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There are various tools that allow you to observe the sky and its objects. Click on each of the tools above to learn how to use each tool. Once you have finished learning about each tool, return to your astronomer's toolbox by clicking on the small toolbox icon that will appear on the screen.

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A sky map, also known as star chart, is a map of the night sky used to locate celestial objects. Sky maps are relative to the specific time of the year in which you are observing the sky, since the position of the Earth in relation to the sun affects the visibility of the stars.

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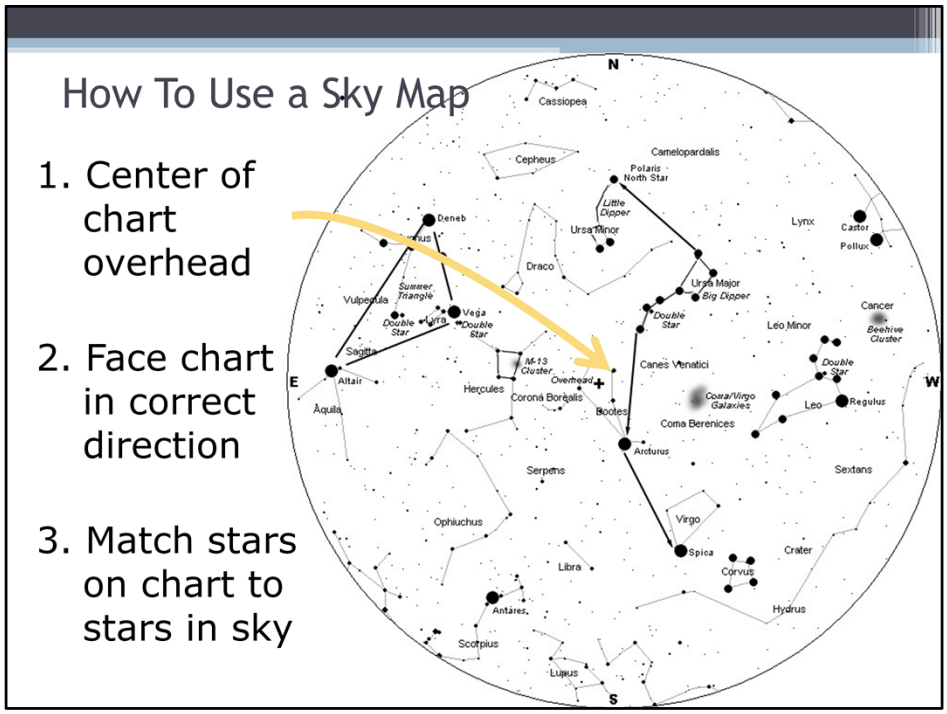

Once you find the appropriate sky map, take the chart outside and orient yourself with the relative direction. For instance, hold the map over your head. The center of the chart would align directly overhead. If you are facing south, the bottom of the chart would be in front of you.

Next, you would match the stars in the sky chart to the stars in the sky using the star patterns and the magnitude, or brightness, of the stars. Bright stars are depicted with large dots, while dim stars are depicted with small dots.

You might even find apps available for your mobile device that turns it into a sky map!

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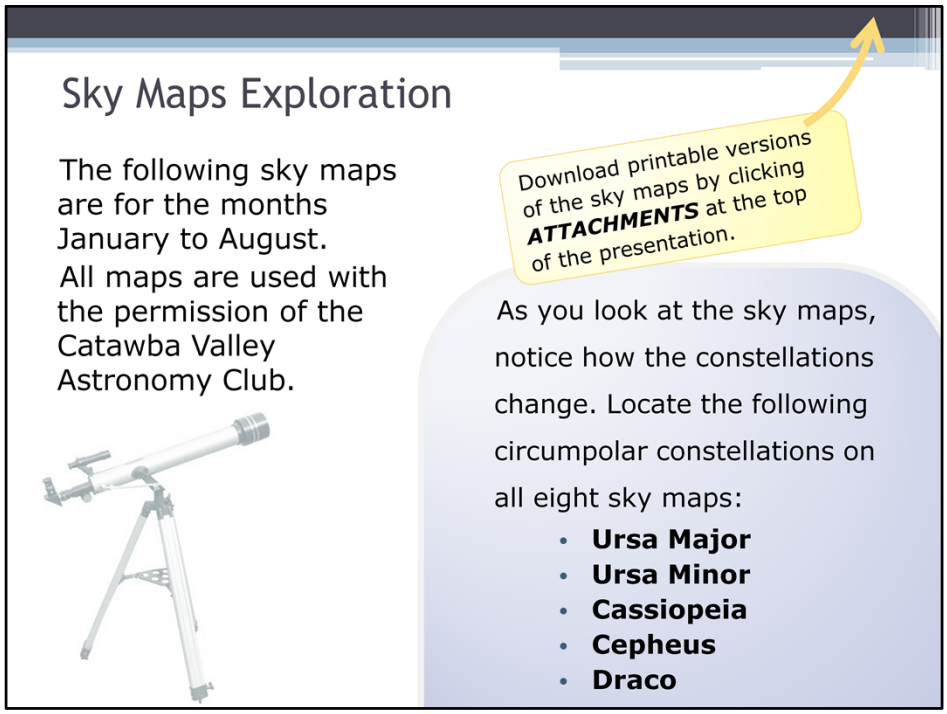

