

Earth Science Touring Our Solar System Answers

Voyager 1 and Voyager 2 were launched in 1977. Since then they have traveled farther than any human object. Voyager 1 is now over 10 billion miles from the sun and is headed to the utmost boundary of our solar system. This book, originally published under the auspices of the Smithsonian Institution, tells the story of their journey through the solar system and beyond. The authors' unparalleled access to NASA archives and imagery make this authoritative work on the subject. The book includes an 8 pages of photographs and computer generated imagery and black and white photos throughout.

Planets come in many different sizes, and with many different compositions, orbiting our Sun and countless other stars. Understanding their properties and interactions requires an understanding of a diverse set of sub-fields, including orbital and atmospheric dynamics, geology, geophysics, and chemistry. This textbook provides a physics-based tour of introductory planetary science concepts for undergraduate students majoring in astronomy, planetary science, or related fields. It shows how principles and equations learned in introductory physics classes can be applied to study many aspects of planets, including dynamics, surfaces, interiors, and atmospheres. It also includes chapters on the discovery and characterization of extrasolar planets, and the physics of planet formation. Key Features Covers a wide range of planetary science topics at an introductory level Coherently links the fields of solar system science, exoplanetary science, and planet formation Each chapter includes homework questions Includes python templates for reproducing and customizing the figures in the book

The birth and evolution of our solar system is a tantalizing mystery that may one day provide answers to the question of human origins. From Dust to Life tells the remarkable story of how the celestial objects that make up the solar system arose from common beginnings billions of years ago, and how scientists and philosophers have sought to unravel this mystery down through the centuries, piecing together the clues that enabled them to deduce the solar system's layout, its age, and the most likely way it formed. Drawing on the history of astronomy and the latest findings in astrophysics and the planetary sciences, John Chambers and Jacqueline Mitton offer the most up-to-date and authoritative treatment of the subject available. They examine how the evolving universe set the stage for the appearance of our Sun, and how the nebulous cloud of gas and dust that accompanied the young Sun eventually became the planets, comets, moons, and asteroids that exist today. They explore how each of the planets acquired its unique characteristics, why some are rocky and others gaseous, and why one planet in particular--our Earth--provided an almost perfect haven for the emergence of life. From Dust to Life is a must-read for anyone who desires to know more about how the solar system came to be. This

enticing book takes readers to the very frontiers of modern research, engaging with the latest controversies and debates. It reveals how ongoing discoveries of far-distant extrasolar planets and planetary systems are transforming our understanding of our own solar system's astonishing history and its possible fate.

"Might be just the book to bring out your inner astronomer . . . over 250 pages of breathtaking images from the past 50 years of NASA's space exploration." —Parade Preface by Bill Nye This magnificent volume offers a rich visual tour of the planets in our solar system. More than two-hundred breathtaking photographs from the archives of NASA are paired with extended captions detailing the science behind some of our cosmic neighborhood's most extraordinary phenomena. Images of newly discovered areas of Jupiter, fiery volcanoes on Venus, and many more reveal the astronomical marvels of space in engrossing detail. Anyone with an interest in science, astronomy, and the mysteries of the universe will delight in this awe-inspiring guide to the wonders of the solar system. "As you turn through the pages, you're hit with true moments of awe, photos that remind you the power of nature extends beyond our own planet." —Houston Chronicle "Breathtaking pictures show the otherworldly magic of the solar system . . . The images are at once humbling and uplifting: Here in the black void of space is Saturn's frozen moon, Mimas, white and pitted like a galactic golf ball; here is the tiny golden orb called Io, casting a shadow in a perfect inky circle on the marbled surface of Jupiter; here is the great sun, flames spurting from its surface like plumes." —The Wall Street Journal "[A] gorgeous photographic tour of space . . . The collection is a remarkable reminder of how much has been learned about the planets over the past few decades, solving many mysteries yet introducing many more." —Publishers Weekly

Describes educational uses for the Internet, tells how to navigate the Internet, and surveys resources in the areas of art, music, drama, foreign languages, math, science, social studies, and geography.

