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# It's Just a Phase:

## Patterns in the Sky

Scientist's Notebook



Scientist: \_\_\_\_\_

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Andover Central School  
Belfast Central School  
Bolivar-Richburg Central School  
Cattaraugus-Little Valley Central School  
Cuba-Rushford Central School  
Franklinville Central School  
Friendship Central School  
Genesee Valley Central School  
Hinsdale Central School  
Pioneer Central School  
Randolph Central School  
Scio Central School  
Wellsville Central School  
West Valley Central School  
Whitesville Central School

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Dear Families,

Learning about our natural world is an exciting part of the elementary school curriculum. As we explore, we will come back time and again to elements of STEM: Science, Technology, Engineering, and Math.

Shortly, we will begin our next topic of study, which will focus on Space Systems: Patterns and Cycles, a domain of Earth and Space Sciences.

As we explore this topic, essential understandings will include:

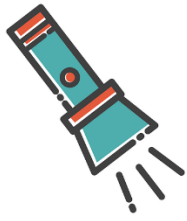
- observing and describing the sky
- observing Sun, moon, and star patterns

Our final assessment for this unit will consist of students creating projects to showcase their knowledge of Sun and moon patterns, which is Performance Based Task. Students will get to choose, with groups, what kind of project they would like to create to show a Sun or moon pattern and present it to the rest of the class.

As always, please don't hesitate to contact me with any questions.

Thanks!

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Dear Scientist,

We hope you are as excited as we are to begin your journey through the topic of the Sun, moon, and stars.

You have already learned about these things and some of their patterns. I'm sure you remember! You also look at the Sun, moon, and stars all the time and might know a lot about them. We are going to learn more about them in this unit!

Do you ever see the moon in all different kinds of shapes? We will be exploring those shapes which are called phases. Do you ever see your shadow? What makes your shadow? That's right, the Sun! We will explore how the Sun effects Earth including shadows and seasons.

As you continue your quest to become a world-class scientist, make sure you ask good questions and seek out experts who can help you strive to understand even more about the Sun, Moon, and stars!

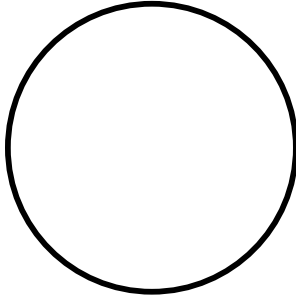
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My Moon Journal



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Date: \_\_\_\_\_ Time: \_\_\_\_\_

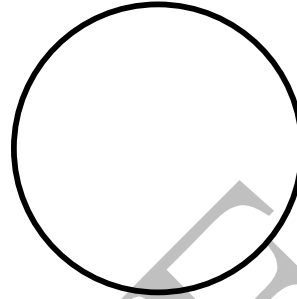


Draw the shape of the moon.

Fists above the horizon: \_\_\_\_\_

Draw the moon in relation to an object.

Date: \_\_\_\_\_ Time: \_\_\_\_\_

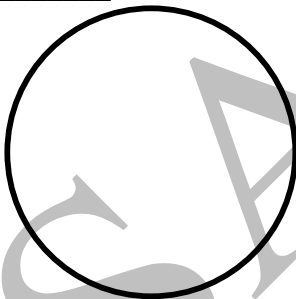


Draw the shape of the moon.

Fists above the horizon: \_\_\_\_\_

Draw the moon in relation to an object.

Date: \_\_\_\_\_ Time: \_\_\_\_\_

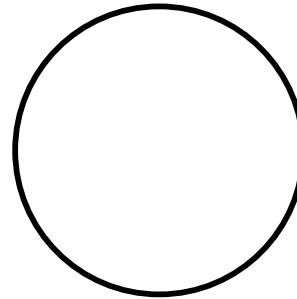


Draw the shape of the moon.

Fists above the horizon: \_\_\_\_\_

Draw the moon in relation to an object.

