

2027

EPHEMERIS

A guide to understanding the astronomical events, symbols, and cycles represented in your Astronomical Calendar.

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1. Introduction

What Does Ephemeris Mean?

EPHEMERIS
From the Greek ephḗmeros — "daily"

A record of the positions of celestial bodies over time.

In astronomy and celestial navigation, an ephemeris indicates where astronomical objects are positioned in the sky at different points in time.

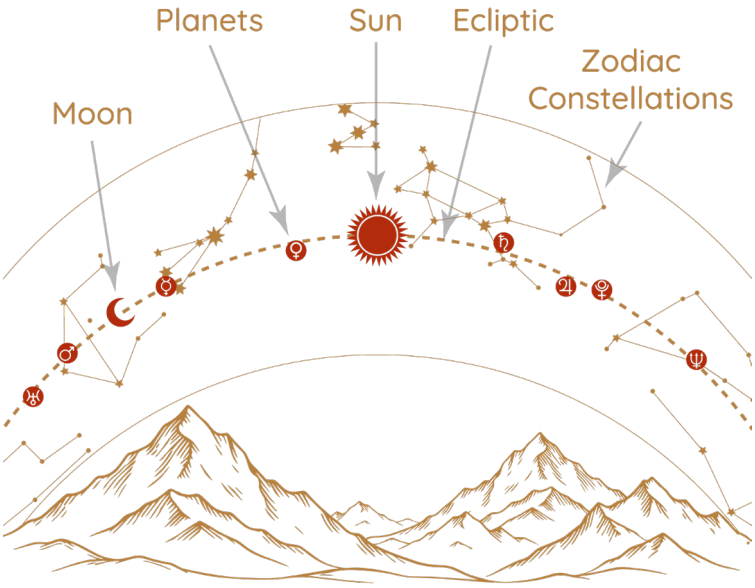
Your Astronomical Calendar is a visual ephemeris of the main celestial bodies in our Solar System throughout 2027.

Follow the movements of the planets, the cycles of the Moon, and the Sun's journey through the zodiac constellations. Discover the rhythms that shape our view of the sky.

How Is the Calendar Organised?

Earth is the reference point at the centre of this celestial map. From our perspective, the Sun appears to trace a path through the zodiac constellations throughout the year.

This apparent path is called the ***ecliptic***. Since the Moon and planets orbit in nearly the same plane, we also see them moving close to the ecliptic when viewed from Earth.



The calendar translates these movements into a circular map. Reading it **from the centre outwards**, you can follow the cycles of the Moon, the zodiac constellations, the paths of the planets, and the main astronomical events of 2027.



Earth

Our point of view.



Inner circle

Moon, Zodiac, Planets, Sun.



Outer ring

Moon Phases, Lunar Distance, Star Showers, Equinoxes & Solstices.

About Time Zones

All times for astronomical events in this calendar are given in **UTC (Coordinated Universal Time).** To find out the exact time each event will occur at your location, you will need to convert UTC to **your local time**.

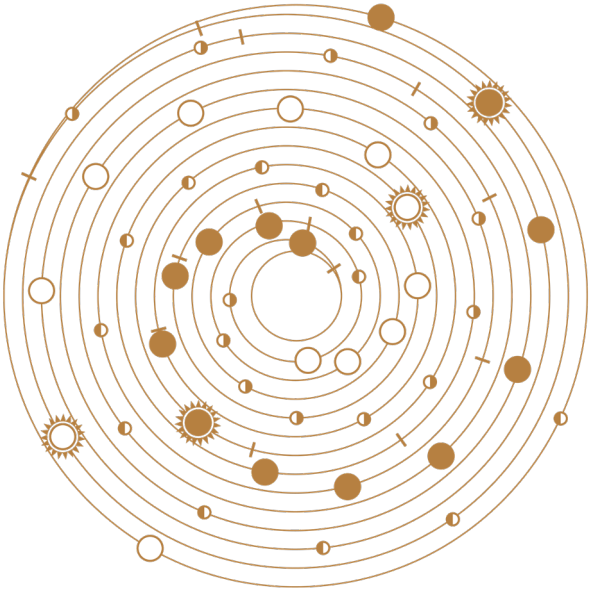
Keep in mind that, depending on your time zone, some events may occur on the **previous or following day** relative to the date shown on the calendar.

