

# Moon ABCs Fact Sheet

Property	Earth	Moon	Brain Busters
Equatorial diameter	12,756 km	3,476 km	How long would it take to drive around the Moon's equator at 80 km per hour?
Surface area	510 million square km	37.8 million square km	The Moon's surface area is similar to that of one of Earth's continents. Which one?
Mass	$5.98 \times 10^{24}$ kg	$7.35 \times 10^{22}$ kg	What percentage of Earth's mass is the Moon's mass?
Volume	---	---	Can you calculate the volumes of Earth and the Moon?
Density	5.52 grams per cubic cm	3.34 grams per cubic cm	Check this by calculating the density from the mass and volume.
Surface gravity	9.8 m/sec/sec	1.63 m/sec/sec	What fraction of Earth's gravity is the Moon's gravity?
Crust	Silicate rocks. Continents dominated by granites. Ocean crust dominated by basalt.	Silicate rocks. Highlands dominated by feldspar-rich rocks and maria by basalt.	What portion of each body is crust?
Mantle	Silicate rocks dominated by minerals containing iron and magnesium.	Similar to Earth.	Collect some silicate rocks and determine the density. Is the density greater or lesser than the Earth/Moon's density? Why?

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Core	Iron, nickel metal	Same, but core is much smaller	What portion of each body is core?
Sediment or Regolith	Silicon and oxygen bound in minerals that contain water, plus organic materials.	Silicon and oxygen bound in minerals, glass produced by meteorite impacts, small amounts of gases (e.g., hydrogen) implanted by the solar wind. No water or organic materials.	Do you think life ever existed on the Moon? Why or why not?
Atmosphere (main constituents)	78 % nitrogen, 21 % oxygen	Basically none. Some carbon gases (CO <sub>2</sub> , CO, and methane), but very little of them. Pressure is about one-trillionth of Earth's atmospheric pressure.	Could you breathe the lunar atmosphere?
Length of day (sidereal rotation period)	23.93 hours	27.3 Earth days	How long does daylight last on the Moon?
Surface temperature	Air temperature ranges from -88°C (winter in polar regions) to 58°C (summer in tropical regions).	Surface temperature ranges from -193°C (night in polar regions) to 111°C (day in equatorial regions).	Why are the temperatures of Earth and the Moon so different?
Surface features	25 % land (seven continents) with varied terrain of mountains, plains, river valleys. Ocean floor characterized by mountains, plains.	84 % heavily-cratered highlands. 16 % basalt-covered maria. Impact craters-- some with bright rays, crater chains, and rilles.	Compare maps of Earth and the Moon. Is there any evidence that plate tectonics operated on the Moon?