

Moon Observation



Student Name: _____

Observing the stars and the moon have long been important to people throughout history and all over the world. Sailors use the stars to help navigate, travelers use the stars to help tell direction at night, the moon provides light for all of us at night, controls the tides of the ocean and even farmers watch the night sky to help determine planting. Great Smoky Mountains National Park is a wonderful place to remove yourself from bright lights at night and allow a truly amazing view of our beautiful moon! Before completing the activity below, take a moment to learn more about [how important our moon and stars were to our farmers](#) here in our Great Smoky Mountains!

Directions:

Observe the moon like our ancestors. Wait until it is completely dark outside. Find a dark spot away from as much light as possible and with an adult see how many of these features you can find on the moon.

Moon Observation:

Let's see what you already know about the moon!

1. How Big is the Moon?

(about 1/4 the size of Earth)

2. Does the Moon have more or less mass than Earth?

(less--would take 81 Moons to = Earth's Mass)

3. What does that mean about the gravitational pull on the moon?

(less mass=less gravity)

4. What phase of the Moon are we currently in?

5. What does that mean?

6. Do you know other phases?

(Waning=lit moon is decreasing; Crescent=less than 1/4 lit; New=0% lit; Full=100% lit; Quarter= 25% or 1/4 lit)

7. Where does the light from the moon come from? (reflected from the Sun)

8. What is a LUNAR ECLIPSE?

(A lunar eclipse occurs when the Earth passes between the Moon and the Sun, and the Earth's shadow obscures the moon or a portion of it. This is different from a SOLAR ECLIPSE which occurs when the Moon passes between the Earth and the Sun, blocking all or a portion of the Sun.)

Continued...



Awesome! So, Now let's explore the surface of the moon!

(use binoculars if you have them or simply view with your eyes!)

There are 3 major features we will look at on the moon:

Mountains, Craters, and Mare (MAH-ray).

(As you read the descriptions--look for them on the real moon)

- 1. Mare (MAH-ray) are the large grey patches which astronomers used to think were similar to the seas on Earth. They are actually ancient lava flows from about 3-4 billion years ago. How many mare can you see tonight?***
- 2. The Moon's mountains are large, rounded "bumps," which look much like old, eroded mountain ranges on Earth. The Moon's mountains are even older than the mare, dating back as far as 4.4 billion years. In 1610, Galileo drew some of these and used the shadows to mathematically calculate the height!Can you find one?***
- 3. CRATERS - These roughly circular depressions on the surface formed when meteoroids struck the Moon at high speeds. The Moon's surface has hundreds of thousands of craters. The craters can be large (hundreds of kilometers) to as small as one meter. Fun Fact: They are all named for famous astronomers or philosophers! How many can you find?***

