

## BU Astronomy Department – AS 10X courses

### Night Lab 2 – What’s the name of that star?

The objectives for this Night Lab are:

- To learn how to find constellations and other objects in the sky using a star chart
- To observe some celestial objects through telescopes

#### *What is a star chart?*

A star chart is a map of the night sky. There is no one set format for a star chart, but they all generally show the locations of the brightest stars and the constellations. Sometimes they also show other “deep sky” objects such as nebulae and galaxies, objects that are typically only seen through telescopes.

You can download star charts from the web (e.g., [www.skymaps.com](http://www.skymaps.com)). The important thing is to find a star chart that is appropriate for the latitude and time when you will be observing.

A nice alternative to a monthly star chart is a planisphere. One planisphere will provide you a star chart throughout the year. These are inexpensive and can be adjusted for the date and time you will be observing.

A third alternative is to download an app directly to your smart phone or tablet.

#### *What to bring to Night Lab 2*

- A printout of this document
- The star chart. If you’re lucky, one is posted on your class website. If not, go to [www.skymaps.com](http://www.skymaps.com) and print the “Northern Edition” star chart for THIS MONTH.
- Two pens or pencils
- A small flashlight
- Lots of warm clothes, gloves, hats, etc. Pretend you’re going to Antarctica.

Now, please answer the following questions. Make sure to ask plenty of questions about what you’re doing. **Make sure a TA initials the top left corner of the next page, which is how your professor verifies that you attended this night lab.**

TA Initials \_\_\_\_\_

## Night Lab 2 Worksheet

Name: \_\_\_\_\_ Date of observation: \_\_\_\_\_

Class: \_\_\_\_\_ Professor: \_\_\_\_\_ Lab Section: \_\_\_\_\_

### 1. Observing conditions:

Start time	
End time	
Wind	
Temperature and humidity	
Sky conditions (clear, cloudy, hazy, etc.)	
The Moon (phase and location)	
Additional comments	

## 2. Introduction to the star chart (prior to going out on the roof)

- a. Examine your star chart. Notice the cardinal directions around the edge. What is the major difference between the layout of a star chart and of terrestrial maps?

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- b. To use a star chart correctly, how must you orient it?

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- c. Some of the most familiar constellations are those along the ecliptic: Capricornus, Aquarius, Pisces, Aries, Taurus, Gemini, Cancer, Leo, Virgo, Libra, Scorpius, and Sagittarius. (A 13th and lesser known constellation, Ophiuchus, also lies along the ecliptic.) These constellations are commonly known as the Zodiac. Name 2 zodiacal constellations that should be visible during tonight's observing session:

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- d. During what month would Orion be closest to the zenith?

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- e. Name three constellations that do not set below the horizon. What don't they set?

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- f. Prior to going out on the roof, your TA will designate a constellation for you to find in the sky. Examine your star chart carefully now. Once you are outside, locate the constellation with the help of your star chart. Comment here about that experience. (Were you able to locate it? Was it easy/hard to do?)

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### 3. Naked eye observations

a. Your teaching fellow will point out some object or constellation. Circle it on your star chart and label it '3a'. What is the name of the object?

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b. If you attended Night Lab 1, comment on objects you saw during Night Lab 1. Are they in the same part of the sky? Are they visible? If not, why not? If you did not attend Night Lab 1, leave this blank.

\_\_\_\_\_  
\_\_\_\_\_

c. List other constellations or objects observed:

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

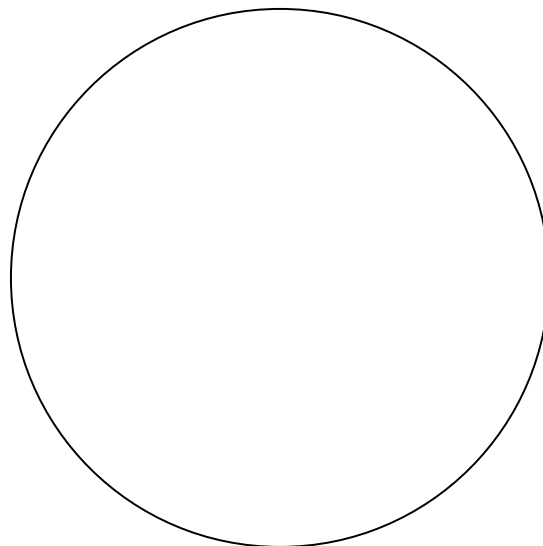
### 4. Telescopic observations

**a. Viewing through a 100-year old refracting telescope**

This telescope was made in 1893. It uses lenses rather than mirrors as its objective. Sketch the object that you have viewed, and comment on your experience viewing through this telescope compared to the telescopes out on the roof:

i. Object name:

ii. Inside the circle to the right, sketch the object as seen through the refracting telescope:



iii. Comment on your experience viewing through this telescope compared to the telescopes out on the roof:

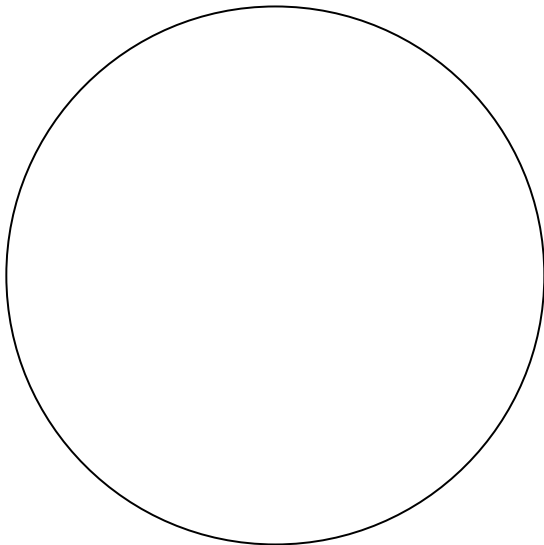
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**b. Telescopic observations through the reflecting telescopes on the roof**

(A complete report should include 2 sketches of telescopic observations unless prevented by sky conditions):

*Object 1*

i. Object name:
ii. Object type:



- iii. Inside the circle to the right, sketch the object as seen through the reflecting telescope:
- iv. On your star chart, circle where this object was found in the sky and label it '1'.
- v. Description of observations and other notes:

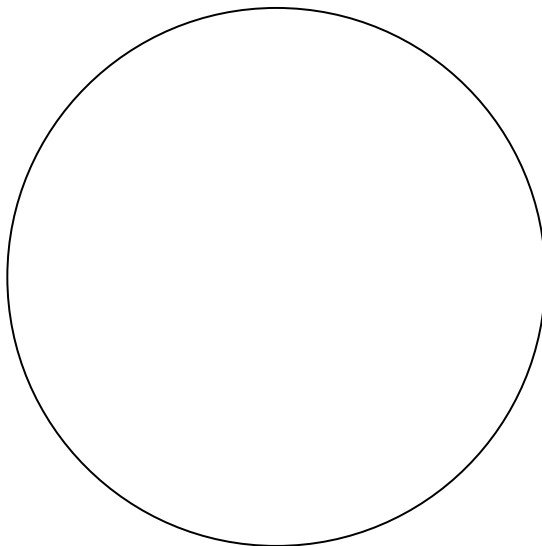
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*Object 2*

i. Object name:
ii. Object type:



- iii. Inside the circle to the right, sketch the object as seen through the reflecting telescope:
- iv. On your star chart, circle where this object was found in the sky and label it '2'.
- v. Description of observations and other notes:

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