Guide 80 Astronomy

Like everyone else, most amateur astronomers live busy lives. After a long day or work or looking after young children, the last thing you want as an observer is to have to lug out a large telescope and spend an hour getting it ready before it can be used. Maybe you are going on vacation somewhere in the countryside where there are sure to be dark skies, but you don't necessarily want astronomy to dominate the trip. Or suppose you are not quite committed to owning a large telescope, but curious enough to see what a smaller, portable setup can accomplish. These are times when a small "grab 'n' go" telescope, or even a pair of binoculars, is the ideal instrument. And this book can guide you in choosing and best utilizing that equipment. What makes a telescope fall into the "grab 'n' go" category? That's easy – speed of setting up, ease of use, and above all, portability. In Part I of this book, we survey the various types of equipment, including accessories and mounts, that are available, and what it is best for what kind of viewing. Part II is about using your grab 'n' go telescope to visit a wealth and wide variety of objects. There are chapters on solar, lunar and planetary observing, as well as descriptions of many deep sky objects, including double and variable stars, planetary, emission and reflection nebulae, open and globular

clusters and distant galaxies. This ambitious text is dedicated to those who love to or – because of their limited time – must observe the sky at a moment's notice, whether from the comfort of a backyard or while on business or vacation far from home. Everything you need to know is here. So get started!.

The blossoming of adaptive optical techniques has brought about a revolution in the field of astronomical observation. Coupled with the new generation of large, ground-based telescopes, it allows us to achieve an unprecendented angular resolution in the analysis of faint astronomical sources at optical wavelengths. This book provides the basic concepts of adaptive optics, discusses the possible instrumental strategies and the state-of-the-art technical achievements of this development and presents the key astrophysical programs which will most benefit from it. Over fifteen well-known experts have contributed to making this volume a comprehensive one, with steady progression as well as full coverage of the various aspects of the field. Students graduating in optical sciences and astrophysics, astronomers, engineers interested in atmospheric turbulence compensation will find this book a reference text on the subject.

Every amateur astronomer has at least heard of the many different catalogs of deep-sky objects; the most well known are the Messier, the Caldwell, the Herschel, and the NGC. All of these catalogs are, in

general, readily available, but very few amateur observers are in a position to choose the best catalog for their particular deep-sky observing program, know how to use the catalog, or even realize just how many there are out there! The Amateur Astronomer's Guide to the Deep-sky Catalogs is a single compilation of the historical and modern astronomical deep-sky catalogs. It discusses their origins, compares what's in them, explains how to interpret the data they contain, and even outlines how readers can create suitable 'custom' catalogs for their own use. The last section provides a set of three deep-sky catalogs created by the author, for observers of different levels of experience, from newcomer to expert.

From the authors of Sketching the Moon comes a comprehensive guide filled with richly illustrated, detailed drawing tutorials that cover a variety of solar phenomena. Explanations of what to expect visually from white light, Hydrogen-alpha and Calcium K filters are provided for those new to solar observing, along with essential tips on equipment, observing techniques and the practicalities of drawing at the eyepiece. Time-honored, traditional methods and media are described in tandem with innovative techniques developed and shared by contemporary astronomical sketchers. For the technically minded, detailed descriptions are given on how to use image manipulation software to bring your sketches to life

through animation. The Sun is the most visually dynamic object in our solar system and offers compelling, spectacular views. Knotted magnetic field lines give rise to powerful eruptions and form the intricate sunspots and arching prominences that make our nearest star one of the most exciting, yet challenging, astronomical objects to sketch. Facilitated by the availability of affordable dedicated solar telescopes and filters, the Sun has become an increasingly popular target amongst astronomical sketchers. The use of narrowband solar filters provides a wonderful opportunity to capture views of the Sun that have, until recently, been largely inaccessible. You'll discover easy to follow, step-by-step instructions geared toward your specific interests, be it technical sketching and contributing to science, personal study, or even fun solar outreach activities that help children learn through art. By using Solar Sketching as a reference, drawing the Sun has never been easier.

