universe, space, astronomy and the complexities of the cosmos. For decades, beloved astrophysicist Neil deGrasse Tyson has interpreted science with a combination of brainpower and charm that resonates with fans everywhere. This pioneering, provocative book brings together the best of StarTalk, his beloved podcast and television show devoted to solving the most confounding mysteries of Earth, space, and what it means to be human. Filled with brilliant sidebars, vivid photography, and unforgettable quotes from Tyson and his brilliant cohort of science and entertainment luminaries, StarTalk will help answer all of your most pressing questions about our world--from how the brain works to the physics of comic book superheroes. Fun, smart, and laugh-out-loud funny, this book is the perfect guide to everything you ever wanted to know about the universe--and beyond.

New York Times Bestseller A luminous companion to the phenomenal bestseller *Astrophysics for People in a Hurry*. Astrophysicist Neil deGrasse Tyson has attracted

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one of the world's largest online followings with his fascinating, widely accessible insights into science and our universe. Now, Tyson invites us to go behind the scenes of his public fame by revealing his correspondence with people across the globe who have sought him out in search of answers. In this hand-picked collection of 101 letters, Tyson draws upon cosmic perspectives to address a vast array of questions about science, faith, philosophy, life, and of course, Pluto. His succinct, opinionated, passionate, and often funny responses reflect his popularity and standing as a leading educator. Tyson's 2017 bestseller *Astrophysics for People in a Hurry* offered more than one million readers an insightful and accessible understanding of the universe. Tyson's most candid and heartfelt writing yet, *Letters from an Astrophysicist* introduces us to a newly personal dimension of Tyson's quest to explore our place in the cosmos. Although a mere speck in the vast cosmos, humans have managed to piece together an incredible understanding of the Universe. Discover its magic and unravel its mysteries with this book. Starting from a launchpad on Earth, set off on an enthralling journey to the Solar System, the Milky Way, and finally to the very edges of the known Universe. *Space: From Earth to the Edge of the Universe* features fascinating facts, an engaging narrative, and rich photographs that help you comprehend the vastness of this world that we exist in. The book has been divided into seven chapters covering intriguing concepts such as spacewalking, getting close to the Sun, and the Planetary Nebulae. Detailed illustrations and explanatory artworks give you a deep insight into the

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limits of galaxies, what lies in our neighboring worlds, the rings and moons of other planets, and much more. Discover the technology and spacecrafts behind the extraordinary journeys undertaken by astronauts, study the planets, asteroids, and galaxies and immerse yourself in the important space discoveries of our time. Featuring the latest spectacular images from NASA and other sources, Space will take you on the expedition of a lifetime.

Why has Christianity been around for a mere 2,000 years when Earth life has abounded for 3.8 billion years and even humans for nearly 300,000 years? What was God doing all this time? And what if humans are not the center of God's universe? In *Amending the Christian Story*, Ron Rude asserts that current versions of the Christian faith are inadequate, and more than this, are fueling humanity's assault on Earth's biosphere. Through the window of nature's natural sciences--especially astronomy, geology, evolutionary biology, paleoanthropology--Rude provides a fuller and more expansive view of God's story of life and God's story of Jesus. Can humans continue the lived-out assumption that we are separate from, superior to, the reason for, and the rulers of everything? With new perspectives into ancient stories and current narratives, Rude compels us to urgently shift Christianity's claim and conduct in order to unite with God's more sustainable and just world.

“Extraordinary.... A feast of history, an expert tour through thousands of years of war and conquest.” —Jennifer Carson, *New York Times Book Review* In this far-reaching

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foray into the millennia-long relationship between science and military power, acclaimed astrophysicist Neil deGrasse Tyson and co-author Avis Lang examine how the methods and tools of astrophysics have been enlisted in the service of war. Spanning early celestial navigation to satellite-enabled warfare, *Accessory to War* is a richly researched and provocative examination of the intersection of science, technology, industry, and power that will introduce Tyson's millions of fans to yet another dimension of how the universe has shaped our lives and our world.