'A deft, frequently dramatic tour' Nature 'A wonderfully clear and readable book . . . Gives a splendid overview of our Sun's planetary system, including its history and exploration' Dame Jocelyn Bell Burnell * We have the impression that the solar system is perfectly regular like a clock, or a planetarium instrument. On a short timescale it is. But, seen in a longer perspective, the planets, and their satellites, have exciting lives, full of events - for example, did you know that Saturn's moon, Titan, boasts lakes which contain liquid methane surrounded by soaring hills and valleys, exactly as the earth did before life evolved on our fragile planet? Or that Mercury is the shyest planet? Or, that Mars' biggest volcano is 100 times the size of Earth's, or that its biggest canyon is 10 times the depth of the Grand Canyon, or that it wasn't always red, but blue? The culmination of a lifetime of astronomy and wonder, Paul Murdin's enchanting new book reveals everything you ever wanted to know about the planets, their satellites, and our place in the solar system.

The Saturn System Through The Eyes Of Cassini is printed in full-color on 70-pound paper. The Cassini-Huygens

mission has revolutionized our knowledge of the Saturn system and revealed surprising places in the solar system where life could potentially gain a foothold--bodies we call ocean worlds. Since its arrival in 2004, Cassini-Huygens has been nothing short of a discovery machine, captivating us with data and images never before obtained with such detail and clarity. Cassini taught us that Saturn is a far cry from a tranquil lone planet with delicate rings. Now, we know more about Saturn's chaotic, active, and powerful rings, and the storms that rage beneath. Images and data from Saturn's moons Titan and Enceladus hint at the possibility of life never before suspected. The rings of Saturn, its moons, and the planet itself offer irresistible and inexhaustible subjects for intense study. As the Cassini mission comes to a dramatic end with a fateful plunge into Saturn on Sept. 15, 2017, scientists are already dreaming of going back for further study.

An introductory guide to global magnetic field properties, *Earth Magnetism* addresses, in non-technical prose, many of the frequently asked questions about Earth's magnetic field. Magnetism surrounds and penetrates our Earth in ways basic science courses can rarely address. It affects navigation, communication, and even the growth of crystals. As we observe and experience an 11-year solar maximum, we may witness spectacular satellite-destroying solar storms as they interact with our magnetic field. Written by an acknowledged expert in the field, this book will enrich courses in earth science, atmospheric science, geology, meteorology, geomagnetism, and geophysics. Contains nearly 200 original illustrations and eight pages of full-color plates. * Largely mathematics-free and with a wide breadth of material suitable for general readers * Integrates material from geomagnetism, paleomagnetism, and solar-terrestrial space physics. * Features nearly 200 original illustrations and 4 pages of colour plates

This book captures the complex world of planetary moons, which are more diverse than Earth's sole satellite might lead you to believe. New missions continue to find more of these planetary satellites, making an up to date guide more necessary than ever. Why do Mercury and Venus have no moons at all? Earth's Moon, of course, is covered in the book with highly detailed maps. Then we move outward to the moons of Mars, then on to many of the more notable asteroid moons, and finally to a list of less-notable ones. All the major moons of the gas giant planets are covered in great detail, while the lesser-known satellites of these worlds are also touched on. Readers will learn of the remarkable trans-Neptunian Objects – Pluto, Eris, Sedna, Quaoar –including many of those that have been given scant attention in the literature. More than just objects to read about, the planets' satellites provide us with important information about the history of the solar system. Projects to help us learn more about the moons are included throughout the book. Most amateur astronomers can name some of the more prominent moons in the solar system, but few are intimately familiar with the full variety that exists in our backyard: 146 and counting. As our understanding of the many bodies in our solar system broadens, this is an invaluable tour of our expanding knowledge of the moons both near and far.

Selected as a Book of the Year 2017 in Sky at Night 'Just the thing to captivate a bright child or anyone, in fact, who aspires to be the next Tim Peake' Daily Telegraph AN IMAGINATIVE EXPLORATION INTO THE 'WHAT IF' OF SPACE TRAVEL Imagine taking a hike along the windswept red plains of Mars to dig for signs of life, or touring one of Jupiter's sixty-four moons where you can take photos of its swirling storms. For a mini-break on a tight budget, the Moon is quite majestic and very quiet if you can make it during the off-season. Beautifully illustrated and packed with real-world science, The Vacation Guide to the Solar System is the essential planning guide for the curious space adventurer, covering all of the essentials for your next voyage, how to get there, and what to do when you arrive. Written by an astronomer from the American Museum of Natural History and one of the creators of the Guerilla Science collective, this tongue-in-cheek reference guide is an imaginative exploration into the 'what if' of space travel, sharing fascinating facts about the planets in our solar system and even some moons! 'SUPERB' BBC Sky at Night 'The ultimate guide for any budding space tourist' BBC Focus