In the **interactive calendar guide**, which you can access via the link at the end of this guide, you can easily convert any UTC time to your local time. You can also view and download **personalised tables** showing the events whose dates differ at your location, along with the corresponding date adjustments.

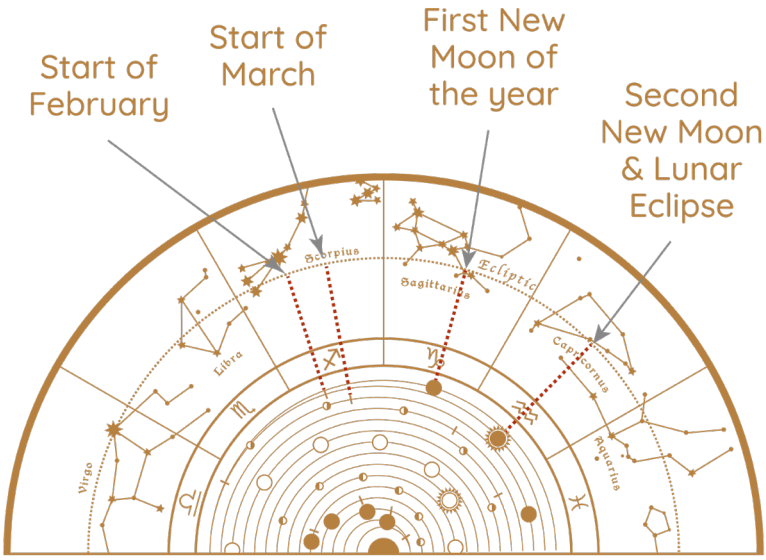
2. Inner circle

The Moon

The Moon's journey throughout 2027 is represented as a spiral that winds inwards, from the **outer edge towards the centre**.



Each turn of the spiral represents a **lunar cycle**. As the Moon moves through the zodiac, the symbols for the New Moon, First and Last Quarters, and Full Moon show its position during each phase and cycle.



A lunar cycle lasts approximately **29.5 days**, during which the Moon travels through the zodiac, from one New Moon to the next. Since this cycle does not align exactly with the calendar months or the solar year, each cycle begins at a slightly different point in the zodiac, creating the calendar's spiral pattern.

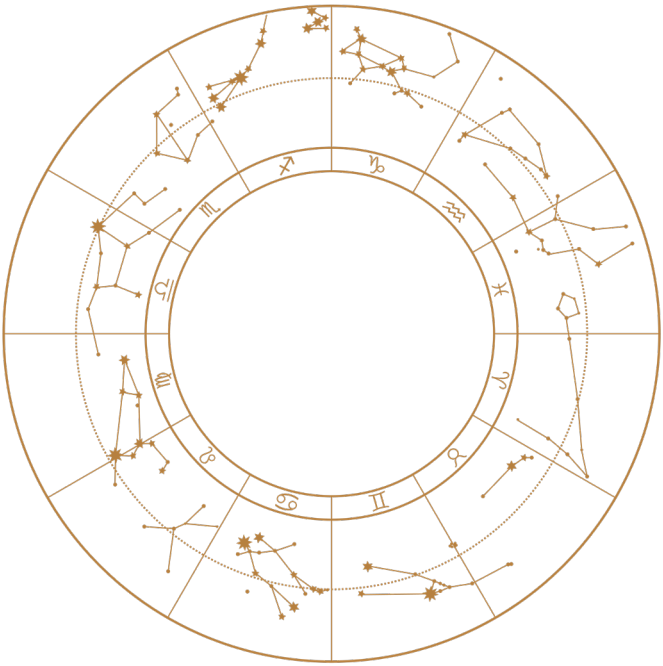
Follow the spiral inwards to trace the Moon's journey throughout the year.



Full Moon | Waning Moon | New Moon | Waxing Moon

The Zodiac Constellations

The zodiac constellations form a band across the sky along the ecliptic, the Sun's apparent path throughout the year.



