Unit 1: Introduction to Astronomy

Learning goal: One thing I would like to learn about Astronomy is:

_____

_____

The letter grade I want to earn for this unit is: _____

What are three specific things I need to do in order to earn this grade?	Did I do it?
1.	❏
2.	❏
3.	❏

My Quiz scores for this unit:

Quiz 1	Quiz 2	Quiz 3	Quiz 4	Quiz 5	Quiz 6

Late work deadline is 7:45am on the day of the Unit 1 Test!!

- ❏ Discussion #1 -
- ❏ Observing Project: Telling Time with the Big Dipper - - - - - - -
- ❏ HW 1.1: Intro to Astronomy -
- ❏ HW 1.2: Distance & Magnitude -
- ❏ HW 1.3: Celestial Sphere -
- ❏ HW 1.4: Sky Maps -
- ❏ HW 1.5: Phases & Tides -
- ❏ HW 1.6: Eclipses -
- ❏ HW 1.7: Seasons -
- ❏ Discussion #2 -
- ❏ HW 1.8: Unit 1 Practice Exam -

Name: _____ Period: _____

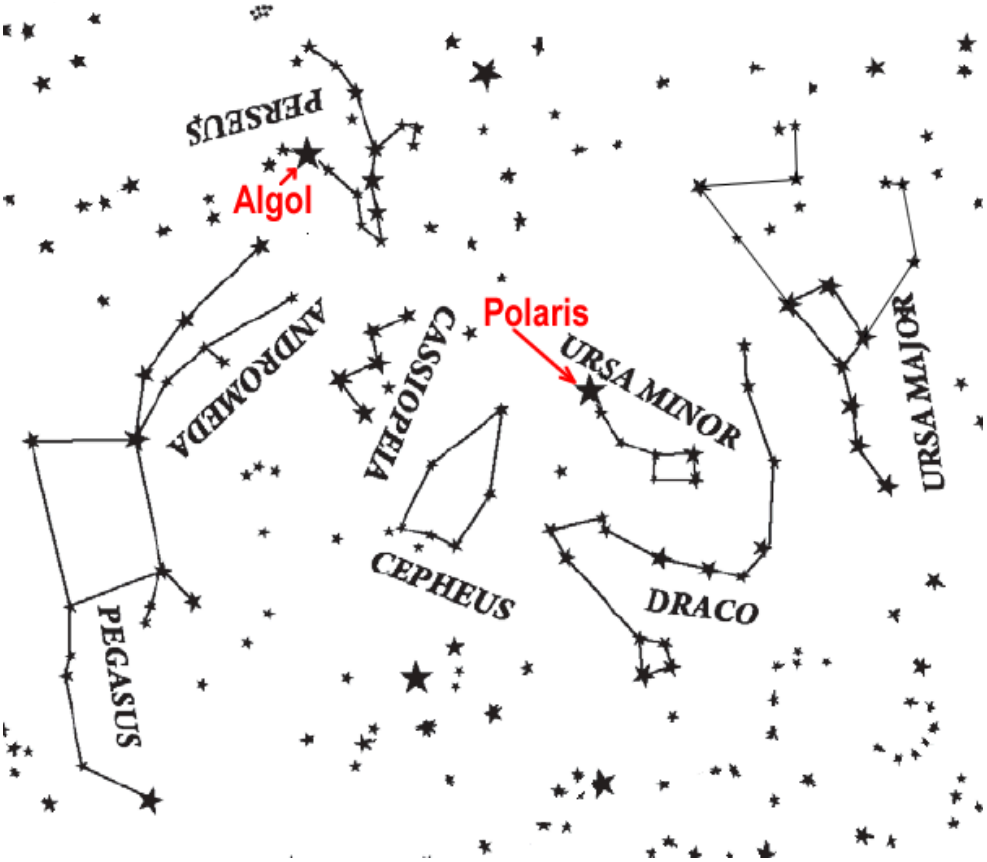
How well do I understand Unit 1?

Shade in each box completely to show your understanding level for each objective.

1- I saw this in class, or I was absent and got notes from someone or from Canvas.
2- I am beginning to understand. This makes sense when I see this in class, but I struggle with it.
3- I understand what is important. I can do the homework if I can look at my notes.
4- I understand completely. I can do the homework without help. I could teach it to another student.