The following sky maps are for the months of January to August. All of the images used are with the permission of the Catawba Valley Astronomy Club.

As you look at the sky maps, notice how the constellations change.

You should also see that the following circumpolar constellations are on all eight sky maps: Ursa Major, Ursa Minor, Cassiopeia, Cepheus, and Draco.

You may download printable version of the sky maps by clicking on the link at the top of the presentation player.

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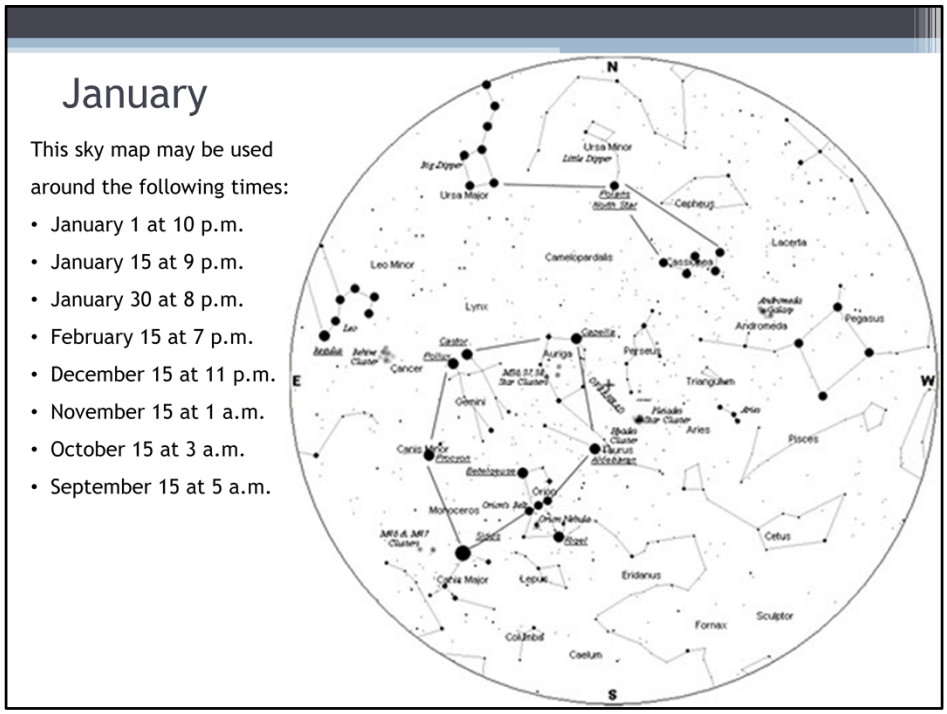

This sky map may be used around the following times:

- January 1 at 10 p.m.
- January 15 at 9 p.m.
- January 30 at 8p.m.
- February 15 at 7 p.m.
- December 15 at 11 p.m.
- November 15 at 1 a.m.
- October 15 at 3 a.m.
- September 15 at 5 a.m.

