

HW 03 CREATE A STAR FINDER DISC

For this activity, you will construct a star finder wheel and answer questions that go with it on Connect.

Constructing and Using a Constellation Star Finder

Objective:

To construct a constellation finder to use in identifying various constellations throughout the year. Become proficient in the use of the constellation finder

Background:

Although seasonal maps of the stars are available, the sky appears different from one part of the season to another and even more so during the different hours of the night. This exercise will provide you with an instrument for determining the location of some of the major constellations at any date of the year and at any specific time of the night.

Materials: *(print this out)*

constellation disc

frame sheet

activity sheet

scissors

split tack fastener

stapler

Card stock or more firm paper than normal sheet.

If you do not have card stock, I recommend one of the following:

large 9x12 manila envelope

manila folder

Card board

Optional: 3 sheets of 9" x 12" construction paper

Optional: Glue

Procedures

1. Open the Activity and Print out the following:
 - a. **constellation disc** *(on to a piece of card stock)*
 - b. **frame sheet** *(on to a piece of card stock)*
 - c. Activity questions

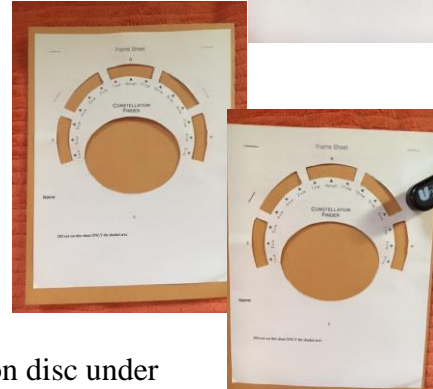
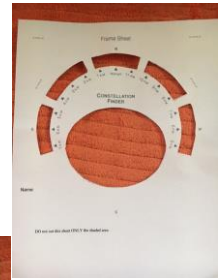
HINT: if you do not have card stock you do not need it. Normal paper will do. You can also see the following ideas listed below.

- *If using the Optional: idea you will need to: Spread glue evenly on the backside of the **constellation disc** and affix it to one sheet of construction paper.*
- *If using the Optional: idea you will need to: Spread glue evenly on the back of the **frame sheet** and affix it to a second sheet of construction paper.*

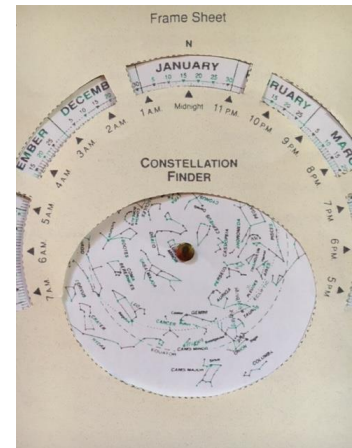
2. Cut out the **constellation disc** carefully around the outermost "dashed" circle. Discard the extra paper.



3. Cut out **ONLY** the shaded areas of the frame sheet.
 - a. Poke a hole through the sheet (or both sheets if glued to another paper) being careful **not to cut** into any of the borders
 - b. Thus...meaning **DO NOT** cut the frame sheet itself, but:” **CUT OUT**” the shaded areas **ONLY**....
 - c. Discard the extra paper that has the words “CUT OUT” on it.
4. Staple the third sheet of construction paper or harder stock paper onto the back of the frame sheet.
5. Place staples in the four positions indicated on the frame sheet.
 - a. HINT: I used an large yellow (manila) envelope



6. Place the constellation disc under the frame sheet so that the outer perimeter of the disc (solid line) registers exactly with the outer circle (not the ellipse) of the frame sheet.
7. Without moving the constellation Disc sheet, punch a hole through the cross hairs in the center of the disc so that it goes through the disc and the bottom sheet of construction paper.
8. Fasten, using a split tack fastener.



9. You should be able to twist the disc (turn it) easily.
10. You may want to reinforce the back of the constellation disc where the faster comes through with masking tape to prevent it from tearing out

Optional step:

- You may want to cut off a corner of the frame sheet **WITHOUT** cutting the constellation disc to help you turn it

LET us practice using it...