Planetary atmospheres are complex and evolving entities, as mankind is rapidly coming to realise whilst attempting to understand, forecast and mitigate human-induced climate change. In the Solar System, our neighbours Venus and Mars provide striking examples of two endpoints of planetary evolution, runaway greenhouse and loss of atmosphere to space. The variety of extra-solar planets brings a wider angle to the issue: from scorching "hot jupiters" to ocean worlds, exo-atmospheres explore many configurations unknown in the Solar System, such as iron clouds, silicate rains, extreme plate tectonics, and steam volcanoes. Exoplanetary atmospheres have recently become accessible to observations. This book puts our own climate in the wider context of the trials and tribulations of planetary atmospheres. Based on cutting-edge research, it uses a grand tour of the atmospheres of other planets to shine a new light on our own atmosphere, and its relation with life.

Proceedings of the IAU Symposium No. 40, held in Marfa, Texas, U.S.A., October 26-31, 1969

For introductory courses in Earth Science in departments of Geology, Geography, Atmospheric Sciences, and Education. The twelfth edition of Earth Science offers a user-friendly overview of our physical environment with balanced, up-to-date coverage of geology, oceanography, astronomy, and meteorology for the undergraduate student with little background in science. The emphasis is on readability, with clear example-driven explanations. The twelfth edition takes full advantage of the subject's visual appeal, with discussions reinforced by incredible color photos and superb illustrations by Earth science illustrator and geologist Dennis Tasa.

Blast off into space with the experts at National Geographic to discover everything we know about the universe, including exciting, recent discoveries and amazing brand-new NASA space photography. The updated and expanded edition of the

hit Space Encyclopedia presents the most up-to-date findings on space exploration and research and breathtaking views of the universe, as captured by the latest and greatest technology, including the recent first ever image of a black hole. This complete reference contains everything kids need to know about our sun and planets including the new dwarf planets, the formation of the universe, space travel, the possibility of life beyond Earth, and more. Authored by David A. Aguilar, an internationally recognized astronomer and former Director of Science Information and Public Outreach at the Harvard-Smithsonian Center for Astrophysics, it is an authoritative and beautifully illustrated must-have for every family, providing both accessible information for school reports and compelling reading on the mysteries beyond our planet. Nothing can be more breathtaking than the spectacle of a volcano erupting. Space-age lunar and planetary missions offer us an unprecedented perspective on volcanism. Starting with the Earth, *Volcanoes of the Solar System* takes the reader on a guided tour of the terrestrial planets and moons and their volcanic features. We see lunar lava fields through the eyes of the Apollo astronauts, and take an imaginary hike up the Martian slopes of Olympus Mons--the tallest volcano in the solar system. Complemented by over 150 photographs, this comprehensive and lucid account of volcanoes describes the most recent data on the unique and varied volcanic features of Venus and updates our knowledge on the prodigiously active volcanoes of Io. A member of the Association of European Volcanologists, Charles Frankel has directed documentary films on geology, astronomy and space exploration and has authored a number of articles on the earth sciences.

Join award-winning science writer Seymour Simon in this completely updated edition of *Our Solar System*, as he takes young readers on a fascinating tour through space! With beautiful full-color photographs and spacecraft images, including many taken by the Mars rovers and Hubble Space Telescope, this nonfiction picture book teaches young readers all about the solar system, including the sun, the eight planets, and their moons. Covering all the latest discoveries in space, young astronomers will be over the moon about the fun facts, fascinating science, and incredible photographs. A must-have for every child interested in outer space! This book includes an author's note, a glossary, an index, and further reading suggestions. An excellent choice for classrooms and homeschooling, *Our Solar System* supports the Common Core State Standards. Check out these other Seymour Simon books about the universe and space: *Comets*, *Meteors*, and *Asteroids Destination: Jupiter Destination: Mars Destination: Space Exoplanets Galaxies Stars The Sun The Universe*

An interactive tutorial that helps students review key geologic concepts through a variety of exercises and activities, including labeling diagrams, locating earthquake epicenters, identifying rocks and minerals. Animations, illustrations, photographs, and optional narration accompany the explanations.

