

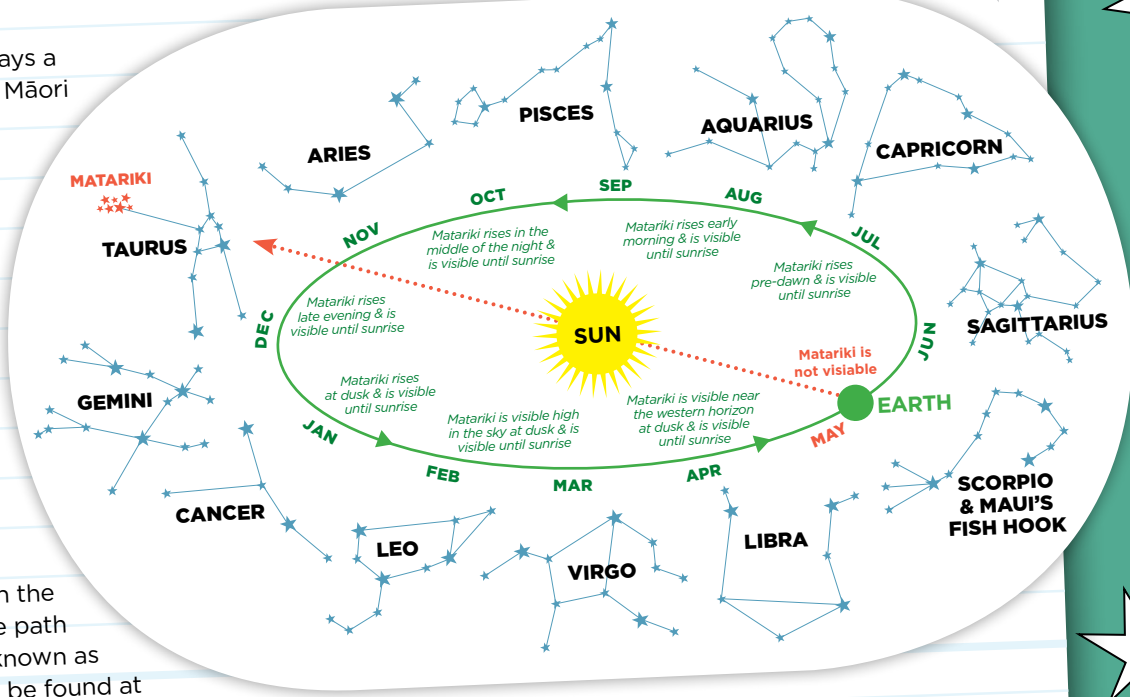
STARDOME OBSERVATORY & PLANETARIUM
FACTS, RESOURCES AND ACTIVITIES ON...

MATARIKI - SPACE/TIME GUIDE

The star cluster Matariki plays a pivotal role in marking the Māori New Year. It is one of the nearest open star clusters to Earth, and is the most obvious grouping of stars that can be seen with the unaided eye. It can be seen from almost everywhere in the world, and at almost any time of the year.

Because of Earth's rotation, the Sun and stars appear to move across the sky. Matariki appears to move through the night sky along the same path as the Sun. This path is known as the ecliptic. Matariki can be found at different points of the ecliptic at different times in the year. This is because of Earth's yearly orbit around the Sun. The direction Earth is facing at night changes by ~30 degrees each month, or 360-degrees over a whole year. Sometimes Matariki appears just after sunset, while other times it appears late at night or just before the Sun rises.

There is one time every year it is not visible at all, after which the festival of Matariki is celebrated, when we can just see it rising at dawn. This happens at the same time every year, however the Matariki festival is anytime from the beginning to the end of June. This is because the Māori followed a lunar calendar. The lunar calendar is based on the orbit of the Moon around Earth, which doesn't fit evenly into a solar calendar. To reset the lunar calendar in line with Earth's orbit around the Sun, the Māori New Year is traditionally marked by the first crescent moon after the reappearance of Matariki.



