

Literary Reading - Moon Phases

If you watch the moon every night, you see its shape appear to change. Does the moon really change shape?	20
Of course not, but its appearance from Earth certainly changes. How does this work? The answer lies within the part	40
Of the moon that receives sunlight, and the part of the moon that does not receive sunlight.	57
Sunlight will shine on the side of the Earth (or moon) that faces the sun. We call this day on the side of the	81
Earth that faces the sun, and night on the side of the Earth that does not face the sun. Keep in mind that sunlight	105
will illuminate the side of an object that faces it! What does this have to do with moon phases? Well, the	126
moon "shines" by reflected sunlight. As the moon orbits Earth, sunlight "shines" on different parts of the moon on	145
the side of the moon that we can see. We always see the same side of the moon. Why? The moon's rotation (its	168
spin on its axis) is the same as its revolution (its orbit around the Earth), so we cal always see the same side.	190
So, the key to understanding moon phases is: although the sun always shines on the side of the moon facing	210
the sun, the moon is not always in the same place while orbiting Earth with respect to the sun. It's all a matter of	234
perspective. The phases of the moon are produced by varying amounts of sunlight reaching the side of the moon	253
that faces Earth. The lunar cycle (moon phases) repeats every 29.5 days.	265
★ At new moon the moon is nearly in line with the sun. The illuminated part of the moon faces away from Earth,	287
so the moon appears invisible in the night sky.	296
★ A few days after new moon, the waxing crescent moon appears above the western horizon soon after sunset.	314
Each evening it becomes larger and higher above the horizon.	324
★ About a week after new moon, the moon reaches first quarter and appears high in the southern sky at sunset.	344
The first quarter moon does not set until about midnight.	354
★ In the days following first quarter, the waxing gibbous moon continues to grow. It appears to move further east,	373
and it sets later in the evening.	380
★ About two weeks after the new moon, the full moon arrives, rising in the east and setting in the west. The full	402
moon is visible all night long, and it sets in the west around sunrise.	416
★ As the moon wanes through gibbous, it rises later and later. By the time third quarter rolls around, moonrise	435
doesn't occur until around midnight. If you want to see a waning crescent moon, you must get up early before	455
sunrise and look for the moon in the eastern horizon.	465

