

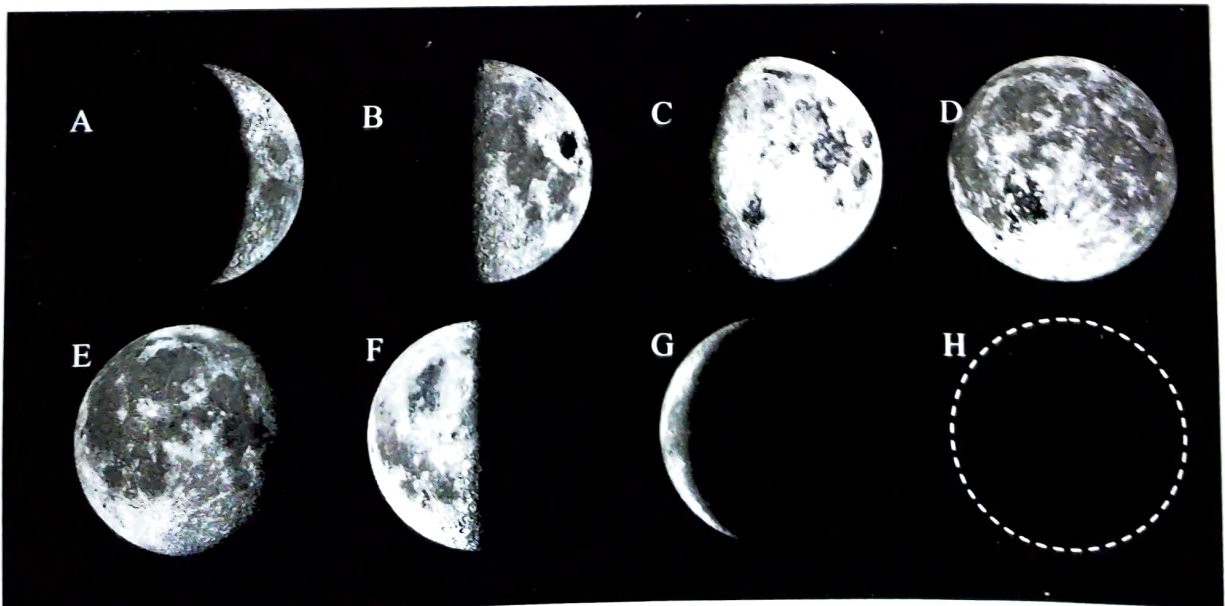
- 1) If the Moon is a full Moon tonight, will the Moon be waxing or waning one week later? Which side of the Moon (right or left) will appear illuminated at this time?

**Circle one:** Waxing or Waning

**Circle one:** Right or Left

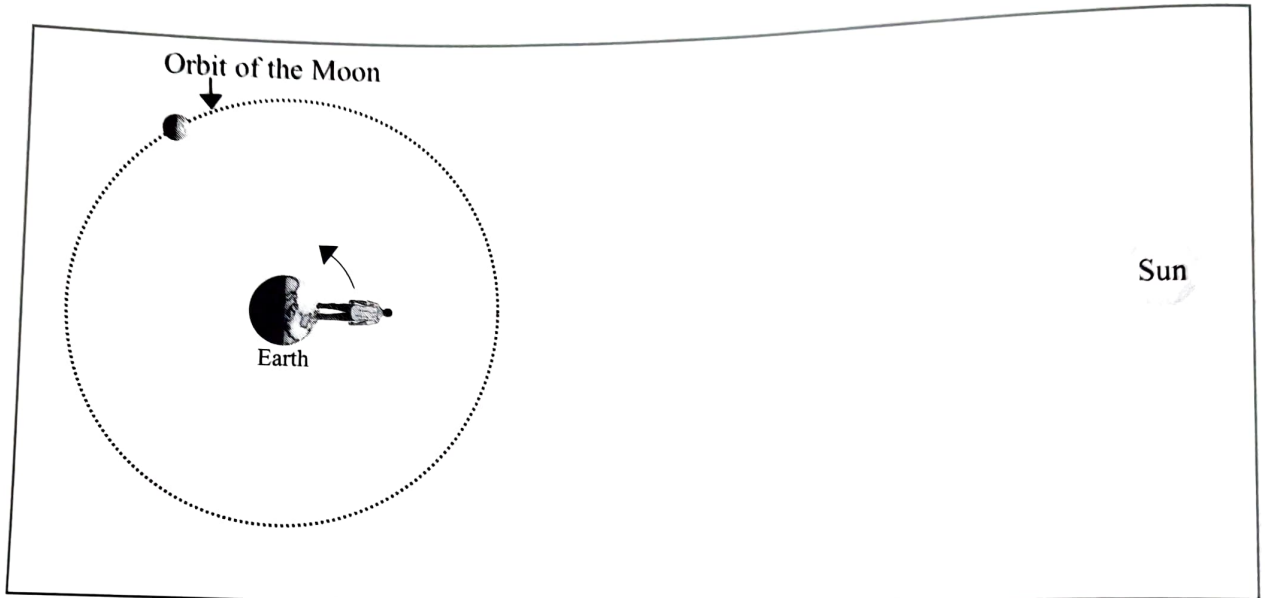
- 2) Where (in the southern sky, on the eastern horizon, on the western horizon, high in the sky, etc.) would you look to see the full Moon when it starts to rise? What time would this happen?
- 3) Where (in the southern sky, on the eastern horizon, on the western horizon, high in the sky, etc.) would you look to see the Sun when the full Moon starts to rise?
- 4) Where (in the southern sky, on the eastern horizon, on the western horizon, high in the sky, etc.) would you look to see the new Moon, if it were visible, when it starts to rise? What time would this happen?
- 5) If the Moon is a new Moon when it rises, which of the phases shown below (A–H) will it be in when it sets?

Letter of Moon phase: \_\_\_\_\_



## Predicting Moon Phases

Figure 1 shows the position of the Sun, Earth, and Moon for a particular phase of the Moon. The Moon has been shaded on one side to indicate the portion of the Moon that is **not** being illuminated by sunlight. A person has been placed on Earth to indicate an observer's position at noon. Recall that with this representation Earth will complete one counterclockwise rotation in each day. Note that this drawing is not to scale.



**Figure 1**

6) What time is it for the person shown in Figure 1?

*Circle one:* 6 A.M. (sunrise) 12 P.M. (noon) 6 P.M. (sunset) 12 A.M. (midnight)

7) Draw a stick figure person on Earth in Figure 1 for each of the three times that you did **not** choose in Question 6. Label each of the stick figures that you drew with the time that the person would be located there.

8) Answer the following questions for the position of the Moon shown in Figure 1.

- Which Moon phase would an Earth observer see?
- At what time will the Moon shown appear highest in the sky?
- At what time will the Moon shown appear to rise?
- At what time will the Moon shown appear to set?

- 9) At what time would you look to see a first-quarter Moon at its highest position in the sky?
- 10) If the Sun set below your western horizon about 2 hours ago, and the Moon is barely visible on the eastern horizon, what phase would the Moon be in at this time and location?
- 11) A friend comments to you that there was a beautiful, thin sliver of Moon visible in the early morning just before sunrise. Which phase of the Moon would this be, and in what direction would you look to see the Moon (in the southern sky, on the eastern horizon, on the western horizon, high in the sky, etc.)? Draw and label a picture that explains your reasoning.