

Question 2: Using the ecliptic coordinate system and the angular separation tool,

- a) complete the following table with the angular distance between the Moon and the Sun, as seen from the Earth.

Phase	New	First Quarter	Full	Last Quarter
Angular distance				

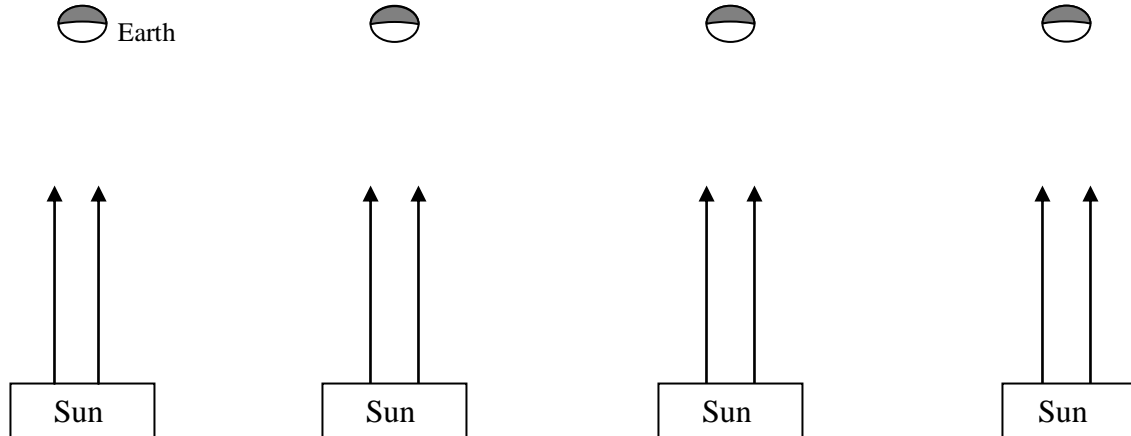
- b) Complete the top view (as seen from space) of the position of the Moon, Earth and Sun for each of the following phases of the Moon:

New moon

First quarter

Full moon

Last quarter



Question 3: Show the zodiac. Right click on the Moon to select Celestial Path. Set the time step to days and click the time step forward button (the button two to the right of the stop square.) Each click will be a day.

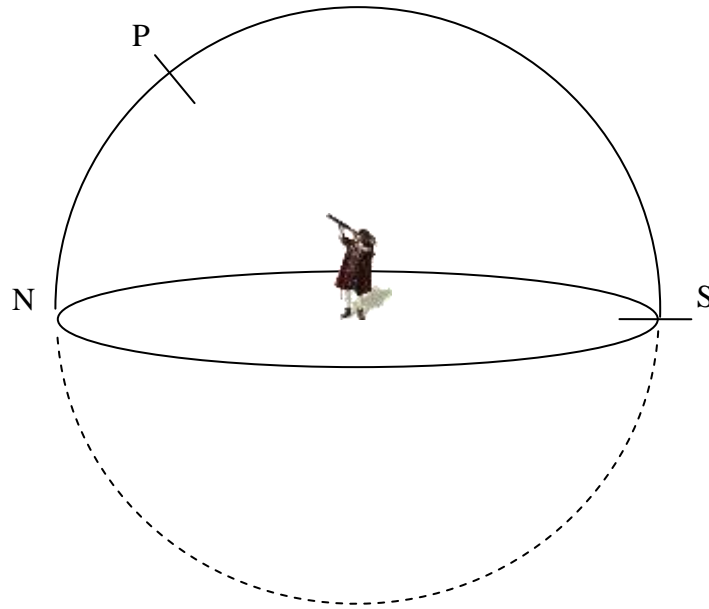
- a) How many days does it take for the Moon to be back at the same position relative to the stars? It won't be an integer number of days so estimate one decimal place. This is the **sidereal period** of the Moon.
- b) How many days are in one cycle of phases? This is the **synodic period** of the Moon

Question 4: Use two objects to represent the Earth and the Moon and a light source to represent the Sun. Prepare a 1min mini-presentation to explain the phases of the Moon. You should be able to answer questions like “Why can we see the full moon almost every month? What is a lunar eclipse?” Present to your instructor.

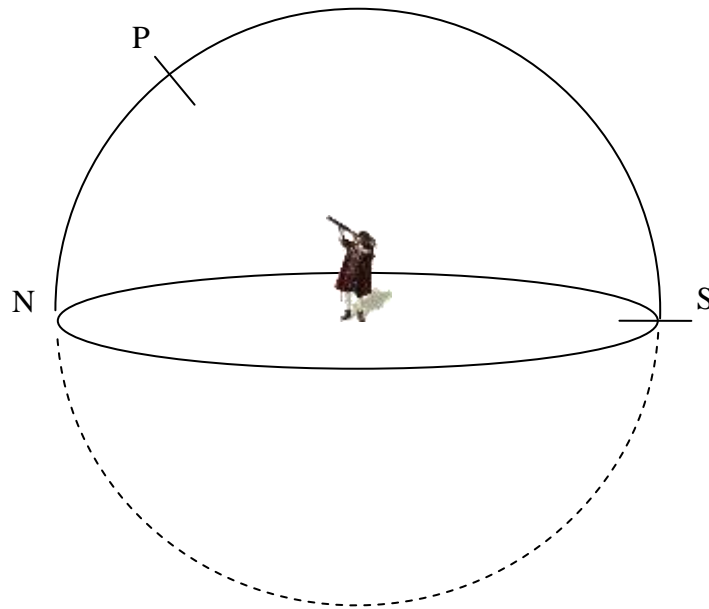
Instructor's initials: _____

Question 7:

- a) Draw the Sun and the full Moon at midnight in Vancouver on a hypothetical summer solstice.
Use the software to check your answer. Seek help if needed.



- b) Draw the Sun and the full Moon at midnight in Vancouver on a hypothetical winter solstice.




Question 8: Orientation of the crescent moon. Set the age of the Moon to roughly 4 days. Display the ecliptic. Right click on the Moon and track its local path.




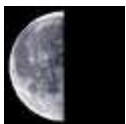
a) Draw the different orientations of the waxing crescent that you observe in Vancouver over the course of the “night”. Your reference is the horizon.

b) Draw the different orientations of the crescent that you observe in Chile. Your reference is the horizon.

c) Compare your two sets of observations and comment.

d) Is it possible to observe a waxing crescent like this:  ? Where/when?

e) Fill in the following table. Draw the phases of the Moon:

	Waxing crescent	First quarter	Waning gibbous	Third quarter
Vancouver				
Ushuaia (southern tip of Argentina)				

Question 9:

a) If tonight in Vancouver the Moon rises at 6:00 pm, at what time will the Moon rise tomorrow?

earlier

5 min

later

12 min

50 min

120 min

b) If tonight the Moon is eclipsing Regulus at 8:00 pm, where will the Moon be at 8 pm tomorrow?

west

1.3°

east

12°

23.5°

31°

Question 10: You are in Quito on the Autumnal equinox. The Moon is at first quarter. The Moon is culminating. What time is it? Draw a diagram.

Conclusion: Write a 3 to 5-line conclusion about this lab.