The universe literally encompasses everything we were, are and will be, everything we knew, know and can know. When we decide to understand the universe as a whole, new truths come to light, and unexpected perspectives illuminate our take on life.

30-Second Universe explains all the tantalising concepts, principles and theories that make up our knowledge - the Higgs particle, gluons, quarks, the multiverse, how certainty itself can be uncertain, and of course, where our world came from, and where we're going and what will happen in the end - and it explains these astrophysical answers succinctly, each entry taking only 30 seconds to read, with further exploration flagged, and key scientists noted. This one small book sheds light on the biggest ideas, concepts and discoveries in life, in the universe, in everything.

A pocket-style edition based on the New York Times bestseller *A Brief Welcome to the Universe* offers a breathtaking tour of the cosmos, from planets, stars, and galaxies to black holes and time loops. Bestselling authors and acclaimed astrophysicists Neil

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deGrasse Tyson, Michael A. Strauss, and J. Richard Gott take readers on an unforgettable journey of exploration to reveal how our universe actually works. Propelling you from our home solar system to the outermost frontiers of space, this book builds your cosmic insight and perspective through a marvelously entertaining narrative. How do stars live and die? What are the prospects of intelligent life elsewhere in the universe? How did the universe begin? Why is it expanding and accelerating? Is our universe alone or part of an infinite multiverse? Exploring these and many other questions, this pocket-friendly book is your passport into the wonders of our evolving cosmos.

The Yearbook on Space Policy, edited by the European Space Policy Institute (ESPI), is the reference publication analysing space policy developments. Each year it presents issues and trends in space policy and the space sector as a whole. Its scope is global and its perspective is European. The Yearbook also links space policy with other policy areas. It highlights specific events and issues, and provides useful insights, data and information on space activities. The first part of the Yearbook sets out a comprehensive overview of the economic, political, technological and institutional trends that have affected space activities. The second part of the Yearbook offers a more analytical perspective on the yearly ESPI theme and consists of external contributions written by professionals with diverse backgrounds and areas of expertise. The third part of the Yearbook carries forward the character of the Yearbook as an archive of space

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activities. The Yearbook is designed for government decision-makers and agencies, industry professionals, as well as the service sectors, researchers and scientists and the interested public.

“A compelling appeal, at just the right time, for continuing to look up.”—Air & Space America’s space program is at a turning point. After decades of global primacy, NASA has ended the space-shuttle program, cutting off its access to space. No astronauts will be launched in an American craft, from American soil, until the 2020s, and NASA may soon find itself eclipsed by other countries’ space programs. With his signature wit and thought-provoking insights, Neil deGrasse Tyson—one of our foremost thinkers on all things space—illuminates the past, present, and future of space exploration and brilliantly reminds us why NASA matters now as much as ever. As Tyson reveals, exploring the space frontier can profoundly enrich many aspects of our daily lives, from education systems and the economy to national security and morale. For America to maintain its status as a global leader and a technological innovator, he explains, we must regain our enthusiasm and curiosity about what lies beyond our world.

Provocative, humorous, and wonderfully readable, *Space Chronicles* represents the best of Tyson’s recent commentary, including a must-read prologue on NASA and partisan politics. Reflecting on topics that range from scientific literacy to space-travel missteps, Tyson gives us an urgent, clear-eyed, and ultimately inspiring vision for the future.

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The New York Times bestselling tour of the cosmos from three of today's leading astrophysicists *Welcome to the Universe* is a personal guided tour of the cosmos by three of today's leading astrophysicists. Inspired by the enormously popular introductory astronomy course that Neil deGrasse Tyson, Michael A. Strauss, and J. Richard Gott taught together at Princeton, this book covers it all—from planets, stars, and galaxies to black holes, wormholes, and time travel. Describing the latest discoveries in astrophysics, the informative and entertaining narrative propels you from our home solar system to the outermost frontiers of space. How do stars live and die? Why did Pluto lose its planetary status? What are the prospects of intelligent life elsewhere in the universe? How did the universe begin? Why is it expanding and why is its expansion accelerating? Is our universe alone or part of an infinite multiverse? Answering these and many other questions, the authors open your eyes to the wonders of the cosmos, sharing their knowledge of how the universe works. Breathtaking in scope and stunningly illustrated throughout, *Welcome to the Universe* is for those who hunger for insights into our evolving universe that only world-class astrophysicists can provide.

