Backyard Astronomy

Navigating the Sky
Week 1

Introduction

- About this course
- Why Backyard Astronomy
- Setting your expectations
- Seeing Conditions
- Space Objects to view
- Navigating the Night Sky (techniques)

About the Course

- Week 1: Navigating the Night Sky
- Week 2: Learning about Telescopes and preparing to purchase a telescope
- Week 3: Expanding your Hobby - other areas of astronomy
- Session 4: Viewing Sessions (4 opportunities)

What Interest You most about Backyard Astronomy?

- Share with us your reason for taking this class.

Setting Your Expectations

- When you view a deep space object such as a nebula or star cluster, YOU are seeing something that 98% of the world has never seen?
- Make it fun … make a game out of it
- Remember … your binocular or telescope isn't the Hubble (Not Yet anyways)

Seeing Conditions

- Your observing activity will determine what your conditions will need to be and what type of equipment, if any, is required.
- Regardless of activity, the more that you can isolate yourself from direct contact with artificial light will allow your eyes adapt and pick up details it would otherwise miss.

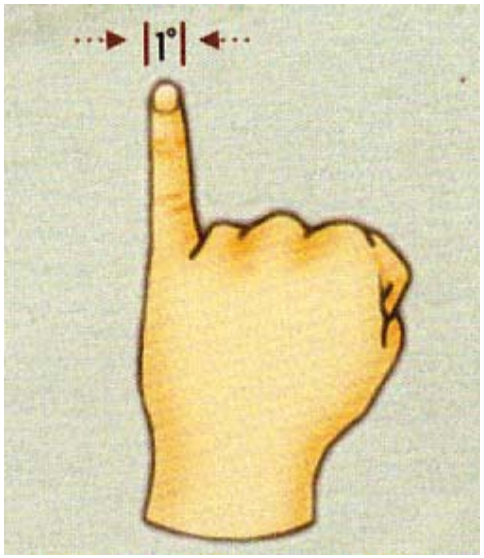
Sky Objects to View

- Constellations
- Moon
- Planets
- Stars & Binary Stars
- Star Clusters
- Galaxies
- Globular Clusters
- Comets
- Asteroids
- Nebula
- Other Stuff
  - Satellites
  - International Space Station
  - Space Shuttle
  - Space Debris

Tips & Tricks & Techniques to Navigating the Night Sky

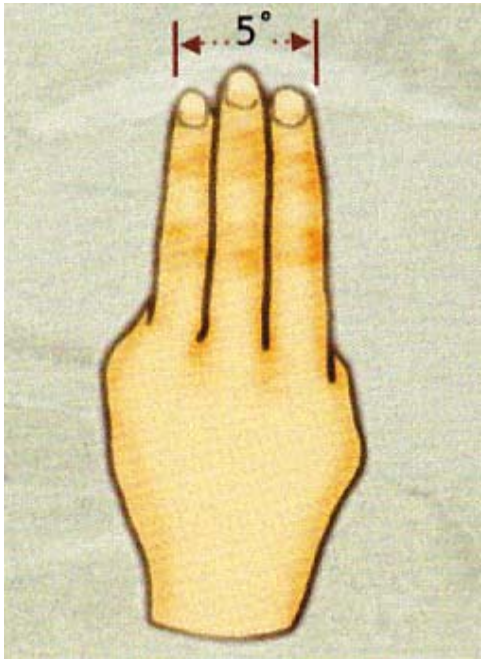
- Measuring distance between objects
- Using Guidepost
- Using All Sky Maps (doing away with complicated maps … *at least for now*)