The ability of storing, managing, and giving access to the huge quantity of data collected by astronomical observatories is one of the major challenges of modern astronomy. At the same time, the growing complexity of data systems implies a change of concepts: the scientist has to manipulate data as well as information. Recent developments of the `WorldWideWeb' bring interesting answers to these problems. The book presents a wide selection

of databases, archives, data centers, and information systems. Clear and up-to-date descriptions are included, together with their scientific context and motivations. Audience: This volume provides an essential tool for astronomers, librarians, data specialists and computer engineers.

For a generation, Astronomy: A Self-Teaching Guide has introduced hundreds of thousands of readers worldwide to the night sky. Now this classic beginner's guide has been completely revised to bring it up to date with the latest discoveries. Updated with the latest, most accurate information, new online resources, and more than 100 new graphics and photos, this Eighth Edition features: ·Website addresses throughout for the best color images and astronomy resources online ·Technical ideas made simple without mathematics ·A beautiful updated full-color, glossy insert with spectacular images ·An interactive format with learning goals, reviews, self-tests, and answers for fast learning

Welcome to the first comprehensive guide to one of the world's most popular telescopes: the ShortTube 80 refractor. With its ultra-portability, versatility, and relatively low cost, this telescope continues to delight generations of stargazers. Starting in the field under a dark sky, the author walks the reader through a typical evening of stargazing, where the ShortTube 80 brings many astronomical treasures into focus. From there, he provides an in-depth account of the optical properties of the ShortTube 80 refractor and the accessories and mounting arrangements that maximize its potential both as a spotting 'scope by day and an astronomical 'scope by night. The main text discusses how the versatile ShortTube 80 can be used to study deep sky objects, the Sun, the Moon, bright planets and even high-resolution projects, where the

instrument's features can be optimized for the observation of tight double and multiple stars. It explores how the ShortTube 80 can image targets using camera phones, DSLRs and dedicated astronomical CCD imagers. Packed with practical advice gained from years of firsthand stargazing experience, this book demonstrates exactly why ShortTube 80 has remained a firm favorite among amateur astronomers for over three decades, and why it is likely to remain popular for many years to come.

Michael Swanson’s online discussions with literally thousands of NexStar owners made it clear that there was a desperate need for a book such as this – one that provides a complete, detailed guide to buying, using and maintaining NexStar telescopes. Although this book is highly comprehensive, it is suitable for beginners – there is a chapter on "Astronomy Basics" – and experts alike. Celestron’s NexStar telescopes were introduced in 1999, beginning with their first computer controlled "go to" model, a 5-inch. More models appeared in quick succession, and Celestron’s new range made it one of the two dominant manufacturers of affordable "go to" telescopes.

Fundamental Astronomy is a well-balanced, comprehensive introduction to classical and modern astronomy. While emphasizing both the astronomical concepts and the underlying physical principles, the text provides a sound basis for more profound studies in the astronomical sciences. This is the fifth edition of the successful undergraduate textbook and reference work. It has been extensively modernized and extended in the parts dealing with extragalactic astronomy and cosmology. You will also find augmented sections on the solar system and extrasolar planets as well as a new chapter on astrobiology. Long considered a standard text for physical science majors, Fundamental Astronomy is also an excellent reference work for dedicated amateur astronomers.

Charge-Coupled Devices (CCDs) are the state-of-the-art detector in many fields of observational science. Updated to include all of the latest developments in CCDs, this second edition of the Handbook of CCD Astronomy is a concise and accessible reference on all practical aspects of using CCDs. Starting with their electronic workings, it discusses their basic characteristics and then gives methods and examples of how to determine these values. While the book focuses on the use of CCDs in professional observational astronomy, advanced amateur astronomers, and researchers in physics, chemistry, medical imaging, and remote sensing will also find it very valuable. Tables of useful and hard-to-find data, key practical equations, and new exercises round off the book and ensure that it provides an ideal introduction to the practical use of CCDs for graduate students, and a handy reference for more experienced users.

