**Nomenclature & related god**

**Stars, planets, dwarf planets**

Sun: **sol** in Latin [god: **Helios** in Greek mythology]

Moon: **luna** in Latin [goddess: **Selene** in Greek mythology, **sister** of Helios]

Planet: **planētai** in Greek, means **“wanderers”** derived from planet’s retrograde motion

* **Mercury** in Roman [god of swift-footed messenger]
* **Venus** in Roman [goddess of love and beauty]
* **Mars** in Roman [god of war] (**the ‘Red Planet’**)
* **Phobos** in Greek [panic/fear, **son of Ares**]
* **Deimos** in Greek [terror/dread, **son of Ares**]
* **Jupiter** in Roman [counterpart of **Zeus** in Greek, king of the gods, **father of Ares (the equivalent of Mars in Greek)**]
* **Io** [Greek, lover of the god **Zeus**] (innermost moon)
* **Europa** [Greek, lover of the god **Zeus**]
* **Ganymede** [Greek, lover of the god **Zeus**]
* **Callisto** [Greek, lover of the god **Zeus**]
* **Saturn** in Roman [equivalent of **Cronus** in Greek, **father of Zeus**]
* **Titan** [Related to Cronus] (largest moon of Saturn, also larger than Mercury)
* **Enceladus** [Related to Cronus]
* **Uranus** in Greek [god of the sky, **father of Cronus and grandfather of Zeus**]
* **Oberon, Titania** [fairies from Shakespeare’s *A Midsummer Night’s Dream*]
* **Miranda** [from Shakespeare’s *The Tempest*]
* **Ariel, Umbriel** [sylphs from Alexander Pope’s *The Rape of the Lock*]
* **Neptune** in Roman [god of the sea, **son of Saturn, brother of Jupiter, grandson of Uranus**]
* **Triton** in Greek [sea god, son of **Poseidon** in Greek who is comparable to **Neptune** in Roman]

Meteor: **meteōros** in Greek: **“high in the air” or “atmospheric”**

Comet: **κομήτης** in Greek: **“wearing long hair”**

Asteroid: **“star-like”**

Dwarf Planet

* **Pluto** [the god of the underworld in classical mythology]

All moons are named after mythological characters associated with Pluto

* **Charon** (one of the 5 moons, half diameter of Pluto)
* **Eris** [goddess of strife and discord]
* **Ceres** (at asteroid belt)

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**Haumea** [goddess of the island Hawai’i] (its two moons were named after the daughter of Haumea, Hi’iaka and Nāmaka)

**Makemake** [the creator of humanity and god of fertility in the myths of the Rapa Nui]

**Other terms**

Constellation: **cōnstēllātiō** in Latin, meaning **set of stars**

Astrology: **Astron -logia** in Greek, means **“star” – “study”: “account of the stars”**

Astronomy: **Astron -nomos** in Greek, means **“star” – “law”: “(physical) law of the stars”**

Telescope: **Tele – skopein** in Greek, means **“far” – “to look or see”: “far-seeing”**

Canali: **“Channels”**

**The most/least/only … planet/celestial object**

**Naked eye observation**

Fastest movement relative to stars: **Mercury**

Brightest planet: **Venus**

**Space exploration**

1st orbiting satellite: **Sputinik 1 (USSR)**

1st human space flight: **Vostok 1 (USSR)**

1st leaving earth orbit: **Luna 1 (USSR)** [malfunction – missed target and flew by the Moon]

1st reach the Moon’s surface: **Luna 2(USSR)** [impacted the Moon’s surface]

1st soft landing on the Moon: **Luna 9 (USSR)** [using retrorockets]

1st unmanned lunar soil sample return to the Earth: **Luna 16**

1st manned landing on the Moon: **Apollo 11**

**Planet/moon characteristics**

Planet with greatest temperature difference: **Mercury** (-173 ℃ ~ 427 ℃)

Hottest planet: **Venus** (mean surface temperature: 462 ℃)

Smallest planet: **Mercury**

Largest planet: **Jupiter**

Largest moon: **Ganymede** (larger than Mercury but with about half of its mass)

Largest object in asteroid belt: **Ceres** (also the **only** known object in the asteroid belt to be rounded by its own gravity)

Largest dwarf planet: **Pluto**

Most massive dwarf planet: **Eris**

Most geologically active object: **Io** (more than 400 active volcanoes)

Oldest surface / most heavily cratered: **Callisto**

The **only** object in space other than Earth that has clear evidence of stable bodies of surface liquid (hydrocarbon liquid) found – **Titan**

The **only** large moon having a retrograde orbit (orbit direction opposite to the rotation of the planet) – **Triton** (indicating that is was captured rather than forming in place)

**Planet/moon with water ice**

**Mercury** – polar region (constantly below -93 ℃)

**Europa** – layer of ice, the bottom of the ice is theorized to be liquid water

**Enceladus** – covered by fresh, clean ice, south polar region has water plumes, likely to have liquid water ocean beneath its frozen surface

**Uranus** – water ice

**Pluto** – mountains made of water ice

**Self-Rotation**

**Venus** – opposite to the Earth (**east to west**)

**Uranus** – tilted sideways nearly into the plane of its solar orbit (90 deg) (speculation: collision with an Earth-size body during formation of the solar system)

**Three Conditions**

1. The object must be in orbit around the sun
2. The object must be massive enough to be rounded by its own gravity
3. It must have cleared the neighbourhood around its orbit

When all 1-3 are fulfilled, a celestial object is called **a planet**.

When only 1-2 are fulfilled, it is called **a dwarf planet**.

**Geocentric Model and days of the week**

Going anti-clockwise starting from **Moon (月)**, it is the order of celestial objects from Earth outward in geocentric model. **(Moon, Mercury, Venus, Sun, Mars, Jupiter, Saturn)**

Following arrows starting from **Moon**, we have the 7 days in the week.

Planet Days of week English Derivation of English Name

**Moon: 月曜日 Monday** Directly from Roman

**Mars: 火曜日 Tuesday Tiw (equivalent Anglo-Saxon god)**

**Mercury: 水曜日 Wednesday Wóden (equivalent Anglo-Saxon god)**

**Jupiter: 木曜日 Thursday Thunor (equivalent Anglo-Saxon god)**

**Venus: 金曜日 Friday Fríge (equivalent Anglo-Saxon god)**

**Saturn: 土曜日 Saturday** Directly from Roman

**Sun: 日曜日 Sunday** Directly from Roman

