

For Creative Minds

For easy use, the “For Creative Minds” section may be photocopied or downloaded from the *How the Moon Regained Her Shape* homepage at www.SylvanDellPublishing.com by the owner of this book. Please do not write in the book itself.

Moon Observations

The months as we know them (January, February, etc.) are **solar**, based on how many days it takes the earth to revolve around the sun, roughly divided by twelve. A **moon-th**, or **lunar** (moon) month, is based on how long it takes the moon to orbit around the earth.

The **phases** (shapes) of the moon change according to its cycle as it rotates around the earth, and the position of the moon with respect to the rising or setting sun. This cycle lasts about 29 ½ days.

A **lunar** (moon) month starts on “day one” with a **new moon**. The sun and the moon are in the same position and rise and set together. We can’t see the new moon.

The moon rises and sets roughly 50 minutes later each day.

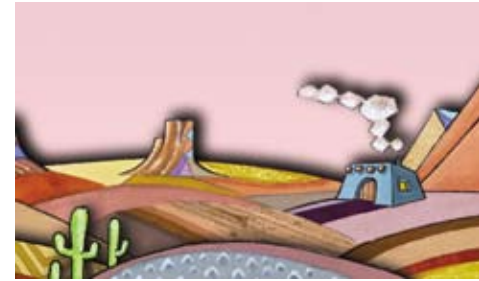
The moon appears to “grow” or it **waxes** each day from a new moon to a full moon. The waxing moon’s bright side points at the **setting sun** and can be seen in the late afternoon on a clear day.

A **crecident** moon is between new and half (less than half full), and may be waxing or waning.

The **half-moon waxing** or **first quarter moon** occurs about a week after the new moon. The moon is a quarter of the way through its rotation, but it looks “half full.” The first quarter moon is highest in the sky when the sun sets.

A **gibbous** (fat) moon is between half and full (more than half) and may be waxing or waning.

As it approaches full, the moon appears to be getting bigger and is visible in the east in the afternoon. About two weeks after the new moon, the **full moon** rises when the sun sets and sets when the sun rises. The full moon reaches its highest point in the sky at midnight.



New Moon



Waxing Crescent



First Quarter



Waxing Gibbous



Full Moon



The moon appears to get smaller, or to **wane**, after the full moon. The bright side of the moon points to the **rising sun**.

The **half-moon waning** is also called the **third-quarter moon** because it is three-quarters of the way in its rotation around the earth. The third-quarter moon is highest in the sky when the sun rises and can be seen in the morning on a clear day.

As the moon approaches its new moon phase once again, its sliver (or crescent) is visible in the eastern sky just before sunrise, then after the new moon, in the western sky just after sunset.

A Lunar Project

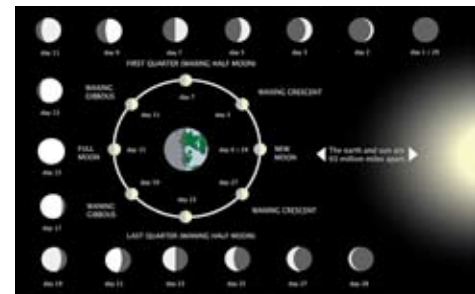
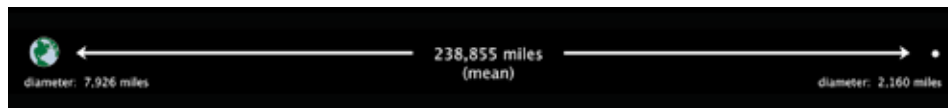
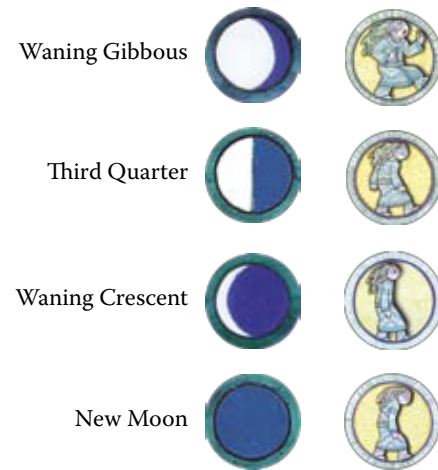
Look up the moon-rise in your newspaper, in an almanac, or on the Internet. Mark the new moon as “day one” on a calendar. Each day, keep your eyes open to see whether you see the moon. Draw a picture of what it looks like on your calendar. Do this for one full lunar month.