One of the easiest times of year to see Matariki is at end of summer/beginning of autumn as it appears just after sunset.

Our other Teacher Resources on this subject:

- [The Dark Side of the Moon](#) • [Daytime Moon](#)
- [Day and Not Day](#) • [Rising and Setting of the Sun](#)
- [Changing Constellations](#) • [The Pleiades](#)

Check out these other resources...

- ➔ <http://www.mch.govt.nz/nz-identity-heritage/matariki>
- ➔ <http://www.matarikifestival.org.nz/>
- ➔ <http://www.teara.govt.nz/en/matariki-maori-new-year>

Is Matariki only visible from New Zealand?

Do we see the Matariki stars at different locations in our sky during the night because they are moving?

Do the Matariki stars cause the seasons to change?

DISCUSSION POINTS



ACTIVITY

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ORBIT SIMULATOR FOR VIEWING MATARIKI

In this activity, students will physically recreate the movements of Earth so they can make observations of the sky.

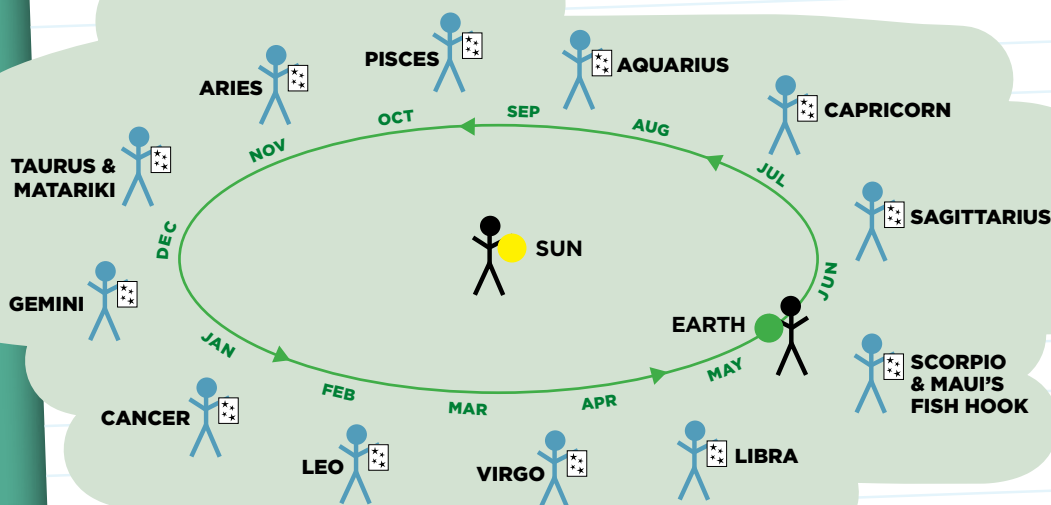
You'll need:

For this activity, you require a large open space for the students to move, and the following props.

- Sun (does not need to light up)
- Earth
- Zodiac constellations (We've provided these for you)

Instructions:

- Pick students to represent the Sun, Earth and each of the constellations.
- Stand the students in a giant circle around the Sun, and recreate the movement of Earth to create day and night.
- Add in Earth's orbit around the Sun.
- Next the giant circle of students around the Sun will become the backdrop of the twelve zodiac constellations.
- The students will see how Earth views different constellations at night during different parts of its orbit. This is where the students will discover how the Matariki star cluster can be used to tell when Earth has completed one orbit around the Sun.
- Have Earth face the Sun, and note the constellation that is not visible because it is behind the Sun.
- Have Earth slowly turn away from the Sun, and face 90 degrees to the right. This is the constellation visible right after sunset. During the Matariki festival, this constellation should be Scorpio, as it is on the opposite side of the sky from Taurus.
- Have Earth turn their back to the Sun, and see the constellations visible in the middle of the night.
- Have Earth turn another 90 degrees to the right, and view the constellation visible just before sunrise. During the Matariki festival, this constellation should be Taurus.



Take a photo of your activity and send it to us. We'd love to see it! education@stardome.org.nz

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