Here is the essential companion to *Welcome to the Universe*, a New York Times bestseller that was inspired by the enormously popular introductory astronomy course for non science majors that Neil deGrasse Tyson, Michael A. Strauss, and J. Richard Gott taught together at Princeton. This problem book features more than one hundred

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problems and exercises used in the original course—ideal for anyone who wants to deepen their understanding of the original material and to learn to think like an astrophysicist. Whether you're a student or teacher, citizen scientist or science enthusiast, your guided tour of the cosmos just got even more hands-on with Welcome to the Universe: The Problem Book. The essential companion book to the acclaimed bestseller Features the problems used in the original introductory astronomy course for non science majors at Princeton University Organized according to the structure of Welcome to the Universe, empowering readers to explore real astrophysical problems that are conceptually introduced in each chapter Problems are designed to stimulate physical insight into the frontier of astrophysics Problems develop quantitative skills, yet use math no more advanced than high school algebra Problems are often multipart, building critical thinking and quantitative skills and developing readers' insight into what astrophysicists do Ideal for course use—either in tandem with Welcome to the Universe or as a supplement to courses using standard astronomy textbooks—or self-study Tested in the classroom over numerous semesters for more than a decade Prefaced with a review of relevant concepts and equations Full solutions and explanations are provided, allowing students and other readers to check their own understanding Could you survive lost in space? This book could save your life. With five survivalist hacks from everyday objects, you're sure to blast off into the next galaxy! Hacks are paired with a STEM connection that explains the science behind how the hack works.

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Written at a lower reading level with considerate text, these super engaging, high maturity books are sure to grab struggling readers. Also includes a table of contents, glossary, index, author biography, sidebars, educational matter, and activities.

Stephen Hawking, the Lucasian Professor of Mathematics at Cambridge University, has made important theoretical contributions to gravitational theory and has played a major role in the development of cosmology and black hole physics. Hawking's early work, partly in collaboration with Roger Penrose, showed the significance of spacetime singularities for the big bang and black holes. His later work has been concerned with a deeper understanding of these two issues. The work required extensive use of the two great intellectual achievements of the first half of the Twentieth Century: general relativity and quantum mechanics; and these are reflected in the reprinted articles. Hawking's key contributions on black hole radiation and the no-boundary condition on the origin of the universe are included. The present compilation of Stephen Hawking's most important work also includes an introduction by him, which guides the reader through the major highlights of the volume. This volume is thus an essential item in any library and will be an important reference source for those interested in theoretical physics and applied mathematics. It is an excellent thing to have so many of Professor Hawking's most important contributions to the theory of black holes and space-time singularities all collected together in one handy volume. I am very glad to have them".

Roger Penrose (Oxford) "This was an excellent idea to put the best papers by Stephen

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Hawking together. Even his papers written many years ago remain extremely useful for those who study classical and quantum gravity. By watching the evolution of his ideas one can get a very clear picture of the development of quantum cosmology during the last quarter of this century". Andrei Linde (Stanford) "This review could have been quite short: 'The book contains a selection of 21 of Stephen Hawking's most significant papers with an overview written by the author'. This w

