

NATURE'S LABORATORY

"Facts are not science – as the dictionary is not literature."

- Martin H. Fischer

Life should be a hands on experience, and learning an adventure. Here in Nature's Laboratory, I hope to bring science and the natural world – the world of your backyard – to life, not only for you as a parent, but for your children and their inquisitive, thirsty minds. Every month, we'll explore a facet of the world as both a parent and as a child. I can only hope you will take a moment, risk some grass stains, and crouch down to rediscover the world from your child's perspective. It's a big world down there, and there's so much waiting to be explored...

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"The Moon is, in fact, a hole in the sky. Consider."

- Mick Jackson

The Moon, that mythical hole in the sky, has long been the subject of mankind's attentive eye. But what do we really know about that heavenly orb? Throughout the universe, the Earth's one and only moon is its closest neighbor, a mere 238,857 miles away. Certainly not a stone's throw, but near enough to cause two high tides and two low tides in our oceans because of the Moon's pull.

From our vantage point on Earth, the Moon is the brightest object in the night sky. It is visible because it reflects the sun's light. Even so, the amount of celestial sunlight reflected off of the Moon, aka the albedo, is only seven percent of what it is exposed to since it's rough surface is a poor reflector.

While the Moon is unlike Earth, it too experiences earthquakes known as moonquakes. Even the soil on the Moon has a different name – regolith.

Every month's full moon has a name, the majority of which were given by the Native American Algonquin tribe. Although they can vary by year and by region, some of the most common names are:

MONTH	FULL MOON
January	Wolf Moon
February	Snow Moon
March	Worm or Full Sap Moon
April	Pink Moon

May	Flower Moon
June	Strawberry Moon
July	Buck Moon
August	Sturgeon or Green Corn Moon
September	Barley or Harvest Moon
October	Hunter's Moon
November	Beaver Moon
December	Cold Moon

When the Moon isn't a whole full moon or a shadowed new moon, the edge of the shadow is always curved and is known as the terminator. On a crescent moon, the horns always face away from the rising or setting sun. Therefore, they should always point up into the sky.

If you have ever heard of the phrase "Once in a blue moon," you might be aware that a blue moon is a rare event. But where does that phrase come from? A true blue moon occurs when rare dusts of a certain size, often from forest fires or volcanoes, interact with light to make the Moon actually appear blue. But the figurative blue moon refers to instances when more than 12 full moons (three per season) occur in a year. While you might think that the fourth full moon of a season would be the rarity, it is instead the third full moon of that season that earns the blue moon title.

Hands On: To demonstrate the phases of the Moon, try this activity with your children. Remove a lampshade from a lamp to represent the sun. Have your child sit across the room with a baseball (the Moon) in hand, extended to full length. When the baseball is held between the lamp and their head (planet Earth), they will see a darkened new moon. As your child spins leftward in a circle with the ball extended, the sunlit part of the Moon grows, from a waxing crescent (less than half full), to a first quarter (half full), to a waxing gibbous (more than half full). Upon reaching a full moon the Earth lies between the sun and the moon. Then, the sunlit part diminishes, from a waning gibbous (less than full), to a last quarter (half full), to a waning crescent (less than half full) before returning again to a new moon. Overall, a lunar month lasts 27 days, 7 hours and 43 minutes from one new moon to the next.

Have your child draw the man on the moon's face on the ball and hold the ball's face towards Earth. As they again spin the Moon around Earth, they'll notice that the man on the moon is always watching them. He never disappears, he's just hidden in shadow during the new moon. This is because the Moon is lopsided and the smaller end – and the face that appears on it – always points Earthward. Both the Earth side and the far side

of the Moon have days and nights. One day spent on the Moon would last 655 hours. Since the Moon has no atmosphere, there isn't any weather, not even wind. Temperatures during the day can be as hot as 107°C and nights as cold as -153°.

How much do you think you might weigh on the Moon? Gravity is a natural force that attracts objects to each other. Earth has a greater gravitational pull and the Moon a weaker gravitational pull, so we weigh more on Earth than we do on the Moon. Help your children calculate their weights, and the weights of others, by multiplying their weight (in lbs) by 1/6. For instance, if your child weighs 80 lbs:

$$80 \text{ lbs on Earth} \times 1/6 = 13 \text{ lbs on the Moon}$$

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