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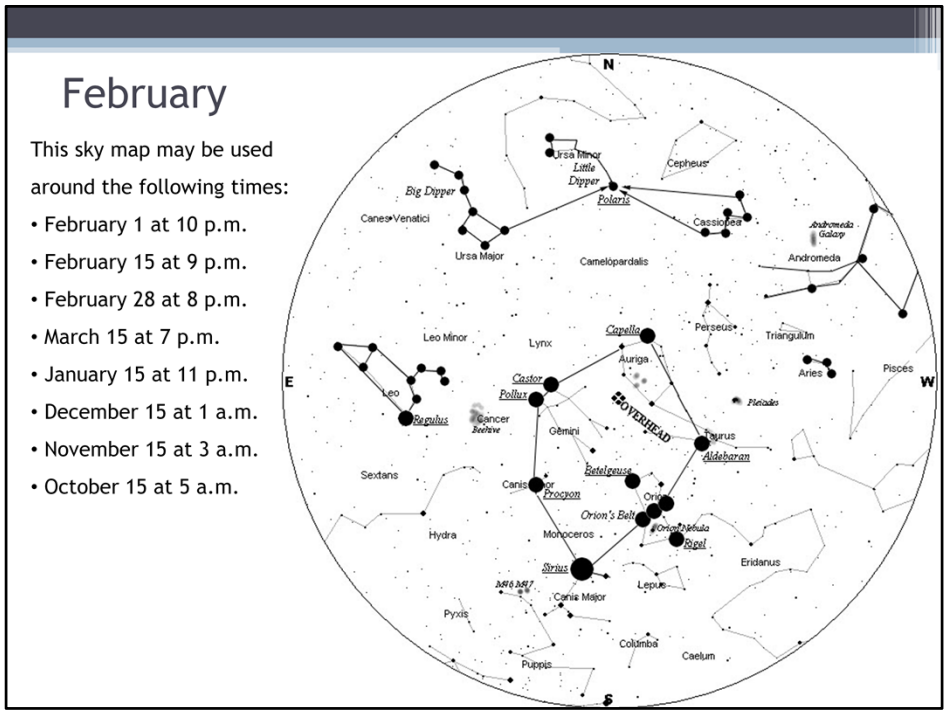

This sky map may be used around the following times:
• February 1 at 10p.m.
• February 15 at 9 p.m.
• February 28 at 8 p.m.
• March 15 at 7 p.m.
• January 15 at 11 p.m.
• December 15 at 1 a.m.
• November 15 at 3 a.m.
• October 15 at 5 a.m.

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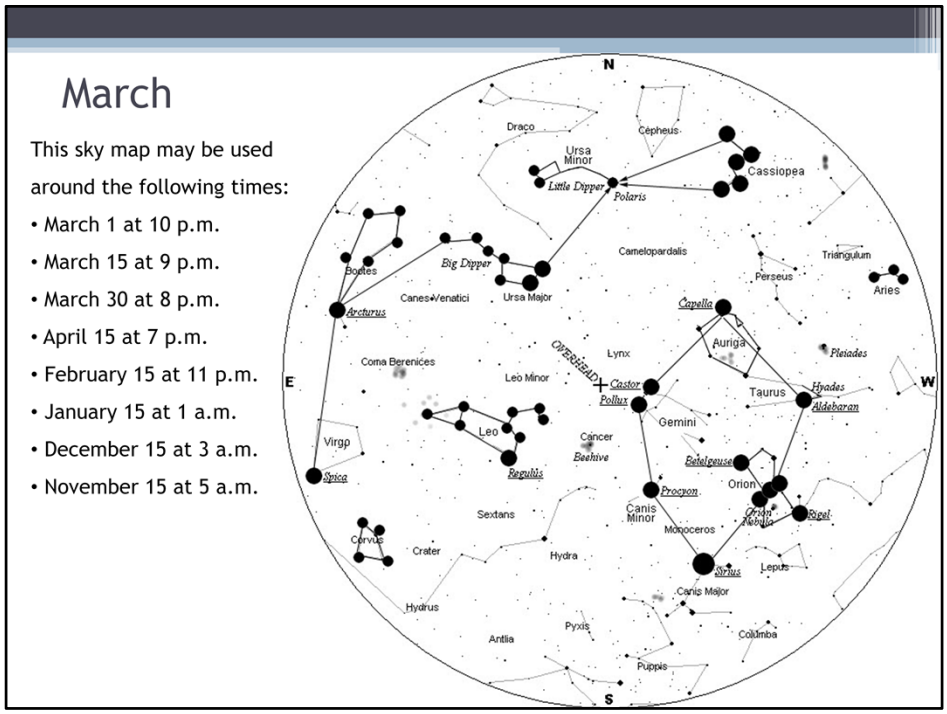

This sky map may be used around the following times:
• March 1 at 10 p.m.
• March 15 at 9 p.m.
• March 30 at 8 p.m.
• April 15 at 7 p.m.
• February 15 at 11 p.m.
• January 15 at 1 a.m.
• December 15 at 3 a.m.
• November 15 at 5 a.m.