This volume provides visionary approaches within the multi-disciplines engaged with informal settlements covering three main themes; 'Innovative Policies and Strategies to Informal Urbanism'; 'Production, Operation and the Life-World of Urban Space' and finally 'The Dynamics of Informal Settlements'. The book reflects multi-disciplinary experiences dealing with informality, where authors from a number of global regions present cases, practices and ideologies related to their respective context. This is elaborated through fifteen selected papers, most of which, were presented at the International conference: ARCHCAIRO 6 (the 6th International Conference), "RESPONSIVE URBANISM IN INFORMAL AREAS TOWARDS A REGIONAL AGENDA FOR HABITAT III". The conference was organized as a collaborative activity within the "Informal Urbanism Hub" of the HABITAT University Network Initiative (UNI), the Regional Office for Arab Countries, and Cairo University, aiming at reducing the gap between academia and practice.

Discover places where a day is longer than a year, where hailstones are made of diamonds, and where a mountain looms twice the size of Everest. These and more are all to be found in *The Planets*. The Sun's gravity holds in thrall eight planets, each with an entourage of moons, as well as dwarf planets, asteroids, and comets. *The Planets* takes you on a dazzling visual tour. From the Solar System's fiery heart, travel to rocky worlds such as tiny Mercury scorched by the Sun. Then witness Venus swathed in a sulfurous haze, and go to the outer reaches to visit planets such as gas giant Jupiter, which is 120 times the size of Earth. Using 3-D models and photography from NASA and the European Space Agency, *The Planets* describes each one, as well as the extraordinary endeavors of space exploration. Edited by space scientist Maggie Aderin-Pocock, this book is enthralling reading for everyone interested in astronomy and space exploration.

Embark on a mind-blowing visual journey and visit the most magnificent sights and spectacles outer space has to offer. From the celestial bodies that surround us and their incredible characteristics to the many moons, asteroids, comets, space stations and satellites that hover beyond the stratosphere, this epic tour leaves no question unanswered and no meteorite unturned. Just how much would it cost to colonize Mars? Could a human survive on the blistering-hot surface of Venus? What does the future of space travel have to offer and where are we going next? Dr Maggie's Grand Tour of the Solar System takes readers on the trip of a light-speed lifetime - from the proximity of the surface of our very own planet to the furthest sectors of the Solar System.

A fast-paced, non-technical and expert tour of how our solar system came into existence.

This mind-blowing book invites readers to join renowned space scientist Dr Maggie Aderin-Pocock (MBE) on an epic journey through the Solar System.

A tour of outer space explores the solar system as well as stars, galaxies, and the birth of planets, and speculates on whether other intelligent beings exist in the universe.

Science, engineering, and technology permeate nearly every facet of modern life and hold the key to solving many of humanity's most pressing current and future challenges. The United States' position in the global economy is declining, in part because U.S. workers lack fundamental knowledge in these fields. To address the critical issues of U.S. competitiveness and to better prepare

the workforce, A Framework for K-12 Science Education proposes a new approach to K-12 science education that will capture students' interest and provide them with the necessary foundational knowledge in the field. A Framework for K-12 Science Education outlines a broad set of expectations for students in science and engineering in grades K-12. These expectations will inform the development of new standards for K-12 science education and, subsequently, revisions to curriculum, instruction, assessment, and professional development for educators. This book identifies three dimensions that convey the core ideas and practices around which science and engineering education in these grades should be built. These three dimensions are: crosscutting concepts that unify the study of science through their common application across science and engineering; scientific and engineering practices; and disciplinary core ideas in the physical sciences, life sciences, and earth and space sciences and for engineering, technology, and the applications of science. The overarching goal is for all high school graduates to have sufficient knowledge of science and engineering to engage in public discussions on science-related issues, be careful consumers of scientific and technical information, and enter the careers of their choice. A Framework for K-12 Science Education is the first step in a process that can inform state-level decisions and achieve a research-grounded basis for improving science instruction and learning across the country. The book will guide standards developers, teachers, curriculum designers, assessment developers, state and district science administrators, and educators who teach science in informal environments.

Rev. and expanded ed. of: How to build a habitable planet / Wallace S. Broecker. 1985.

Better than ever, this latest edition brings you more than 440 of the most exciting, educational, and innovative Web sites available for taking your students on unforgettable Internet field trips. Visit sites that tie into National Science Standards, use inquiry-based learning, or encourage independent studies! Make this guide your road map to quality Web sites. You'll avoid inappropriate and hard-to-navigate sites, and students will thank you for their trouble-free virtual trips.

