

# The Solar Eclipse

A solar eclipse occurs when the Moon passes between the Sun and Earth, casting a shadow. Solar eclipses happen even though the Sun is much larger than the Moon. The Moon is about 400 times closer to Earth than the Sun. The darkest part of the shadow is called the umbra. The umbra is where the Moon completely blocks the Sun's light. Surrounding the umbra is a lighter and broader shadow called the penumbra. The penumbra causes a partial eclipse.

The Sun's corona becomes visible in totality, looking like a silvery crown. The Moon is much smaller than the Sun but appears the same size in our sky because it's much closer to Earth. This perfect alignment lets the Moon cover the Sun's disk during a solar eclipse. Total solar eclipses are rare in a single location but occur roughly every 18 months on Earth.

Europe has also experienced awe-inspiring total solar eclipses. One notable example occurred in 1999, crossing over parts of the UK and mainland Europe. Scientists were able to make significant advancements in our understanding of the Sun's corona during this eclipse. If you're in the right place at the right time, you might be lucky enough to see the next total solar eclipse to sweep across Europe on August 12th, 2026, with about 90% of the Sun being obscured by the Moon.

Describe the difference between the umbra and the penumbra.

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What happens during totality?

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When will the next total solar eclipse be visible in Europe?

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Why do you think total solar eclipses are rare in a specific location on Earth?

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If you could witness a total solar eclipse, what's one thing you'd be most excited to see?

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