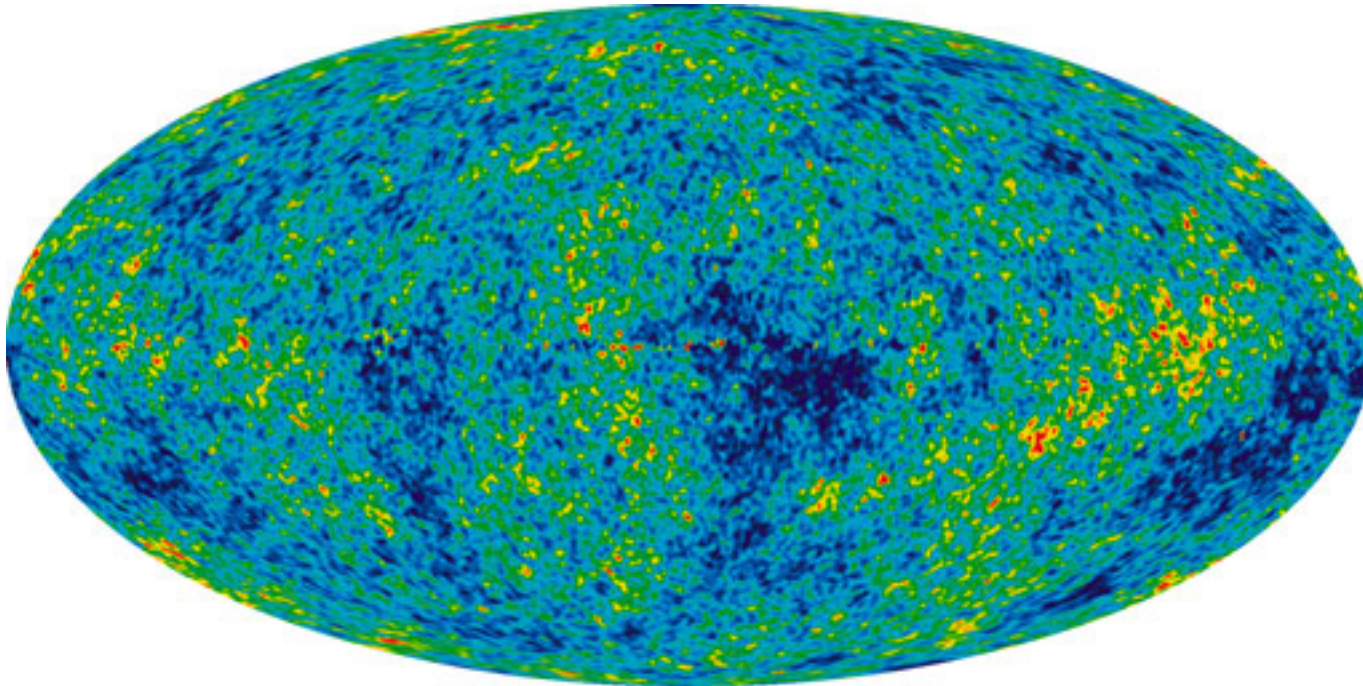


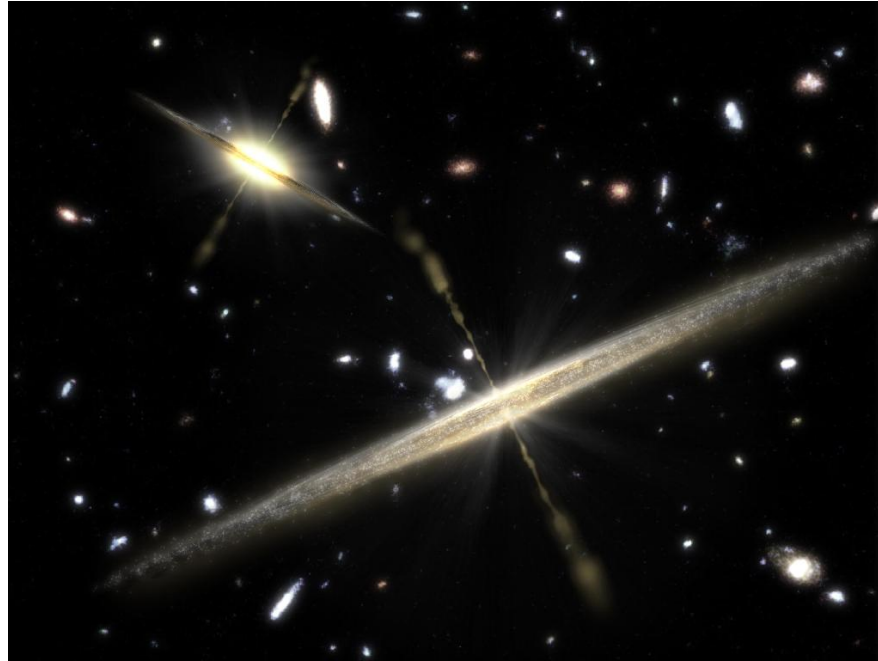


Big Bang!



