

INFORMATION SHEET

Viewing the Night Sky

You can gaze at the night sky for 5 or 10 minutes and nothing much will happen. But if you could watch the sky in fast motion, you will see the stars moving across the sky as one.

Stars rise in the east and set in the west, just as the Sun and Moon do. The Earth spins from west to east, so everything in the sky comes into view as we spin towards it and leaves as we spin away from it. *



Photo: Greg Johns

Stars

Stars rise in the east and set in the west, just like the Sun and Moon do. But depending on where you are, not all stars rise and set. If you're in the southern half of Australia, the stars (including the Southern Cross) go around the sky in a circle.

For example, in April the Southern Cross is on its side in the early evening but it becomes more upright towards midnight.

Planets

The planets (including Earth) all orbit the Sun in roughly the same plane. And that means, from Earth, it looks like the Sun and all the planets follow an imaginary line across the sky called the ecliptic.

But unlike the stars, planets don't follow a simple cycle. Their orbits dictate when they appear (88 days for Mercury; 29 years for Saturn) as well as their position in relation to the Sun and the Earth at any given time.

So that means that even though Jupiter might appear in the evening sky in April one year, it won't appear in same place at the same time next month or in April next year.

Constellations

There are 88 modern constellations. Of these, 12 are zodiac constellations — the ones we're all familiar with from astrology.

Like the Sun and the planets, the zodiac constellations all lie in the ecliptic so they're visible from every place on Earth where you can see the Sun rise and set. The zodiac constellations span the entire sky, so we never see all 12 of them at once.

If you look up on a dark night you should be able to see at least four zodiac constellations at any one time, lying across the ecliptic. During the night, as the Earth spins, each of these constellations will sink in the western sky while others will rise in the east. If you were to watch the sky for an entire night you'd see up to 10 of the 12 zodiac constellations. The few that you can't see are in the patch of the sky blocked out by the Sun.



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Getting Started

Star Charts: A star chart is a map of the night sky. Just as a map of the Earth will show you the different countries and cities, so a map of the sky will show you the location of constellations and their stars. A star chart of the night sky uses a grid reference system – similar to latitude and longitude on maps of the Earth – that can help you to easily locate and identify thousands of potential observing targets.

Planispheres: Planispheres have a map of the sky that turns around a celestial pole. Turning the map mimics the apparent daily motion of the sky around the celestial pole, complete with risings and settings at the horizon edges. To set a planisphere you align the edge of the wheel with your time and date, and you will see a map of the stars that are above your horizon. The centre of the oval represents the sky directly overhead.

Books and Media: There are a multitude of books about all aspects of astronomy: your local library is an inexpensive place to start. Your online searches will enable you to easily wander through the many branches of astronomy. Informative and educational articles and videos abound.

Astronomical Groups: Joining an astronomical group will give you personal and practical support to learn more about your area of interest. Many groups have workshops, special interest groups, member viewing-nights and telescopes for loan.

Astronomical Software: Searching online you will find there are many free and interactive astronomy programs which will enable you to explore your night sky in detail. A few examples are: Stellarium, TheSky, Google Sky, Starry Night, and Celestia.

Binoculars: Compared to a telescope, binoculars for astronomy have certain advantages: they're lighter, much easier to take outside, give a wider field of view, and are less expensive. Using 7x50 binoculars will enable you to see much more than the unaided eye and you will be able to hold them steady without too much shaking.

Telescopes – things to consider:

- **Aperture:** Aperture is the diameter of the telescope's main lens or mirror. The larger the aperture, the more light comes in the telescope and the brighter your image will be. With a large aperture you will be able to see more stars and see them more clearly.
- **Size:** While a bigger aperture will result in a brighter and better image, it will also mean that your telescope will be larger, heavier, and more expensive. Think about your ability to carry, transport, and set up a large telescope in the dark.
- **Magnification:** The Importance of magnification is a common misconception when shopping for telescopes. Aperture should be your main consideration for visual observation. If you have a small aperture, then you will see a dimmer image and more magnification will only make that image bigger. High magnification also means you will only see a very narrow piece of the sky. The magnification of a telescope is increased or decreased by switching eyepieces.

* Ref: [ABC Science: How the Sky Works](#)

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