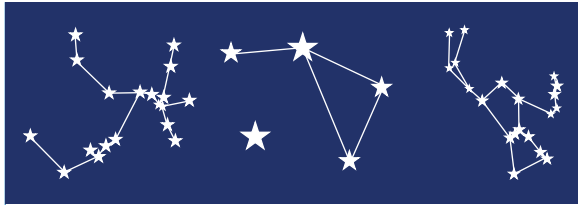


Start with a Book: Read. Talk. Explore.

Summer Science: The Night Sky

Find lots more activities + fiction & nonfiction booklists + cool apps & websites at www.startwithabook.org



Twinkle. Twinkle.

Explore the shape and brightness of stars by making a constellation mobile. Before you start, spend time outside on a dark clear night looking up at the stars and looking for constellations.

Supplies: aluminum foil, black thread, scissors, pencil, ruler, glue, tape, cardboard, white paper, black construction paper, and paint.

See PDF for instructions.



Lunar Flip Book!

Over the next month, draw your observations of the Moon each night, using the circles in the PDF template as a guide.

Once you've completed 29 days of observations, you are ready to make your flip book: cut, assemble in order by date, and staple.

Watch the Moon pass through all its phases in just a few seconds!



Make an Alien Spaceship

Supplies: circular cream cheese box, plastic egg carton, popsicle sticks, glue, paint, scissors, and (optional) LED lights.

Get instructions:

www.ikatbag.com/2010/06/aliens.html



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Summer Science: The Night Sky

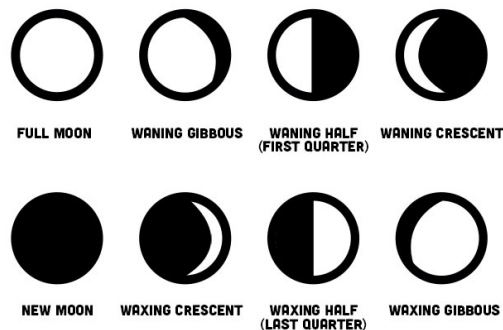
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Myth Maker

Write your own modern-day myth inspired by a constellation. When the story is complete, plan a night-time read aloud under the stars!

See PDF for instructions.



Moon Cookies

Each month, the Moon passes through different phases, growing from New Moon to Crescent to First Quarter to Gibbous to Full and then back again. Learn about the eight phases of the Moon using Oreo™ cookies!

See PDF for instructions.



Cool Apps and Websites

APPS

- The Night Sky
- Skyview: Explore the Universe
- Britannica Kids: Solar System
- Redshift Astronomy

WEBSITES

- NASA Kids Club
- Sizing Up the Universe
- Astronomy: Our Place in Space



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Fiction Books

Her Seven Brothers by Paul Goble
How the Stars Fell Into the Sky: A Navajo Legend
by Jerrie Oughton
The Lost Children by Paul Goble
The Love of Two Stars by Janie Jaehyun Park
The Milky Way: A Cherokee Tale by Joseph Bruchac
Mousetronaut: Based on a (Partially) True Story
by Mark Kelly
The Star People by S.D. Nelson
Starry Tales by Geraldine McCaughrean
Where the Mountain Meets the Moon by Grace Lin

Nonfiction Books

A is for Astronaut: Exploring Space from A to Z by Traci Todd
Find the Constellations by H.A. Rey
A Full Moon Is Rising by Marilyn Singer
I, Galileo by Bonnie Christenson
Look Up! Henrietta Leavitt, Pioneering Woman Astronomer
by Robert Burleigh
The Moon Book by Gail Gibbons
Once Upon a Starry Night by Jacqueline Mitton
Our Stars by Anne Rockwell
The Sky Is Full of Stars by Franklyn Branley
Stargazers by Gail Gibbons
Stars by Seymour Simon
Thanking the Moon by Grace Lin



twinkle, twinkle



Stars look pointy and seem to twinkle because we see them through the layers of the *atmosphere* — the gasses that surround our planet. The movement of air and dust in the atmosphere bends (*refracts*) a star's light in different directions. Because the light is scattered by the time it reaches our eyes on Earth, stars appear to twinkle.

