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Packing for Mars: The Curious Science of Life in the Void Packing for Mars Curiosity Mars Rover Curiosity Mars Up Close Curiosity The Design and Engineering of Curiosity Travels with Curiosity Mars Science Lab Engineer Diana Trujillo Mars Science Laboratory Curious about Mars Mars Rover My Planet Red Rover Curiosity's Mission on Mars Mars Landing 2012 Incredible Stories from Space Mapping Mars Curiosity Curious George Discovers Space The Search for Life on Mars Grunt: The Curious Science of Humans at War Welcome to Mars The Sirens of Mars The Right Kind of Crazy Curiosity Rover Packing for Mars of Kids Life on Mars 3 The Mars Science Laboratory Mission Exploring Mars Rovers (A True Book: Space Exploration)
Packing for Mars: The Curious Science of Life in the Void The Mars Mystery Rover Throws a Party Mars Geological Enigmas The Amazing Adventures 2 of Curiosity Mars Science Laboratory Robots in Space Discovering Mars Volatiles in the Martian

National Geographic presents the science, the goals, and the anticipation of humankind's most ambitious planetary expedition ever: the Curiosity mission to Mars. On August 6, 2012 (EST), NASA's Curiosity spacecraft will complete its 255-day, 354million-mile journey and plunge down into Gale Crater, its target on the martian surface, decelerating from 13,200 to 0 mph in 7 minutes. The whole world will be watching this, the most complicated and precise landing ever undertaken, and wondering: What's the inside story on this Curiosity mission, and what do NASA scientists hope Curiosity will find? In this e-short, written by Washington Post science correspondent Marc Kaufman and published just as the suspense builds, with Curiosity hurtling toward Mars, space science readers, techies, and informed news junkies will find answers to these and other fascinating questions about the red planet. An award-winning science writer provides an inside look at the recent space mission of the Curiosity rover to Mars, describing the scientists who developed and remotely manned it and offering insights into the information and samples collected. Original. Welcome to Mars is a captivating look at the culture of postwar America and its dream of limitless technological and human development. Utilizing declassified government archives, newspaper records, ad campaigns, and B-movies of the period, Hollings weaves an intricate web of Cold War politics, UFO scares, psychedelic research, and 1950s pop culture. From the atom bomb and suburban planning to the space race and little-green-men movies, Welcome to Mars shows the startling connections between science fact and science fiction, a feedback loop in which real technological advances and government experimentation gave rise to science fiction fantasy, which then fed new innovation and research. Table of Contents Introduction: Scenes From A History As Yet Unwritten Chapter 1--1947: Rebuilding Lemuria Chapter 2--1948: Flying Saucers Over America Chapter 3--1949: Behaviour Modification Chapter 4--1950: Cheapness And Splendour Chapter 5--1951: Absolute Elsewhere Chapter 6--1952: Red Planet Chapter 7--1953: Other Tongues, Other Flesh Chapter 8--1954: Meet The Monsters Chapter 9--1955: Popular Mechanics Chapter 10--1956: 'Greetings, My Friend!' Chapter 11--1957: Contact With Space Chapter 12--1958: Mass Hysteria Chapter 13--1959: Teenagers From Outer Space Conclusion: Thinking the Unthinkable Bibliography Index List of Illustrations Done in comic book style. It's a fun and educational look at the Mars rover. An illustrated nonfiction book about the search for life on Mars told from the unique perspective of NASA's Mars rover Curiosity, focusing on its engineering aspects. From acclaimed, New York Times best-selling author Mary Roach comes the complete collection of her "My Planet" articles published in Reader's Digest. She was a hit columnist in the magazine, and this book features the articles she wrote in that time. Insightful and hilarious, Mary explores the ins and outs of the modern world: marriage, friends, family, food, technology, customer service, dental floss, and ants—she leaves no element of the American experience unchecked for its inherent paradoxes, pleasures, and foibles. On Cleanliness: Ed has crud vision, and I don't notice filth. Ed sees it everywhere. I am reasonably convinced that Ed can actually see bacteria. . . . He confessed he didn't like me using his bathrobe because I'd wear it while sitting on the toilet. "It's not like it goes in the water," I protested, though if you counted the sash as part of the robe, this wasn't strictly true. On the Internet: The Internet is a boon for hypochondriacs like me. Right now, for instance, I'm feeling a shooting pain on the side of my neck. A Web search produces five matches, the first three for a condition called Arnold-Chiari Malformation. While my husband, Ed, reads over my shoulder, I recite symptoms from the list. "General clumsiness' and 