The calendar shows **two different ways** of looking at the zodiac. The **constellations** are positioned according to their current astronomical locations in the sky, while the **zodiac symbols** refer to the traditional twelve-part division still used in astrology.



Constellations

Their current positions in the sky.



Zodiac Signs

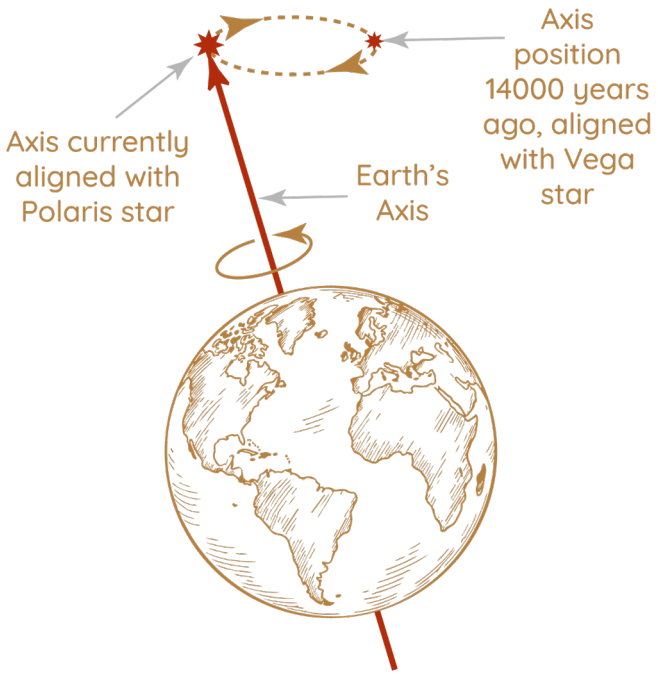
The traditional twelve-part division.

Therefore, each constellation and its corresponding zodiac sign do not always occupy exactly the same position on the calendar.

Why Don't They Match?

The Earth's axis of rotation slowly changes its orientation over time, tracing a motion similar to the wobble of a spinning top. This phenomenon is known as the **precession of the equinoxes** and completes a full cycle approximately every **26,000 years**. Each complete cycle is called a **Platonic year**, or equinoctial cycle.

Due to this gradual movement, the Sun's apparent position relative to the constellations has shifted over the centuries.



When the traditional divisions of the zodiac were established in antiquity, around 2,000 years ago, the March equinox roughly coincided with the region of Aries. Today, at the same time of year, the Sun appears against the constellation of Pisces due to precession.

For this reason, the **astronomical constellations** reflect the sky as we observe it today, while the traditional **zodiac signs** retain the divisions established in antiquity.

The Planets

The outer planetary ring shows the apparent path of the Sun and the planets through the zodiac constellations during 2027.