Even though stars do not twinkle or have points, these huge, hot balls of gas do shine. In this craft activity, your child will explore the shape and brightness of stars and constellations by making a mobile.

Supplies

- >> Aluminum foil
- >> Black thread
- >> Scissors, pen or pencil, ruler, glue, and tape
- >> Cardboard (at least 8 x 11 ½ inches in size)
- >> White paper
- >> Black construction paper and paint

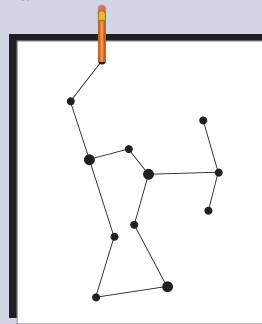
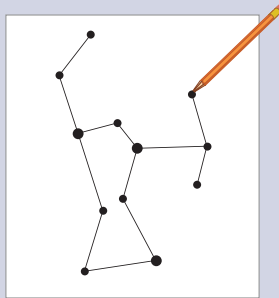
Getting Started

In his book *Find the Constellations*, author H.A. Rey explains why some stars appear brighter than others. Talk with your child about the brightest star of all — our sun — and ask her why she thinks stars in the night sky seem smaller and much less brighter.

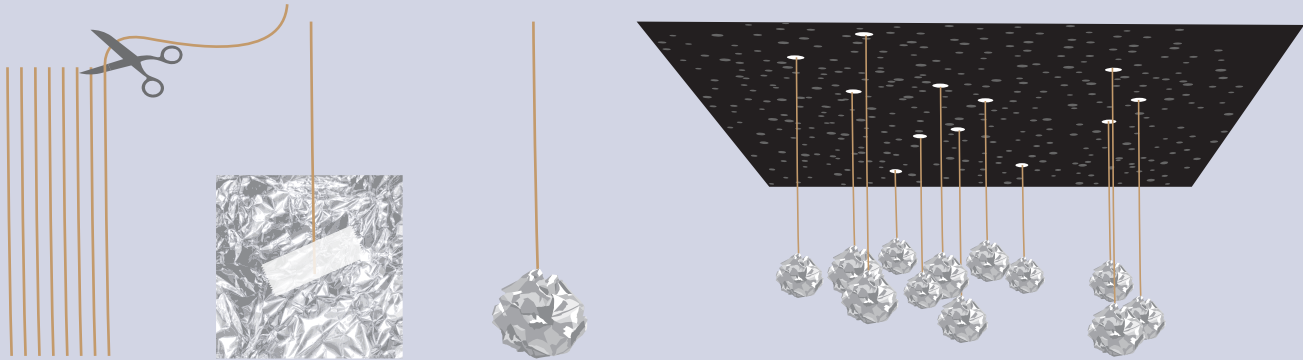
Because stars are very far away, they look small to us. They may also appear less bright because of a difference in distance or a difference in size. If you can, spend time outside on a dark clear night looking up at the stars. See if you can find the Indian girl and her seven brothers from Paul Goble's *Her Seven Brothers* in the Big Dipper. (The Sky Views in *Find the Constellations* can help you find these stars.)

To bring the stars inside, have your child select a constellation from the book you've read. Talk with her about the stars in her selection. Are they very bright or of a lesser *magnitude* — the measure of a star's brightness? How are the stars arranged? What does she like about the shape of the constellation?

As you discuss, have her cover the cardboard with a piece of black paper and glue it in place. Then let her draw the constellation or trace it from the book onto white paper. Then place the tracing over the black-covered cardboard and use the pencil or pen to poke holes into the cardboard where she's drawn the stars. Now that her constellation is in place, she can surround it with more stars using drops of white or silver paint.



twinkle, twinkle



While the paint dries, have your child measure and cut lengths of thread about 2 feet long. She'll need a thread for each hole she's poked in the cardboard. She will also need a square of aluminum foil to make a star for each thread. She can make her stars as large as she likes, but foil squares should be at least seven inches.

