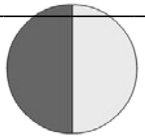
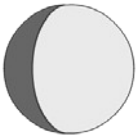
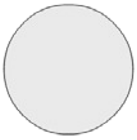
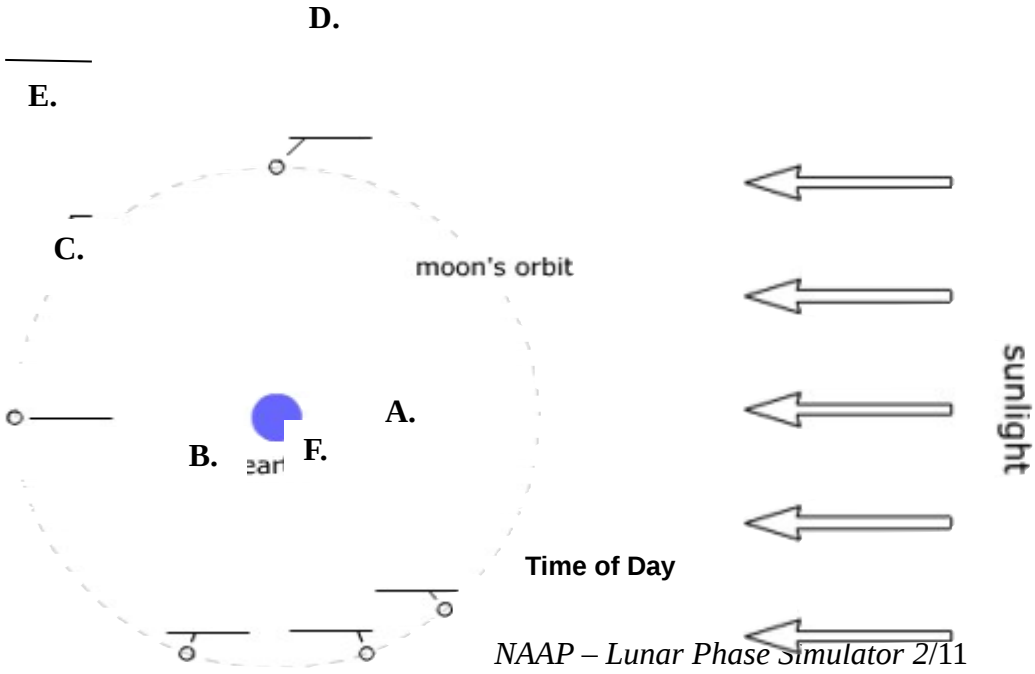
The following sketches of the moon's appearance were made over about four weeks. Identify the phases and put them in the correct numerical order. One is labeled for you.

Picture	Order	Phase	Picture	Order	Phase
A 	3	Waning crescent	D 	4	First quarter
B 	1	waning gibbous	E 	5	Waxing gibbous
C 	6	Full moon	F 	2	3rd quarter

Page 2 – Introduction to Moon Phases

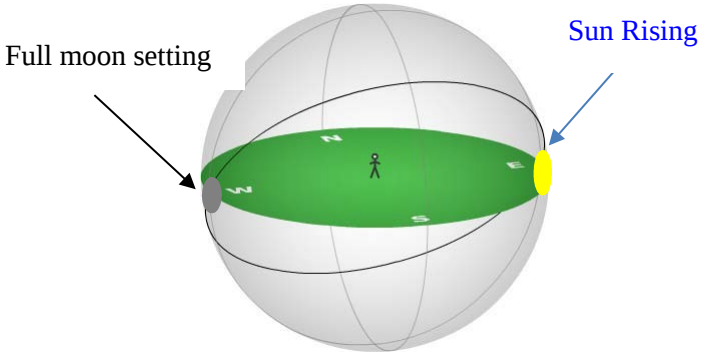
From the perspective of an observer above the North Pole, the moon moves clockwise / counter-clockwise (circle) in its orbit around the earth.

In the diagram below the sun's light is coming in from the right. The moon's location is marked at several points on its orbit. These are the points the moon was at when the sketches above were drawn. Identify each position with the letter of the corresponding sketch.



Page 3 – The **Time of Day**

Question 8: Draw and label the full moon and sun at 6:00 A.M. on the figure below. (If necessary or useful, draw an arrow to one or both spots.)

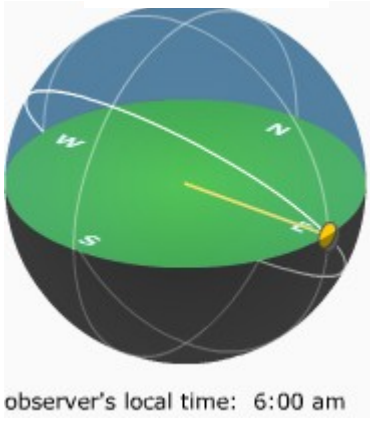


Part V: Advanced Application

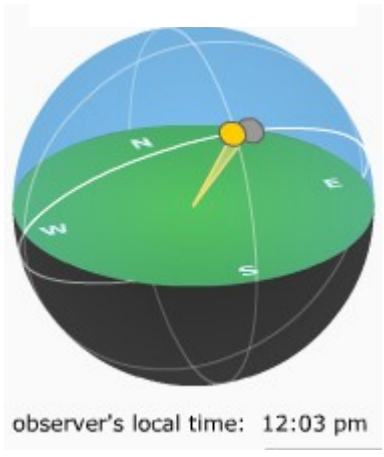
An article entitled Muslim Moon Sightings is attached. Write a short essay complete with diagrams describing how you were able to simulate the observations described in the article in the Lunar Phase Simulator.

By placing the degree of separation between the Sun and the moon at 6° separation, I was able to simulate the observations described in the article. Based on the 6° separation of the Sun and the moon, and based on where the moon was in its orbit around the Sun, the problems they encountered during the time they were searching for the slim crescent were due to the fact that the moon was so close to the Sun during its rotation. Based on the simulation, you would be unable to see the moon in the sky, especially since the time period in which it would be visible would be during the daytime hours.

Sun & Moon



Crossing the Meridian



Sun & Moon Set