Date: \_\_\_\_\_ Time: \_\_\_\_\_



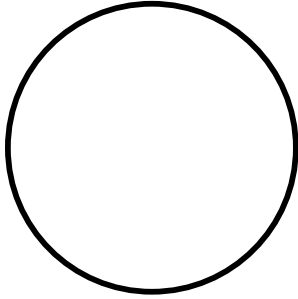
Draw the shape of the moon.

Fists above the horizon: \_\_\_\_\_

Draw the moon in relation to an object.

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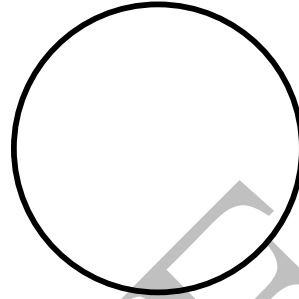
Date: \_\_\_\_\_ Time: \_\_\_\_\_



Draw the shape of the moon.

Fists above the horizon: \_\_\_\_\_

Date: \_\_\_\_\_ Time: \_\_\_\_\_



Draw the shape of the moon.

Fists above the horizon: \_\_\_\_\_

Draw the moon in relation to an object.

Draw the moon in relation to an object.

Date: \_\_\_\_\_ Time: \_\_\_\_\_



Date: \_\_\_\_\_ Time: \_\_\_\_\_



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Name: \_\_\_\_\_

### Sun Up, Sun Down

Track the Sun by drawing it in relation to the landmarks throughout the day.

Day 2: Morning

Time: \_\_\_\_\_

Day 2: Noon

Time: \_\_\_\_\_

Day 2: Afternoon

Time: \_\_\_\_\_



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Name: \_\_\_\_\_

Predict what will happen to the Sun's path for the rest of the day.

Day 2: Evening

Time: \_\_\_\_\_

Day 2: Sunset

Time: \_\_\_\_\_

SAMPLE

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Name: \_\_\_\_\_

**EVENING**

Notice	Wonder

**NIGHT**

Notice	Wonder

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Name: \_\_\_\_\_

### Sunshine Makes the Seasons

Circle a phrase in the box to make the sentence true.



In winter, the daylight is

**more than**  
**less than**  
**about the**  
**same as**

the amount of darkness.



In spring, the daylight is

more than  
less than  
about the  
same as

the amount of darkness.



In summer, the daylight is

more than  
less than  
about the  
same as

the amount of darkness.



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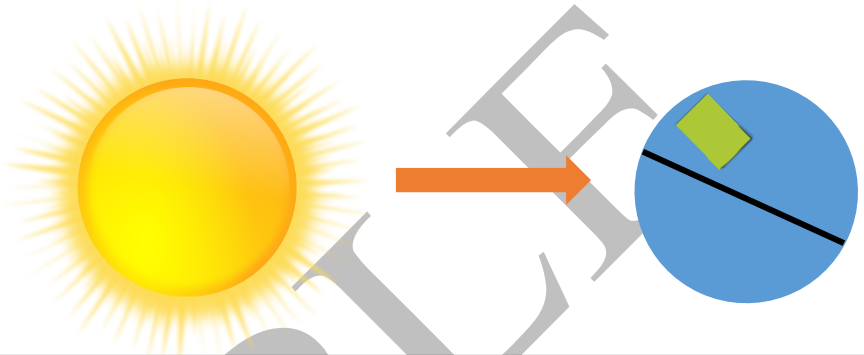
Name: \_\_\_\_\_

### Sunshine Makes the Seasons

Match the season by drawing a line to Earth's tilt.  
The green sticky note represents the Northern Hemisphere.