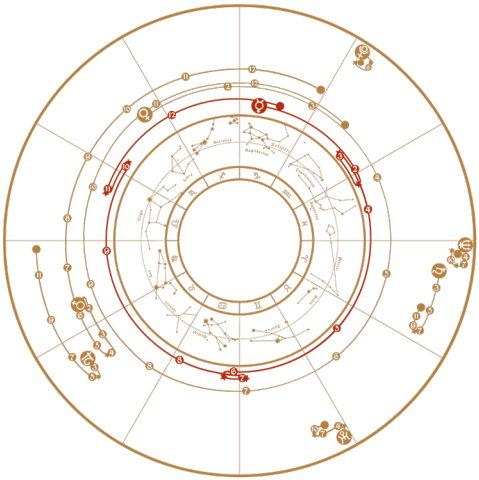
1. Find the Planet

MERCURIUS

★ 09/02 ★ 03/03
★ 10/06 ★ 04/07
★ 07/10 ★ 28/10

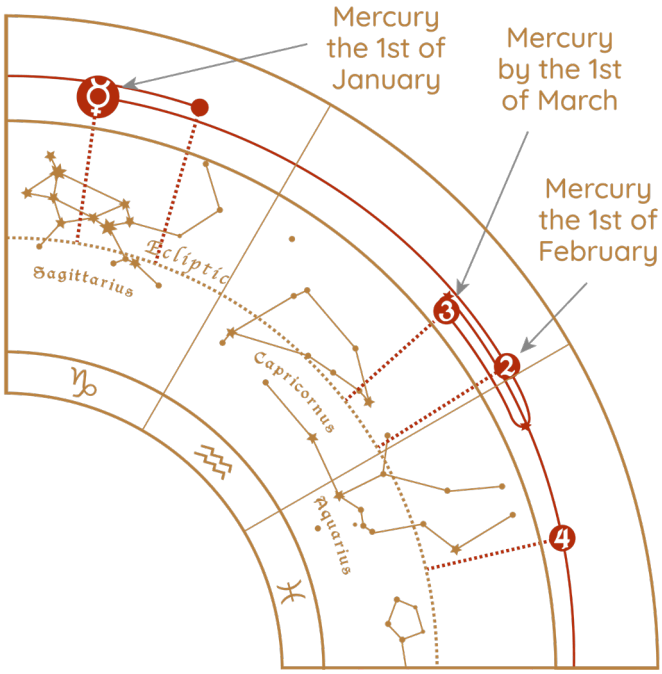
Find its astronomical symbol in the legend.

2. Follow Its Path



Follow the line connected to that symbol through the zodiac.

3. Read the Months

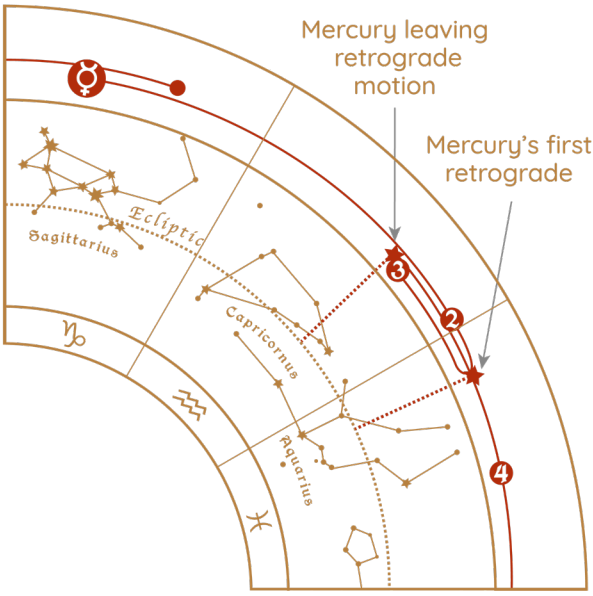


The numbered circles indicate the planet's position on the first day of each month. For example, in this case, Mercury is in the constellation of Sagittarius and the zodiac sign of Capricorn on the 1st of January.

The position of each numbered marker shows where that planet appears in relation to the zodiac signs and constellations at the beginning of each month.

Retrograde Motion

The stars along a planet's path indicate the dates when its apparent motion changes direction, entering or leaving retrograde motion.

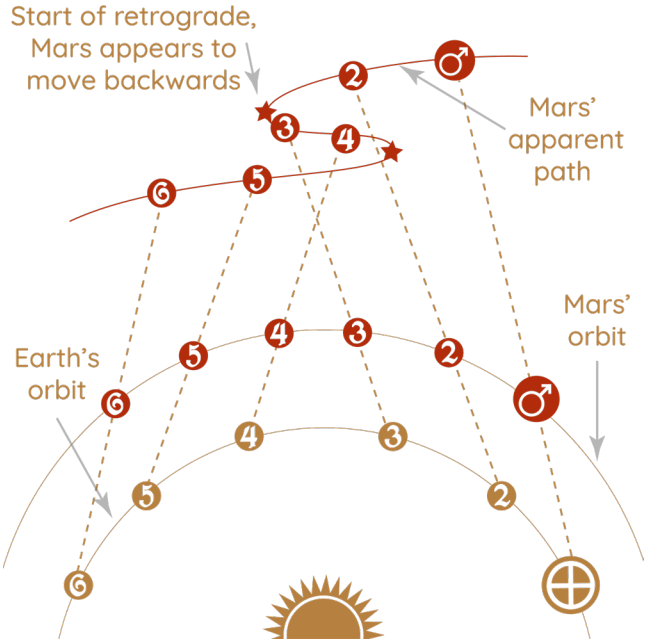


The exact start and end dates of retrograde motion can be found in the legend.