'general imbalance,'" I say, as though announcing arrivals at the Marine Corps Ball. "Difficulty driving,' 'lack of taste,' 'difficulty feeling feet on ground.'" "Those are your character flaws." On Fashion: My husband recently made me try on a bikini. A bikini is not so much a garment as a cloth-based reminder that your parts have been migrating all these years. My waist, I realized that day in the dressing room, has completely disappeared beneath my rib cage, which now rests directly on my hips. I'm exhibiting continental drift in reverse. On Eating Healthy: So Ed and I were eating a lot of vegetables on pasta, vegetables on rice. This was extremely healthy, until you got to the part where Ed and I are found in the kitchen at 10 p.m., feeding on Froot Loops and tubes of cookie dough. This book describes the most complex machine ever sent to another planet: Curiosity. It is a one-ton robot with two brains, seventeen cameras, six wheels, nuclear power, and a laser beam on its head. No one human understands how all of its systems and instruments work. This essential reference to the Curiosity mission explains the engineering behind every system on the rover, from its rocket-powered jetpack to its radioisotope thermoelectric generator to its fiendishly complex sample handling system. Its lavishly illustrated text explains how all the instruments work -- its cameras, spectrometers, sample-cooking oven, and weather station -- and describes the instruments' abilities and limitations. It tells you how the systems have functioned on Mars, and how scientists and engineers have worked around problems developed on a faraway planet: holey wheels and broken focus lasers. And it explains the grueling mission operations schedule that keeps the rover working day in and day out. Adam Steltzner is no ordinary engineer. His path to leadership was about as unlikely as they come. A child of beatnik parents, he barely made it through school. He blew off college in favour of work at a health food store and playing bass in a band, but after discovering an astonishing gift for maths and physics, he ended up helping a group of scientists land the heaviest rover in the history of space exploration on Mars. This is the story of the teamwork, drama and extraordinary feats of innovation at the Jet Propulsion Lab that culminated in that landing in 2012. Who are the extraordinary individuals that will take us on the next great space race, the next great human endeavor, our exploration and colonization of the planet Mars? And more importantly, how are they doing it? Acclaimed science writer Oliver Morton explores the peculiar and fascinating world of the new generation of explorers: geologists, scientists, astrophysicists and dreamers. Morton shows us the complex and beguiling role that mapping will play in our understanding of the red planet, and more deeply, what it means for humans to envision such heroic landscapes. Charting a path from the 19th century visionaries to the spysatellite pioneers to the science fiction writers and the arctic explorers -- till now, to the people are taking us there -- Morton unveils the central place that Mars has occupied in the human imagination, and what it will mean to realize these dreams. A pioneering work of journalism and drama, Mapping Mars gives us our first exciting glimpses of the world to come and the curious, bizarre, and amazing people who will take us there. From the first time a person looked up at the sky and wondered "What's out there?" humans have dreamed about exploring the cosmos. This book is part of a series, A True Book: Space Exploration, that includes the titles Human Missions to Outer Space, Mars Rovers, The International Space Station, and UFO's. The series features the latest NASA imagery and lively text to bring the wonder of space exploration directly to readers. For so long, our neighbor in the solar system has been shrouded in mystery. Was there ever life on Mars? How can we enable astronauts to land on that planet—and return safely? Mars rovers, including the latest: Perseverance, may just provide the answers! They might even tell us if humans can live on Mars one day! Share in the joy of exploration and discovery with Mars Rovers. "Questions and answers about Mars' appearance, features, and missions encourage inquiry-based learning for curious early elementary-age readers. A Stay Curious! Learn More feature models research skills and doubles as a mini media literacy lesson. Includes quick facts chart, infographics, glossary and index"-- In Incredible Stories from Space, veteran space journalist Nancy Atkinson shares compelling insights from over 35 NASA scientists and engineers, taking readers behind the scenes of the unmanned missions that are transforming our understanding of the solar system and beyond. Weaving together one-on-one interviews along with the extraordinary sagas of the spacecraft themselves, this book chronicles the struggles and triumphs of nine current space