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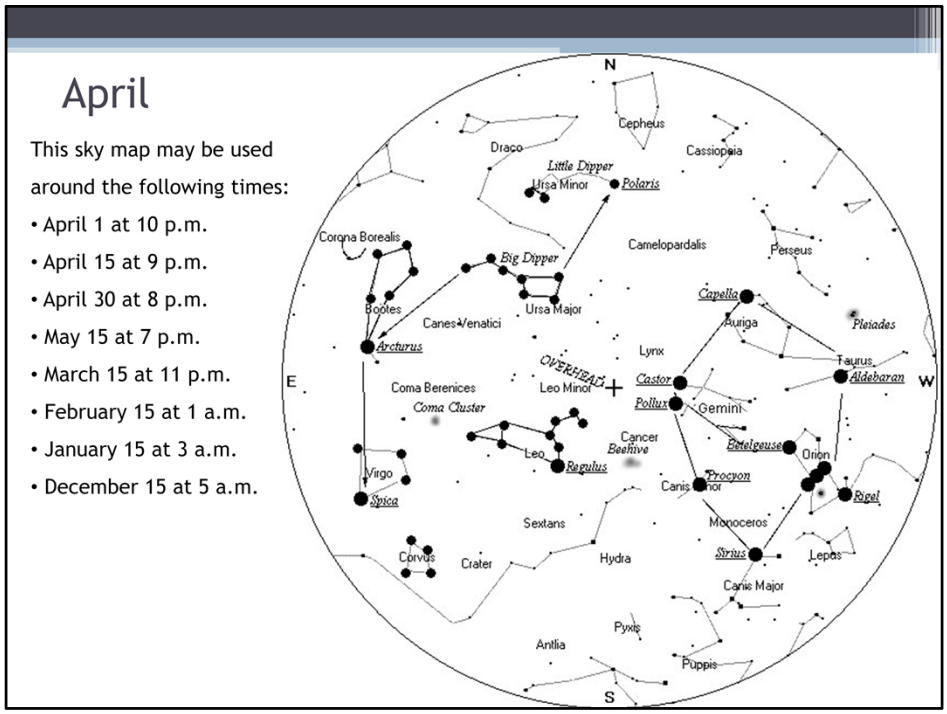

This sky map may be used around the following times:
• April 1 at 10 p.m.
• April 15 at 9 p.m.
• April 30 at 8 p.m.
• May 15 at 7 p.m.
• March 15 at 11 p.m.
• February 15 at 1 a.m.
• January 15 at 3 a.m.
• December 15 at 5 a.m.

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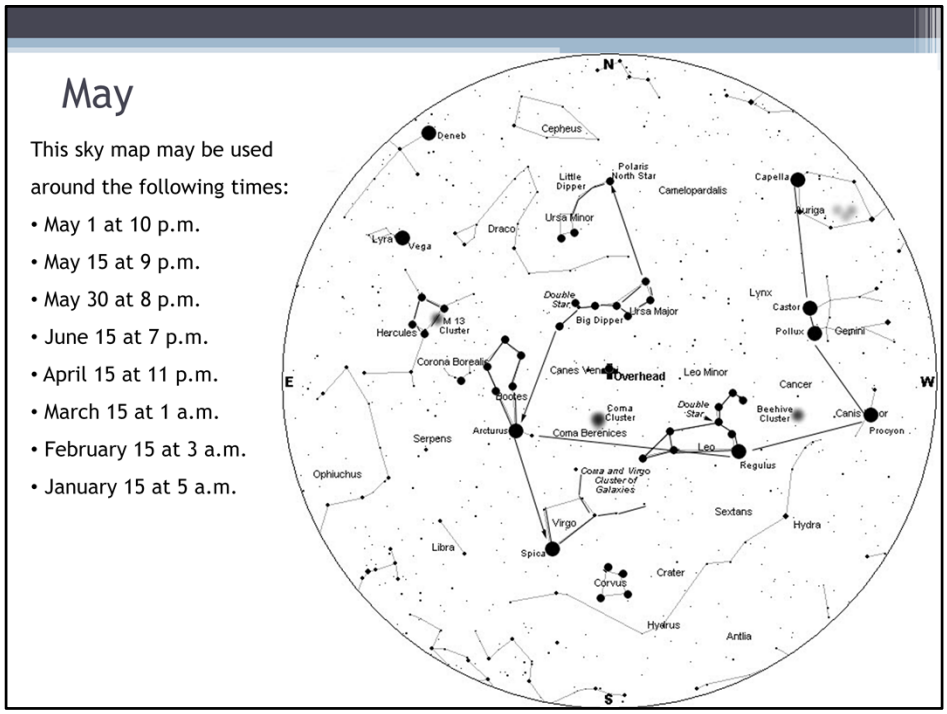