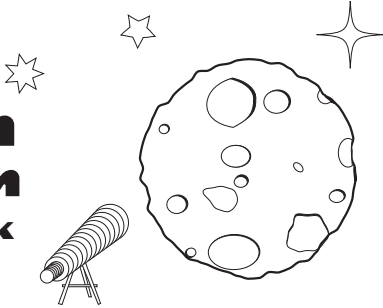
Have her tape a thread in the center of an aluminum foil square. Then have her squeeze and shape the foil into a ball around the end of the thread. It's a bright, round star!

When all her stars are ready, help her pull the end of a thread through each of the poked holes in the cardboard. Tape the thread to the back of the cardboard to secure it in the "sky." You and your child may want to review the constellation chart as you pull threads through, making some of the threads shorter for stars that are less bright or squeeze the foil even tighter to make the stars smaller for stars that seem smaller.

Hang the mobile on the ceiling with tape or tacks. Have your child lie under it. Can she find the picture in her constellation?

Ology

**Moon
Watch
Flip Book**



Dates of Observation

From: _____

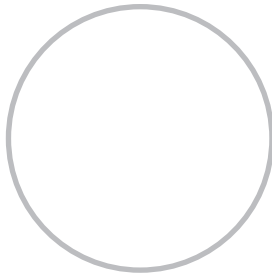
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Weather: _____

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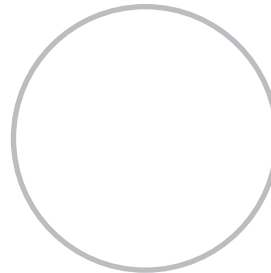


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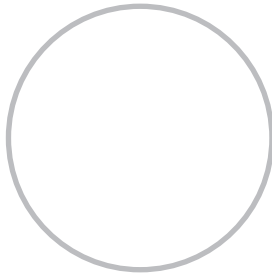


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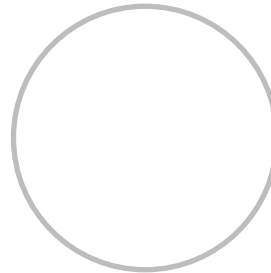


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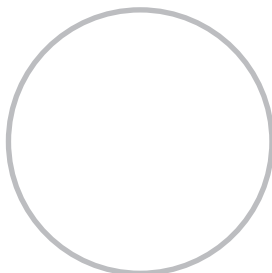


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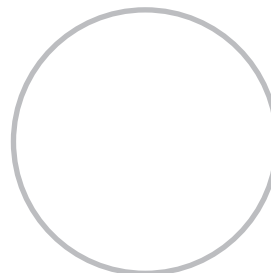


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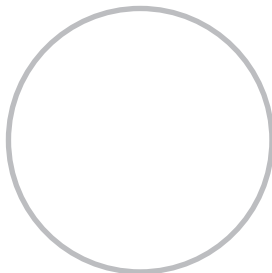


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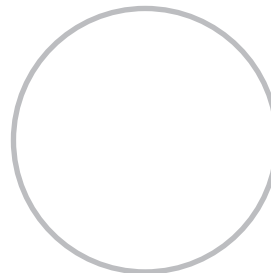


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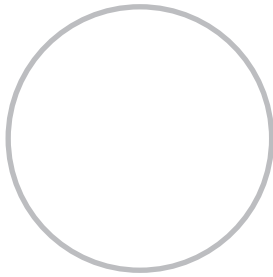


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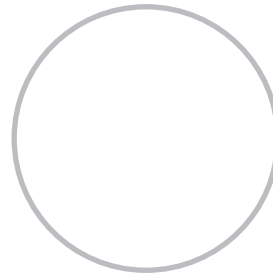