missions and captures the true spirit of exploration and discovery. "Looking closely at the sixteenth through eighteenth centuries, Ball vividly brings to life the age when modern science began, a time that spans the lives of Galileo and Isaac Newton. In this entertaining and illuminating account of the rise of science as we know it, Ball tells of scientists both legendary and lesser known, from Copernicus and Kepler to Robert Boyle, as well as the inventions and technologies that were inspired by curiosity itself, such as the telescope and the microscope. The so-called Scientific Revolution is often told as a story of great geniuses illuminating the world with flashes of inspiration. But Curiosity reveals a more complex story, in which the liberation--and subsequent taming--of curiosity was linked to magic, religion, literature, travel, trade, and empire. Ball also asks what has become of curiosity today: how it functions in science, how it is spun and packaged for consumption, how well it is being sustained, and how the changing shape of science influences the kinds of questions it may continue to ask"--OCLC What happens to you when you can't walk for a year? When you can't have sex? Or smell flowers? What happens if you vomit in your helmet during a space walk? Is it possible to survive a bailout at 17,000 miles an hour? Space is a world devoid of the things we need to live and thrive: air, gravity, hot showers, fresh veg, privacy, beer. To answer these questions, space agencies set up all manner of quizzical and startlingly bizarre space simulations, and as Mary Roach discovers, it's possible to preview space without ever leaving Earth. Packing for Mars takes us on a surreally entertaining voyage into the science of life in space and space on Earth. "America's funniest science writer" (Washington Post) asks the questions children ask in this young readers adaptation of her best-selling Packing for Mars. What is it like to float weightlessly in the air? What happens if you vomit in your helmet during a spacewalk? How do astronauts go to the bathroom? Is it true that they don't shower? Can farts really be deadly in space? Best-selling Mary Roach has the answers. In this whip-smart, funny, and informative young readers adaptation of her best-selling Packing for Mars, Roach guides us through the irresistibly strange, frequently gross, and awe-inspiring realm of space travel and life without gravity. From flying on NASA's Weightless Wonder to eating space food, Packing for Kids is chock-full of firs-hand experiences and thorough research. Roach has crafted an authoritative and accessible book that is perfectly pitched to inquiring middle grade readers. A New York Times / National Bestseller "America's funniest science writer" (Washington Post) Mary Roach explores the science of keeping human beings intact, awake, sane, uninfected, and uninfested in the bizarre and extreme circumstances of war. Grunt tackles the science behind some of a soldier's most challenging adversaries—panic, exhaustion, heat, noise—and introduces us to the scientists who seek to conquer them. Mary Roach dodges hostile fire with the U.S. Marine Corps Paintball Team as part of a study on hearing loss and survivability in combat. She visits the fashion design studio of U.S. Army Natick Labs and learns why a zipper is a problem for a sniper. She visits a repurposed movie studio where amputee actors help prepare Marine Corps medics for the shock and gore of combat wounds. At Camp Lemmonier, Djibouti, in east Africa, we learn how diarrhea can be a threat to national security. Roach samples caffeinated meat, sniffs an archival sample of a World War II stink bomb, and stays up all night with the crew tending the missiles on the nuclear submarine USS Tennessee. She answers questions not found in any other book on the military: Why is DARPA interested in ducks? How is a wedding gown like a bomb suit? Why are shrimp more dangerous to sailors than sharks? Take a tour of duty with Roach, and you'll never see our nation's defenders in the same way again. Inspired by NASA's Curiosity rover, this is the story of a lonely Mars rover who plans the best birthday party in the solar system. It's Rover's anniversary on Mars! Time to celebrate by throwing the best party this planet has ever seen. Rover hands out invitations all over town, but it seems like he's the only one around. Will anyone come to the party, or will Rover be all alone on his big day? In 2013, NASA programmed their Curiosity rover to hum "Happy Birthday to You" in honor of its first year on Mars. Inspired by this anecdote, this is the tale of a lonely rover and his party, accompanied by fascinating Mars rover facts that help explain the real science behind the story. This fun birthday tale provides an accessible, kid-friendly look at one of NASA's coolest programs. For millenia humans have considered Mars the most fascinating planet in our solar system. We've watched this Earth-like world first with