

OBSERVE THE MOON

There is a lot to observe on the Moon, even with just your eyes. The Moon can be visible during the day or night, depending on [which phase](#) it's in, but it will be easiest to find when the sky is darker.

WHAT CAN YOU SEE WITH YOUR EYES?

The first thing you might notice on the Moon is the dark and light patches. Those colors show you the different types of rock that tell the story of what happened to the Moon.

Maria

The darker areas are basins that flooded with lava after [big space rocks crashed](#) into the Moon's crust billions of years ago. These dark patches are called "maria," which means "seas," because people thought they looked like oceans. They don't actually contain liquid water.

Highlands

The lighter places are called highlands, taller areas that are a lot like continents on Earth. Highlands have many round craters pressed into their surface from millions of impacts by space rocks.



Close-up image of smooth basins and sharp craters in the Mare Nectaris region, taken by the Lunar Reconnaissance Orbiter. Credit: NASA

WHAT CAN YOU SEE WITH BINOCULARS?

With your binoculars, look at the lightest patch near the bottom of the Moon. You might see a white circle with a grey rim and bright streaks that spread out in many directions. That is a huge crater, slightly bigger than Rhode Island, called the [Tycho crater](#). It formed when a large space rock hit the Moon about 100 million years ago. The bright lines are rays of dust that blasted outward when the space rock hit. The lines stretch as far as the distance from San Francisco to Salt Lake City!

WHAT CAN YOU SEE WITH A TELESCOPE?

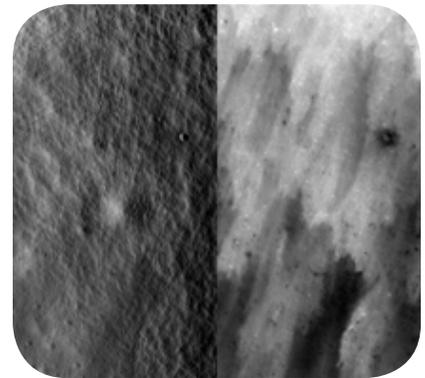
As you get more familiar observing the Moon, look for differences in texture between the dark maria and the bright highlands. You may notice that the maria can appear smoother, while the highlands have more craters. That's because the maria are younger than the surrounding highlands. Lava flows in the maria also helped cover up the craters that were already there.

When you look at rocky planets or moons, the older surfaces will show more craters because they have had a longer time to be hit by space rocks.

WHAT YOU SEE WILL CHANGE

The number of [features](#) visible on the Moon will depend on the angle of the Sun, which changes with the Moon's phases. When the Moon is a crescent or half full, the Sun is at a low angle and casts shadows that help outline things like craters. When the Moon is close to full, there are few shadows so it is harder to see the high and low points of the craters.

The best way to look for textures and details on the Moon is to point your telescope to the shadow line, where the Moon goes from light to dark.



Two images of the same small crater and surrounding area, taken by the Lunar Reconnaissance Orbiter. In the left image, the Sun angle is 8 degrees. In the right image, the Sun angle is 68 degrees. Credit: NASA



CAPTURE THE MOON

The spaces below are for you to write or draw what you notice as you observe the Moon. One circle could be for drawing patterns you see with just your eyes. Another could be for capturing the details you observe in a telescope. The spaces between circles could be for your notes or questions. It's up to you!

Some things to think about as you observe:

- What shape is the Moon right now?
- Do you see any craters? Where?
- Do the patterns remind you of anything?
- How high is the Moon in the sky? Is it changing?