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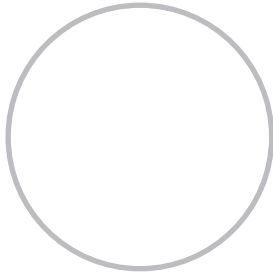


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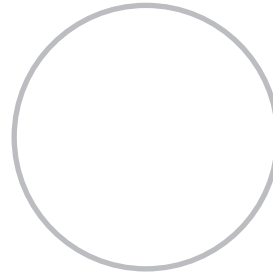


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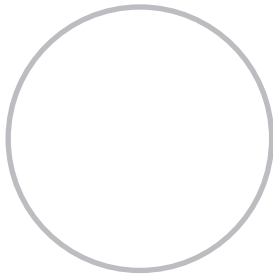


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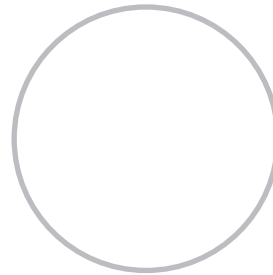


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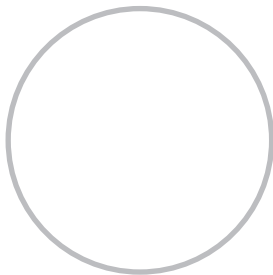


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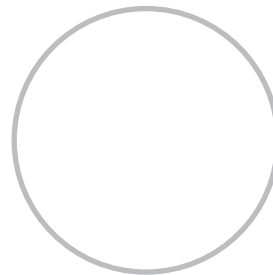


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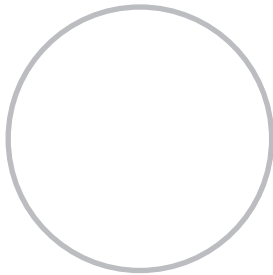


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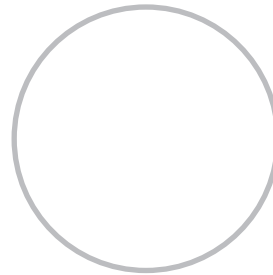


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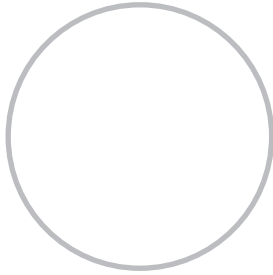


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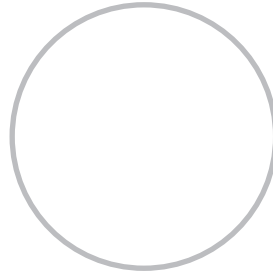


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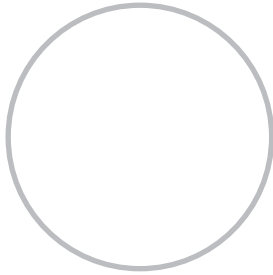


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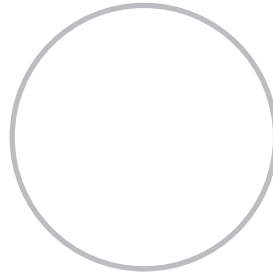


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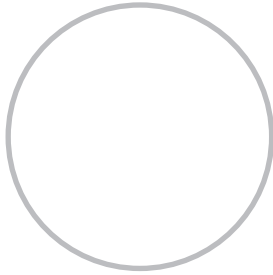


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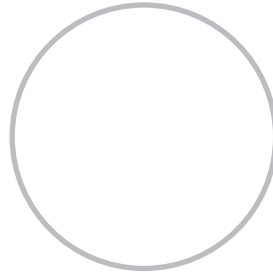


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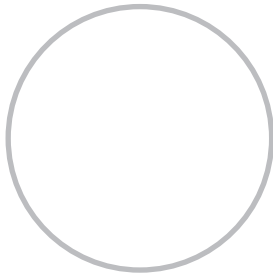