the naked eye, then using telescopes, and, most recently, through robotic orbiters and landers and rovers on the surface. Historian William Sheehan and astronomer and planetary scientist Jim Bell combine their talents to tell a unique story of what we've learned by studying Mars through evolving technologies. What the eye sees as a mysterious red dot wandering through the sky becomes a blurry mirage of apparent seas, continents, and canals as viewed through Earth-based telescopes. Beginning with the Mariner and Viking missions of the 1960s and 1970s, space-based instruments and monitoring systems have flooded scientists with data on Mars's meteorology, and geology, and have even sought evidence of possible existence of life-forms on or beneath the surface. This knowledge has transformed our perception of the Red Planet and has provided clues for better understanding our own blue world. Discovering Mars vividly conveys the way our understanding of this other planet has grown from earliest times to the present. The story is epic in scope—an Iliad or Odyssey for our time, at least so far largely without the folly, greed, lust, and tragedy of those ancient stories. Instead, the narrative of our quest for the Red Planet has showcased some of our species' most hopeful attributes: curiosity, cooperation, exploration, and the restless drive to understand our place in the larger universe. Sheehan and Bell have written an ambitious first draft of that narrative even as the latest chapters continue to be added both by researchers on Earth and our robotic emissaries on and around Mars, including the latest: the Perseverance rover and its Ingenuity helicopter drone, which set down in Mars's Jezero Crater in February 2021. With a focus of the Perseverance rover mission, here is the "Quintessential account of one of humanity's most intriguing quests" (Pail Halpern, Medium), "A remarkable, timely, and up-to-date account of Mars exploration" (Leonard David, "Space Insider," Space.com). From The War of the Worlds to The Martian and to the amazing photographs sent back by the robotic rovers Curiosity and Opportunity, Mars has excited our imaginations as the most likely other habitat for life in the solar system. Now the Red Planet is coming under scrutiny as never before. As new missions are scheduled to launch this year from the United States and China, and with the European Space Agency's ExoMars mission now scheduled for 2022, this book recounts in full the greatest scientific detective story ever. For the first time in forty years, the missions heading to Mars will look for signs of ancient life on the world next door. It is the latest chapter in an age?old quest that encompasses myth, false starts, red herrings, and bizarre coincidences—as well as triumphs and heartbreaking failures. This book, by two journalists with deep experience covering space exploration, is the definitive story of how life's discovery has eluded us to date, and how it will be found somewhere and sometime this century. The Search for Life on Mars is based on more than a hundred interviews with experts at NASA's Jet Propulsion Laboratory and elsewhere, who share their insights and stories. While it looks back to the early Mars missions such as Viking 1 and 2, the book's focus is on the experiments and revelations from the most recent ones—including Curiosity, which continues to explore potentially habitable sites where was once present, and the Mars Insight lander, which has recorded more than 450 marsquakes since its deployment in late 2018—as well as on the Perseverance and ExoMars rover missions ahead. And the book looks forward to the newest, most exciting frontier of all: the day, not too far away, when humans will land, make the Red Planet their home, and look for life directly. The principle investigator for the ChemCam instrument on the Curiosity rover and a scientist at Los Alamos National Laboratory, Wiens traces the ups and downs of the new era of robotic space exploration through his own experience working on some of the important projects over the past decade. His topics include from Minnesota to the moon, vindication, ticket to Mars, on the Rover, and seven minutes of terror. His account provides a framework for the images and data currently coming back from Curiosity. Volatiles in the Martian Crust is a vital reference for future missions - including ESA's EXO Mars and NASA's Mars2020 rover - looking for evidence of life on Mars and the potential for habitability and human exploration of the Martian crust. Mars science is a rapidly evolving topic with new data returned from the planet on a daily basis. The book presents chapters written by well-established experts who currently focus on the topic, providing the reader with a fresh, up-to-date and accurate view. Organized into two main sections, the first half of the book focuses on the Martian meteorites and specific volatile elements. The second half of the book explores processes and locations