

name _____ class _____ team _____ seat _____ date _____



The moon is 3,476 kilometers in diameter—about one fourth the diameter of Earth. However, the moon has only one-eightieth as much mass as Earth. Scientists do not know for sure how the moon was formed. The theory that best fits the evidence is called the collision theory. It says that about 4.5 billion years ago, an object about as large as Mars hit Earth. Material from the object and from Earth's outer layers was thrown into orbit around Earth. Eventually, that material formed the moon.

For thousands of years, people could see shapes on the surface of the moon, but didn't know what caused them. About 400 years ago, Galileo made his own **telescope** by putting two lenses in a wooden tube. He looked through his telescope at the moon, and he saw the moon in more detail than anyone had ever seen before. **Features on the moon's surface include craters, highlands, and maria.**

Galileo saw that much of the moon's surface is covered with round pits called **craters**. Galileo also saw dark, flat parts of the moon's surface which he called **maria**, the Latin word for "seas." The singular of maria is *mare*. Scientists now know that the maria are areas that were flooded by molten rock billions of years ago. The moon's craters were formed by impacts by rocks from space.

In 1961, President John F. Kennedy announced that America would send people to the moon. *Surveyor* was the first spacecraft to land on the moon. *Lunar Orbiters* then photographed the moon's surface, so scientists could find a safe spot for humans to land. On July 20, 1969, the *Eagle*, the Lunar Module of *Apollo 11*, carrying Neil Armstrong and Buzz Aldrin, landed in a flat region called the Sea of Tranquillity. Neil Armstrong was the first person to walk on the moon. Later, other *Apollo* missions also went to the moon.

Much of what scientists have learned about the moon came from detailed study of the moon rocks gathered by astronauts. Almost all the rocks were formed from the cooling of molten material. Some rocks showed they had been broken apart by impacts and then fused back together. Seismometers placed on the moon by the astronauts detected extremely weak moonquakes. Another instrument measured the amount of heat flowing from the moon's interior. It showed that the moon has cooled almost completely since it was formed. The far side of the moon is rougher than the near side and has few maria.

How do scientists think the moon was formed?

How does the size and mass of the moon compare to the earth?

How did Galileo make his telescope?

Describe Galileo's observations of the moon.

What are moon craters?

How are moon craters formed?

read this passage and answer these questions

all about the moon