

# NEXT-TIME QUESTION



The same hemisphere of the Moon continually faces the Earth. Is this evidence that the Moon *does* or *doesn't* spin about its polar axis?

How come only one side faces us?

Maybe some sort of "gravity lock?"



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Answer:

The same side of the Moon always facing us is evidence that the Moon does spin about its polar axis—once per month. Its monthly spin rate is the same as its rate of revolution about the Earth. Because of this matching of spin and revolution, we see only one hemisphere of the Moon from Earth.

This is no coincidence. The side of the Moon nearest Earth is gravitationally pulled more than the farthest side, which effectively stretches the Moon into a "football" shape (just as the Moon produces a similar stretch on Earth to produce tides). If the Moon's long axis is not aligned with the Earth's gravitational field, the Earth exerts a torque that tends to rotate the Moon into alignment (just as torques align a compass needle in a magnetic field).

Exaggerated Moon