on the crust, including what we have learned about volatile mobility in the Martian crust. Coverage includes data from orbiter and in situ rovers and landers, geochemical and geophysical modeling, and combined data from the SNC meteorites. Presents information about the nature, relationship, and reactivity of chemical elements and compounds on Mars Explores the potential habitability of Mars Provides a comprehensive view of volatiles in the Martian crust from studies of actual samples as well as from the variety of landed missions, including the MER and Curiosity rovers Delivers a vital reference for ongoing and future missions to Mars while synthesizing large data sets and research on volatiles in the Martian atmosphere Concludes with an informative summary chapter that looks to future Mars missions and what might be learned Millions of miles from Earth, a very unusual scientist is hard at work exploring the freezing, dusty surface of the planet Mars. Curiosity, the robot geologist, is one in a long line of robots that have visited some of our solar system's most inhospitable places. In this fascinating title, we look at space robots from the past and those at work today. What are their missions? What tasks can they do? And how does it feel to be the human here on Earth who controls a high-tech robot on a faraway planet? The Mars Curiosity Rover is the most sophisticated mobile laboratory ever deployed on a planet. For over seven years, scores of investigators have planned its daily route and activities, poring over the overwhelming images and data and revising our understanding of planetary surfaces, geology, and potential habitability. This book takes readers right down to the surface of Mars, chronicling Curiosity's physical and scientific journey across the planet's Earth-like, yet strikingly alien vistas. Through dozens of images and descriptive accounts of the surface, you will gain a deeper knowledge of the Martian landscape, from the floor of Gale Crater up to the cliffs of Mount Sharp. Presented at the end of each chapter are the results and revelations from the science team spearheading the mission. Like any cross-country road trip, the rover has hit some unexpected hitches along the way. The book describes the obstacles faced by the rover and its scientists over the years and the difficult decisions and careful experimentation it took to solve them. An asteroid transformed Mars from a lush planet with rivers and oceans into a bleak and icy hell. Is Earth condemned to the same fate, or can we protect ourselves and our planet from extinction? In his most riveting and revealing book yet, Graham Hancock examines the evidence that the barren Red Planet was once home to a lush environment of flowing rivers, lakes, and oceans. Could Mars have sustained life and civilization? Megaliths found on the parched shores of Cydonia, a former Martian ocean, mirror the geometrical conventions of the pyramids at Egypt's Giza necropolis. Especially startling is a Sphinx-like structure depicting a face with distinguishable diadem, teeth, mouth and an Egyptian-style headdress. Might there be a connection between the structures of Egypt and those of Mars? Why does NASA continue to dismiss these remarkable anomalies as "a trick of light"? Hancock points to the intriguing possibility that ancient Martian civilization is communicating with us through the remarkable structures it left behind. In exploring the possible traces left by the Martian civilization and the cosmic cataclysm that may have ended it, The Mars Mystery is both an illumination of our ancient past and a warning--that we still have time to heed--about our ultimate fate. Describes the weirdness of space travel, answers questions about the long-term effects of living in zero gravity on the human body, and explains how space simulations on Earth can provide a preview to life in space. "Sarah Stewart Johnson interweaves her own coming-of-age story as a planetary scientist with a vivid history of the exploration of Mars in this celebration of human curiosity, passion, and perseverance."—Alan Lightman, author of Einstein's Dreams WINNER OF THE PHI BETA KAPPA AWARD FOR SCIENCE • NAMED ONE OF THE BEST BOOKS OF THE YEAR BY The New York Times Book Review • Times (UK) • Library Journal "Lovely . . . Johnson's prose swirls with lyrical wonder, as varied and multihued as the apricot deserts, butterscotch skies and blue sunsets of Mars."