SIERRA COLLEGE OBSERVATIONAL ASTRONOMY LABORATORY EXERCISE	
NUMBER I.C. TITLE: **Celestial Roadmaps (Spring)**	
DATE- **PRINT NAME/S AND INITIAL BELOW:** **GROUP**	
DAY-	
LOCATION	

OBJECTIVE:
- To Identify Constellations in a Selected Area of Sky using the SC001 & SC002 Constellation/Star Charts
- To Make a Sketch of a Region of Sky
- To Identify Stars Using a Star Atlas (Atlas 2000) or Computer (TheSKY)
- To Understand the magnitudes, spectral classes, and colors of stars
- If Needed, Review and Perform the Proper Set up of the Meade Telescope and/or prepare and observing session.

DESCRIPTION:
There exists a variety of maps and atlases of the heavens for identification of constellations, stars, and other deep sky objects listed in the 'Blue Book'. This exercise provides an opportunity for the observer to spot stars in a given area of the sky, plot them on a small chart, and by utilizing a star atlas, in this case the Atlas 2000, and/or computer program known as **TheSKY**, positively identify these stars and distinguish them from non stellar objects such as planets or comets.

PROCEDURE/OBSERVATIONS:

1. Examine Chart 'A' and identify five (5) constellations. Clearly print the name of the constellations, and using a HIGHLIGHTER trace the constellation boundaries on the chart.

2. Chart 'A' represents constellations in regions surrounding the area indicated on Chart 'B'. Take Chart 'B' outdoors and allow your eyes 10-15 minutes to dark adapt. Locate the stars already plotted on Chart 'B' and then carefully mark ten (10) more stars you can observe onto the same chart. Be careful to position them properly relative to the stars already printed on the chart. Note any color if you can see it.

3. After you have finished, return to the lab and locate the marked stars on Chart B and estimate the RA and DEC coordinates. Enter the results in Table 1 in the columns marked "(From Chart B')". Label the stars you plotted from 1 through 10.

4. Using TheSKY, positively identify the 10 stars you marked on Chart "B" and enter the Bayer and Flamsteed names, RA, DEC, apparent magnitude (m) and spectral class (SC) in Table 1.

TABLE 1

Plot   (From Chart 'B')

#	RA	DEC	Bayer and/or Flamsteed desig.	RA	DEC	m	SC	color
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								

Use TheSKY to identify your plotted star's Bayer and Flamsteed designation, and RA & DEC.

Use the computer program 'TheSky' to find the m and SC. Use the chart below to determine the color.

SPECTRAL CLASS	COLOR
O	Blue
B	Blue
A	Blue-White
F	White
G	Yellow
K	Orange
M	Red

5. Set up Meade telescope and make 'Blue Book' observations as time and conditions permit. **Daytime class:** Create observing plan and star chart for visual and/or telescopic observations as directed by instructor.

QUESTIONS AND ANALYSIS:

1. What is the apparent magnitude of the dimmest star in Table 1?

2. What is the apparent magnitude of the dimmest star the eye can see?

3. What is the difference between Bayer and Flamsteed Designation?

4. What is the difference between the absolute magnitude (M) and the apparent magnitude (m)?

5. Explain any discrepancies between Chart RA/DEC and TheSky RA/DEC

6. How can a planet, asteroid, or comet be distinguished from a star or other star chart object?

7. Summarize your activities tonight in the Bluebook. Include any telescope observations you may have been able to make.

Chart "A"

Mirfak

Capella
Menkalinan

Almach

Mirach

UU

Algol

Castor

Menkib

Pollux

Atik

Asellus Borealis

Elnath

Hamal

Asellus Australis

Mebsuta

Maia Sterope
Celaeno Pleione
Electra Alcyone
Merope Atlas
        Taygeta

Sheratan

Mesarthim

Wasat

Acubens

Mekbuda

Propus

Alhena

Aldebaran

Gomeisa

Meissa

Procyon

Betelgeuse

Bellatrix

Menkar

Kaffaljidhma

Alrescha

Mintaka

Mira

Algilam
Alnitak

Trapezium

Cursa

Beid
Keid

Azha

Baten Kaitos

Saiph

Rigel

Hind's Crimson Star

Zaurak

Sirius

Mirzam

Arneb

Nihal

Wezen

Aludra

Adhara

Furud

Phact

Wazn

Chart "B"

+30°

+20°

+10°

+00°

-10°

-20°

09h   08h   07h   06h   05h   04h   03h   02h   01h