1A Measurement in Space				
I can describe distances in space-- Astronomical Unit (AU), Light Year, and Parsec.	1	2	3	4
I can define what parallax is.	1	2	3	4
I can describe the stellar magnitude scale, and determine how much brighter or dimmer an object is given the stars' magnitudes.	1	2	3	4
I can estimate the angular size of an object, using my hand as a reference.	1	2	3	4
I can describe coordinate systems in the celestial sphere and in the local sky.	1	2	3	4
1B The Moon - Phases, Eclipses, Tides				
I can explain the cause of lunar phases, & describe the alignment of the Earth, Moon, and Sun during each phase.	1	2	3	4
I can describe the rising, "highest in the sky", and setting times for the Moon during each phase.	1	2	3	4
I can explain how the Moon and Sun create the tides on Earth.	1	2	3	4
I can describe the alignment of the Earth, Moon, and Sun during both solar and lunar eclipses. I can explain the lunar phase required for both lunar and solar eclipses.	1	2	3	4
1C Seasons				
I can explain that the distance between Earth and Sun has nothing to do with seasons.	1	2	3	4
I can explain how the tilt of the Earth's axis causes the Sun angle and the number of daylight hours to change throughout the year for a given location on Earth.	1	2	3	4
I can describe the four special seasonal days: vernal equinox, summer solstice, autumnal equinox, and winter solstice.	1	2	3	4
I can describe how the Sun angle and number of daylight hours are related.	1	2	3	4
1D Constellations & Sky Maps				
I can identify Ursa Major, Ursa Minor, Cepheus, Cassiopeia, Andromeda, Perseus, Pegasus, and Draco.	1	2	3	4
I can identify the stars Polaris and Algol.	1	2	3	4
I can use the horizon system (azimuth, altitude) to locate an object on a Sky Map, and make predictions about where that object would be at a later time.	1	2	3	4

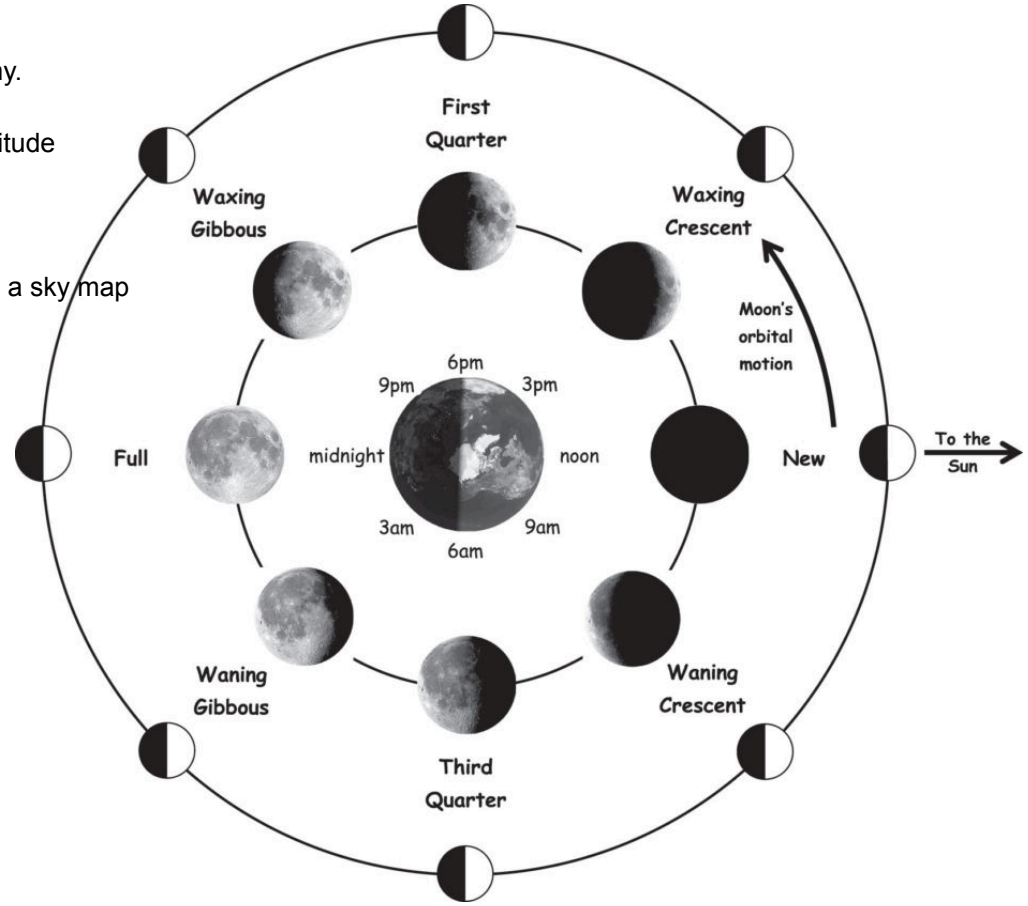
Unit 1 Study Guide



Constellations (Bright Stars): Ursa Major, Ursa Minor (Polaris), Draco, Cassiopeia, Cepheus, Andromeda, Perseus, Pegasus