—Anthony Doerr, The New York Times Book Review Mars was once similar to Earth, but today there are no rivers, no lakes, no oceans. Coated in red dust, the terrain is bewilderingly empty. And yet multiple spacecraft are circling Mars, sweeping over Terra Sabaea, Syrtis Major, the dunes of Elysium, and Mare Sirenum—on the brink, perhaps, of a staggering find, one that would inspire humankind as much as any discovery in the history of modern science. In this beautifully observed, deeply personal book, Georgetown scientist Sarah Stewart Johnson tells the story of how she and other researchers have scoured Mars for signs of life, transforming the planet from a distant point of light into a world of its own. Johnson's fascination with Mars began as a child in Kentucky, turning over rocks with her father and looking at planets in the night sky. She now conducts fieldwork in some of Earth's most hostile environments, such as the Dry Valleys of Antarctica and the salt flats of Western Australia, developing methods for detecting life on other worlds. Here, with poetic precision, she interlaces her own personal journey—as a female scientist and a mother—with tales of other seekers, from Percival Lowell, who was convinced that a utopian society existed on Mars, to Audouin Dollfus, who tried to carry out astronomical observations from a stratospheric balloon. In the process, she shows how the story of Mars is also a story about Earth: This other world has been our mirror, our foil, a telltale reflection of our own anxieties and yearnings. Empathetic and evocative, The Sirens of Mars offers an unlikely natural history of a place where no human has ever set foot, while providing a vivid portrait of our quest to defy our isolation in the cosmos. "Read about the life stories and significant contributions of some of today's most accomplished figures in STEM fields. Narrative nonfiction text explores key details from each person's life, often including the pivotal moment that led them to their STEM career."-- Exploring Mars: Secrets of the Red Planet by the Editors of Scientific American Our nearest planetary neighbor has been the subject of endless fascination and wide-ranging theories throughout history. Is there life on Mars? Was there ever life on Mars? What was the atmosphere like thousands or millions of years ago? From Percival Lowell, who built his own observatory so he could dedicate himself to studying the red planet, to NASA landing the car-sized Opportunity rover in 2012, this eBook, Exploring Mars: Secrets of the Red Planet, traces Scientific American's coverage of the observation and exploration of Mars. The first section outlines early 20th century theories about Mars, including the possibility of an intricate canal system built by an intelligent species. Once the space probes enter the picture, most of those ideas were debunked, but even more questions arose. The second section covers current missions, which found evidence of ancient oceans and a thicker atmosphere that has since been lost. The third section raises even more exciting possibilities with ambitious plans for future missions. In this book, you'll follow these advances in astronomy and planetary science as better and better technology brings us incrementally closer to unlocking the secrets of Mars. Red Rover is a gorgeously illustrated tale that explores the vast, inhospitable landscape of Mars and the adventures of the little rover that calls the planet its home. Mars has a visitor. It likes to roam... observe... measure... and collect. It explores the red landscape—crossing plains, climbing hills, and tracing the bottoms of craters—in search of water and life. It is not the first to visit Mars. It will not be the last. But it might be... the most curious. Join Curiosity on its journey across the red planet in this innovative and dynamic nonfiction picture book by Richard Ho, illustrated by Sibert Honor winner Katherine Roy. This title has Common Core connections. "America's funniest science writer" (Washington Post) explores the irresistibly strange universe of life without gravity in this New York Times best-selling author of Stiff and Bonk explores the irresistibly strange universe of space travel and life without gravity. From the Space Shuttle training toilet to a crash test of NASA's new space capsule, Mary Roach takes us on the surreally entertaining trip into the science of life in space and space on Earth. Michael G. Hunter is a student of many fields. A licensed California architect and certified astrologer, he studies anthropology, astronomy, archaeology, paleontology, and mysteries of all sorts. Looking at what others have overlooked, he explores and reveals answers to unsolved mysteries, by simply observing and analyzing available material. The firsthand account of the trials and tribulations of engineering one of the most complex pieces of space technology, the Mars Rover Curiosity, by its chief engineer Rob Manning In the course of our enduring quest for knowledge about ourselves and our universe, we haven't