Hand Measurements
Pinky Finger = 1°

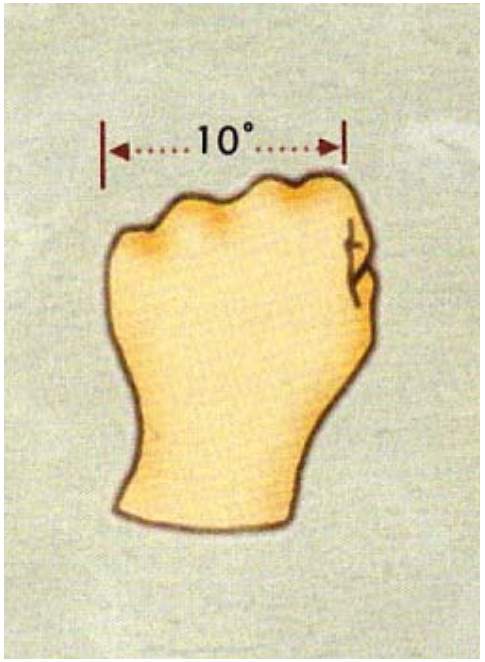


Note: Moon = .5 °

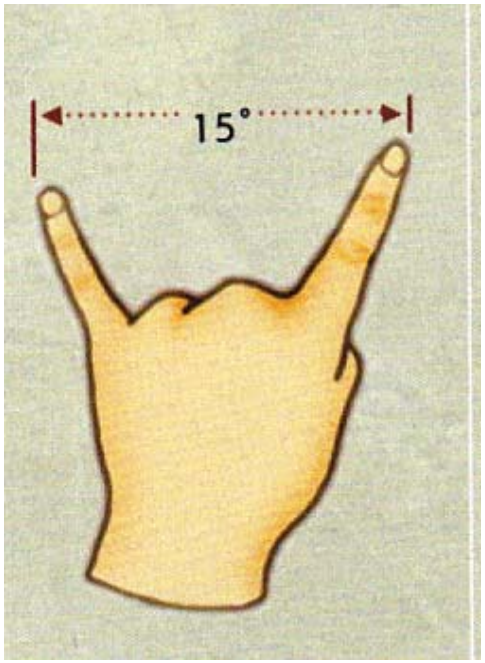
Hand Measurements
Scout Salute = 5°



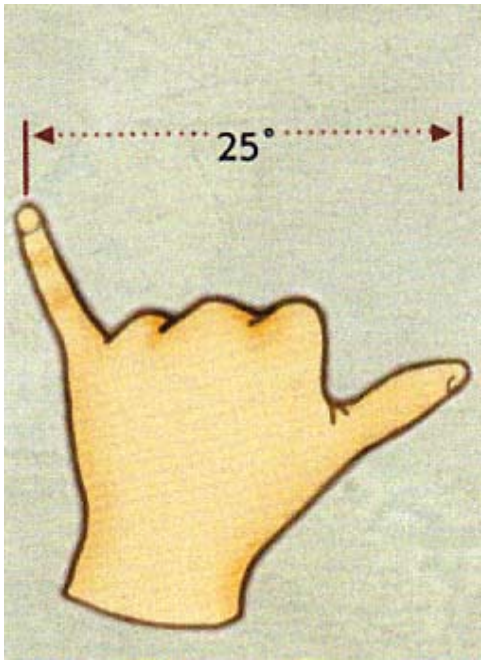
Hand Measurements
Knuckle Sandwich = 10°



