

# Moon



Picture: Full Moon photograph taken 10-22-2010 from Madison, Alabama, USA. Photographed with a Celestron 9.25 Schmidt-Cassegrain telescope. Acquired with a Canon EOS Rebel T1i (EOS 500D), 20 images stacked to reduce noise. 200 ISO 1/640 sec

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<https://en.wikipedia.org/wiki/Moon#/media/File:FullMoon2010.jpg>

The moon (astronomical symbol: ☾) is the most conspicuous object in the starry sky next to the sun. It is the closest celestial body to us and the only one outside the Earth that has already been walked on by humans. The name "month" also comes from it. The rotation period of the moon around the earth corresponds to about four weeks. The moon is not only responsible for the tides, but also stabilizes the Earth's axis, creating constant conditions on Earth for a long period. Our moon is also responsible for the occurrence of solar eclipses. However, it is not a completely reliable buddy. Due to the laws of physics, here the conservation of angular momentum, he moves further and further away from the Earth. Due to the tides caused by him, the rotation speed of the earth decreases and the earth days become longer. This loss of torque is transferred to the movement of the moon. In a far future, our descendants must therefore probably do without total solar eclipses. Moreover, it has hidden 40% of its surface from us for a long time, because it always shows us the same side due to its bound rotation (intrinsic rotation = orbital period around the earth). Only space satellites could show us that its backside looks different from its front side. The circulation of the moon is also for the Islamic calendar the calculation basis (Islamic year = 12 revolutions of the moon, 354 days). In the animal kingdom, too, the change from full moon to new moon is used as an orientation guide for timing for reproduction.

## Important datas of the Moon:

Semi-major axis:	384,400 km
Perigee – Apogee:	363,300 km – 405,500 km
Eccentricity:	0.055
Inclination (to the ecliptic):	5.15°

Orbital period (synodic):	27.3217 d
Average orbital speed:	1.023 km/s
Average diameter:	3,476 km
Mass:	about 0,012 earth masses ( $7.349 \cdot 10^{22}$ kg)
Mass density:	3.34 g/cm <sup>3</sup>
Surface gravity:	1.62 m/s <sup>2</sup>
Escape velocity:	2.38 km/s

**Link:** <https://en.wikipedia.org/wiki/Moon>