**One model will be used twice!**

**summer**



spring



winter

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### Sun's Path for Summer

morning      afternoon

evening      night

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## Sun's Path for Winter

morning

afternoon

evening

night

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### Moon Phase Cards

Cut out the cards to use to complete the cycle of the moon.



full  
moon



quarter  
moon



quarter  
moon



new  
moon



waxing  
crescent



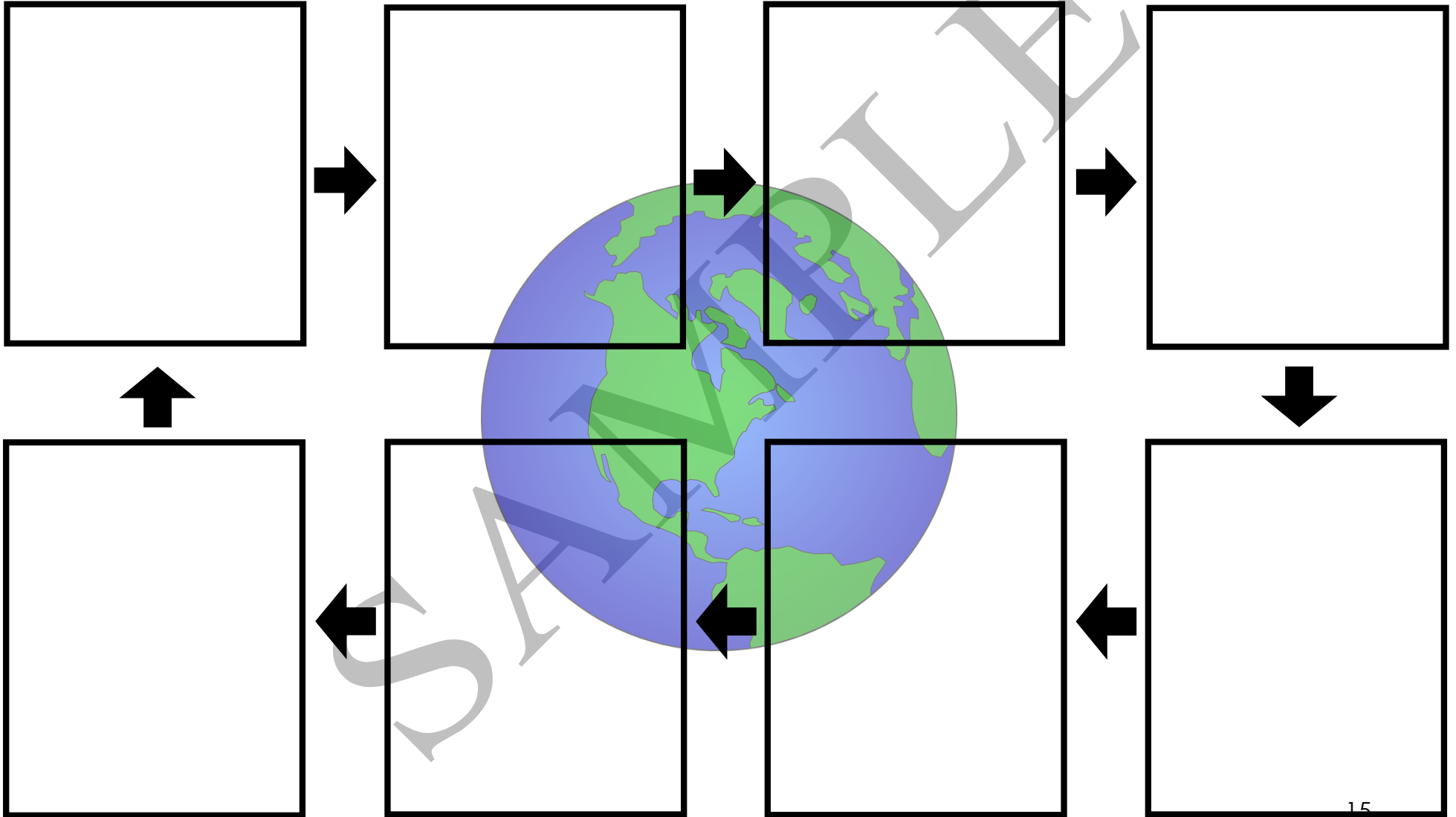
waning  
crescent

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Name: \_\_\_\_\_

### Moon Phase Cycle

Glue the **Moon Phase Cards** below to create a cycle of the moon phases to show a pattern.