This book is for the aging amateur astronomy population, including newcomers to astronomy in their retirement and hobbyists who loved peering through a telescope as a child. Whether a novice or an experienced observer, the practice of astronomy differs over the years. This guide will extend the enjoyment of astronomy well into the Golden Years by addressing topics such as eye and overall health issues, recommendations on telescope equipment, and astronomy-related social activities especially suited for seniors. Many Baby-Boomers reaching retirement age are seeking new activities, and amateur astronomy is a perfect fit as a leisure time activity. Established backyard astronomers who began their love of astronomy in their youth,

meanwhile, may face many physical and mental challenges in continuing their lifelong hobby as they age beyond their 55th birthdays. That perfect telescope purchased when they were thirty years old now suddenly at sixty years old feels like an immovable object in the living room. The 20/20 eyesight has given way to reading glasses or bifocals. Treasured eyepieces feel all wrong. Growing old is a natural process of life, but astronomy is timeless. With a little knowledge and some lifestyle adjustments, older astronomers can still enjoy backyard observing well into their seventies, eighties and even into their nineties.

A portable guidebook for enjoying the night sky in 2021. 2021 Night Sky Almanac is the ideal resource for both novice and experienced sky watchers in the United States and Canada, with all of the advice, information and data that enthusiasts need to understand and enjoy the wonders of the night sky. This in-depth guide first introduces readers to the objects in the sky -- from stars, to comets, to globular clusters -- and then takes them through the cosmic events to look out for each month in 2021, with sky maps, moon phase charts and info about the planets. The book also features: Methods for using your hands to measure angles in the sky; Information about binoculars and telescopes; History of constellations, including Indigenous history; A glossary of terms; And much, much more! 2021

Night Sky Almanac is both a comprehensive introduction to astronomy and a quick reference book for more experienced sky watchers who don't want to miss a thing. Its compact size means it's perfect for taking on an "astro-vacation" or simply sky viewing in the backyard. The Royal Astronomical Society of Canada (RASC) was founded ad hoc in 1868 and incorporated in 1890 with a dual membership of professionals and amateurs. It has 29 Canadian chapters and over 5,000 members. The Journal of the Royal Astronomical Society of Canada is entering its 114th year of publication, and the RASC also produces a number of other publications and guidebooks.

Over the last 15 years or so there has been a huge increase in the popularity of astrophotography with the advent of digital SLR cameras and CCD imagers. These have enabled astronomers to take many images and, indeed, check images as they scan the skies. Processing techniques using computer software have also made ‘developing’ these images more accessible to those of us who are ‘chemically challenged!’ And let’s face it – some of the pictures you see these days in magazines, books, and on popular web forums are, frankly, amazing! So, why bother looking through the eyepiece you ask? Well, for one thing, setting up the equipment is quicker. You just take your ‘scope out of the garage or, if you’re lucky enough to own one,

open the roof of your observatory, align the ‘scope and off you go. If you have an equatorial mount, you’ll still need to roughly polar align, but this really takes only a few moments. The ‘imager’ would most likely need to spend more time setting up. This would include very accurate polar alignment (for equatorial mounts), then finding a guide star using his or her finder, checking the software is functioning properly, and c- tinuous monitoring to make sure the alignment is absolutely precise throu- out the imaging run. That said, an imager with a snug ‘obsy’ at the end of the garden will have a quicker time setting up, but then again so will the ‘visual’ observer.