What is a “blue moon?”

The phrase “once in a blue moon” means something that happens occasionally or not very often. A **blue moon** happens when there are two full moons in one calendar month. For example you might have a full moon on the 1st or 2nd of a given month and then another one on the 30th or the 31st. The second full moon is the blue moon.

Learn More

To learn more about the phases of the moon and view these graphics, go to the *How the Moon Regained Her Shape* home page at www.SylvanDellPublishing.com.



Native Americans kept track of the seasons by naming each of the full moons. Different tribes had different names based on their lifestyles or surroundings. *See if you can figure out why the tribes used these names and which part of the country these tribes might have lived in. Check the links at www.SylvanDellPublishing.com for the answers.*

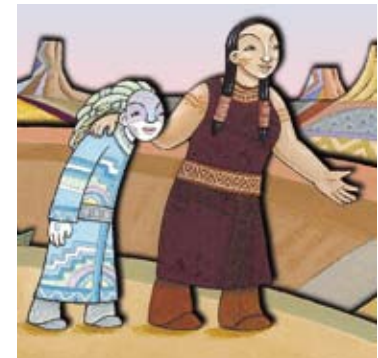
								
	January	February	March	April				
	 Wolf Moon Old Moon	 Snow Moon Hunger Moon Opening Buds Moon	 Worm Moon Crow Moon Crust Moon Maple Sugar Moon	 Grass Moon Planter's Moon Fish Moon				
	May	June	July	August				
	 Flower Moon Budding Moon Corn Planting Moon	 Strawberry Moon Rose Moon	 Buck Moon Thunder Moon Sturgeon Moon Green Corn Moon	 Fruit Moon Barley Moon				
	September	October	November	December				
	 Sap Moon Harvest Moon	 Harvest Moon Hunter's Moon Falling Leaves Moon	 Frost Moon Beaver Moon	 Long Nights Moon Cold Moon				
								

How to Deal with Bullies

In this story, the sun bullies the moon. A bully is someone who hurts other people either physically or verbally. Sometimes the bully acts this way to get something or to feel important. Usually bullies feel bad about themselves, and they act out their angry feelings on others.

If someone bullies you, you may need the help and support of your friends, just as the moon does in this story. Here are some ideas to help you deal with a bully:

- Try to avoid the situation or place where you are being bullied, or try to avoid being alone.
- Don't show anger or fear; that is exactly what the bully wants. Try to keep a neutral expression, to laugh, or to make a joke if you can.
- Ask the person to leave you alone and then walk away.
- Talk about the problem with your best friends. Maybe they have some ideas for you. For example, a friend might tell you that the kid who annoys you also mistreats other people. Or your friend might tell you how he or she handles the bully.
- It is very important that you talk to your mother, father, grandparent, teacher, principal, or the school's counselor about the problem, especially if someone in your class frequently hurts your feelings, threatens you, or physically attacks you. Nobody deserves to be treated badly by others. It is not tattling to talk to an adult about a bully.
- Consider taking a class in self-defense. There are many classes for young people in karate, judo, or other martial arts. Such training can give you self-confidence and teach you how to block blows and frustrate attackers.
- A group of kids may help you to stand up against bullies and to find a way to prevent bullies from hurting anyone else.
- Remember that one person's insults or punches do not make *you* a bad person. Think about your friends and family members who like and care about you. If someone bullies you, tell other people about it until someone helps you.



Thanks to Laura Goldberg, PhD, Child Psychologist, Newburyport, MA for her help with this section.