11. Look on your **frame sheet** to find the time on the marked (e.g. 9:00 P.M.) and turn the **Constellation Disc** until the date on the disc (e.g. July 20) is in line with the time on the frame sheet.
12. Observe the constellations that appear in your view finder. This is called the **ellipse**.

YOU will use your star finder through out the term SO DO NOT LOSE it...

**EXAMPLE: Activity: using your star finder answer the following questions...
I have included the answers to help you understand the star wheel.**

- A. The constellations that appear near the center of the **ellipse** (not at the fastener) will appear directly overhead as you look into the sky at 9:00 on July 20.
- 1) *What constellation appears near the center of the **ellipse** (not at the fastener)?*
 - a. **Hercules**
- B. The outer edges of the ellipse represent the horizon. Constellations located here will be found near the horizon as you look for them in the sky. Answer the following questions using your star finder:
- 2) *What constellation is located near the northern horizon?*
 - a. **Auriga**
 - 3) *What constellations appear in the southern horizon?*
 - a. **Scorpius**
- C. A constellation will be at its **zenith** (highest point directly over) when it is in the center line between an imaginary line running north and south on your constellation finder. Now answer the following questions.
- 4) *At what **time** would Cygnus be nearest its zenith on August 10?*
(Note: The midpoint is a place about halfway between the zenith and the horizon.)
 - a. **midnight**
 - 5) *On what **date** would Corona Borealis be at its zenith at 10:00 P.M.?*
 - a. **Due to how well you cut out the projector the date varies from:
~June 13 to 23**
- D. Using **compass directions**, where would you look at 8:00 P.M. on November 15 to find:
- 6) The Great Square of Pegasus?
 - a. **south**
 - 7) The constellation Taurus?
 - a. **east**
 - 8) The constellation Corona Borealis?
 - a. **Northwest**
 - 9) Cassiopeia?
 - a. **Southeast**
 - 10) Ursa Major
 - a. **North**

HW 05: Star Finder **Connect Activity: using your star finder answer the following questions... Record your answers and then go to Connect and submit your answers.**

- A. The constellations that appear near the center of the **ellipse** (not at the fastener) will appear directly overhead as you look into the sky at 8:00 on September 15.
- 1) *What constellation appears near the center of the **ellipse** (not at the fastener)?*
- B. The outer edges of the ellipse represent the horizon. Constellations located here will be found near the horizon as you look for them in the sky. Answer the following questions using your star finder:
- 2) *What constellation is located near the northern horizon?*
 - 3) *What constellations appear in the southern horizon?*
- C. A constellation will be at its **zenith** (highest point directly over) when it is in the center line between an imaginary line running north and south on your constellation finder. Now answer the following questions.
- 4) *At what **time** would Cassiopeia be nearest its zenith on October 10?*
(Note: The midpoint is a place about halfway between the zenith and the horizon.)
 - 9) *On what **date** would Corona Borealis be at its zenith at 10:00 P.M.?*
- D. Using compass directions, where would you look at 9:00 P.M. on January 15 to find:
- 6) The Great Square of Pegasus?
 - 7) The constellation Taurus?
 - 8) The constellation Leo?
- E. Using compass directions, where would you look at 9:00 P.M. on September 12 to find
- 9) Cassiopeia?
 - 10) The Great Square of Pegasus?
 - 11) Hercules
 - 12) Cygnus
- F. When the star Vega is at its zenith on February 15,
- 13) Is it visible? YES NO
 - 14) WHY or WHY NOT?

