



THE MOON

QUINNIE AND KIKI

Table of content

The Moon in Astronomy

A. Physical characteristics

1. Composition and surface features
2. Phases of the moon

B. Astromical impact

1. Influence on ecosystems
2. Role in space exploration

The Moon in Mythology

A. Theme of the moon

1. Timekeeping and navigation
2. Change and cycles

B. Cultural variations in moon myths (China & Vietnam)

1. Legend of Chang'e and the jade rabbit
2. How we celebrate the mid-autumn festival and how important it is to our culture



The Moon

The Moon is Earth's only natural satellite and plays a significant role in both astronomy and human culture. Its composition and surface features are primarily the result of ancient geological processes.



PHYSICAL CHARACTERISTICS

Size and Distance: The Moon is about 3,474 kilometers or 2,159 miles in diameter, roughly one-quarter the size of Earth. It orbits Earth at an average distance of 384,400 kilometers or 238,855 miles.

Composition: The Moon is composed primarily of rock and metal, with a crust, mantle, and a small core. Its surface is covered with regolith, a layer of loose, fragmented/ uneven material.



MOONS SURFACE



The Moon's surface is covered with craters, mountains, and plains known as maria, formed by ancient volcanic activity. The most famous craters include Tycho, Copernicus, and Aristarchus.

Craters

Craters are the most prominent features on the Moon's surface, formed by the impact of asteroids, meteoroids, and comets

Maria

Lunar maria (singular: mare) are large, dark basaltic plains on the Moon's surface. It covers about 16% of lunar surface, mostly on the side facing the Earth. Maria were formed by lava flows filling ancient impact basins

Lunar Highlands

The lunar highlands make up most of the Moon's surface (83%). They are bumpy and hilly area, light-coloured, and made mostly of a rock called anorthosite

PHASES OF THE MOON

The Moon goes through a cycle of phases, from new moon to full moon, as it orbits Earth. This cycle takes about 29.5 days and is known as the lunar month.

The moon itself does not produce light; the light we see on the moon is actually the reflection of the sun. The moon rotates on its own axis as does the Earth. Earth also orbits around the sun. As a result, we will see many different moon phases depending on where the sun, Earth and moon are positioned.



Waxing
crescent



First
quarter



Waxing
gibbous



Full moon



Waning
gibbous



Third
quarter



Waning
crescent

INFLUENCE ON ECOSYSTEMS

The Moon's gravitational pull affects Earth in several ways:

- Tidal forces, which influence ocean currents and coastal ecosystems
- Potential effects on animal behavior and migration patterns
- Possible influence on plant growth cycles



SPACE EXPLORATION

Manned Missions: The most famous Moon missions are space agencies Apollo missions, which took place between 1969 and 1972. Apollo 11, in 1969, saw astronauts Neil Armstrong and Buzz Aldrin become the first humans to set foot on the Moon

Unmanned Missions: Various space agencies, including have sent unmanned missions to study the Moon. These missions have provided valuable data on its surface, composition, and potential for future exploration.



FUTURE EXPLORATION

A detailed illustration of an astronaut in a full spacesuit walking on the lunar surface. The astronaut is in the foreground, with their legs and feet in motion. In the background, another astronaut is partially visible. The lunar surface is covered in grey, rocky terrain. In the distance, there are futuristic lunar structures, including a large dome-like habitat and various equipment. The Earth is visible in the upper right corner of the frame, showing its blue oceans and white clouds against the blackness of space.

Artemis Program: The Artemis program aims to return humans to the Moon by the mid-2020s, including the first woman and the next man. The goal is to establish a sustainable presence on the Moon and use it as a stepping stone for future Mars missions

International Collaboration: Future Moon exploration efforts involve significant international collaboration, with various countries planning missions that include lunar bases, research stations, and resource extraction initiatives.

The Moon in Mythology

Themes of the Moon: Across cultures, the Moon has been associated with various themes

- **Timekeeping and Navigation:**

Used to track seasons and create calendars

Guided nighttime travellers and seafarers

- **Change and Cycles**

Symbolizes transformation and renewal

Associated with feminine cycles and fertility in many cultures





Historical Background

The festival's connection to ancient moon worship and harvest celebrations.