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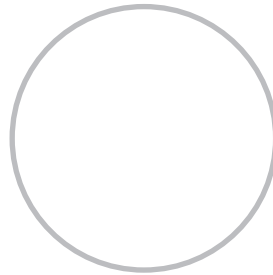


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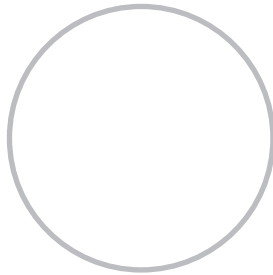


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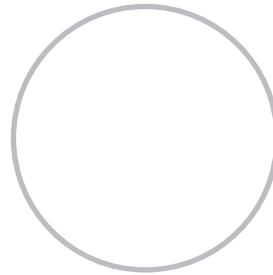


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stellar author

All around the world, people have been telling stories about the stars in the sky for thousands of years. Some of these tales were created to help explain how the stars appeared. *Her Seven Brothers* by Paul Goble is actually a retelling of the Cheyenne legend about the creation of the stars in the Big Dipper.

Other stories were created because people long ago who studied the night sky saw shapes and patterns among the stars and made up stories to describe what they saw. The same groups of stars were seen differently by people from different parts of the world. In this writing activity your child will compare her imagination with stargazers from ancient times.

Supplies

- >> Paper and pencil
- >> Sky view charts or star maps (from your books or the Internet)

Getting Started

Talk with your child about what a constellation is and how these man-made groupings of stars help make it easier to recognize which star is which. During your reading, you and your child may have already discussed that some constellations look like what they are supposed to represent but many do not.

Many of the constellations take names and have stories from Greek and Roman mythology. If your child is not familiar with mythology, talk with her about some of these myths and mythological creatures, such as the Centaur, Hydra, and Pegasus.

Look together at the stars on your chart. What kinds of patterns does your child see? Ask her to find a cluster of stars and design a new constellation with its own modern-day myth. Ask her to draw her constellation first. While she's drawing, you may want to remind her that a myth is a story that tries to explain how something came to be and often involves a hero or heroine. Her constellation myth should explain how and why her particular constellation is in the sky.

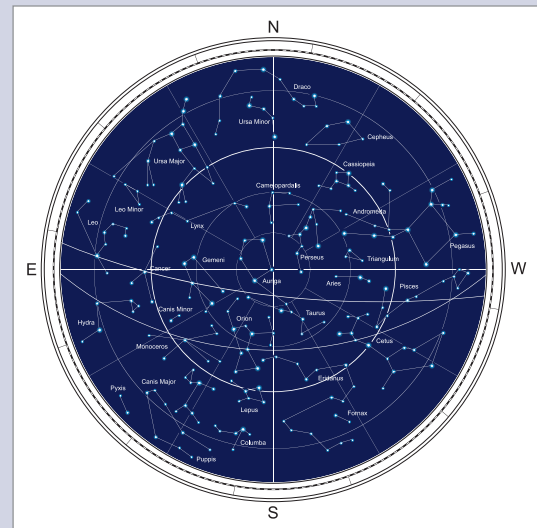
When her myth is complete, plan a nighttime read aloud of her starry tale outside under the stars!

Look for more titles about Stars in a library near you: www.worldcat.org/profiles/ReadingRockets/lists/2976304.

Extra Resources

This website provides mythology and more on all the constellations: http://starryskies.com/The_sky/constellations/index.html

Want to make more constellations? Try this interactive from PBS: www.pbs.org/parents/creativity/ideas/stars.html



Oreo Moon Phases

During a month, the part of the Moon that we see in the sky changes shape. It passes through different phases, growing from New Moon to Crescent to First Quarter to Gibbous to Full, and then decreasing in the amount *that we see from Earth* that is illuminated until it is back at New Moon again. Each of these stages is a "phase." Invite your child to create the 8 phases of the Moon using Oreo cookies.