Directions for Projects

Copy or download the Moon Cycle Circle and cover circle from www.SylvanDellPublishing.com as often as needed.
Other materials needed:

- crayons or markers
- a brass fastener (available where school supplies are sold)

Understanding the Phases & Names Project

Color the halves as follows: (note: some quarters will have two colors which will make another color)

color "waxing" red

color "waning" blue

color "crescent" yellow

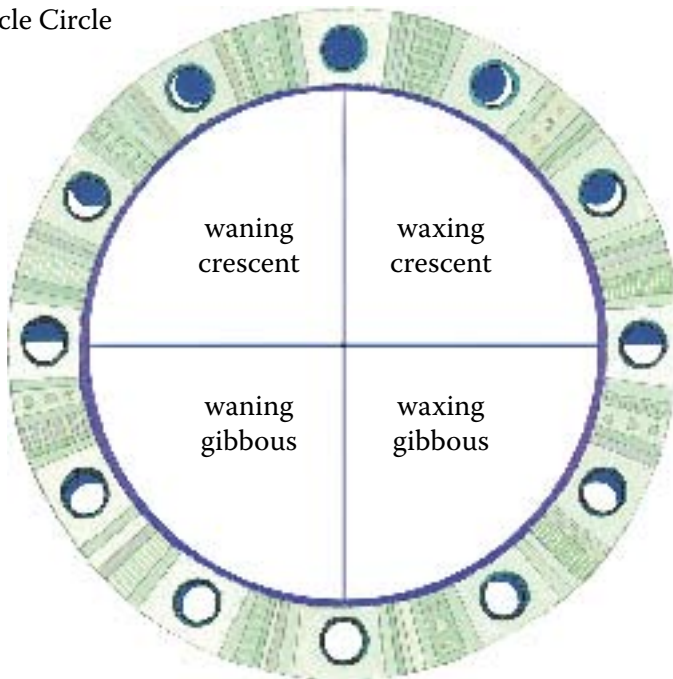
What color is the waxing crescent quarter? What color is the waxing gibbous quarter?

What color is the waning gibbous quarter? What color is the waning crescent quarter?

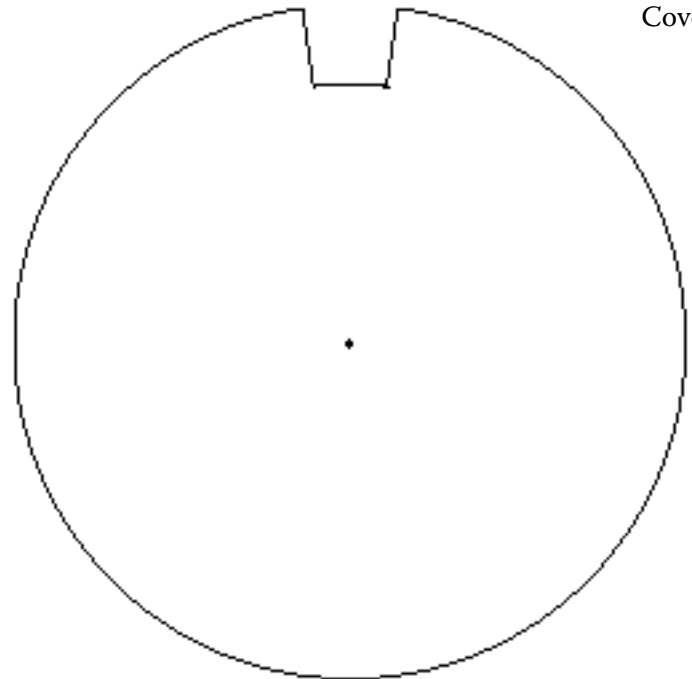
Viewing the Phases of the Moon Project

Cut out the cover circle and place it on top of the Moon Cycle Circle. Use the brass fastener or a pencil to poke a hole in the center. Use the brass fastener to attach the two together. Rotate the bottom circle so that the appropriate moon phase appears in the top section.