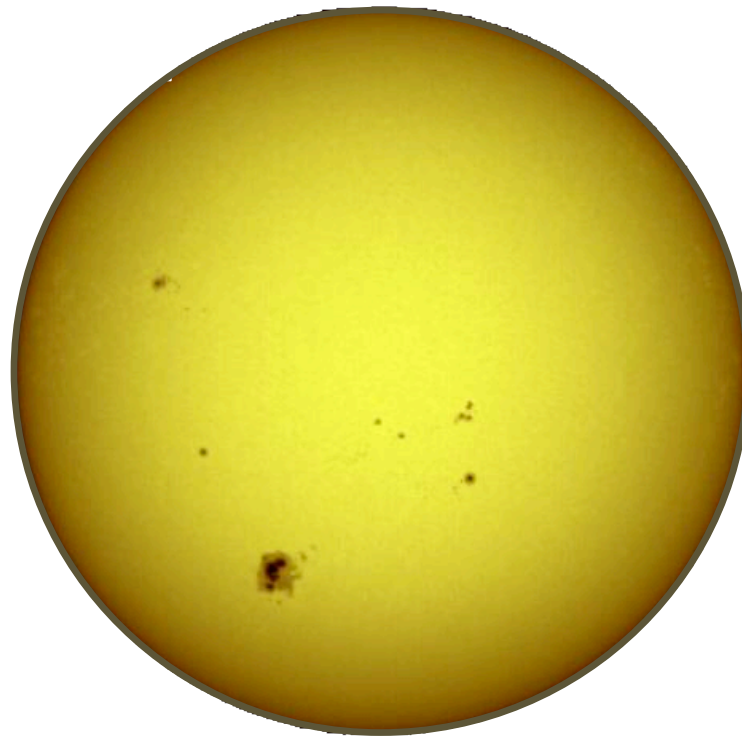
Cosmic Microwave Background

The Universe cooled to 3,000 Kelvin (2,727 degrees Celsius), and we can measure this thermal signature today!



Galaxies form

Once the Universe cooled down enough, matter began forming into galaxies.



A star is born!

Our Sun formed in the Milky Way Galaxy.

Explore! Marvel Moon Event Cards



Tycho Crater Forms on the Moon

The dinosaurs were living on Earth when an asteroid struck the Moon and left behind this "hole" — Tycho Crater. Most of the other craters we see on the Moon are much older.



Volcanos on the Moon Stop Erupting

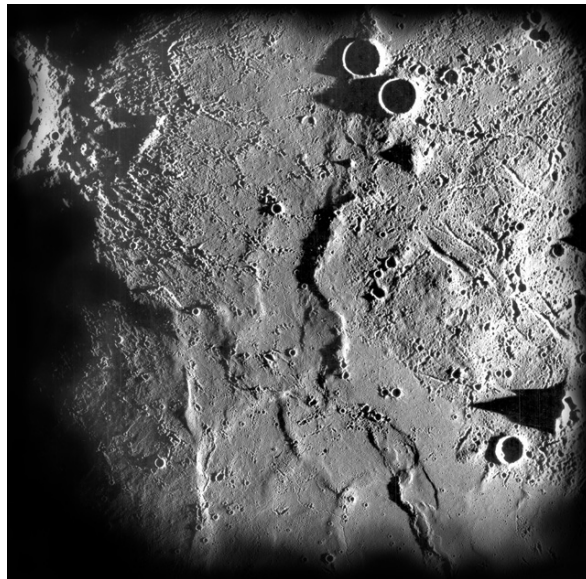
While the Moon does not have many volcanos, it does have some! The Moon is smaller than Earth, so its interior cooled more quickly and its volcanos became quiet long ago.