This sky map may be used around the following times:
• May 1 at 10 p.m.
• May 15 at 9 p.m.
• May 30 at 8 p.m.
• June 15 at 7 p.m.
• April 15 at 11 p.m.
• March 15 at 1 a.m.
• February 15 at 3 a.m.
• January 15 at 5 a.m.

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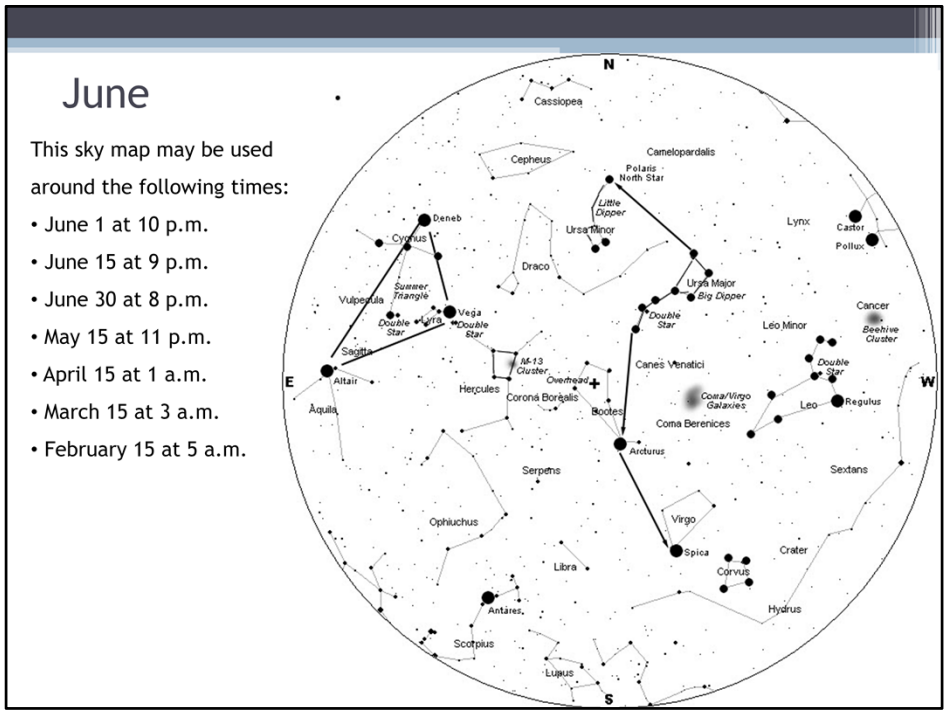

This sky map may be used around the following times:
- June 1 at 10 p.m.
- June 15 at 9 p.m.
- June 30 at 8 p.m.
- May 15 at 11 p.m.
- April 15 at 1 a.m.
- March 15 at 3 a.m.
- February 15 at 5 a.m.