The volcano – among the most familiar and perhaps the most terrifying of all geological phenomena. However, Earth isn't the only planet to harbour volcanoes. In fact, the Solar System, and probably the entire Universe, is littered with them. Our own Moon, which is now a dormant piece of rock, had lava flowing across its surface billions of years ago, while Mars can be credited with the largest volcano in the Solar System, Olympus Mons, which stands 25km high. While Mars's volcanoes are long dead, volcanic activity continues in almost every other corner of the Solar System, in the most unexpected of locations. We tend to think of Earth volcanoes as erupting hot, molten lava and emitting huge, billowing clouds of incandescent ash. However, it isn't necessarily the same across the rest of the Solar System. For a start, some volcanoes aren't even particularly hot. Those on Pluto, for example, erupt an icy slush of substances such as water, methane, nitrogen or ammonia, that freeze to form ice mountains as hard as rock. While others, like the volcanoes on one of Jupiter's moons, Io, erupt the hottest lavas in the Solar System onto a surface covered in a frosty coating

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of sulphur. Whether they are formed of fire or ice, volcanoes are of huge importance for scientists trying to picture the inner workings of a planet or moon. Volcanoes dredge up materials from the otherwise inaccessible depths and helpfully deliver them to the surface. The way in which they erupt, and the products they generate, can even help scientists ponder bigger questions on the possibility of life elsewhere in the Solar System. *Fire and Ice* is an exploration of the Solar System's volcanoes, from the highest peaks of Mars to the intensely inhospitable surface of Venus and the red-hot summits of Io, to the coldest, seemingly dormant icy carapaces of Enceladus and Europa, an unusual look at how these cosmic features are made, and whether such active planetary systems might host life.

This illustrated companion to the popular podcast and National Geographic Channel show is an eye-opening journey for anyone curious about our universe, space, astronomy and the complexities of the cosmos. For decades, beloved astrophysicist Neil deGrasse Tyson has interpreted science with a combination of brainpower and charm that resonates with fans everywhere. This pioneering, provocative book brings together the best of *StarTalk*, his beloved podcast and television show devoted to solving the most confounding mysteries of Earth, space, and what it means to be human. Filled with brilliant sidebars, vivid photography, and unforgettable quotes from Tyson and his brilliant cohort of science and entertainment luminaries, *StarTalk* will help answer all of your most pressing questions about our world—from how the brain works

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to the physics of comic book superheroes. Fun, smart, and laugh-out-loud funny, this book is the perfect guide to everything you ever wanted to know about the universe—and beyond.

Neil deGrasse Tyson's reboot of the classic TV series "Cosmos" struck a chord with viewers, garnered 12 Emmy Award nominations, and is headed straight into schools as a science teacher's instructional aid. It's also an agenda-driven vehicle for scientific materialism, casting religion as arch foe of the search for truth about nature and pressing its message that human beings occupy no special place in the universe. In "The Unofficial Guide to Cosmos," contributors Casey Luskin, Jay W. Richards, Douglas Ell, and David Klinghoffer dissect each episode of the new series and explain where Tyson veers from objective science to science-flavored, fact-challenged preaching. Students, parents, and teachers will find this lively compendium a useful counterpoint.

A thrilling adventure story chronicling the perilous journey of the scientists who set out to prove the theory of relativity--the results of which catapulted Albert Einstein to fame and forever changed our understanding of the universe. In 1911, a relatively unknown physicist named Albert Einstein published his preliminary theory of gravity. But it hadn't been tested. To do that, he needed a photograph of starlight as it passed the sun during a total solar eclipse. So began a nearly decade-long quest by seven determined astronomers from observatories in four countries, who traveled the world during five

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eclipses to capture the elusive sight. Over the years, they faced thunderstorms, the ravages of a world war, lost equipment, and local superstitions. Finally, in May of 1919, British expeditions to northern Brazil and the island of Príncipe managed to photograph the stars, confirming Einstein's theory. At its heart, this is a story of frustration, faith, and ultimate victory--and of the scientists whose efforts helped build the framework for the big bang theory, catapulted Einstein to international fame, and shook the foundation of physics.

An illustrated grand tour of the universe, beginning in our own solar system before moving on to the Milky Way galaxy and finally on to the building blocks of the universe, including dark matter and dark energy.