Explore! Marvel Moon Event Cards



Formation of Earth's Early Atmosphere and Oceans

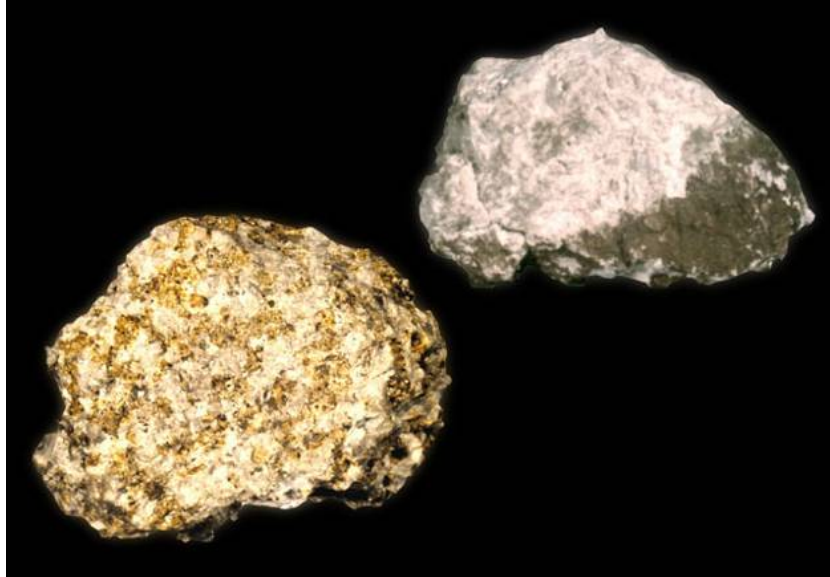
Volcanos spewed gases — including water vapor and carbon dioxide — into the atmosphere. When Earth's surface cooled enough, the water vapor rained out to form our oceans.



Moon Volcanos Erupt!

Lava spews up through cracks in the surface of the Moon, spreading out and filling the lowest areas. The lava cooled to form the dark patches we see on the Moon.

Explore! Marvel Moon Event Cards



Oldest Moon Rocks Form

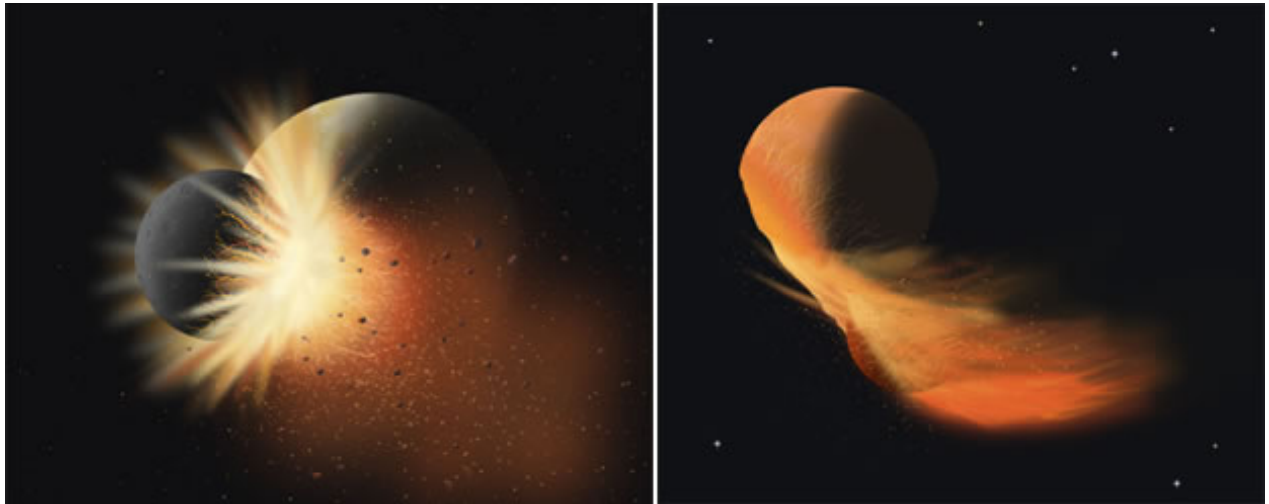
The Moon cooled, allowing a crust to form. Apollo Astronauts collected Moon rocks from some of this ancient crust.



Oldest Rocks on Earth Form

Continental crust (land!) had formed by this time. The oldest Earth rocks are found in Canada (but older grains are in Australia.) None of them are as old as the Moon's oldest rocks.

Explore! Marvel Moon Event Cards



Giant Impact!