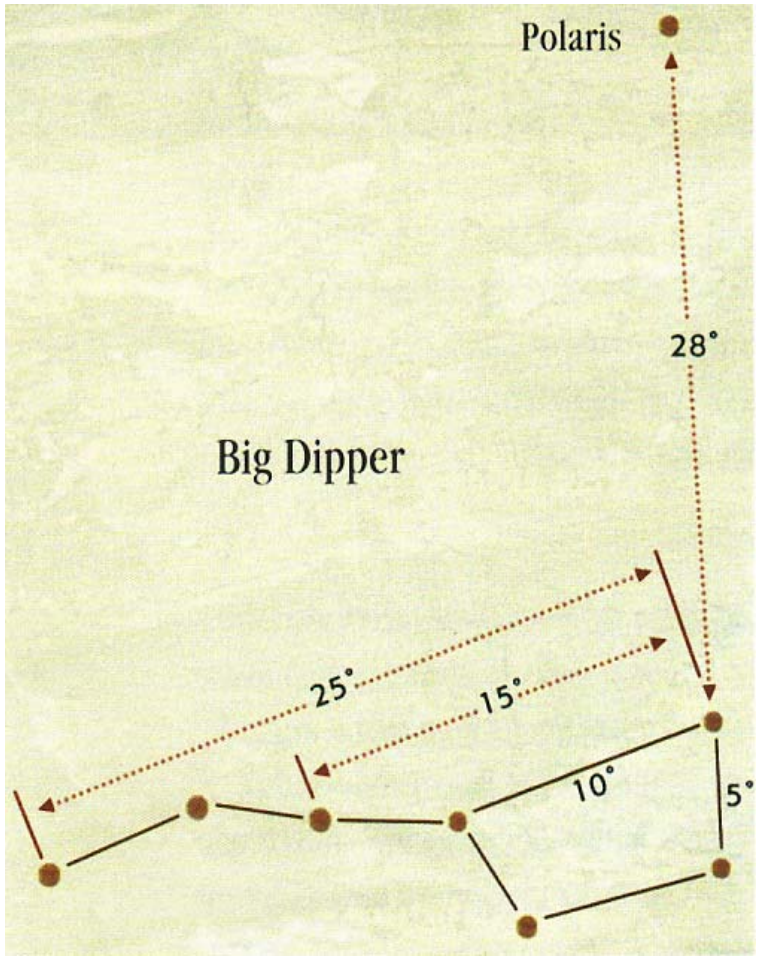
Hand Measurements
Hook'em Horns = 15°



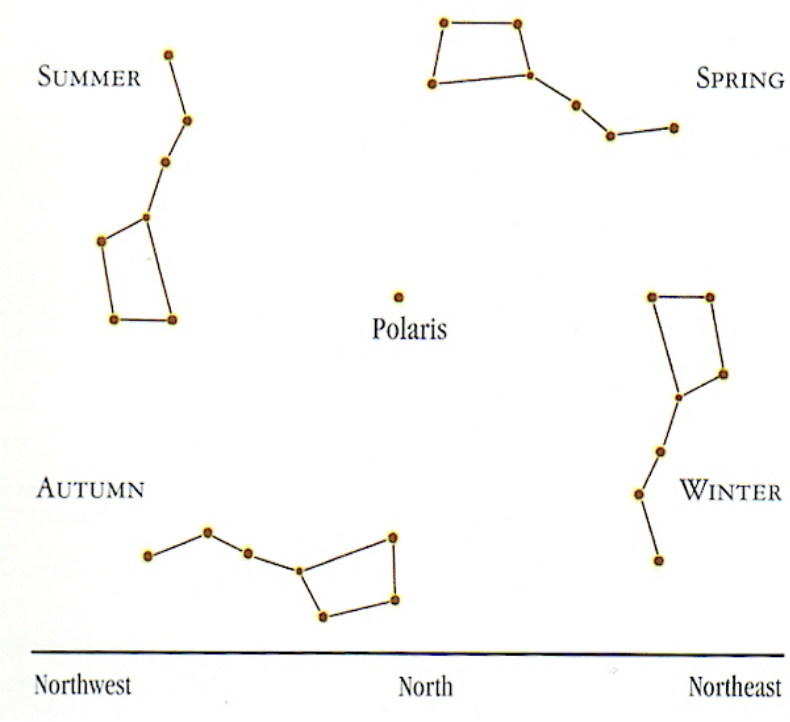
Hand Measurements
Gig'em Aggies = 25°



Hand Measurements
Intro to Big Dipper as a Guidepost