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Name: \_\_\_\_\_

### Are There Stars?

Observe the pictures around the room. Make a mark in the column if you think there is a star or are stars in the picture.

Picture	Does this picture have a star or stars?		Actual
	Yes	No	
1			
2			
3			
4			
5			

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Name: \_\_\_\_\_

### Connecting the Constellations

Use the numbered stars to connect the constellations like a connect the dots game.



Little Dipper

What does the constellation look like?

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### Big Dipper



What does the constellation look like?

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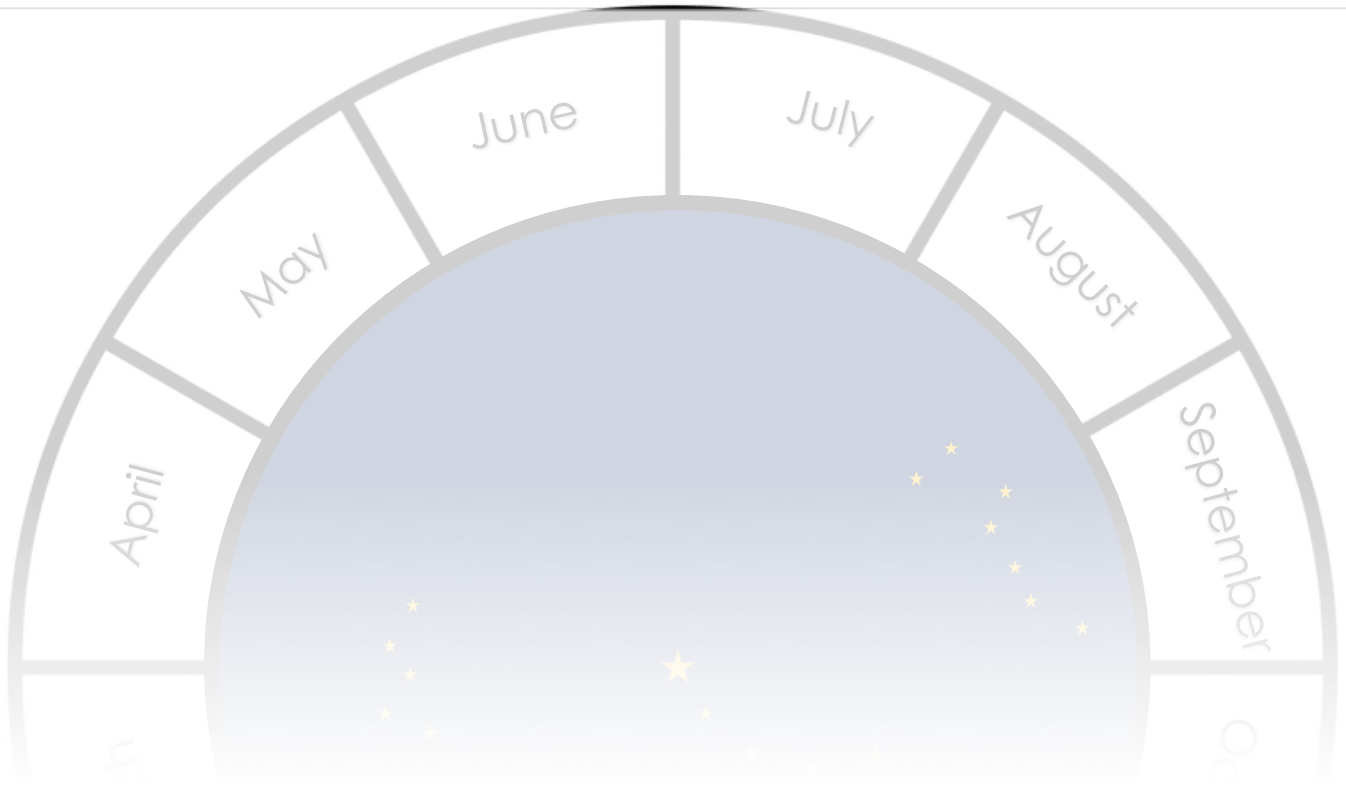
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### Cassiopeia