Neil deGrasse Tyson's #1 New York Times best-selling guide to the cosmos, adapted for young readers. From the basics of physics to big questions about the nature of space and time, celebrated astrophysicist and science communicator Neil deGrasse Tyson breaks down the mysteries of the cosmos into bite-sized pieces. *Astrophysics for Young People in a Hurry* describes the fundamental rules and unknowns of our universe clearly—and with Tyson's characteristic wit, there's a lot of fun thrown in, too. This adaptation by Gregory Mone includes full-color photos, infographics, and extra explanations to make even the trickiest concepts accessible. Building on the wonder inspired by outer space, *Astrophysics for Young People in a Hurry* introduces an exciting field and the principles of scientific inquiry to young readers.

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Explore the dark side of space in *Out of this World*, a new and exciting series for struggling readers. Is time travel possible? How do black holes theoretically support time travel? These and other fascinating questions are discussed in the *Theory of Time Travel* title using considerate text that is written at a higher maturity level with a lower reading level to engage struggling readers. A table of contents, glossary with simplified pronunciations, and index all enhance reading comprehension. Sidebars include hands-on experiments, spotlight biographies on women in science, tech connections, and far out facts.

"[Tyson] tackles a great range of subjects...with great humor, humility, and—most important—humanity." —Entertainment Weekly Loyal readers of the monthly "Universe" essays in *Natural History* magazine have long recognized Neil deGrasse Tyson's talent for guiding them through the mysteries of the cosmos with clarity and enthusiasm. Bringing together more than forty of Tyson's favorite essays, *Death by Black Hole* explores a myriad of cosmic topics, from what it would be like to be inside a black hole to the movie industry's feeble efforts to get its night skies right. One of America's best-known astrophysicists, Tyson is a natural teacher who simplifies the complexities of astrophysics while sharing his infectious fascination for our universe.

Imagine, if you can, the world in the year 2100. In *Physics of the Future*, Michio Kaku—the *New York Times* bestselling author of *Physics of the Impossible*—gives us a stunning, provocative, and exhilarating vision of the coming century based on

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interviews with over three hundred of the world's top scientists who are already inventing the future in their labs. The result is the most authoritative and scientifically accurate description of the revolutionary developments taking place in medicine, computers, artificial intelligence, nanotechnology, energy production, and astronautics. In all likelihood, by 2100 we will control computers via tiny brain sensors and, like magicians, move objects around with the power of our minds. Artificial intelligence will be dispersed throughout the environment, and Internet-enabled contact lenses will allow us to access the world's information base or conjure up any image we desire in the blink of an eye. Meanwhile, cars will drive themselves using GPS, and if room-temperature superconductors are discovered, vehicles will effortlessly fly on a cushion of air, coasting on powerful magnetic fields and ushering in the age of magnetism. Using molecular medicine, scientists will be able to grow almost every organ of the body and cure genetic diseases. Millions of tiny DNA sensors and nanoparticles patrolling our blood cells will silently scan our bodies for the first sign of illness, while rapid advances in genetic research will enable us to slow down or maybe even reverse the aging process, allowing human life spans to increase dramatically. In space, radically new ships—needle-sized vessels using laser propulsion—could replace the expensive chemical rockets of today and perhaps visit nearby stars. Advances in nanotechnology may lead to the fabled space elevator, which would propel humans hundreds of miles above the earth's atmosphere at the push of a button. But these

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astonishing revelations are only the tip of the iceberg. Kaku also discusses emotional robots, antimatter rockets, X-ray vision, and the ability to create new life-forms, and he considers the development of the world economy. He addresses the key questions: Who are the winner and losers of the future? Who will have jobs, and which nations will prosper? All the while, Kaku illuminates the rigorous scientific principles, examining the rate at which certain technologies are likely to mature, how far they can advance, and what their ultimate limitations and hazards are. Synthesizing a vast amount of information to construct an exciting look at the years leading up to 2100, *Physics of the Future* is a thrilling, wondrous ride through the next 100 years of breathtaking scientific revolution.

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