Essential Astronomy Resource Short List

Compiled by the Indiana Astronomical Society for the Indiana State Library 3.7.19

Websites

- Indiana Astronomical Association: Indiana's largest astronomy club, dedicated to exploring the night sky and providing community outreach. Membership is open to everyone. Monthly Programs and frequent observing opportunities. Ownership of a telescope is not required.
  http://www.iasindy.org

- Other Indiana Astronomy Clubs:
  https://www.go-astronomy.com/astro-clubs-state.php?State=IN

- Night Sky Network:
  https://nightsky.jpl.nasa.gov/

- Solar System Ambassadors:
  https://solarsystem1.jpl.nasa.gov/ssa/home.cfm

- Hubble Space Telescope: Amazing images from our eye on the universe for over 20 years. This site also has Tonight's Sky, monthly guide to the heavens videos.
  http://www.hubblesite.org

- Heavens Above; Provides real-time date on flyovers by the International Space Station and other satellites as well as precise stargazing information for your specific location.
  http://www.heavens-above.com

- What's Out Tonight; Download and print monthly sky charts. Planetary positions for specific month are also listed.
  http://www.whatsouttonight.com

- Orion Telescope and Binoculars: Good source for astronomical equipment, including guidelines on selecting your first telescope. Also has current observing information.
  https://www.telescope.com

- Magazines:
  https://www.skyandtelescope.com
  http://www.astronomy.com

Software

Most people today are using software on their phones or laptops to help them observe the night sky. These apps are supplanting hardcopy star charts for beginners through advanced astronomers. Following are some of the most popular apps:

- **SkySafari** https://www.skysafariastronomy.com Available for iOS, Android and Mac. Free version, or upgrade to paid versions with more features.

- **Stellarium Astronomy software**: https://www.stellarium.org Free Planetarium software for your computer (all platforms)

On Apple App Store: search for **gosatwatch** for International Space Station and other satellite flyover details.

Books: Laura's Quick Picks

- Find the Constellations, by H.A Rey. Legendary constellation finder guide. Written and illustrated for kids, but useful for all ages. Identification of the major constellations is the key to finding other celestial objects. Beginner, children through adults.

- 50 Things to see with a Telescope, a Young Stargaze's Guide, by John A. Read. This is a great introduction to finding objects in the night sky. Good diagrams and descriptions will help you learn basic astronomy facts, find major constellations, and identify many deep sky objects. Great for beginners, from older children through adults. This is my Top Pick for beginning stargazers.

- Turn Left at Orion, by Guy Consolmagno and Dan M. Davis. One hundred night sky objects and how to find them. Objects are rated by sky conditions and the equipment needed to see them, including binoculars and small to medium telescopes. Arranged by season. Includes many Messier and other non-Messier objects as well as an intro to the moon and planets. This book is a popular general observation book. Beginning to intermediate users, older kids through adults.

- The Year-Round Messier Marathon Field Guide, by Harvard Pennington. Designed to guide the user to the 110 Messier objects. The Messier "Marathon" is a challenge to find all objects in the course of one observing night. However, this book is also very useful for finding any of the Messier objects outside of a regular "Marathon." Messier objects include open and globular star clusters, galaxies, and asterisms, and cover the wide range of objects that amateur astronomers enjoy. Highly recommended for anyone that can identify major constellations and is ready to move onto deep sky objects. My Top Pick for intermediate stargazers. Older kids through adults.

- Peterson Field Guide to the Stars and Planets, by Jay M. Pasachoff. Packed with astronomy information, including sky charts and maps. Charts are smaller than those from the Sky & Telescope Pocket atlas, and I find the compact size and format to be difficult to use in the field for identification of sky objects. However, this book is a great introduction to general astronomy. Beginning to intermediate users, older kids through adults.

- Sky & Telescope's Pocket Sky Atlas, Roger W. Sinnott (available in regular and Jumbo edition) Popular edition of sky charts; almost every serious amateur owns this atlas. Intermediate and advanced users.

Suggested Equipment

Binoculars

Start with any binoculars, or "field glasses," that your already have. A typical general-use binocular will be 7x35. You will be surprised at what you can see with these! If you want to purchase binoculars, we recommend binoculars with magnifications of 7x to 9x. Higher magnification binoculars are heavier, with a smaller field of view, and can be difficult to handhold and get a steady image. Starting at about 10x and higher, binoculars will require a camera tripod to get the most out of them. Here are a couple of entry-level binoculars that are popular:

- **Celestron "Cometron" 7x50 astronomical binoculars**. These are lightweight with a bright image and wide field of view. Good astro binoculars as well as for general use. Great entry-level binoculars. Cost about $35 on Amazon.
- **Celestron Skymaster Giant 15x70 astronomy binoculars with tripod adaptor**. About $65 on Amazon. Orion has a similar model as well. These are an entry-level, higher magnification binocular. However, they are heavy to handhold and are best used on a camera tripod.

Telescopes

We recommend NOT starting with the typical department store telescope, as the mounts are often inadequate and frustrating to use. The smaller tabletop telescopes are lightweight and sturdy, and great for kids. Here are three entry-level tabletop telescopes to consider:

- **Orion Funscope 76mm Tabletop reflector telescope**. About $75 from Orion. This is a basic but sturdy telescope that provides reasonable viewing power on a budget. It is a very good first telescope for younger kids.
- **Orion StarBlast 4.5 Astro Reflector telescope**. About $200 from Orion.
    - The StarBlast is a substantial improvement in viewing power over the Funscope. This is the most recommended entry-level telescope suitable for all ages.
- **Astronomers Without Borders OneSky Reflector Telescope**, $199.99 from http://www.astronomerswithoutborders.org. This is a slightly larger telescope (a 5 inch primary mirror vs 4.5 inch mirror for the StarBlast. This is a 30% increase in aperture, or reflector area, over the StarBlast!) It features collapsible design for portability. It will give better images than the StarBlast, but might be less suitable for unsupervised use by very young children due to its collapsible design and open secondary mirror. It is probably the best choice for the money for older kids and adults. Some serious amateurs even use this model as a "grab and go" telescope with good success.

Above the entry-level telescopes, the best value for the largest aperture is the Dobsonian telescope. 8-inch to 10-inch Dobsonians are considered mid-range telescopes and give significantly better images than their smaller tabletop cousins. These will start around $400 and up.

Starting at about $400-$500 (and up) are “push-to” or fully automated, “go-to” telescopes and mounts. These are available in reflector, refractor, and Dobsonian types. All of these are extremely popular, and allow the user to automatically point the telescope to literally thousands of different objects that are in the telescope’s database. Used models of various telescopes can often be found online or through your local astronomy club.

New owners sometimes have difficulty getting their new “go-to” telescope to align properly without some help. Whether using binoculars, a manual telescope, or one of the “go-to” telescopes, don’t hesitate to attend a local club meeting such as those presented by the Indiana Astronomical Society. IAS members are always willing to help newcomers learn how to get the most out of their equipment and help them find objects in the night sky. Attending an observing session will also let a newcomer look at a variety of telescopes in action, which should help them determine which type would best meet their needs and budget.

Respectfully submitted,
Laura Keller
IAS Secretary and Librarian
librarian@iasindy.org