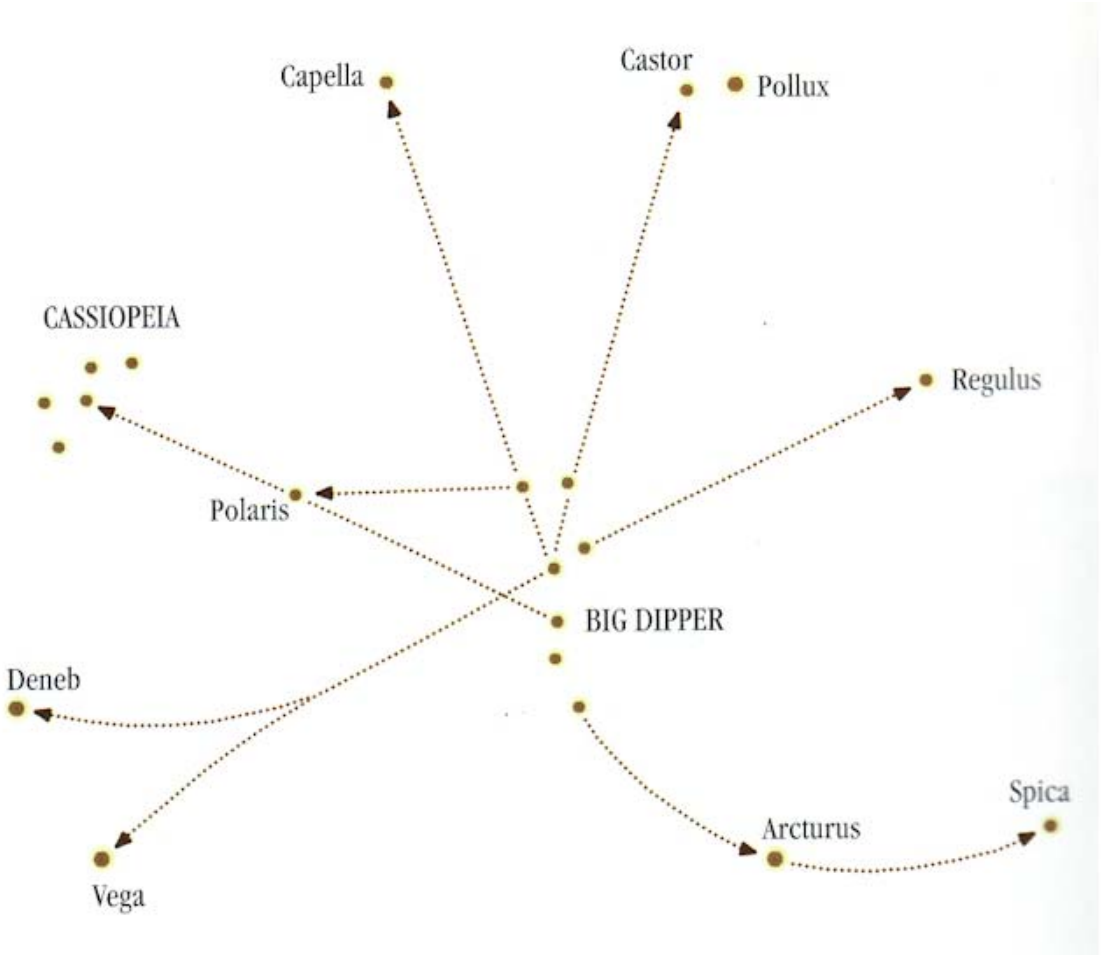
Seasonal Orientation of Big Dipper



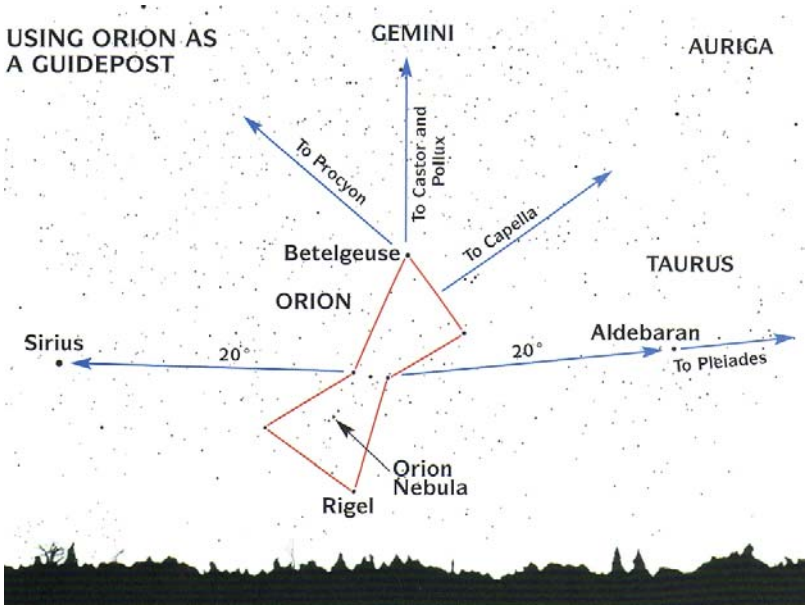
Note Bucket star alignment to Polaris (North Star)

What Season is it?