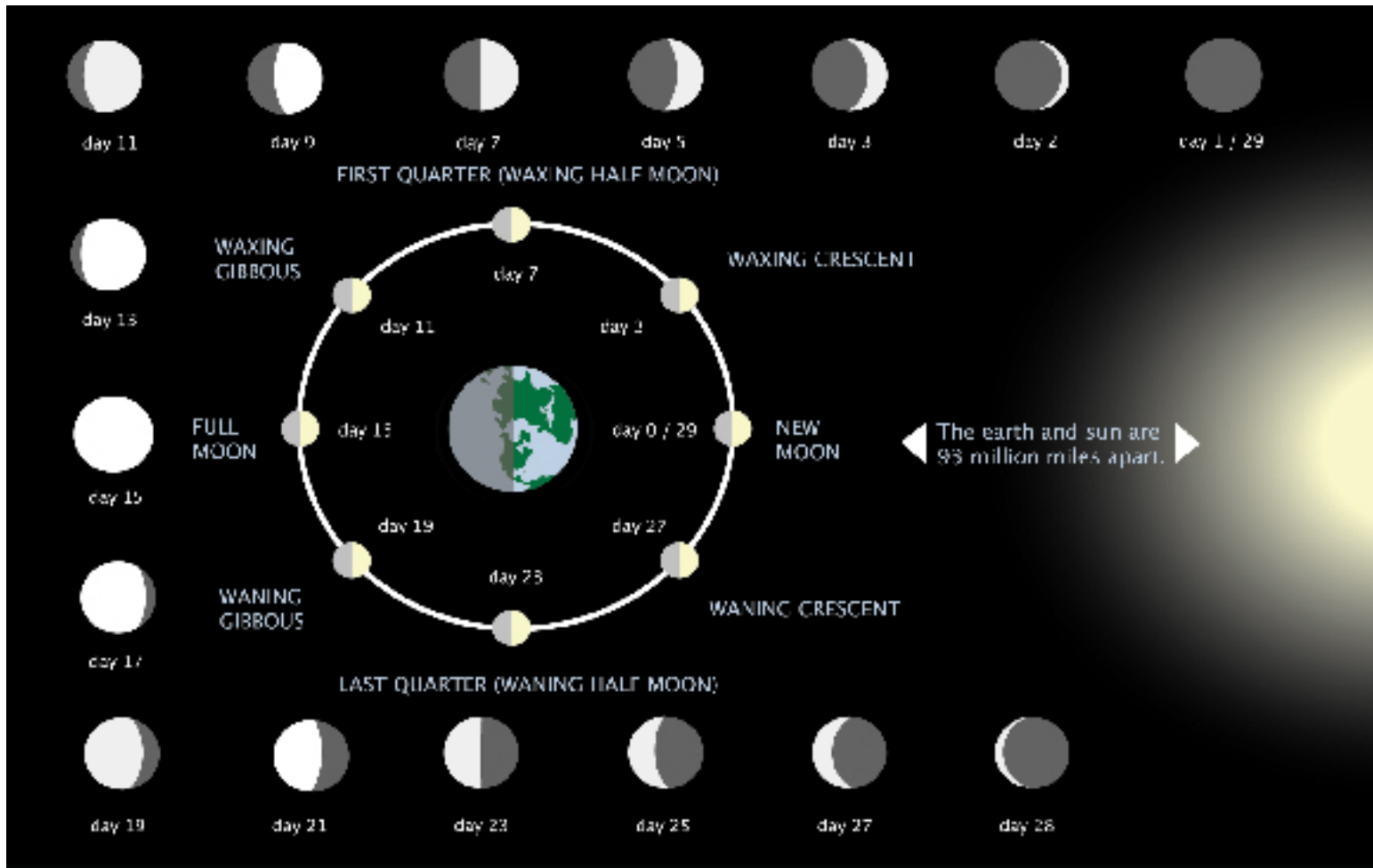
Moon Cycle Circle



Cover Circle



Phases of the Moon During Its Orbit Around Earth



The center graphic shows the sun, earth, and moon as the sun illuminates the moon over the course of a 29½ day lunar month. The perspective looks down at the earth from above the north pole and is not drawn to scale. The lunar cycle begins with the new moon at day 1 and revolves counter-clockwise around the earth. Note that half the earth's surface and half the moon's surface is always illuminated and we always see the "front" side of the moon. The outer graphic around the edge of the page shows a series of images of the moon over the same 29½ day lunar cycle but these are the views you see each night when you look at the sky. What you see from earth is only the portion of the moon's surface that is both illuminated by the sun and that is within your field of view. Even though half of the moon is always illuminated, the amount of the illuminated surface that we can see from earth varies with each day of the lunar month starting with no visible moon on the new moon increasing daily to a full moon half-way through the cycle. The "dark" part of the crescent to quarter moon phases that is not illuminated by the sun is actually still visible with "earth shine" which is reflected sun light and is most easily seen in a dark clear sky. It is also interesting that the "back" side of the moon isn't the "dark" side. On a new moon, the "back" side isn't "dark" at all and is actually fully illuminated by the sun - we just can't see it. We always see the same face of the moon from earth which is partially lit by sunshine and dimly lit by "Earth Shine".