In *Life in the Solar System and Beyond*, Professor Jones has written a broad introduction to the subject, addressing important topics such as, what is life?, the origins of life and where to look for extraterrestrial life. The chapters are arranged as follows: Chapter 1 is a broad introduction to the cosmos, with an emphasis on where we might find life. In Chapters 2 and 3 Professor Jones discusses life on Earth, the one place we know to be inhabited. Chapter 4 is a brief tour of the Solar system, leading us in Chapters 5 and 6 to two promising potential habitats, Mars and Europa. In Chapter 7 the author discusses the fate of life in the Solar system, which gives us extra reason to consider life further afield. Chapter 8 focuses on the types of stars that might host habitable planets, and where in the Galaxy these might be concentrated. Chapters 9 and 10 describe the instruments and techniques being employed to discover planets around other stars (exoplanetary systems), and those that will be employed in the near future. Chapter 11 summarizes the known exoplanetary systems, together with an outline of the systems we expect to discover soon, particularly habitable planets. Chapter 12 describes how we will attempt to find life on these planets, and the final chapter brings us to the search for extraterrestrial intelligence, and the question as to whether we are alone.

From the scorching center of Earth's core to the outer limits of its atmosphere, from the gradual process of erosion that carved the Grand Canyon to the earth-shaking fury of volcanoes and earthquakes, this fascinating book—inspired by the award-winning Hall of Planet Earth at

New York City's American Museum of Natural History—tells the story of the evolution of our planet and of the science that makes it work. With the same exuberance and expertise they brought to the creation of the Hall of Planet Earth, co-curators Edmond A. Mathez and James D. Webster offer a guided tour of Earth's dynamic, 4.6-billion-year history. Including numerous full-color photographs of the innovative exhibit and helpful, easy-to-understand illustrations, the authors explore the major factors in our planet's evolution: how Earth emerged from the swirling dusts of a nascent solar system; how an oxygen-rich, life-sustaining atmosphere developed; how continents, mountain ranges, and oceans formed; and how earthquakes and volcanic eruptions alter Earth's surface. Traversing geologic time and delving into the depths of the planet—beginning with meteorites containing minuscule particles that are the solar system's oldest known objects, and concluding with the unusual microbial life that lives on the chemical and thermal energy produced by sulfide vents in the ocean floor—The Earth Machine provides an up-to-date overview of the central theories and discoveries in earth science today. By incorporating stories of real-life fieldwork, Mathez and Webster explain how Earth is capable of supporting life, how even the smallest rocks can hold the key to explaining the formation of mountains, and how scientists have learned to read nature's subtle clues and interpret Earth's ever-evolving narrative.

After the huge national and international success of 'Longitude' and 'Galileo's Daughter', Dava Sobel tells the human story of the nine planets of our solar system. This groundbreaking new work traces the 'lives' of each member of our solar family, from myth and history, astrology and science fiction, to the latest data from the modern era's robotic space probes. Whether revealing what hides behind Venus's cocoon of acid clouds, describing Neptune's complex beauty, or capturing first-hand the excitement at the Jet Propulsion Laboratory when the first pictures from Cassini at Saturn were recently beamed to earth, Dava Sobel's unique tour of the solar system is filled with fascination and beauty. In lyrical prose interspersed with poems by Tennyson, Blake and others, 'The Planets' gives a breathtaking, intimate view of those heavenly bodies that have captured the imagination since humanity's first glimpse of the glittering night skies. Timely and timeless, 'The Planets' will engage and delight as it unravels the mysteries of the cosmos. It is of infinite relevance to this age in which new planets are being discovered elsewhere in our galaxy.

The Encyclopedia of the Solar System, Third Edition—winner of the 2015 PROSE Award in Cosmology & Astronomy from the Association of American Publishers—provides a framework for understanding the origin and evolution of the solar system, historical discoveries, and details about planetary bodies and how they interact—with an astounding breadth of content and breathtaking visual impact. The encyclopedia includes the latest explorations and observations, hundreds of color digital images and illustrations, and over 1,000 pages. It stands alone as the definitive work in this field, and will serve as a modern messenger of scientific discovery and provide a look into the future of our solar system. New additions to the third edition reflect the latest progress and growth in the field, including past and present space missions to the terrestrial planets, the outer solar systems and space telescopes used to detect extrasolar planets. Winner of the 2015 PROSE Award in Cosmology & Astronomy from the Association of American Publishers Presents 700 full-color digital images and diagrams from current space missions and observatories, bringing to life the content and aiding in the understanding and retention of key concepts. Includes a substantial appendix containing data on planetary missions, fundamental data of relevance for planets and satellites, and a glossary, providing immediately accessible mission data for ease of use in conducting further research or for use in presentations and instruction. Contains an extensive bibliography, providing a guide for deeper studies into broader aspects of the field and serving as an excellent entry point for graduate students aiming to broaden their study of planetary science.

