

# 2009 MAY-JUNE STARMAP

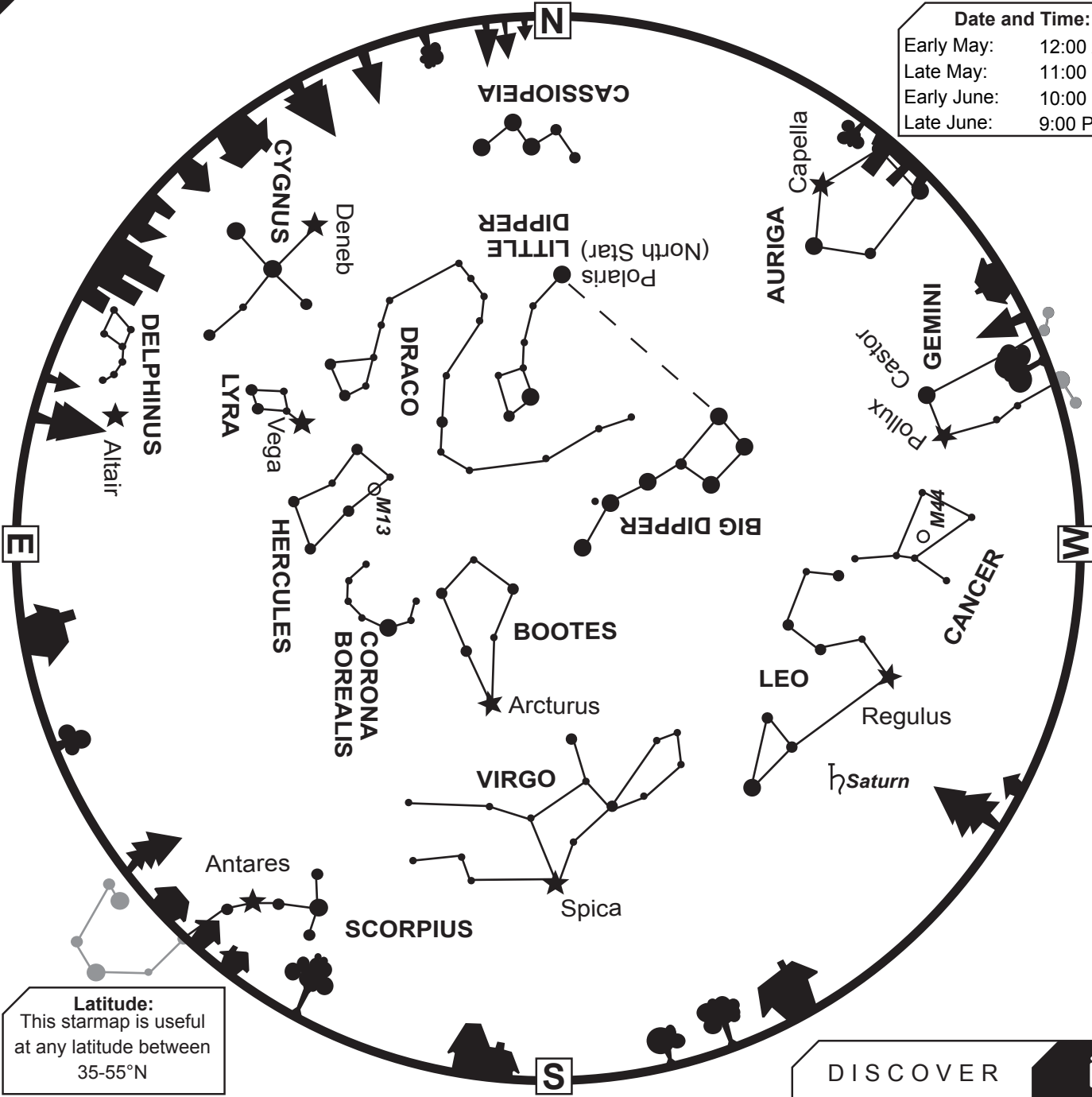
Date and Time:	
Early May:	12:00 A.M.
Late May:	11:00 P.M.
Early June:	10:00 P.M.
Late June:	9:00 P.M.

- How to Use This Map:**
1. Find North in the sky using the Big Dipper and the North Star.
  2. While facing North, hold the starmap straight in front of you with NORTH at the bottom.
  3. Look for the constellations in that area of the sky.
  4. When you want to look at other areas, always turn the map so that the direction you're facing is at the bottom of the map.