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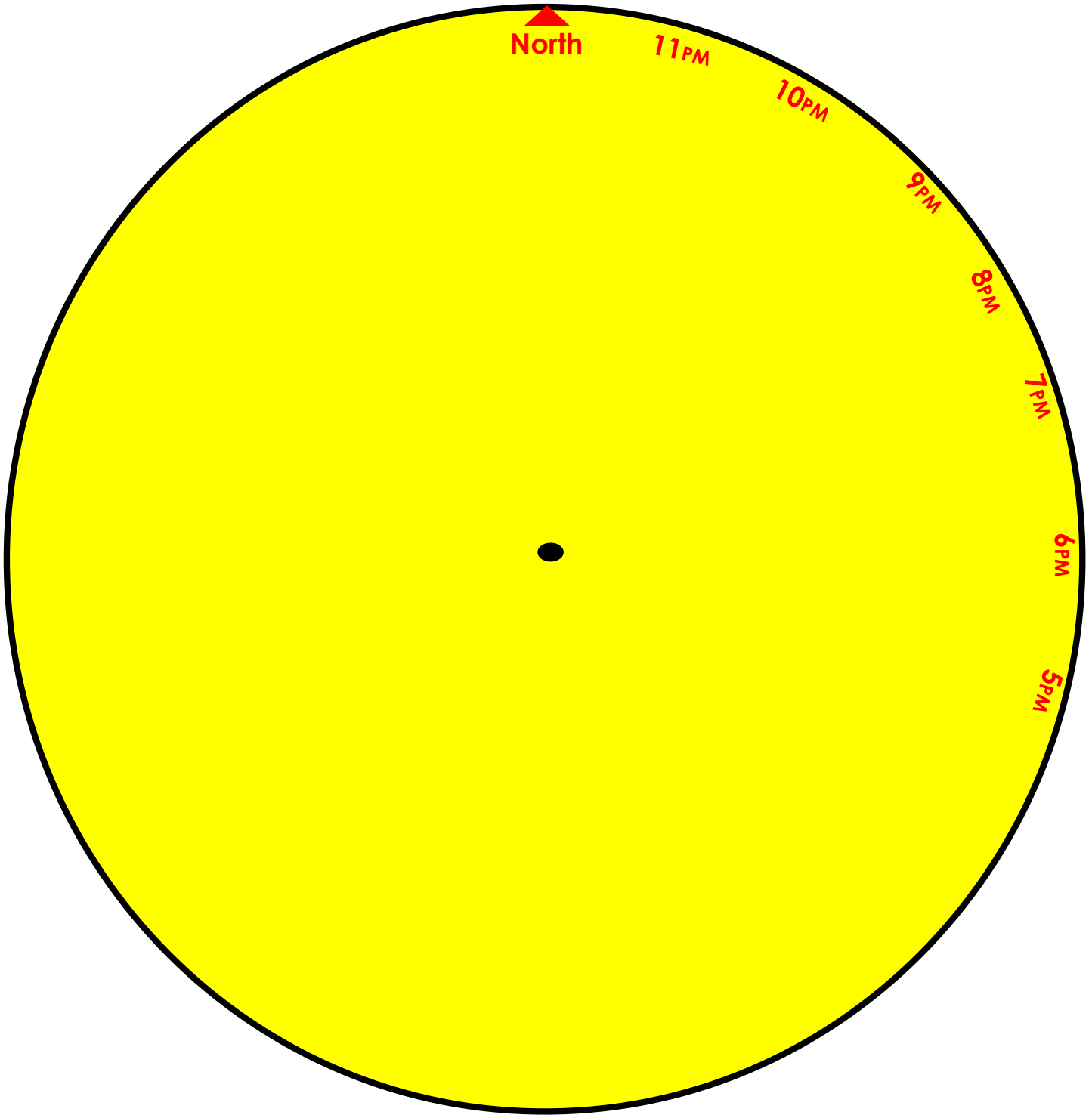
**Constellation Gazer**  
Constellations Circle