Amongst the famous planetary inhabitants of our solar system there is an entire ecosystem of smaller, less recognised bodies in the form of

comets and 'minor' planets. These native residents, derived from the building blocks of planets, contain valuable information. By studying them in detail, we may learn about the processes that occurred from the Sun's birth to the emergence of the solar system as we know it today. *Small Bodies of the Solar System* paints a detailed picture of the space missions, laboratory experiments and computer experiments behind our current understanding of the comets, minor planets, meteors and meteorites. With a rich selection of pictures, this book combines personal reflection and poetic imagery with a mathematical and physical overview to introduce the reader to these small wonders of our universe.

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The Solar System – so what is it? We've all learned the basics at school but how much can you remember? Expert astronomers and co-presenters of *The Sky at Night* Chris North and Paul Abel take a fascinating guided tour of our Solar System and explain its wonders. They look at all the major players, including our more familiar neighbours – the Sun, the planets and their moons – the occasional visitors to our planet – asteroids, meteors and comets – as well as distant stars and what might be beyond our Solar System – Earth Mark II? Chris and Paul recount the history of how everything came about and the myths that once shaped astronomy. They explain the latest science and discoveries, and reveal how any amateur astronomer can view and interpret the Solar System.

An astonishing exploration of planet formation and the origins of life by one of the world's most innovative planetary geologists. In 1959, the Soviet probe Luna 3 took the first photos of the far side of the moon. Even in their poor resolution, the images stunned scientists: the far side is an enormous mountainous expanse, not the vast lava-plains seen from Earth. Subsequent missions have confirmed this in much greater detail. How could this be, and what might it tell us about our own place in the universe? As it turns out, quite a lot. Fourteen billion years ago, the universe exploded into being, creating galaxies and stars. Planets formed out of the leftover dust and gas that coalesced into larger and larger bodies orbiting around each star. In a sort of heavenly survival of the fittest, planetary bodies smashed into each other until solar systems emerged. Curiously, instead of being relatively similar in terms of composition, the planets in our solar system, and the comets, asteroids, satellites and rings, are bewitchingly distinct. So, too, the halves of our moon. In

When the Earth Had Two Moons, esteemed planetary geologist Erik Asphaug takes us on an exhilarating tour through the farthest reaches of time and our galaxy to find out why. Beautifully written and provocatively argued, When the Earth Had Two Moons is not only a mind-blowing astronomical tour but a profound inquiry into the nature of life here—and billions of miles from home.

Dr. Maggie's Grand Tour of the Solar System

What would it be like for a kid to tour our solar system? In this clever trip through the solar system, a diverse group of girls and boys explore every planet with their robot guide, Dr. Quasar. Facts about our galaxy, solar system, the sun, and each planet are revealed as the kids visit Mercury, Venus, Earth and its moon, through the asteroid belt, on to the planets in the outer reaches of the solar system, and finally to the dwarf planet Pluto. Scientifically accurate, full-color illustrations show young readers the difference between planets, comets, asteroids, and other parts of the universe. As the kids write funny postcards home, they share more facts about each planet in an appealing kid-friendly way that helps introduce space and the unique aspects of our solar system. A short list of "space words" at the back of the book reminds readers about important concepts and vocabulary. Great for classroom use to introduce the solar system and space as well as for young explorers interested in space and science.

The fun and easy way to explore the night sky Do you know the difference between a red giant and a white dwarf? From asteroids to black holes, this easy-to-understand guide takes you on a grand tour of the universe. Featuring updated star maps, charts, and an insert with gorgeous full-color photographs, Astronomy For Dummies provides an easy-to-follow introduction to the night sky. Plus, this new edition also gives you the latest theories, explanations, and insights into the basic workings of the universe. Includes updated schedules of coming eclipses of the Sun and Moon and a revised planetary appendix Covers recent discoveries in space, such as water on the Moon and Pluto's demotion from "planet" status Collects new websites, lists of telescope motels, sky-watching guides, and suggestions for beginner's telescopes and suppliers Brings you up-to-speed on the latest social trends and personal technology, such as stargazing mobile apps, NASA video, and the prevalence of "Citizen Science" networks Whether you're an amateur astronomer, space enthusiast, or enrolled in a first year astronomy course, Astronomy For Dummies has you covered.

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