Name(s): _____ _____

_____ _____

Date: _____ Course/Section: _____

Grade: _____

Exploring the Night Sky

Objectives:

Students will familiarize themselves with how to use start charts and star wheels.

Checklist:

- ☐ **Complete the pre-lab quiz with your team (if required).**
- ☐ **Compile a list of resources you expect to use in the lab.**
- ☐ **Work with your team to complete the lab exercises and activities.**
- ☐ **Record your results and mark which resources you used.**
- ☐ **Share and discuss your results with the rest of the class.**
- ☐ **Determine if your team's answers are reasonable.**
- ☐ **Submit an observation request for next week (if required).**

Resources:

Pre-Lab Quiz

Answer the pre-lab questions and explain your answers.

1.
2.
3.
4.
5.
6.

Part 1: The SC001 Constellation Chart

Using the SC001 Star Charts, answer the questions below.

1. Complete the tutorial available on the lab website (skip the quiz at the end.) Then, determine the declination of the most southern star you can see in Iowa City.

2. The celestial coordinates for the planet Venus during the week Sept 5, 2017 are RA = 9h 0m, Dec = +17d. What constellation is the planet in on that day?

3. Where is the Sun relative to Venus at this time?

4. What bright star has the following coordinates: RA = 14h 15m, Dec= +19.7d?

5. Find the location of the meridian at 9PM CST for tonight. Write down the bright stars that are close to the meridian and say whether they are east or west of the meridian.

Part 2: Using a Star Wheel and Star Walk

1. Dial up the 8pm on your star wheel. Find a constellation that has just risen. Find a constellation that has just set.

Just risen – Star Wheel	
Just set – Star Wheel	

2. At 8pm tonight, where is the constellation *Ursa Major*, also called the Big Dipper?

3. The constellation Orion is a favorite nighttime object for many observers. During which months is Orion observable in the early evening? (Explain how you define *early evening*.)

b. Is Orion above the horizon right now?

4. What does it mean for a star or constellation to be circumpolar?

a. Name 3 circumpolar constellations for Iowa City, IA.

Using the Sky Walk App (Ipads)

With Star Walk set to the current time, determine the information below.

What is the purpose of the red solid line in the *Star Walk* display?	
Which planets are above the horizon at this moment?	

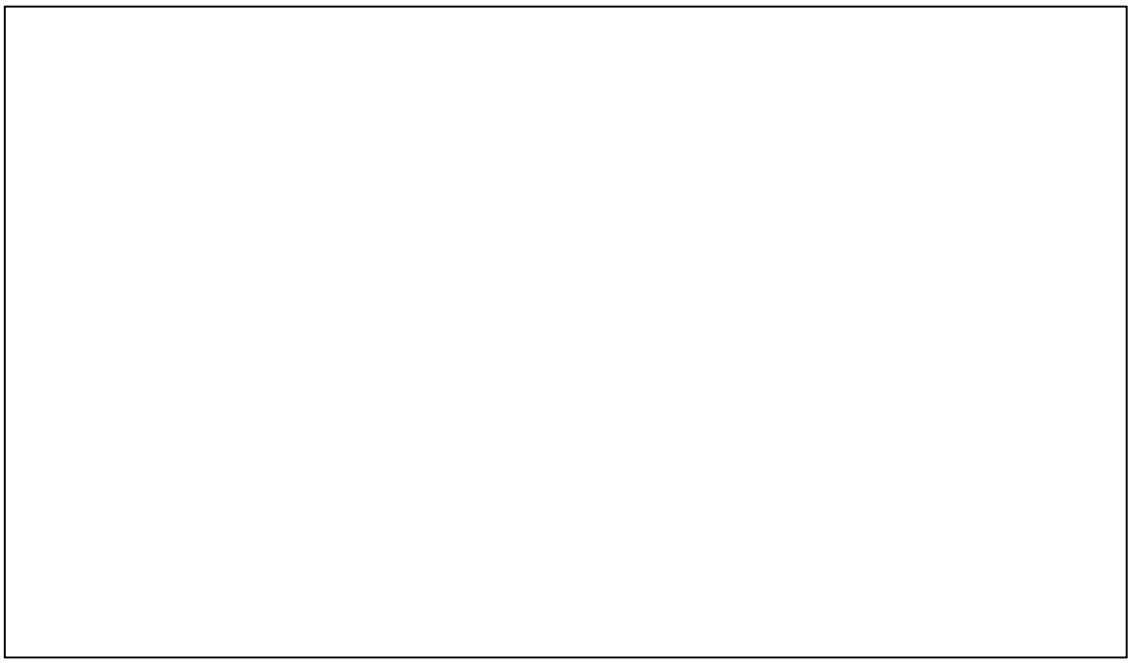
Using the Star Walk app, fill in the information for Iowa City, IA for today.