found answers to one of our most fundamental questions: Does life exist anywhere else in the universe? Ten years and billions of dollars in the making, the Mars Rover Curiosity is poised to answer this all-important question. In Mars Rover Curiosity: An Inside Account from Curiosity's Chief Engineer, Rob Manning, the project's chief engineer, tells of bringing the groundbreaking spacecraft to life. Manning and his team at NASA's Jet Propulsion Laboratory, tasked with designing a lander many times larger and more complex than any before, faced technical setbacks, fights over inadequate resources, and the challenges of leading an army of brilliant, passionate, and often frustrated experts. Manning's fascinating personal account--which includes information from his exclusive interviews with leading Curiosity scientists--is packed with tales of revolutionary feats of science, technology, and engineering. Readers experience firsthand the disappointment at encountering persistent technical problems, the agony of near defeat, the sense of victory at finding innovative solutions to these problems, the sheer terror of staking careers and reputations on a lander that couldn't be tested on Earth, and the rush of triumph at its successful touchdown on Mars on August 5, 2012. This is the story of persistence, dedication, and unrelenting curiosity. Curious George learns about space. "National Geographic and science journalist Marc Kaufman combine inside stories, fascinating facts, and eye-popping pictures, some never before seen, of the red planet and NASA's groundbreaking Curiosity mission. Renowned author Kaufman spent two years embedded with the engineers and scientists at NASA's Jet Propulsion Laboratory, cheering on the rover's spine-tingling landing, learning the backstory of anticipated findings, and witnessing the inescapable frustrations that come from operating a \$2.5-billion multitasking robot on a planet 35 million miles from Earth. With images never published before, and computer-enhanced with colors that make you want to spend your next vacation on Mars, this is the only book that explains everything, detail by detail and moment by moment, about the most ambitious space expedition the human race has ever undertaken."--Provided by publisher. Mars Geological Enigmas: From the Late Noachian Epoch to the Present Day presents outstanding questions on the geology of Mars and divergent viewpoints based on varying interpretations and analyses. The result is a robust and comprehensive discussion that provides opportunities for planetary scientists to develop their own opinions and ways forward. Each theme opens with an introduction that includes background on the topic and lays out questions to be addressed. Alternate perspectives are covered for each topic, including methods, observations, analyses, and in-depth discussion of the conclusions. Chapters within each theme reference each other to facilitate comparison and deeper understanding of divergent opinions. Offers a transchronological view of the geological history of Mars, addressing thematic questions from a broad temporal perspective Discusses outstanding questions on Mars from diverging perspectives Includes key questions and answers, as well as a look ahead to which puzzles remain to be solved Weighing as much as a small car, a rover named Curiosity rolls quietly around Mars. Scientific instruments pack its body and cluster at the end of a mechanical arm. An arrangement of lenses and instruments tops its mast, like a face. To the many NASA workers involved in Curiosity's mission on Mars, the rover is not simply a robot, but an astronaut bravely exploring an alien place. Curiosity's instruments collect data and its cameras take images of the Mars landscape, including self-portraits, in vivid color and detail. As it roams and explores, Curiosity will help find the answers to such age-old questions as has there ever been life on Mars? Could life have previously flourished on Mars? Will humans be able to travel there one day? Can humans one day colonize the red planet? NASA scientists have been interested in answering questions like these for a long time. In November 2011, NASA sent the rover Curiosity to Earth's nearest planetary neighbor. By gathering information about Mars's climate and geology, the robot is helping scientists uncover the secrets of the planet and its past. Since its launch, Curiosity has made some amazing discoveries. The rover found an ancient streambed where water once flowed for thousands of years, and rock samples proved that the surface soil on Mars still has water! In addition, from drilling into Martian rock, the rover detected the key chemicals necessary for life?sulfur, nitrogen, hydrogen, oxygen, phosphorus, and carbon. And Curiosity's measurement of radiation on Mars shows levels similar to that at the International Space Station. These discoveries suggest that some parts of Mars could have been habitable? and may be again in the future. Learn more about the red planet and see what else Curiosity has uncovered! Simple text and "out-of-this-world" photography introduce readers to NASA's Curiosity rover, and its mission to search for signs of past life on Mars. Important details include a history of rovers on Mars, planning and construction of Curiosity, its launch from Earth, landing on Mars, and the science experiments it carried out and their results. 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