The stars have never seemed closer than they do with the Astronomy Pack. Suitable for use in the Northern Hemisphere, the pack contains four essential items to introduce the beginner to the fascinating hobby of astronomy: a 'glow-in-the-dark' planisphere, an 80-page paperback book about the stars and planets, a colorful moon map, and newly updated start chart. Glow-in-the-Dark Planisphere: This planisphere has been specially made so that, after being held under a bright light, the stars and the names and shapes of the constellations will glow in the dark for a period. It is both a fun and practical star finder for identifying the stars and constellations visible on any night of the year from the US and Southern Canada (42 degrees North); the star map

is drawn by the well-known celestial cartographer Wil Tirion. A sheet explaining how to use the planisphere is included in the pack. Exploring Stars and Planets: A colorful and entertaining introduction to the exciting world of astronomy, this 80-page paperback is illustrated with more than 200 color photographs, artworks and maps, as the author Ian Ridpath describes the latest developments in the fast-moving fields of space exploration and astronomy. Concise chapters introduce the Sun, the Earth and all the other planets in our Solar System. Then, moving further into space, the author examines the stars and galaxies, and explores the origin of the Universe. Star Chart: This Star Chart shows the stars and constellations of the night sky in three superb maps: the northern and southern hemispheres, and the equatorial region. All stars visible with the naked eye are shown, with the brightest stars shown in their true colours. Fainter star clusters and nebulae are marked for observers using binoculars or small telescopes. Constellations, double stars and variable stars are also listed, and an informative accompanying text explains how to use the charts throughout the year, at any latitude. In a convenient folded format, Star Chart is suitable for use in both northern and southern latitudes. Moon Map: In a convenient folded format, the Moon Map is a superbly detailed, large-format map of the near (visible) side of the Moon. Specially drawn for by Dr

John Murray, an expert on the lunar surface, the map is not only a highly accurate and clear representation of the Moon but is also a practical guide for lunar observers. More than 500 physical features - craters, seas, mountain ranges, peaks, valleys and rilles (elongated depressions) - are named and indexed, and the landing sites of unmanned and manned spacecraft are also marked. The observer can thus readily identify objects seen through binoculars or a telescope, or pick targets for a program of observation.;The accompanying text is a practical guide to Moonwatching, which explains how to use the map and highlights the most interesting lunar features. Close-up images of some of these objects show what the observer can expect to see. Also included are photographs of the Moon at each daily stage and a smaller map of the far side, as revealed by satellites. Guidelines on drawing or photographing the Moon are also included.

Focusing on the North American continent, this book, the first of its kind, identifies and describes major field guides in all scientific subject areas (from plants, animals, and insects to astronomy and weather, geology and fossils, and man-made objects). Organized by topic, it offers complete bibliographic information and descriptions of more than 1,300 field guides.

Featuring new chapters on astro-software and CCD-imaging techniques, a book for amateur astronomers covers

astrophotography, telescope construction, planetary observing, comet hunting, variable star recording, and nova discovery, and features both novice and advanced techniques. UP.

This accessible guide presents the astrophysical concepts behind astronomical spectroscopy, covering both theoretical and practical elements. Suitable for anyone with only a little background knowledge and access to amateur-level equipment, it will help you understand and practise the scientifically important and growing field of amateur astronomy.

The 2005 meeting in Taormina, Italy was attended by 127 professionals who develop and use the highest quality detectors for wavelengths from x-ray to sub-mm, with emphasis on optical and infrared detectors. The meeting consisted of overview talks, technical presentations, poster sessions and roundtable discussions. These proceedings capture the technical content and the spirit of the 2005 workshop. The 87 papers cover a wide range of detector technologies including CCDs, CMOS, APDs, and sub-mm detectors. There are papers on observatory status and plans, special applications, detector testing and characterization, and electronics. A special feature of these proceedings is the inclusion of pedagogical overview papers, which were written by teams of leading experts from different institutions. These proceedings are appropriate for a range of expertise levels, from undergraduates to professionals working in the field. The information presented in this book will serve as a valuable reference for many years to come. This workshop was organized by the Scientific Workshop Factory, Inc. and the INAF- Osservatorio Astrofisico di Catania.