MERCURIUS

★ 09/02	★ 03/03
★ 10/06	★ 04/07
★ 07/10	★ 28/10

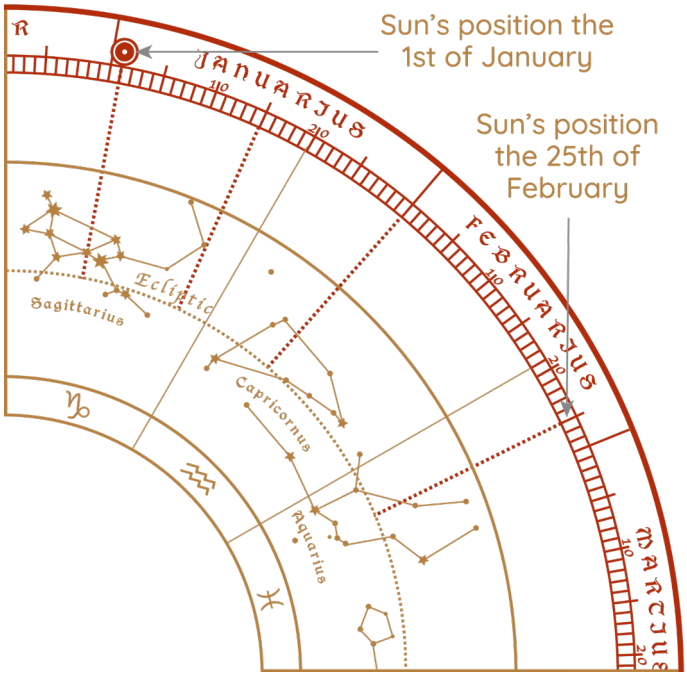
What Is Retrograde Motion?



When Earth overtakes another planet or is overtaken by one, **retrograde motion** occurs: the apparent backward movement of a planet against the background stars. This happens because Earth and the other planets orbit the Sun at different speeds, changing our perspective.

During this period, the planet appears to slow down, stop, and briefly move backwards, even though it continues moving normally along its orbit. When this effect begins, the planet enters retrograde motion; when it ends, it returns to **direct motion**.

The Sun



The Sun is represented in the same ring. Its path follows the ecliptic, and the dates marked along its line show how its position relative to the zodiac constellations changes throughout the year.

The Sun's path connects the planetary ring in the inner circle with the astronomical events represented in the calendar's outer ring.

3. Outer Ring

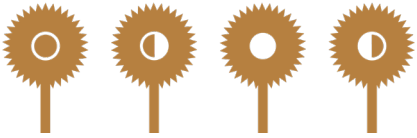
The outer ring uses the Sun's annual path as a timeline for the main astronomical events of 2027. Around it, you can find meteor showers, equinoxes and solstices, Moon phases, and changes in the distance between the Moon and Earth.