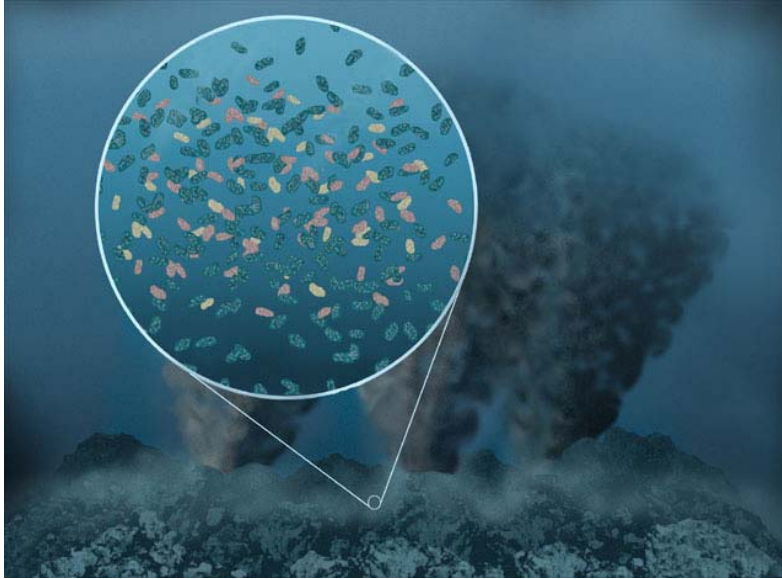
Earth was hit by a planetary body about half its width (diameter). The debris from this humongous impact was spewed into space around Earth.



Initial Crust on Earth

Early Earth was **HOT**. Eventually the molten outer layers cooled, forming a crust. This crust was probably fairly thin — a bit like the crust we have under our oceans today.

Explore! Marvel Moon Event Cards



Earliest Evidence Indicating Life (?)

Fossils and other evidence for life are preserved in ancient Earth rocks. Scientists are debating about when life first started — it may have been VERY long ago!



Your Birth Year!

Where does your birth year fall on this timeline?

Explore! Marvel Moon Event Cards



Dinosaurs Go Extinct

An asteroid struck Earth and caused intense heat, wildfires, earthquakes, and affected Earth's atmosphere. The dinosaurs went extinct because of this impact.



***Homo sapiens* (Modern Humans) First Appear**

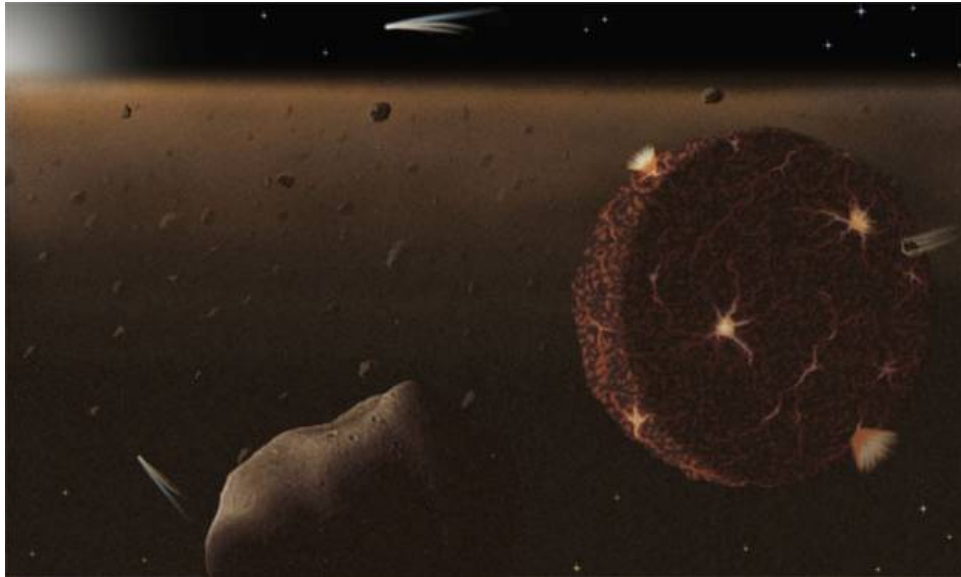
Modern humans — *Homo sapiens* — appeared only recently compared to the loooooooooong histories of the Moon and Earth.

