

Name _____ Name _____

Class _____

Name _____ Name _____

Date _____

Part 3: Lab Report – Celestial Globe

List at least three things that can be seen in a celestial globe?

1. _____ 2. _____ 3. _____

3.1 Big Dipper

Draw in the space provided (as best as you can) the *Big Dipper*, indicating the position and the name of each star belonging to it (note that the *Big Dipper* is part of the constellation *Ursa Major*).

Names of the Stars that Form the Big Dipper	
1.	5.
2.	6.
3.	7.
4.	8.

3.2 Declination (Dec.)

Indicate the **Declination** of the following objects:

Object	Declination
Sun on December 22	
Sun on March 21	
Sun on June 22	
Sun on September 21	
Star Schedar in <i>Cassiopeia</i>	

Object	Declination
Constellation <i>Corvus</i>	
Star Markab in <i>Pegasus</i>	
Constellation <i>Southern Cross</i> (<i>Crux</i>)	
Star Deneb in <i>Cygnus</i>	
Star Antares in <i>Scorpius</i>	

3.3 Right Ascension (R.A.)

Indicate the **Right Ascension** of the following objects:

Object	Right Ascension (R.A.)	Object	Right Ascension (R.A.)
Star Sirius in <i>Canis Majoris</i> (<i>Canis Major</i>)		Star Hamal in <i>Aries</i>	
Star Algenib in <i>Pisces</i>		Star Antares in <i>Scorpius</i>	
Star Gemma in <i>Corona Borealis</i>		Star Vega in <i>Lyra</i>	

3.4 Problems

1. What stars have the following coordinates?

R.A. $20^{\text{h}} 40^{\text{m}}$, Dec. $+45^{\circ}$ _____

R.A. $22^{\text{h}} 56^{\text{m}}$, Dec. -29° _____

R.A. $04^{\text{h}} 34^{\text{m}}$, Dec. $+16^{\circ}$ _____

2. Find the **Right Ascension** (R.A.) and **Declination** (Dec.) of Arcturus (in *Bootes*)

R.A. _____ Dec. _____

3. Name a star for each of the following that never rises and never sets when seen from

a) The north geographic pole? _____

b) A point in the equator? _____

c) At latitude 40° North? _____

4. On May 21, what is the **Right Ascension** (R.A.) of the Sun? _____
And the **Declination** (Dec.) of the Sun? _____

5. Estimate the **Right Ascension** (R.A.) and **Declination** (Dec.) of the Large Magellanic Cloud near the **South Celestial Pole**.

R.A. = _____ Dec. = _____

6. What is the **Declination** (Dec.) of the Sun when it is February 1? _____

7. On May 3? _____

8. On August 14? _____

9. On November 14? _____

10. In what constellation is the Sun to be found on April 5? _____

11. In what constellation is the Sun to be found in November 27? _____

12. For an observer in latitude 90° N on what two dates will the Sun be on the horizon? _____ and _____

13. Where, on Earth, would all of the stars be above the horizon at some time during the course of a day? _____

3.5 Star and Planet Locator

1. Set the date to January 1, and the time to 8:00 pm. Find the Constellation *Delphinus*.

a. Is this constellation rising or setting? _____

b. Will the constellation still be visible in two hours? _____

2. Set the date to March 21, and the time to 10:00 am.

a. Name three constellations located in the South East. _____

b. At what time will the constellation *Capricornus* just finish setting? _____

3. Set the date to September 21, and the time to 10:00 pm.

Name three constellations located in the South East. _____

Based on the chart determine if the following constellations are fall, summer, spring, or winter constellations. This can be best determined by seeing if the constellation is visible at about 9:00 pm.

Constellation	Time of year
<i>Pisces</i>	<u>fall</u>
<i>Aries</i>	_____
<i>Corvus</i>	_____
<i>Hercules</i>	_____
<i>Orion</i>	_____
<i>Cetus</i>	_____

3.6 Starry Night Program

Make sure your horizon is turned on, and that your home location is “Near McAllen, United States”. Additionally you may also find it useful to activate the viewing of:

- Constellation Boundaries;
- Constellation “Stick Figures”;
- Constellation Labels;
- Planets; and
- Planet Labels.

It may also be useful to note that when you place the mouse cursor on an astronomical object in Starry Night, information about this object will appear on screen.

1. Set the date to 9/15/2006, and the time to 7:12 pm.

What planets are visible when facing West?

- _____
- _____
- _____
- Are these planets rising or setting? _____

2. Set the date to 9/16/06, and the time to 3:35 am.

- Where in the sky is the moon located? (N, S, E, W, Z) _____
- What constellation is the moon within? _____
- Is the Moon rising or setting? _____
- In what direction can the constellation *Orion* be found? _____

3. Set the date to 10/20/06 and the time to 1:35 am.

- Where in the sky can the constellation *Orion* be found? _____
- What three stars make up *Orion's Belt*?

- Draw the constellation *Orion* in the space provided with the stars: Rigel, Betelgeuse, Bellatrix, Saiph, Mintaka, and the Orion Nebula labeled.

4. What is this constellation supposed to represent?

5. Set the date to 9/20/06 and the time to 1:30 am. Where is *Orion* (what direction)?

6. Set the date to 9/20/06 and the time to 6:00 am. Where is *Orion* (what direction)?

7. Set the date to 9/20/06 and the time to 11:00 am. Where is *Orion* (what direction)?

8. Did the constellation move? Why or why not?

9. Set the dates to 9/18/2006 and the time to 8:45 pm.

a. Are both the *Big Dipper* and *Little Dipper* visible? _____

b. What important star is associated with the *Little Dipper*? _____

c. Keeping your eye on this important star fast forward time by 7 hours, what happens? _____

d. Keeping your eye on this important star fast forward time by 8 months, what happens? _____

e. Has the *Little Dipper* gone below the **horizon** during this time? _____

f. Keeping your eye on this important star fast forward time by 5,000 years, what happens? _____

g. Will Polaris still point North after all this time? _____

10. Set the date to 9/22/06 and the time to 8:16 pm.

Find Jupiter in the South West

What three constellations are near Jupiter?

a. _____ b. _____ c. _____

11. Set time to 6:40pm on April 23, 2002. Change your location to New York City, New York, United States. What planets are visible when facing west?

a. _____

b. _____

c. _____

d. _____

e. _____

12. Will this alignment be visible tonight in our present year in the Valley? _____

13. Why are constellations found on the celestial globe, but not planets or moons?

(Hint: Read your lab!)

When you are done please do not save the changes.