Meteor Showers



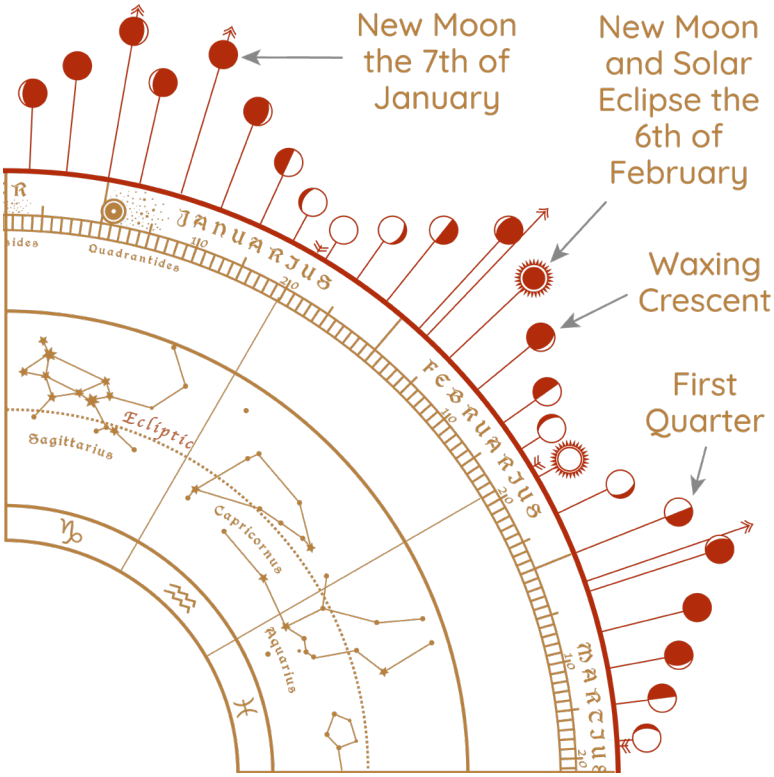
Their names and dates are placed along the Sun's annual path, indicating when each meteor shower reaches its peak.

Equinoxes & Solstices



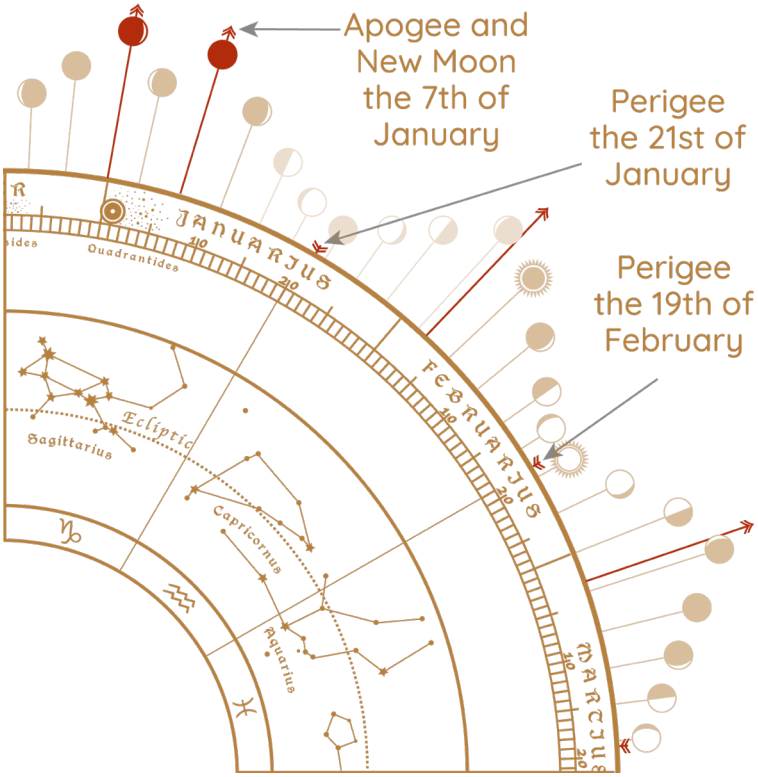
These four points mark the beginning of the astronomical seasons and are identified by their symbols in the legend.

Moon Phases



The lines extending beyond the circle mark the main Moon phases throughout each month, as well as solar and lunar eclipses.

Lunar Distance

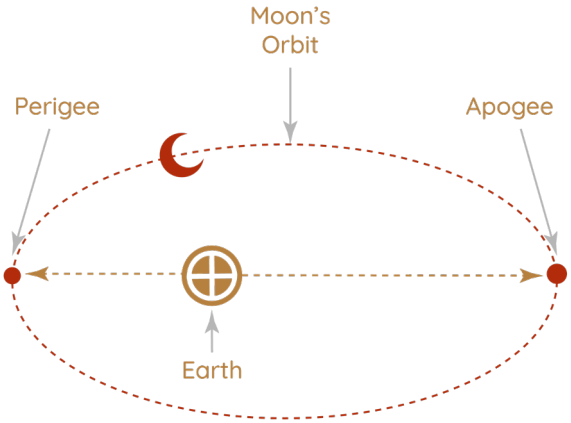


A downward arrow marks **perigee**, when the Moon is closest to Earth, while an upward arrow marks **apogee**, when it is farthest away.