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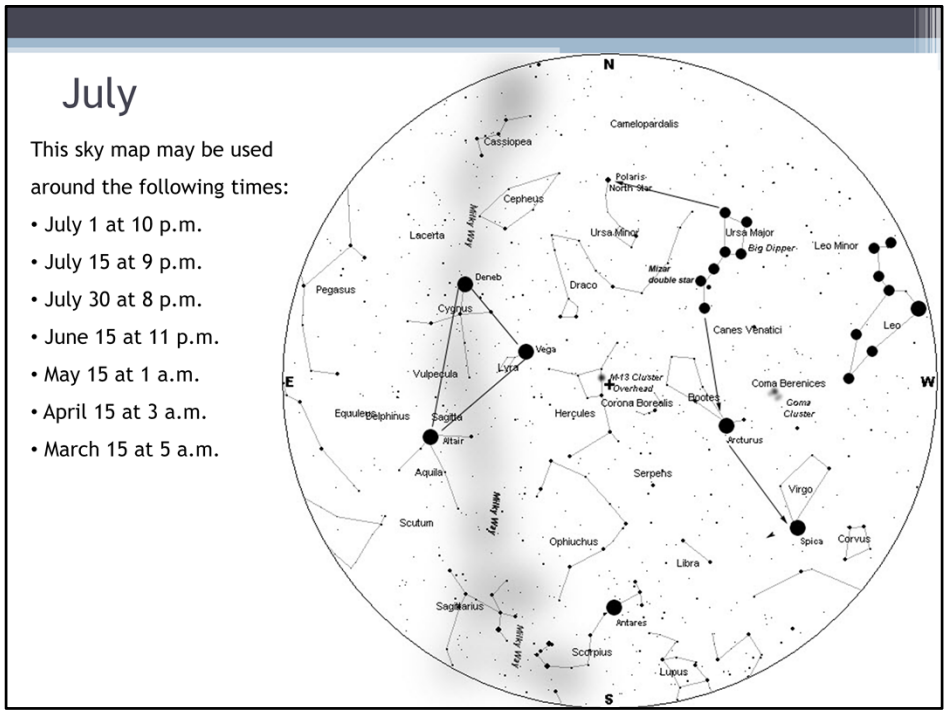

This sky map may be used around the following times:
• July 1 at 10 p.m.
• July 15 at 9 p.m.
• July 30 at 8 p.m.
• June 15 at 11 p.m.
• May 15 at 1 a.m.
• April 15 at 3 a.m.
• March 15 at 5 a.m.

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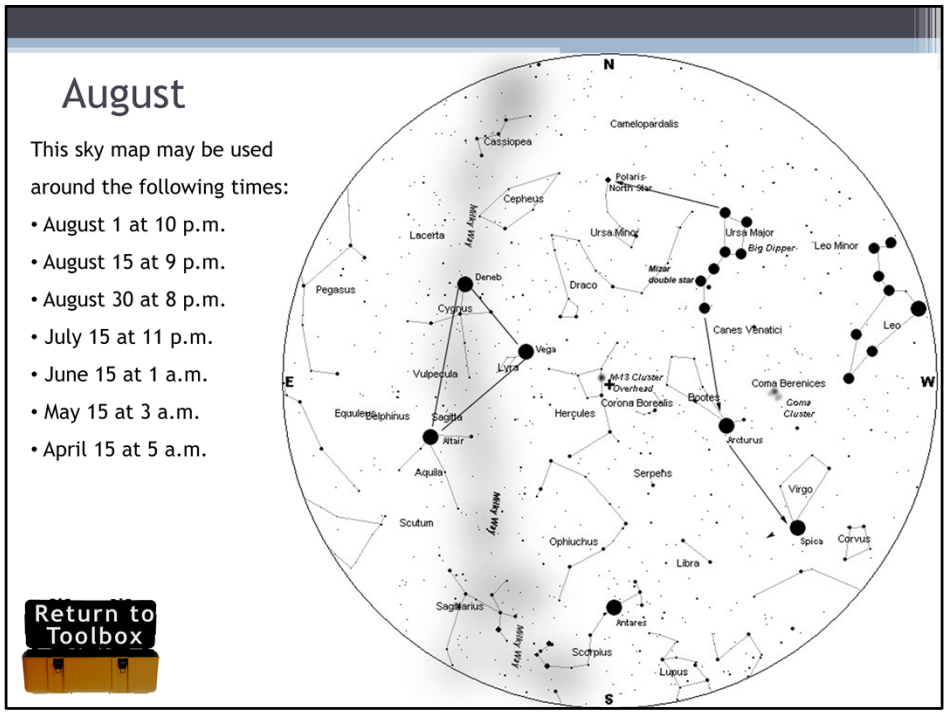

This sky map may be used around the following times:
• August 1 at 10 p.m.
• August 15 at 9 p.m.
• August 30 at 8 p.m.
• July 15 at 11 p.m.
• June 15 at 1 a.m.
• May 15 at 3 a.m.
• April 15 at 5 a.m

