

Record: 1

Title: Phase transitions.

Authors: Chaple, Glenn

Source: Astronomy; May2003, Vol. 31 Issue 5, p22, 1p, 1 diagram, 1 color

Document Type: Article

Subject Terms: MOON -- Phases
MOON -- Atmosphere
ASTRONOMY -- Observations
LUNAR eclipses
NEW moon

Abstract: Presents observations about the phase transitions of the moon. How the lunar cycle begins with the New Moon; Position of Full Moon halfway around the Earth; Consideration of how the moon rises a half hour later each night after the full phase.

Lexile: 880

Full Text Word Count: 766

ISSN: 00916358

Accession Number: 9411450

Database: Middle Search Plus

Section: GLENN CHAPLE'S OBSERVING BASICS

Phase transitions

Quick question: What phase will the Moon be in tonight? If you know the answer, chances are you're a pretty dedicated observer. If you haven't a clue, you belong to the majority of people who, thanks to the conveniences of the modern world, don't spend enough time outside to become familiar with the lunar cycle. Or perhaps you are a serious skygazer who lives in New England, where it's cloudy so often we can't remember what the Moon looks like at all.

Let's stamp out L.P.I. (Lunar Phase Ignorance) by spending the month following our nearest neighbor as it goes through a complete cycle around Earth.

[May 1: New Moon](#)

The lunar cycle begins with New Moon, which occurs at 8:15 A.M. EDT. Don't bother looking for the Moon tonight -- it's between us and the Sun, hidden by the solar glare.

[May 2 to 8: Waxing crescent Moon](#)

After new phase, the Moon drifts to the left (east) of the Sun. It appears as a crescent in the western sky after sunset (it starts out so thin you probably won't see a thing until the 3rd or 4th). With each passing night, the Moon will move about 12° farther east of the Sun, becoming larger ("waxing" means growing) and easier to see. A bonus the bright "star" you see near the crescent Moon on the evenings of May 4 and 5 is Saturn; Jupiter will shine near the Moon on the 8th.

[May 9: First Quarter Moon](#)

The "half Moon," as poets call it, shines brightly to our south at sunset. Why do astronomers refer to this phase as a "quarter"? I like to tell my students that the Moon has traveled one-quarter of the way around Earth since New Moon. Also, we see only a quarter of the Moon's total surface (half of the half of the Moon that faces us).

May 10 to 14: Waxing gibbous Moon

The Moon gets fuller and keeps moving farther from the setting Sun. (Gibbous means "bounded by convex curves" and occurs when the side of the Moon we see is more than half illuminated.)

May 15: Full Moon

Ah, the Full Moon -- a time when lovers go for moonlit walks, and werewolves jump out of the darkness to devour them. The Moon has now gone halfway around Earth since the new phase and sits opposite the Sun in the sky. It's a brilliant silvery circle that rises in the east as the Sun sets in the west. Normally, this would be a poor time to skygaze (a bright Full Moon is nature's version of light pollution, blotting out all but the brightest stars). But on this night, the Full Moon will drift into Earth's shadow and become eclipsed. For tips on viewing this event, check out pages 80 and 88.

May 16 to 21: Waning gibbous Moon

Each night after the full phase, the Moon rises about an hour later. The phases now go in reverse as the Moon wends its way back toward the Sun. On the 16th, a bright waning gibbous Moon will be setting in the west as the Sun rises in the east. Each morning after, the Moon will be about 12° closer to the rising Sun. On the morning of the 21st, the Moon flirts with Mars.

May 22: Last Quarter Moon

The Moon graces the southern sky at sunrise, its left side illuminated.

May 23 to 30: Waning crescent Moon

The Moon is fading fast -- an ever-shrinking crescent that draws nearer and nearer the rising Sun. You'll probably lose track of it around the 29th.

May 31: New Moon

We're back where we started, with one minor difference. This New Moon will pass directly in front of the Sun, producing an annular solar eclipse (sadly not visible from most of the United States).

Did you notice that it took 30 days to return to new phase? This isn't a coincidence -- our calendar month is based on the lunar cycle, which you can recreate with a table lamp (the Sun) and a baseball (the Moon). Remove the lampshade, and hold the ball between yourself and the lamp this is New Moon. Move the ball counterclockwise (to your left). You'll see all the phases we described here (even a lunar eclipse, as the baseball drifts into your shadow). But nothing beats the real thing, so go outside and say hello to the Moon. Clear skies!

DIAGRAM: THE MOON'S ORBIT constantly changes the angle between Earth, Moon, and sun, causing lunar phases.

PHOTO (COLOR)

~ ~ ~ ~ ~ ~ ~ ~

By Glenn Chaple

Copyright of Astronomy is the property of Kalmbach Publishing Co. and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.