Supermoon

When a Full Moon occurs near perigee, it is commonly known as a **Supermoon**, meaning that, when viewed from Earth, it appears slightly larger and brighter in the sky.

Why Does the Moon's Distance Change?



The Moon's **orbit** around Earth is not a perfect circle, so its distance varies. Its closest point is called **perigee**, and its farthest point is called **apogee**.

4. Look Up



We hope this calendar inspires you to observe the sky above us: its cycles, rhythms, and patterns, and the ways in which they connect us to the movements of the cosmos.

Look up, follow the cycles, and enjoy the celestial dance!

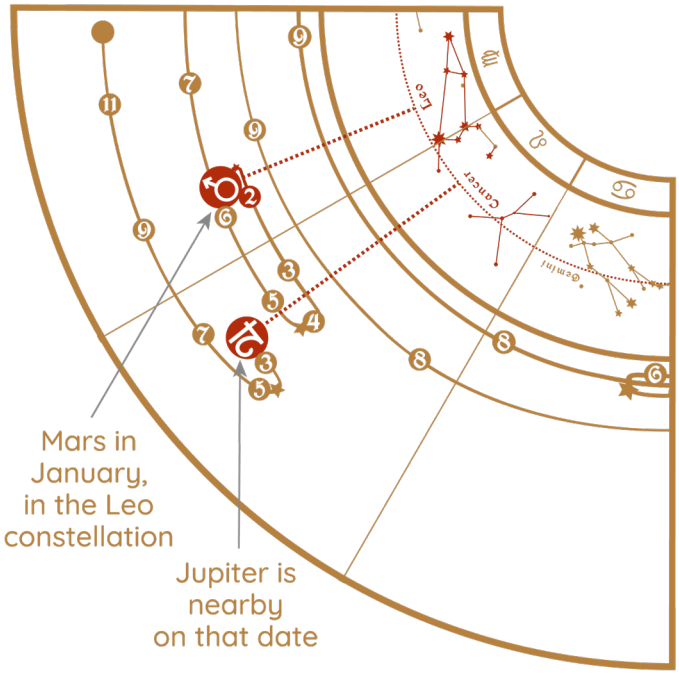
From the Calendar to the Sky

Your Astronomical Calendar shows you where the Sun, Moon, and planets are positioned in relation to the zodiac constellations throughout the year. Our **star map (planisphere)** helps you identify these constellations in the night sky.

Used together, the calendar tells you **what** to look for, while the planisphere helps you know **where** to look.

1. Choose a Planet and a Date

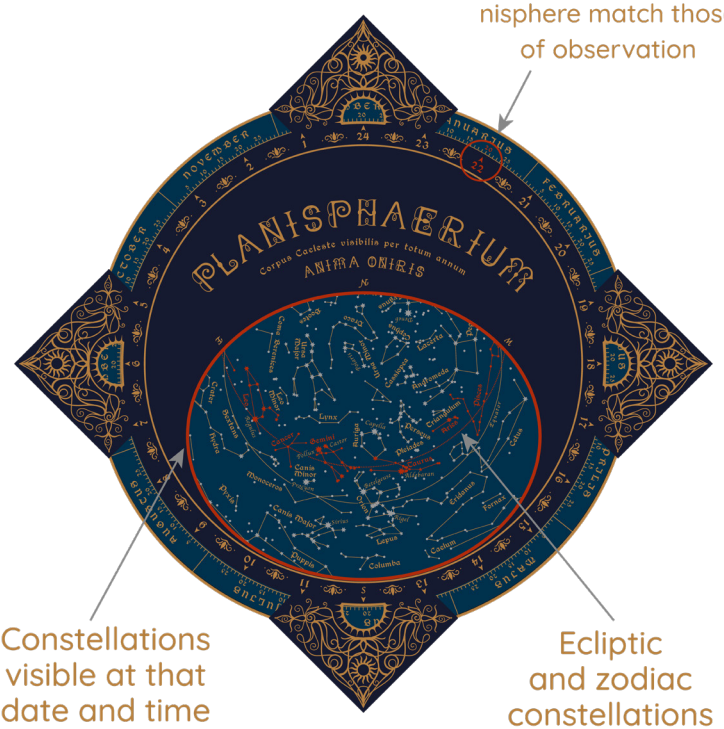
Find the planet's symbol on the Astronomical Calendar and follow its path to the date you want to observe. The calendar will show you which zodiac constellation the planet is passing through at that time.



