

## WHAT'S IN A NAME

### QUARTER MOON OR HALF MOON?

Half the moon always faces us. And half the moon is always lit by the sun. But, in the language of astronomers, there are no 'half moons.' Here are the official designations:

**New moon**, of course, refers to the fact that this phase the moon is considered by astronomers to have entered a new orbital cycle (called a lunation by astronomers).

**Full moon** signifies that the full visible surface of the moon is illuminated.

**First quarter moon** means the moon is one quarter of the way through the current orbital cycle.

**Third or last quarter moon** means the moon is three-quarters of the way through the cycle, as measured from one new moon to the next.

In between we have

**Crescent moons**, clearly named for their shape, which can be **waxing (growing) or waning (diminishing)**. And we also have

**Gibbous moons**, indicating a shape that is unequally curved outward on both sides, but not full. Gibbous moons also wax and wane depending on its time in the cycle.

But just remember this. **Astronomers recognize four primary moon phases (new, first quarter, full, last quarter) and four interstitial phases (waxing crescent, waxing gibbous, waning gibbous, waning crescent). Notice ... no half moon.**

People do frequently speak of half moons. There are geographical locations (e.g., Half Moon Bay in California), as well as restaurants, resorts and various other attractions and businesses with this moniker. People also sometimes look up and say: Is that a 'half' moon in the sky? Astronomically, the answer to that question is always no. There are no half moons. Could you say, it is half a full moon, would that be correct?

Well, the term simply is not in the vocabulary of astronomers, at least not in any official way. Invariably, when referring to the half moon, observers really are looking at one of the quarter moon phases. The illuminated portion you see really is a quarter of the whole moon. It's astronomically incorrect to refer to a half moon.

But then, the process of naming things in astronomy isn't always logical. You may think that heavy metal refers to gold or lead, (or your favourite musical band). But, in astronomy (cosmology), a metal means any element – even some that normally are gases on Earth – that's anything other than the two lightest elements, hydrogen and helium. Oxygen and carbon, for example, are metals in the language of astronomers. Seriously.

Or consider the ad hoc definition of a dwarf planet adopted by the International Astronomical Union, and used to dump Pluto, unceremoniously, from full planethood. Astronomers are scientists, and, like all scientists, they use a jargon all their own.

Think of it this way, every time you look at the Moon, you're seeing half a moon, the side facing us; half the Moon always faces us. What is changing is how much of this is part of the Sun-facing-side of the Moon. Whether we can see it all or not, one half of the Moon is always illuminated by the sun. In other words, the moon has a dayside and a nightside, just as Earth does. At Full Moon the Sun is behind the Earth and fully illuminates the side of the Moon facing us. At New Moon the Sun is behind the Moon and the back of the Moon is lit, the side we cannot see.

AK with EarthSky Notes



First quarter moon on the evening of June 11, 2016.