G. Fill in the following chart, using your constellation finder.

Constellation Name	Major Star(s)	Location	Time	Date
Lyra		zenith	10PM	
	Altair	Eastern horizon		Mar 15
Virgo			8 PM	Sept 13
Cygnus		Northwestern horizon		Jan 18
Orion		zenith	Midnight	

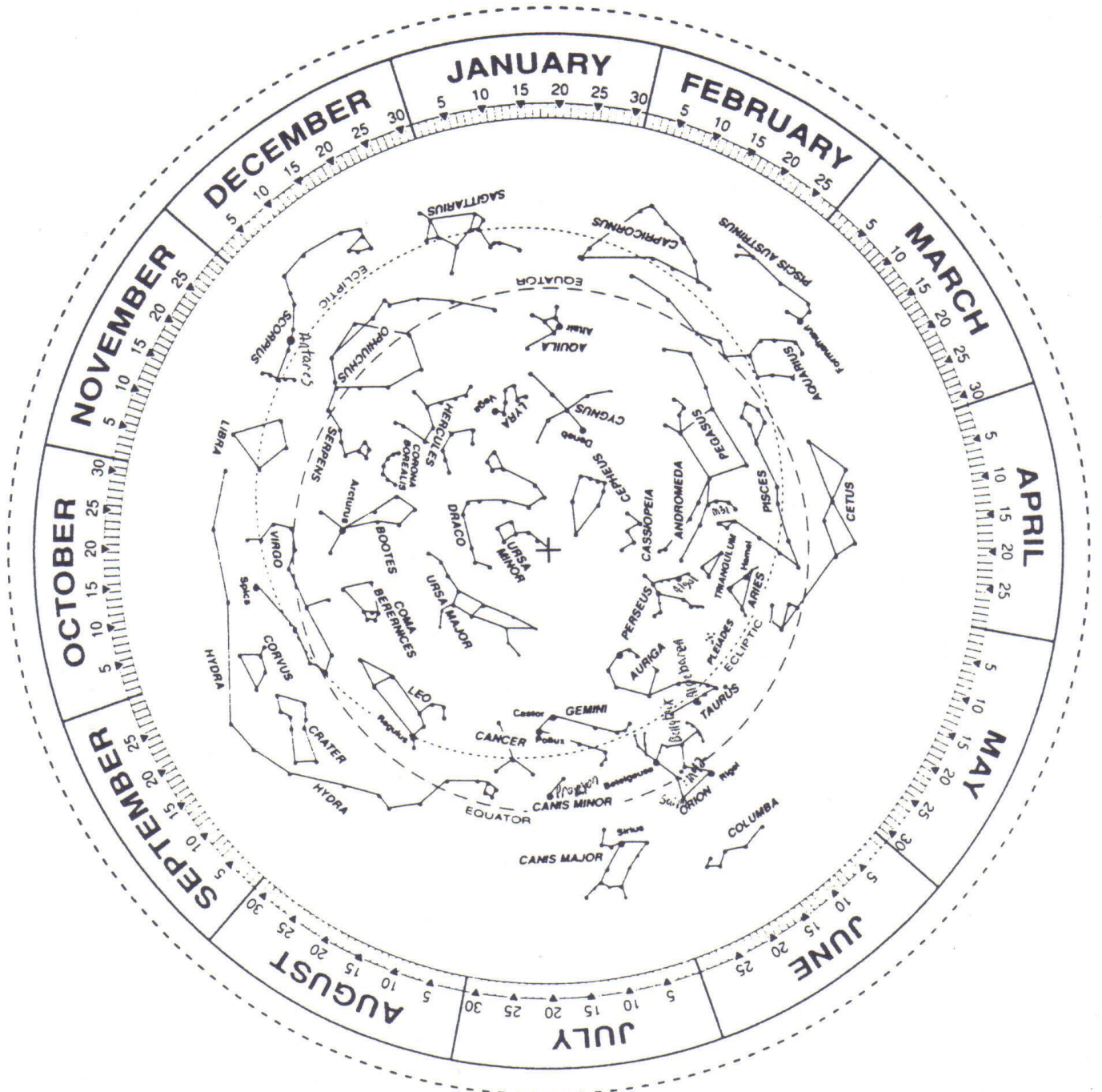
H. If the sun is in the center of the constellation Sagittarius on January 10

15) What is the approximate time does it Rises?

16) What is the approximate time does it Set?

Note: Remember that the sun follows the path of the ecliptic in its trip through the sky.

Constellation Disc



*Cut this out along the dash lines
You CAN CUT the paper in this case*