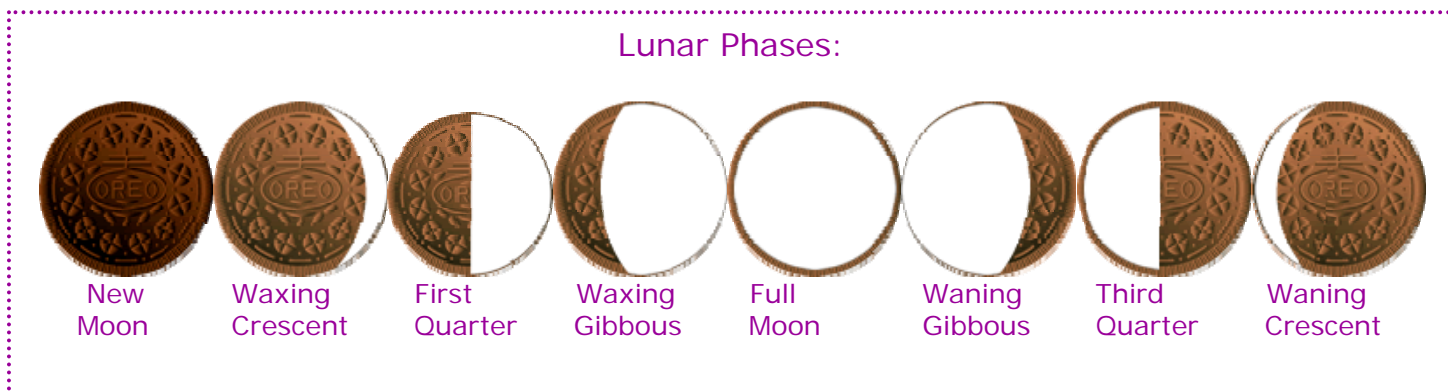
In this activity, you and your child will learn about the Moon's phases using Oreo cookies!

What You Need:

- 4 Oreo cookies
- Paper towel
- Plastic knife, spoon or popsicle stick
- Phrases with Phases song sheet

What to Do:

- Twist open the Oreo cookies and remove the cream with the knife, spoon or popsicle stick so that it looks like the pictures below.
- Place the cookies in order in a line to represent the order of our Moon's phases.
- Point to and name the different phases with your child while singing the Moon phase song – Phrases with Phases.



Parent Prompts:

What are the different phase names – can you place them in order?

What phase is the Moon in tonight?

How does the Moon's appearance change?

Which phase will the Moon change to next?

Phrases with Phases

Lyrics by Becky Nelson, The Lunar and Planetary Institute

Sung to the tune The Ants Go Marching . . . Moon phases and important terms are in capital letters.

Each Moon phase marches COUNTERCLOCKWISE —
Now, let's start . . .
The FIRST PHASE is the NEW MOON that we see as DARK.
Then next the WAXING CRESCENT shines
A LITTLE LIGHT upon the RIGHT,
And after that's the
QUARTER MOON, where the
RIGHT HALF'S LIGHT.

Following is WAXING GIBBOUS on the RIGHT,
Where the LIGHT continues SPREADING and becoming bright.
We'll be HALFWAY through the phases soon,
With the FULLest, brightest, biggest MOON,
Just before the DARK creeps
On the RIGHT
Of a WANING MOON.

The WANING GIBBOUS phase is when the LIGHT will SHRINK,
Then what will be the next phase after that, you think?
It's once AGAIN a QUARTER MOON,
But the DARK HALF's now upon the RIGHT,
And the LEFT side is the
One's that's BRIGHT!!
Did you get that right?

The next phase is the LAST phase where there's just a spark
Of light, so WANING CRESCENT appears ALMOST DARK!
The Moon is really magical,
When it's WAXING, WANING, NEW OR FULL.
And it COULDN'T SHINE at all
WITHOUT.....
THE SUN'S.....bright light!!