♂ MARS

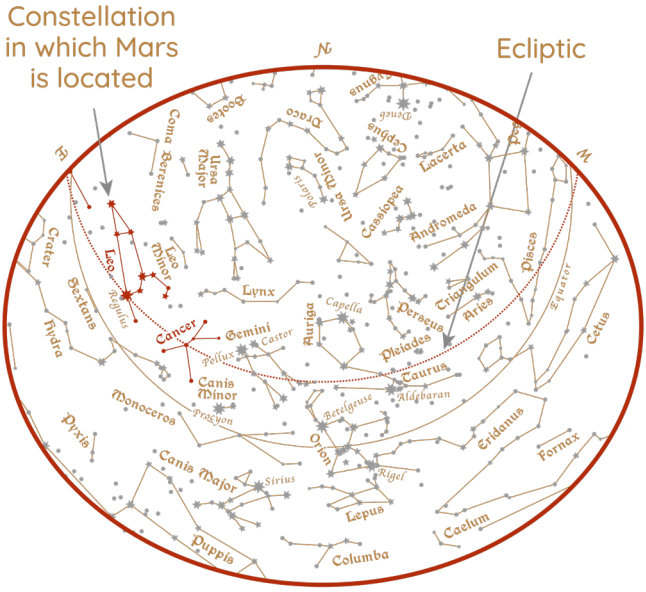
2. Set Up Your Planisphere

Set your planisphere to the corresponding date and solar time. This will show you which constellations are visible in the sky at that moment. You can calculate your solar time and find a guide on how to use the planisphere on our website or through the interactive guide linked at the end of this manual.



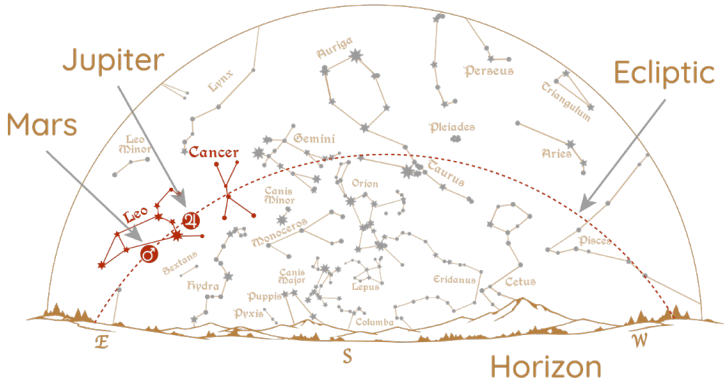
3. Find the Zodiac Constellation

Locate the constellation indicated by the calendar on your planisphere. This will give you a reference area in the sky where you can look for the planet.



4. Look for the Planet

Once you have located the constellation in the night sky, look for the planet in that area. Its position will gradually change relative to the background stars as the year progresses.



Keep in mind: Neither planets nor constellations are visible at all times or throughout the entire year. The visible sky changes depending on the **date, time, and your location.** Therefore, just because a planet appears at a certain position on the calendar does not mean it will be visible at that moment. You can use the **Planisphere** to check which part of the sky is visible.

Observing Between Two Monthly Markers?
If the date you want to check falls between two numbered markers (the beginning of each month), follow the planet's path between them and estimate its position based on how far the month has progressed.

For any questions, please contact us:
contact@animaoniris.com
www.animaoniris.com

Access our interactive guide:



In the interactive guide, you'll find tools to convert UTC times to your local time, calculate solar time, check which astronomical events fall on a different date depending on your location, and download personalised tables.

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