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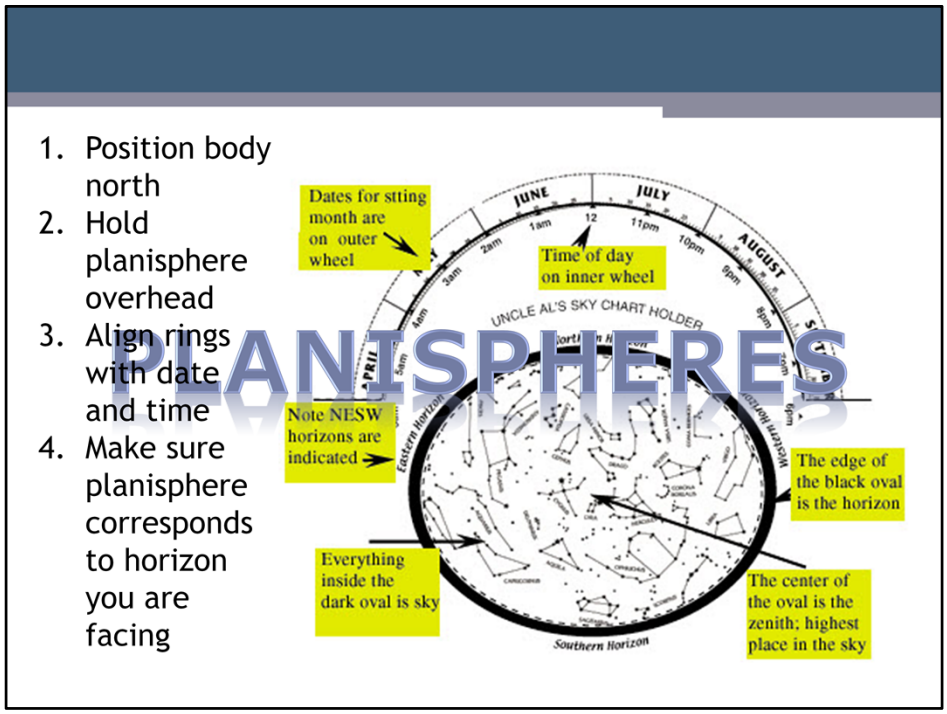

A planisphere is a tool used to predict the appearance of the stars at a certain day and time. You use a planisphere much like a skymap. To use a planisphere, first position your body facing north, then hold the planisphere over your head. Next, you rotate the outer ring of the planisphere so that the date on the ring aligns with the time on the other ring. How the stars will look on that day and time will appear in the window of the planisphere. If you want to face another direction, make sure that you turn the planisphere so that it corresponds to the direction you are facing. The horizon on the planisphere should appear horizontal and correspond to the horizon that you physically see.

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The planisphere you use depends on your location on Earth, since the stars you see and how they are arranged on Earth would be different than those seen by someone else in a different part of the world. You must use a planisphere that is specific to your latitude zone. Also, planispheres are based on standard time; therefore, during daylight savings time, you would set the ring on the planisphere one hour earlier than the time at which you are observing the stars.

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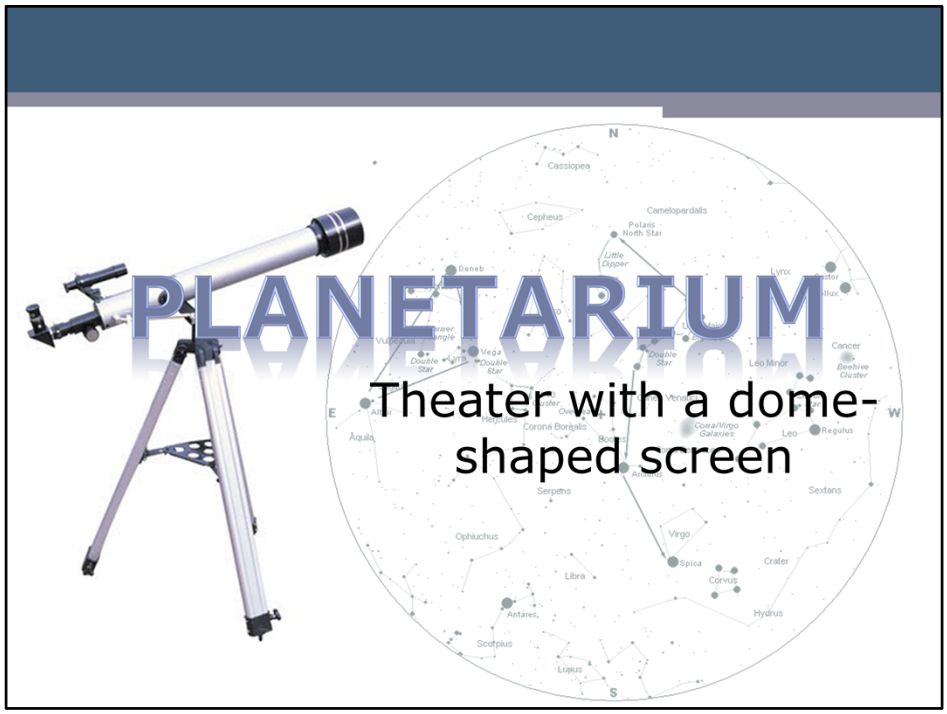