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## Constellation Gazer

Time Circle

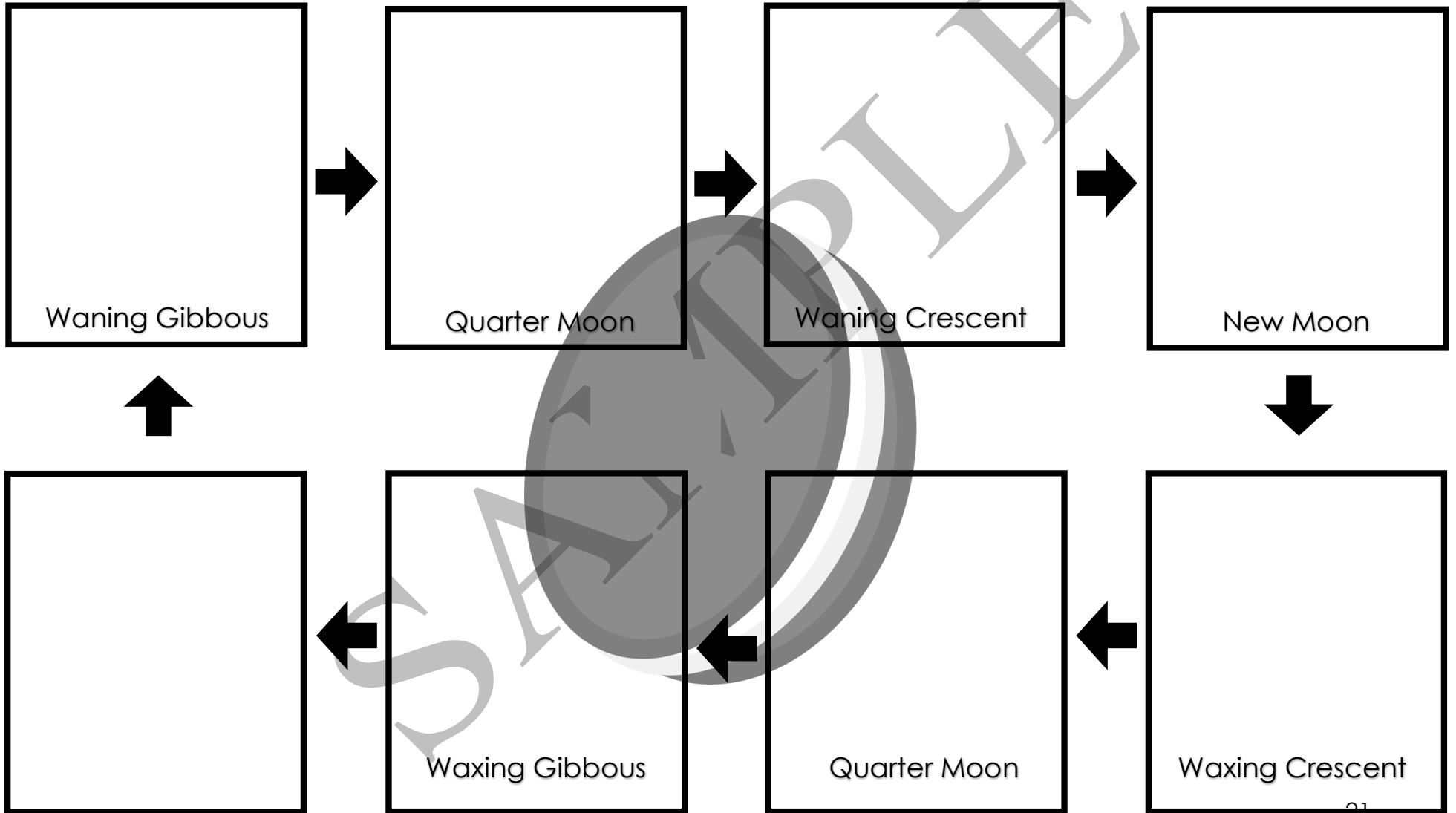


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Name: \_\_\_\_\_

### Cookie Phases of the Moon

After spreading the cream on the cookie, place it on the matching phase.



