

## Sky Patterns: Constellation Measurements

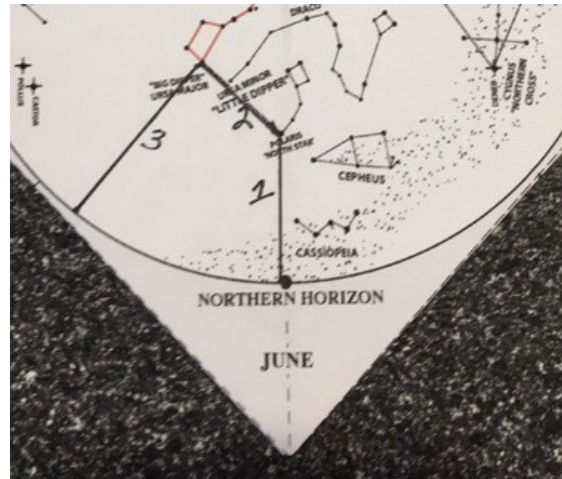
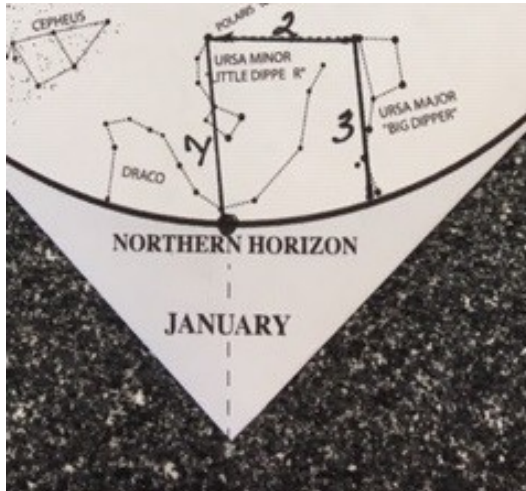
You will be given star finders for three different months of the year. You will measure 3 different distances in centimeters on each month and compare those measurements with the 2 other months.

1. Cut out the star finder along the outside solid black line. Each finder is marked with the month and the horizons.
2. Fold your finder in the corners so that only the central square shows.
3. Put a dot at the northern horizon where it intersects with the month name.
4. Draw a line segment and measure (cm) distance from the dot on the northern horizon to Polaris. Record on the form labeled Constellation Chart below.
5. Draw a line segment and measure (cm) distance from Polaris to Dubhe in the Big Dipper. Dubhe is the outermost star in the Dipper closest to Polaris. Record that distance in the data table below.



Image: <https://earthsky.org/favorite-star-patterns/big-and-little-dippers-highlight-northern-sky>

Draw a line segment and measure (cm) distance from Dubhe in the Big Dipper to the closest point on the earth's horizon. Record that distance. Look at the examples below. Complete the measurements for all three months that your group has been assigned then mark on the chart below whether you can see the star in those months.



### Constellation Chart

Month	
Locations of Measurements	Distance (cm)
Northern Horizon to Polaris	
Polaris to Dubhe	
Dubhe to closet Earth Horizon Line	
Observations (Compared to Other Months)	

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Month	
Locations of Measurements	Distance (cm)
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Observations (Compared to Other Months)	

### Constellation Chart

Month	
Locations of Measurements	Distance (cm)
Northern Horizon to Polaris	
Polaris to Dubhe	
Dubhe to closet Earth Horizon Line	
Observations (Compared to Other Months)	

Star in the Constellation	Month _____	Month _____	Month _____
Castor in Gemini	YES NO	YES NO	YES NO
Rigel in Orion	YES NO	YES NO	YES NO
Spica in Virgo	YES NO	YES NO	YES NO
Regulus in Leo	YES NO	YES NO	YES NO

### Discussion Questions

1. What conclusions can you make about the distances from Polaris to the northern horizon during the three months that you measured?
2. What conclusions can you make about the distances from Polaris to Dubhe during the three month that you measured?
3. What conclusions can you make about the distances from Dubhe to the nearest horizon during the three months that you measured?
4. Were you able to see the stars of the Big Dipper in all of the months? These are called circumpolar stars (moves around the pole, in this case, the North Pole). How does your data help explain this term?
5. Were you able to see Castor, Rigel, Spica and Regulus in all of the months?

What is happening that would make some of the constellations only visible at certain times of the year?