Explore! Marvel Moon Event Cards



Formation of Earth's Moon

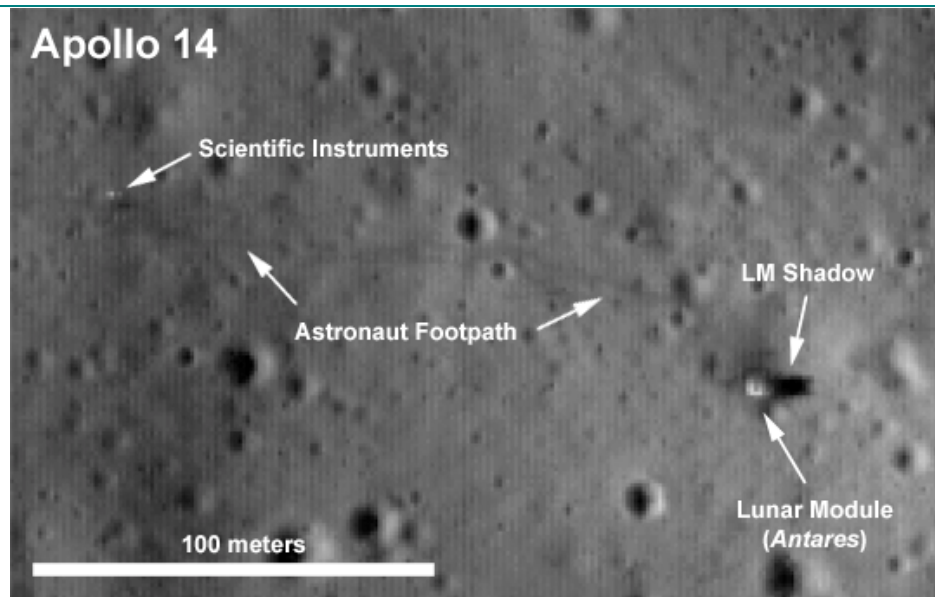
Our Moon formed quickly from the gas, dust, and molten rock blown into space around Earth from the *Giant Impact*. This debris clumped together — accreted — within just 100 years to form our Moon.



Planets Form

All of the planets in the solar system form.

Explore! Marvel Moon Event Cards



Spacecraft Photographs Astronaut Footpath

The Lunar Reconnaissance Orbiter is orbiting the Moon right now! Its cameras are photographing the Moon's surface with incredible detail — even the Apollo 14 astronauts' tracks can be seen in this recent image! Imagine what Galileo would think if he could see this view of the Moon's features.



One Giant Leap for Mankind

On July 20, 1969, Neil Armstrong was the first human to set foot on the lunar soil of our Moon.

Explore! Marvel Moon Event Cards



Hot Early Moon

The clumping together of the debris forming our Moon created heat — enough heat to melt the outer layer of the Moon into an ocean of liquid rock!



The Moon's Largest Features Form

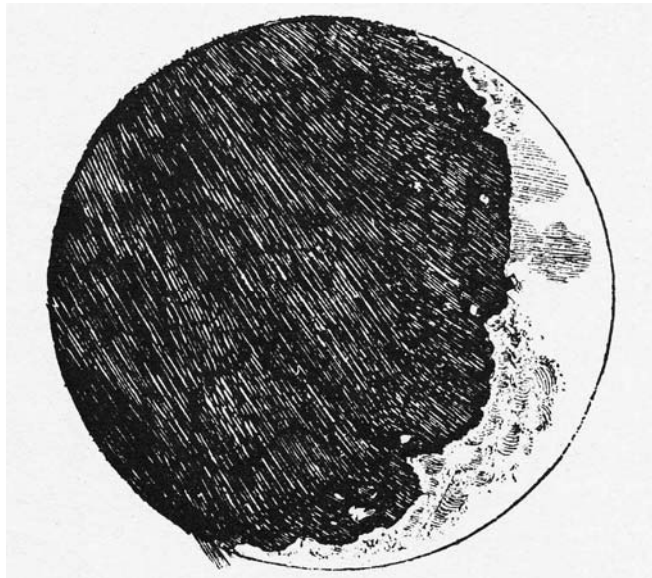
A flurry of huge asteroids and comets strike Earth, the other planets, and the Moon. Craters from these large impacts are preserved on the Moon as the large circular basins we can see when we look at the Moon.

Explore! Marvel Moon Event Cards



First Dinosaurs

These reptiles started out as small carnivorous meat-eating critters walking around on two legs. *Plateosaurus*, drawn here, was one of the first large plant-eating dinosaurs. *Plateosaurus* probably walked on all four legs most of the time, occasionally rearing up to eat from the tops of trees.



Galileo Observes the Moon through a Telescope

Galileo observed features on the Moon like mountains and valleys, and calculated their heights, demonstrating that the Moon was not a perfect sphere but actually similar to Earth. Galileo was not the first to observe the Moon through a telescope, but he published his drawings in his *Sidereus nuncius*.