Imagine standing in the middle of the universe with the movement of the stars, planets, and other objects of space traveling around you. If you visit a planetarium, you just might get to experience what space looks like.

A planetarium is a theater where viewers can see representations of the universe projected on a dome-shaped screen. Viewers sit or stand in the middle of a planetarium, which can project the celestial images, their positions, and their movements on a screen surrounding the audience. The images of the planetarium can be set to correlate with a particular latitude to see what the sky would look like from that location.

While today's planetariums are also used for entertainment where viewers can watch movies, planetariums originated out of the ancient study of astronomy in an attempt to predict the cycles and locations of the sun, moon, planets, and stars.

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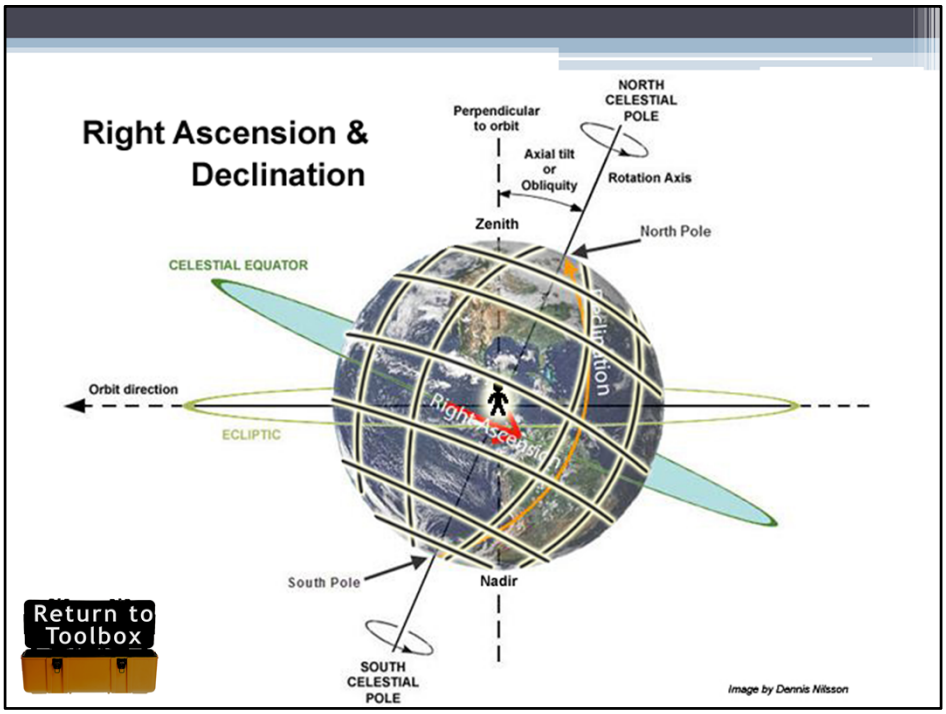

To locate a star on the celestial sphere, you must have its coordinates, which include right ascension and declination.

Right ascension, or R.A., is a point on the celestial equator measured from the point of the vernal equinox. The vernal equinox is the zero point for right ascension. Right ascension is measured eastward from the zero point; therefore, it is like longitude. Right ascension is expressed in hours, minutes, and seconds of sidereal time.

Declination is measured north and south from the celestial equator, so it is much like latitude. Positive declination is measured northward from the zero point or the celestial equator. Negative declination is measured southward from the celestial equator. Declination is expressed in degrees, minutes, and seconds.

Notice the lines of right ascension and declination together on the celestial sphere.