The Mid-Autumn Festival - The full moon symbolizes the fulfillment with family and the longing for hometown.

Historically, Asians worshiped the moon to give thanks for the harvest and to pray its return in the following year.

The story of Moon Goddess

China - "Chang'e Flying to the Moon"

A long time ago, Chang'e lived with her husband, Hou Yi. Hou Yi was a hero who shot down nine suns to save the earth. Then, he received an special medicine of immortality from the Queen Mother of the West as a reward that could make people live forever. But one day, one of Hou Yi's students tried to steal the elixir. In order to protect the sedition, Chang'e drank it. Then she flew to the moon and became the Moon Goddess. Hou Yi was heartbroken, discovered Chang'e on the bright moon and offered her favourite treats. Touched by their love, the Mother of the Moon let them reunite yearly on the full moon of the fifteenth day of the eighth lunar month, inspiring the Mid-Autumn Festival with traditions like moon worship and mooncakes.





Story of The Rabbit

The Legend of the Jade Rabbit

Chang'e has a friend on the moon -- the Jade Rabbit!
It makes immortality elixirs/medicine on the moon. How did the rabbit get there?

One day, the god disguised as an old man asked a monkey, jackal and rabbit for food. The monkey and jackal gave food, but the rabbit had none, it decided offer itself and jumped into the fire. Touched by its kindness, the god took the rabbit to the moon to keep Chang'e company.

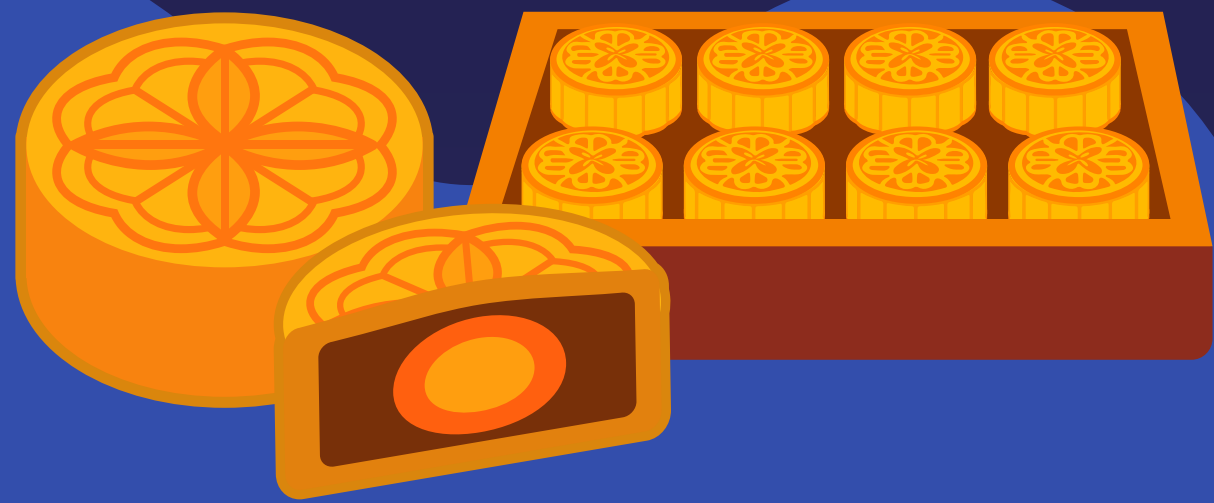


Mid-autumn Festival

The Mid-Autumn Festival, also known as the Moon Festival, is a significant cultural celebration observed across various Asian countries, each with its unique customs and traditions. This festival typically occurs on the 15th day of the eighth month of the lunar calendar, coinciding with the harvest moon, and usually falls between mid-September and early October.

China

The festival is deeply rooted in history, celebrating family reunions and the successful harvest. Traditional foods include mooncakes filled with various ingredients, and families gather to admire the full moon while sharing stories and enjoying festive activities.



Viet Nam

The festival is known as “Tết Trung Thu” or Children's Festival. It emphasizes family bonding, with children parading with colorful lanterns and enjoying mooncakes. The legend of Chu Cuoi, who is said to reside on the moon, adds a whimsical touch to the festivities.



Thank You

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