Topics:

- Current events in Astronomy.
- Distances in space
- Apparent & Absolute Magnitude
- Angular size
- Parallax
- Celestial Sphere
- Azimuth & Altitude, reading a sky map
- Phases of the Moon
- Tides
- Eclipses
- Seasons



Vocabulary:

absolute magnitude
altitude
angular size
apparent magnitude
arc minute
arc second
asteroid
AU
azimuth
comet
constellation
declination
direction
dwarf planet
ecliptic
galaxy
galaxy cluster
horizon
light year
meridian
meteor
parallax
parsec
planet
revolution
right ascension
rotation
star
star system
supercluster
vernal equinox
zenith
zodiac constellation
New Moon
Waxing Crescent
First Quarter
Waxing Gibbous
Full Moon
Waning Gibbous
Last Quarter
Waning Crescent
Vernal Equinox
Autumnal Equinox
Summer Solstice
Winter Solstice
solar eclipse
lunar eclipse
annular eclipse

7:45 am on the Unit 1 Test Day is the LATE WORK DEADLINE for all Unit 1 work.

UVU Concurrent Enrollment Info (ASTR 1040)

The UVU course title is Astronomy 1040 (ASTR 1040), and is a 3 credit general education science course.

3 Required Steps and Deadlines: (explained in detail at **uvu.edu/concurrent**)

1. **Apply to be admitted** to UVU as a CE student by ***August 30th***.
   - If you have already been admitted by taking other UVU CE courses, this is already done.
2. **Register for ASTR 1040** by ***September 7th***.
   - The CRN for Fall 2026 is **26887**.
3. **Pay $15 tuition** when you register for the class.
   - Pay online, directly to UVU.

Project #1: Telling Time with the Big Dipper (*due on September 4th*)

Did you know that you could use the Big Dipper to tell the time?

Complete one of the two project options described below:

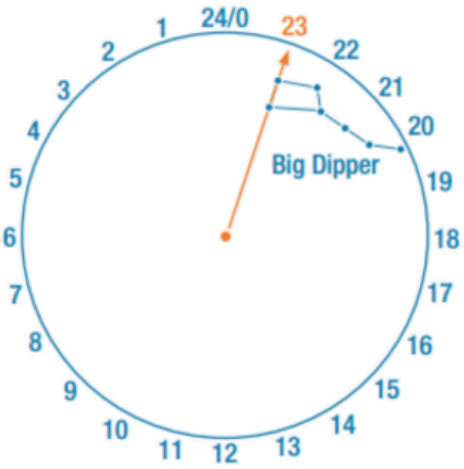
Option #1: Build a Star Clock.

Visit this website: http://www.skyandtelescope.com/astronomy-resources/make-a-star-clock print off the materials, and construct your Star Clock. Use it to see how accurately you can measure time with the Big Dipper.

Option #2: Learn how to tell time with the Big Dipper without building a Star Clock. Here is the process:

- Find the Big Dipper and the North Star. The last two stars in the bowl of the Dipper are the "Pointers." A line through them passes close to the North Star.
- Imagine that the North Star is the center of the clock, and an hour hand passes up to the Pointer stars. But this is a 24-hour clock, and the hour hand turns backward! Midnight = zero hours or 24 hours and is at the top of the clock, 6:00 A.M. = 6 hours and is on the left, Noon = 12 hours and is at the bottom, and 6:00 P.M. = 18 hours and is on the right. The clock above reads 23 hours.
- On the night of March 6, you can read the time directly off the clock. If you saw the Big Dipper in the position of the diagram above on the night of March 6, the time would be 23 hours, or 11:00 P.M.
- On any other night of the year, take the reading off the "Dipper clock" and subtract two times the number of months after March 6 from the reading.
    - Time = Dipper clock reading - 2 (number of months after March 6)
- This gives you an approximate local solar time, which might be an hour or so off the time zone time, depending on where you are in the time zone. To correct for Daylight Saving Time, add one hour to your final result.
    - Daylight Saving Time = Dipper clock reading - 2 (number of months after March 6) + 1 hour

Example 1: The Dipper clock reads 23 hours on February 8. February 8 is about 11 months after March 6. The time is therefore 23 - 2 × 11 = 1 hours = 1:00 A.M.



Turning in the Project:

You will submit the following through Canvas:

Write a reflection paragraph about how accurately you were able to tell the time with the Big Dipper. Describe how you did it, and include any interesting observations you made.