Gets beginners off to a great start! Introduces the hobby of astronomy with observation and photographic tips. Identifies the best sky objects to observe using the naked eye,

binoculars, and backyard telescopes. By David J. Eicher, managing editor of Astronomy magazine. 7 3/8 x 9 5/8; 166 pgs.; 80 b&w and 80 color photos; softcover.

It is a pleasure to present this work, which has been well received in German-speaking countries through four editions, to the English-speaking reader. We feel that this is a unique publication in that it contains valuable material that cannot easily-if at all-be found elsewhere. We are grateful to the authors for reading through the English version of the text, and for responding promptly (for the most part) to our queries. Several authors have supplied us, on their own initiative or at our suggestion, with revised and updated manuscripts and with supplementary English references. We have striven to achieve a translation of Handbuch for Sternfreunde which accurately presents the qualitative and quantitative scientific principles con tained within each chapter while maintaining the flavor of the original Ger man text. Where appropriate, we have inserted footnotes to clarify material which may have a different meaning and/or application in English-speaking countries from that in Germany. When the first English edition of this work, Astronomy: A Handbook (translated by the late A. Beer), appeared in 1975, it contained 21 chapters. This new edition is over twice the length and contains 28 authored chap ters in three volumes. At Springer's request, we have devised a new title, Compendium of Practical Astronomy, to more accurately reflect the broad spectrum of topics and the vast body of information contained within these pages.

'... (the book) conveys the enthusiasm and excitement of the authors even at the potential of an astronomical discovery, a lot of advice is useful, and it would certainly encourage and help anyone to have a go at astronomical photography.' Astronomy Now

Featuring detailed commented spectral profiles of more than one hundred astronomical objects, in colour, this spectral

guide documents most of the important and spectroscopically observable objects accessible using typical amateur equipment. It allows you to read and interpret the recorded spectra of the main stellar classes, as well as most of the steps from protostars through to the final stages of stellar evolution as planetary nebulae, white dwarfs or the different types of supernovae. It also presents integrated spectra of stellar clusters, galaxies and quasars, and the reference spectra of some terrestrial light sources, for calibration purposes. Whether used as the principal reference for comparing with your recorded spectra or for inspiring independent observing projects, this atlas provides a breathtaking view into our Universe's past. The atlas is accompanied and supplemented by Spectroscopy for Amateur Astronomers, which explains in detail the methods for recording, processing, analysing and interpreting your spectra.

This book, written by one of the leaders in the field, covers the principles and theory of adaptive optics, and describes in detail how this technology can be applied to large ground-based telescopes to conmpensate for the effects of atmospheric turbulence. In addition to information on basic adaptive optics components and technology, there are chapters on atmospheric turbulence, optical image structure, laser beacons, and overall system design. The overall design ofadaptive optics systems, including performance estimation and optimization, receives detailed treatment. This book provides a fundamental understanding of the physical principles of adaptive optics technology, so that it will have lasting value as a complete and accessible source ofreference.

To British television viewers, the name ‘Patrick Moore’ has been synonymous with Astronomy and Space Travel since he first appeared on The Sky at Night in 1957. To amateur

astronomers he has been a source of inspiration, joy, humour and even an eccentric role model since that time. Most people know that his 55 years of presenting The Sky at Night is a world record, but what was he really like in person? What did he do away from the TV cameras, in his observatory, and within the British Astronomical Association, the organisation that inspired him as a youngster? Also, precisely what did he do during the War Years, a subject that has always been shrouded in mystery? Martin Mobberley, a friend of Patrick Moore's for 30 years, and a former President of the British Astronomical Association, has spent ten years exhaustively researching Patrick's real life away from the TV cameras. His childhood, RAF service, tireless voluntary work for astronomy and charity and his endless book writing are all examined in detail. His astronomical observations are also examined in unprecedented detail, along with the battles he fought along the way and his hatred of bureaucracy and political correctness. No fan of Sir Patrick Moore can possibly live without this work on their bookshelf!