**Key:**

**CONSTITUTION NAMES**  
 Star Names  
 STAR GROUP NAMES  
*Deep Sky Object Designations*  
 Planet Names

- ★ 1st magnitude stars
- 2nd magnitude stars
- 3rd magnitude stars
- 4th magnitude stars
- Deep sky objects:  
 M13 - Hercules Globular Cluster  
 M44 - Beehive Cluster
- Planets:  
 ♄ - Saturn



**Latitude:**  
 This starmap is useful  
 at any latitude between  
 35-55°N

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## Birds Know the North Star

For thousands of years people have used the stars to navigate across the land and sea, and so have birds! In the continuing search to understand the many ways birds find their ways to and from their wintering grounds, scientists have employed the use of planetariums to make some surprising discoveries.

Using Indigo Buntings, birds that migrate almost exclusively by night, Steven Emeling discovered that the rotation of the stars at night played a significant role in the bird's methods for orienting themselves. When you visit our planetarium, or simply watch the sky for several hours at night, you too will see how all the stars appear to circle our current North Star, Polaris.

By changing the planetarium sky so that Betelgeuse, the star in Orion's shoulder, acted as the North Star, Emeling was able to figure out that the motion of the stars not the star patterns was what the birds used to navigate.

Other studies, also taking place in planetariums, have indicated that different types of birds may use different types of clues to orient themselves with the stars, some even seeming to indicate a preference to star patterns over rotation in different bird species.

## Moon Phases Trigger Coral Blooms

The Moon also influences various animals - including those in the sea! Coral reefs (made of huge colonies of coral - a tiny invertebrate animal closely related to a sea anemone) usually spawn once a year. For such a rare event, the coral polyps need to synchronize exactly when they release their gametes.

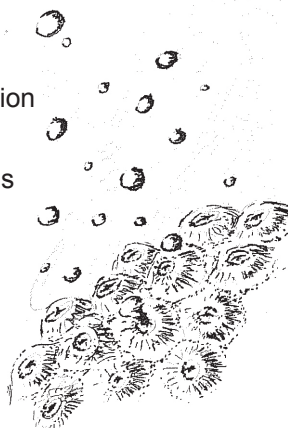
One trigger that helps them stay in synch is the phase of the Moon. One coral reef in the Caribbean spawns every year on the eighth day after the full Moon in August. That's pretty specific. Other coral reefs are triggered by different Moon phases, but water temperature, currents, and tides also influence exactly when the coral bloom happens.

### More on Bird Navigation:

<http://tinyurl.com/BirdNavigation>

### More on Coral Blooms:

<http://tinyurl.com/CoralBlooms>



## Do this Experiment at Home

It has long been speculated that moths fly towards streetlights and candle flames because they navigate by the Moon. Here are two related experiments for you to do at home.

### What Bugs Do You See?

- Get a flashlight or a lantern and take it outside at night. Set it on a table, and watch what kinds of bugs flock towards the light.
- How many types do you see?
- Do you see any moths?

### Flying in a Straight Line

- Go outside on a night when you can see the moon. Stand in your yard, a park, or somewhere you can walk for several meters.
- Turn so that the Moon is exactly over your right shoulder, so you can see it if you look right. Walk forward - but keep the Moon directly over your shoulder. What shape is the path you walk? Curved? Straight? Wobbly?
- Now try the same thing with a lantern or a streetlight. What shape is the path you walk now? Curved? Straight? Wobbly?

This is one possibility for why a moth would fly towards a bright light - thinking it is the Moon the moth slowly circles closer and closer to the light.

The Willard Smith Planetarium Astronomy Hotline:  
**206-443-2920**



The Willard Smith Planetarium is now booking private shows for your special occasion. For more information, please call our group sales and special events line at: **206-443-3611**.

## Astronomy Internet Resources

### What's Up Tonight:

<http://theellensburgsky.blogspot.com/>

### Starlight News for Kids:

<http://www.starlight-news.co.uk/>

### Everything In One Place:

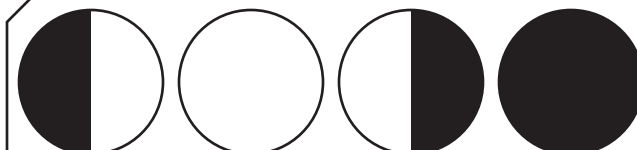
<http://www.portaltotheuniverse.org/>

### Seattle-Area Astronomy Events:

<http://www.seattleastro.org>

### Advanced Info from Pacific Science Center:

<http://www.alicesastroinfo.com/>



First Quarter	Full Moon	Third Quarter	New Moon
May 1	May 8	May 16	May 24
May 30	June 7	June 15	June 22
June 29			

**June 20th is the Summer Solstice!**

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