Name and etymology

The English [proper name](http://en.wikipedia.org/wiki/Proper_name) for Earth's natural satellite is "the Moon".[[7]](http://en.wikipedia.org/wiki/Moon#cite_note-11)[[8]](http://en.wikipedia.org/wiki/Moon#cite_note-PN-FAQ-12) The noun *moon* derives from *moone* (around 1380), which developed from *mone* (1135), which derives from [Old English](http://en.wikipedia.org/wiki/Old_English) *mōna* (dating from before 725), which, like all [Germanic language](http://en.wikipedia.org/wiki/Germanic_languages) cognates, ultimately stems from [Proto-Germanic](http://en.wikipedia.org/wiki/Proto-Germanic) *\*mǣnōn*.[[9]](http://en.wikipedia.org/wiki/Moon#cite_note-barnhart1995-13)

The principal modern English adjective pertaining to the Moon is *lunar*, derived from the Latin *Luna*. Another less common adjective is *selenic*, derived from the Ancient Greek *Selene* (*Σελήνη*), from which the prefix "seleno-" (as in [*selenography*](http://en.wikipedia.org/wiki/Selenography)) is derived.[[10]](http://en.wikipedia.org/wiki/Moon#cite_note-oed-14)

Formation

*Main article:*[*Giant impact hypothesis*](http://en.wikipedia.org/wiki/Giant_impact_hypothesis)

Several mechanisms have been proposed for the Moon's formation 4.527 ± 0.010 billion years ago,[[nb 6]](http://en.wikipedia.org/wiki/Moon#cite_note-age-15) some 30–50 million years after the origin of the Solar System.[[11]](http://en.wikipedia.org/wiki/Moon#cite_note-16) These include the fission of the Moon from the Earth's crust through [centrifugal forces](http://en.wikipedia.org/wiki/Centrifugal_force),[[12]](http://en.wikipedia.org/wiki/Moon#cite_note-Binder-17) which would require too great an initial spin of the Earth,[[13]](http://en.wikipedia.org/wiki/Moon#cite_note-BotM-18) the gravitational capture of a pre-formed Moon,[[14]](http://en.wikipedia.org/wiki/Moon#cite_note-Mitler-19) which would require an unfeasibly extended [atmosphere of the Earth](http://en.wikipedia.org/wiki/Earth%27s_atmosphere) to [dissipate](http://en.wikipedia.org/wiki/Dissipation) the energy of the passing Moon,[[13]](http://en.wikipedia.org/wiki/Moon#cite_note-BotM-18) and the co-formation of the Earth and the Moon together in the primordial [accretion disk](http://en.wikipedia.org/wiki/Accretion_disk), which does not explain the depletion of metallic iron in the Moon.[[13]](http://en.wikipedia.org/wiki/Moon#cite_note-BotM-18) These hypotheses also cannot account for the high [angular momentum](http://en.wikipedia.org/wiki/Angular_momentum) of the Earth–Moon system.[[15]](http://en.wikipedia.org/wiki/Moon#cite_note-20)

The prevailing hypothesis today is that the Earth–Moon system formed as a result of a [giant impact](http://en.wikipedia.org/wiki/Giant_impact_hypothesis): a [Mars](http://en.wikipedia.org/wiki/Mars)-sized body hit the nearly formed [proto-Earth](http://en.wikipedia.org/wiki/History_of_the_Earth), blasting material into orbit around the proto-Earth, which accreted to form the Moon.[[16]](http://en.wikipedia.org/wiki/Moon#cite_note-taylor1998-21) Giant impacts are thought to have been common in the early Solar System. Computer simulations modelling a giant impact are consistent with measurements of the angular momentum of the Earth–Moon system, and the small size of the lunar core; they also show that most of the Moon came from the impactor, not from the proto-Earth.[[17]](http://en.wikipedia.org/wiki/Moon#cite_note-22) However, [meteorites](http://en.wikipedia.org/wiki/Meteorite) show that other inner Solar System bodies such as [Mars](http://en.wikipedia.org/wiki/Mars) and [Vesta](http://en.wikipedia.org/wiki/Vesta_(asteroid)) have very different oxygen and tungsten [isotopic](http://en.wikipedia.org/wiki/Isotope) compositions to the Earth, while the Earth and Moon have near-identical isotopic compositions. Post-impact mixing of the vaporized material between the forming Earth and Moon could have equalized their isotopic compositions,[[18]](http://en.wikipedia.org/wiki/Moon#cite_note-Pahlevan2007-23) although this is debated.[[19]](http://en.wikipedia.org/wiki/Moon#cite_note-24)

The large amount of energy released in the giant impact event and the subsequent reaccretion of material in Earth orbit would have melted the outer shell of the Earth, forming a magma ocean.[[20]](http://en.wikipedia.org/wiki/Moon#cite_note-Warren1985-25)[[21]](http://en.wikipedia.org/wiki/Moon#cite_note-26) The newly formed Moon would also have had its own [lunar magma ocean](http://en.wikipedia.org/wiki/Lunar_magma_ocean); estimates for its depth range from about 500 km to the entire radius of the Moon.[[20]](http://en.wikipedia.org/wiki/Moon#cite_note-Warren1985-25)

The article is taken from <http://en.wikipedia.org/wiki/Moon>