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Full Moon

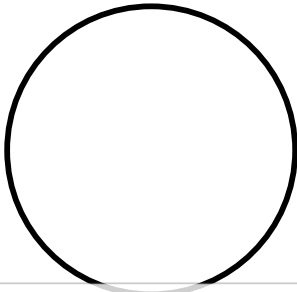
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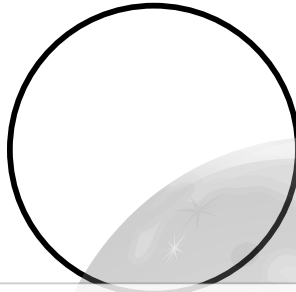
Name: \_\_\_\_\_

### Moon Phases Assessment

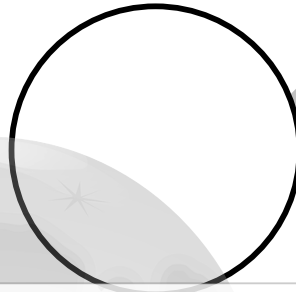
Draw and shade in the moon phases in the circles.  
Circle an answer for each question.



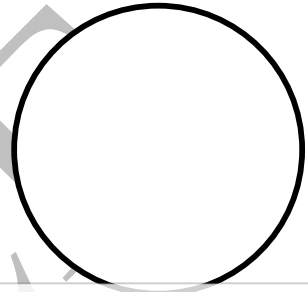
Waning  
Gibbous



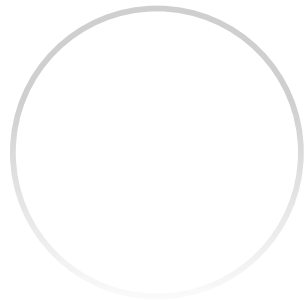
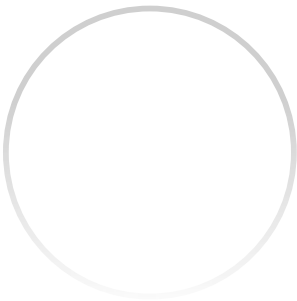
Quarter  
Moon



Waning  
Crescent



New  
Moon





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Is the Sun a star?

YES or NO

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## Project-Based Task Assessment Rubric: Student Friendly

Component	Novice 1	Apprentice 2	Proficient 3	Distinguished 4
<b>Teamwork</b>	Team did not work well together.	Team worked ok together with teacher reminders.	The team worked well together.	Team worked very well together and helped each other.

<b>Requirements</b>	Project has a couple things done.	Project has most things done.	Project has all things done.	Project has everything done and more.
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<b>Content</b>	Project has little information. Some	Project has important information, a few things wrong, or only a	Project has important information with	Project has important information with many details and examples
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## Glossary

constellation	group of stars that form a pattern
crescent	a phase of the moon that looks like a banana
east	a direction that is right of north
full moon	a phase of the moon that looks like a full circle
gibbous	a phase of the moon that is more than a quarter moon but less than a full moon
moon	a natural object that orbits the earth
new moon	a phase of the moon that cannot be seen
north	a direction toward the North Pole
phase	a stage where something changes
quarter moon	a phase of the moon that looks like a half circle
seasons	four periods of the year (spring, summer, autumn, and winter)
south	a direction that is opposite north
star	a space object that gives off light
Sun	the Earth's star that provides heat and light
sunrise	the rise of the Sun above the horizon in the morning

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sunset	the setting of the Sun below the horizon in the evening
tilt	to have a leaning position
waning	to get smaller
waxing	to get larger
west	a direction that is left of north

SAMPLE