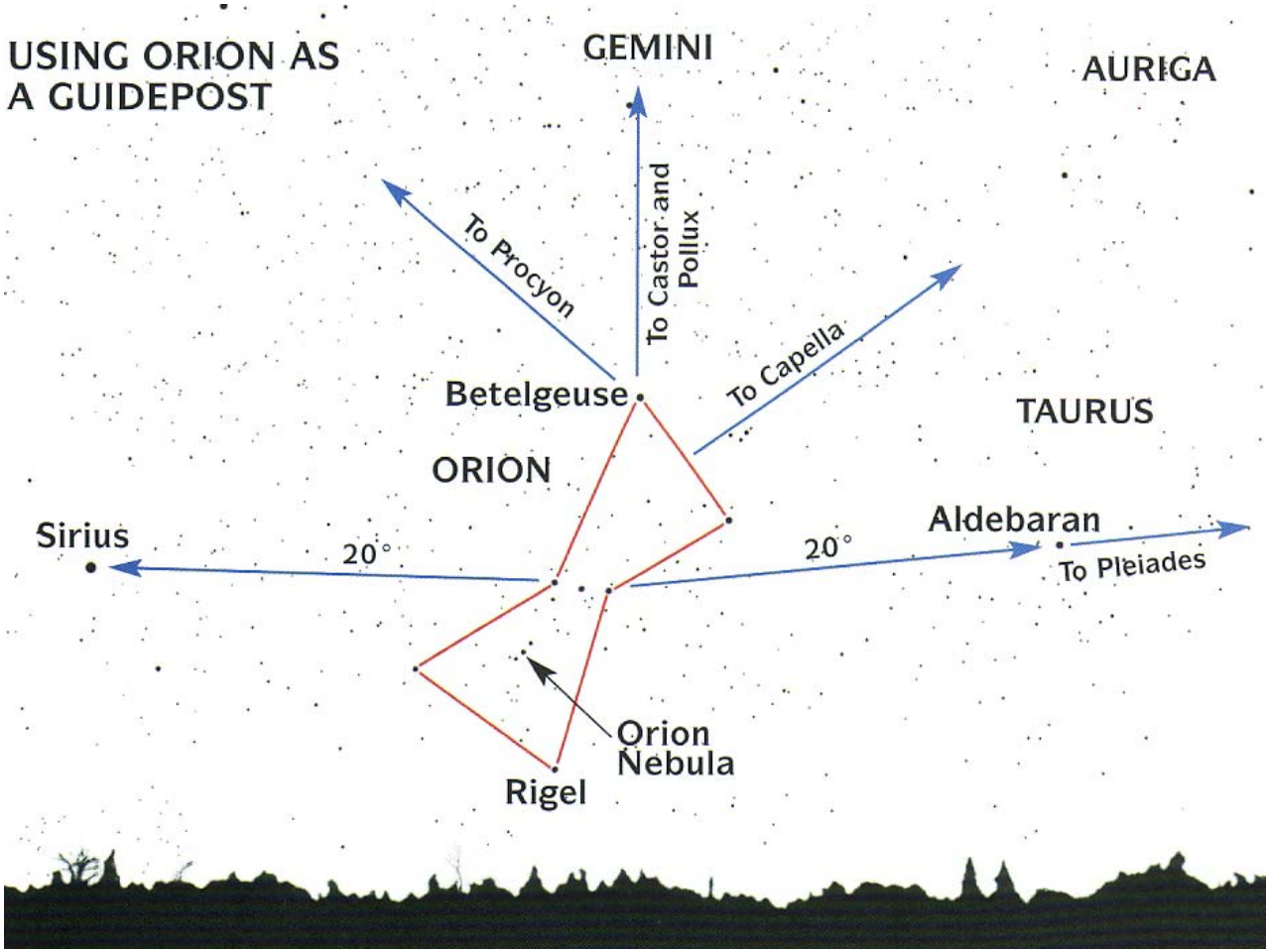
Big Dipper Guide Post to Night Sky



Orion Guide Post & Photo



Orion Guide Post to Night Sky



Orion Guide Post Photo of Night Sky

Seasonal Location of Guide Posts

WHERE TO FIND THE BIG DIPPER AND ORION

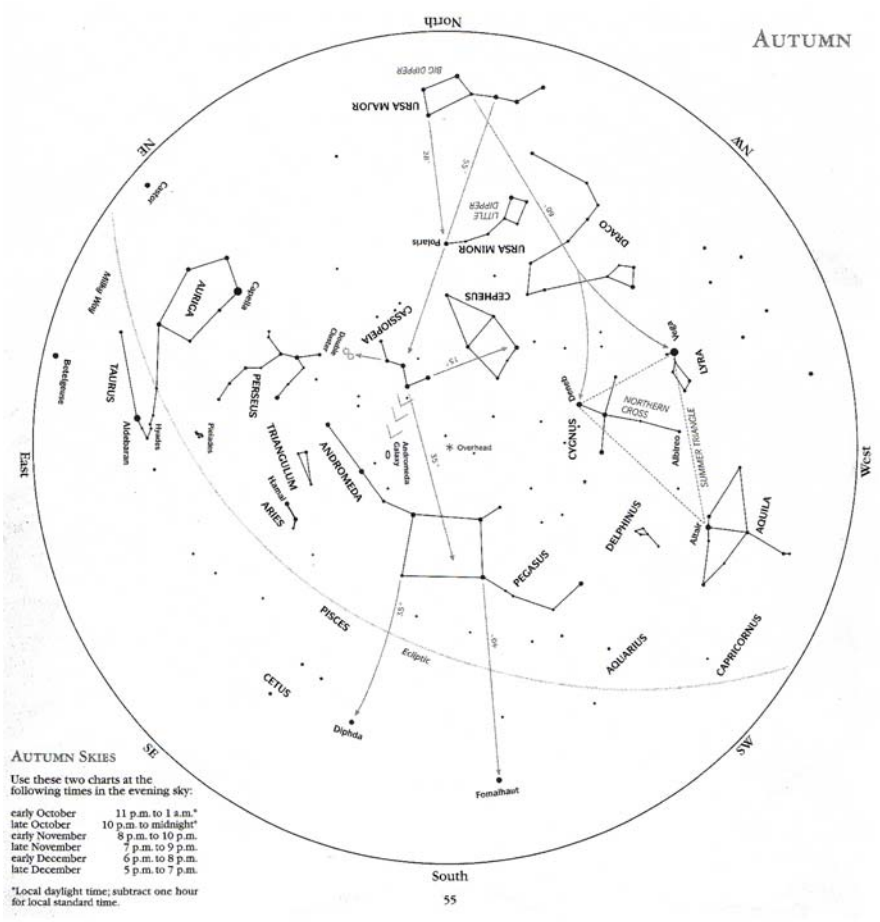
MONTH	BIG DIPPER DIRECTION	BIG DIPPER ALTITUDE	ORION DIRECTION	ORION ALTITUDE
January	NE	25°	S	40°
February	NE	40°	S	45°
March	NE	55°	SW	35°
April	N	65°	SW	20°
May	N	70°	Not visible	
June	N	65°	Not visible	
July	NW	55°	Not visible	
August	NW	40°	Not visible	
September	NW	25°	Not visible	
October	N	15°	Not visible	
November	N	10°	E	15°
December	N	15°	SE	30°

Clarification Note: Orion is still visible May – October, just not in the same sky.

All Sky Map Sky View

See Hand Out

All Sky Map Chart View



See Hand Out

Tips to Using All Sky Map

- The edge of the chart represents the horizon; the overhead point is at the center
- The chart is most effective when you use no-more than ¼ of the chart at a time, which represents a comfortable viewing area of the sky in a given direction
- To use chart, hold it in front of you, with the chart rotated so that the direction you are facing is at the bottom of the chart. (Don’t be confused about East / West points laying opposite their location on map)

Tips to Using All Sky Map

- On a moonless night in the country, you will see more stars than are shown on the map.
- Deep in the city or around a full Moon, you will see fewer stars than are shown on the map.
- The ecliptic line is the celestial pathway of the moon and planets. The star groups straddling this line are known as the zodiac constellations.

Tips to Using All Sky Map

- Note the All Sky Map use of Arrows and Degrees, providing you new set of guideposts from one constellation or star to another.
- Note the Month / Time Slot for viewing on the All Sky Map.

Credits

- **Night Watch, A practical guide to viewing the Universe** by Terence Dickenson
  - Many of the charts used in this slide presentation came from this book. This is a **MUST HAVE** book for the beginning astronomer. It is simply the best written book on beginning astronomy. The book contains great tips and useful diagrams and charts along with fantastic photos. As you progress with the hobby, other books by Terence Dickenson such as **Backyard Astronomers Guide** and **The Universe and Beyond** are great additions to your learning experience.

Conclusion

- Start exploring the sky on the first clear night
- Set a goal to find several constellations on your first night out