Sunrise, sunset times	
Phase of the moon and its rise and set times.	

Part Three: Measuring the Position of a Planet and the Moon

We will now go onto the roof. Bring a flashlight, the Ipads, and a star wheel. Using these, you will determine which constellation a planet is in. The TA will tell you what planet to observe.

1. Make a careful drawing of the sky around the planet in the space provided. Draw the stars in the vicinity of the planet as accurately as possible and record the position of the planet relative to those stars as accurately as possible.

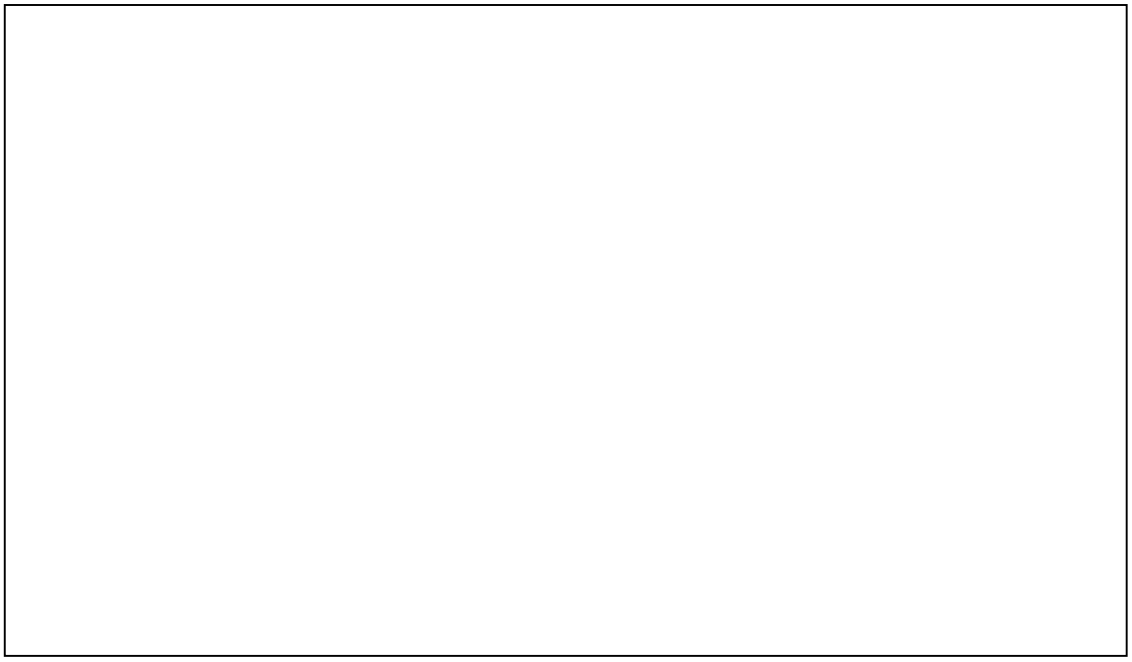


2. What constellation is the planet in at the moment?

3. Using your observations and the SC001 chart, record the right ascension and declination of the planet.

4. From your observations, what can you say about the position of the planet relative to the ecliptic?

5. Make a careful drawing of the position of the moon relative to the background stars and label what constellation(s) the Moon is in.



6. From your observations, what can you say about the position of the Moon relative to the ecliptic?