LETTER TO PARENTS

Dear Parents,

We are about to begin a study of objects in the sky—the Sun, Moon, and stars. We'll start with the Sun and use a variety of tools to observe and record its position in the sky. To orient our observations, we'll use a compass. And to monitor the Sun, we will use our shadows. While we use the language that the Sun rises in the east and sets in the west, we know that it really isn't the Sun moving but the rotation of Earth on its axis that makes it appear that the stationary Sun is moving across the sky. We will be studying the predictable pattern of the Sun as it travels across the sky during the day and during different seasons.

Then we will study the Moon. We will start as a class by observing the Moon during the day and follow that up with night-sky observations. Since we aren't in school at night, this must be a homework assignment. As a bridge to what we have been studying in class, students will look for the Moon and other objects in the night sky when they are at home.

To make night-sky observations, take your child outside at about the same time each evening (when it's dark) and observe the sky. Take a few minutes to enjoy the night sky together. Talk about what you see. For example, if it's cloudy, you won't see anything but clouds. If it's clear, you will see stars (you might want to point out a constellation or two), planets (points of light that appear larger and brighter than stars), and sometimes the Moon. Discuss the changes in the night sky from night to night, especially the changing appearance of the Moon, and where you see it in the sky. (You can check your local newspaper to find out when it rises.)

Have your child record his or her observations on the Night-Sky Log (sample below) when I send it home, and bring it to school on the following Friday morning. To complete an entry, your child records the date and time. Have your child write a few sentences about what he or she observed and draw a picture to show what the Moon looks like.

Thanks for your help! And look for the Night-Sky Log coming home soon.

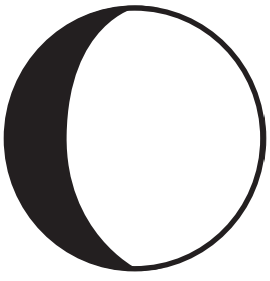
MONDAY Date February 28 Time 6:10 p.m.

Observations

The Moon was oval. It was high in the sky.

There were lots of stars.

One star in the west was brighter than the rest.



Name _____

Date _____

MATH EXTENSION—PROBLEM OF THE WEEK

INVESTIGATION 1: THE SUN

Bert and Anna were observing shadows on the same day. Bert observed shadows made by a pole 1 meter tall. Anna observed shadows made by a pole 2 meters tall.

Bert's data

Time	Length (cm)
9:00 a.m.	320
12:00 noon	80
2:00 p.m.	240

Anna's data

Time	Length (cm)
10:00 a.m.	480
12:00 noon	160
3:00 p.m.	640

1. How long was Bert's shadow at 10:00 a.m.? How do you know?

_____

_____

_____

2. How long was Anna's shadow at 9:00 a.m.? How do you know?

_____

_____

3. How long was Bert's shadow at 3:00 p.m.? How do you know?

_____

_____

4. At what time was Anna's shadow the same length as Bert's 9:00 a.m. shadow? How do you know?

_____

_____

_____

Name _____

Date _____

MATH EXTENSION—PROBLEM OF THE WEEK

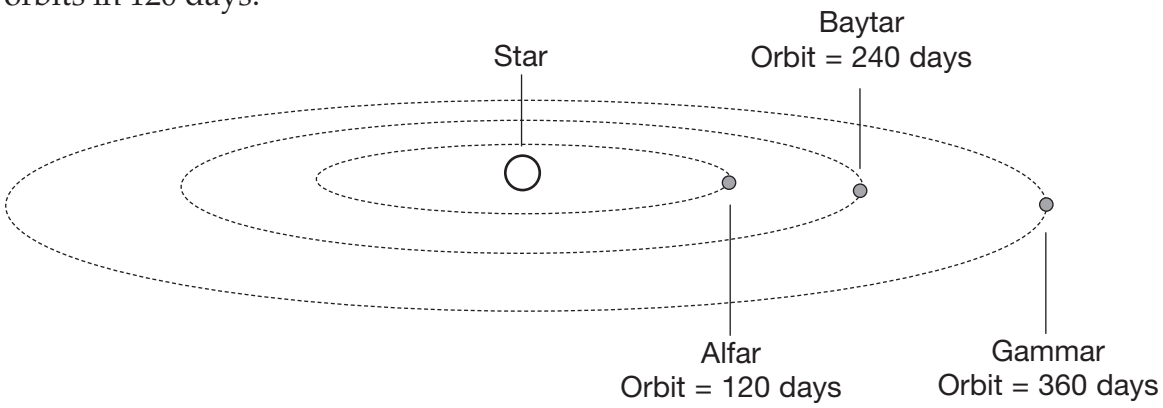
INVESTIGATION 2: THE MOON

In a make-believe planetary system, three planets orbit a star. The closest planet is Alfar, the middle planet is Baytar, and the farthest from the star is Gammar.

Planet Gammar orbits the star in 360 days. So the Gammar year is 360 days long.

Baytar orbits in 240 days.

Alfar orbits in 120 days.



One day the people of Gammar noticed that all three planets were lined up.

1. How many Gammar years will it be until the three planets line up again?

2. How many orbits will Gammar make before they line up again?

3. How many orbits will Alfar and Baytar make?

Name _____

Date _____

MATH EXTENSION—PROBLEM OF THE WEEK

INVESTIGATION 3: THE STARS

Tito has a telescope. He has five different eyepiece lenses. Each one is a different strength. They are 2x, 4x, 10x, 20x, and a mystery eyepiece that was unmarked. The *x* means times. So a 100x eyepiece will make an object look 100 times larger.

Tito put the 2x eyepiece on his telescope. He pointed his telescope toward the Moon. The Moon looked 4 centimeters across. Tito tried the 10x eyepiece, and the Moon looked 20 cm across.

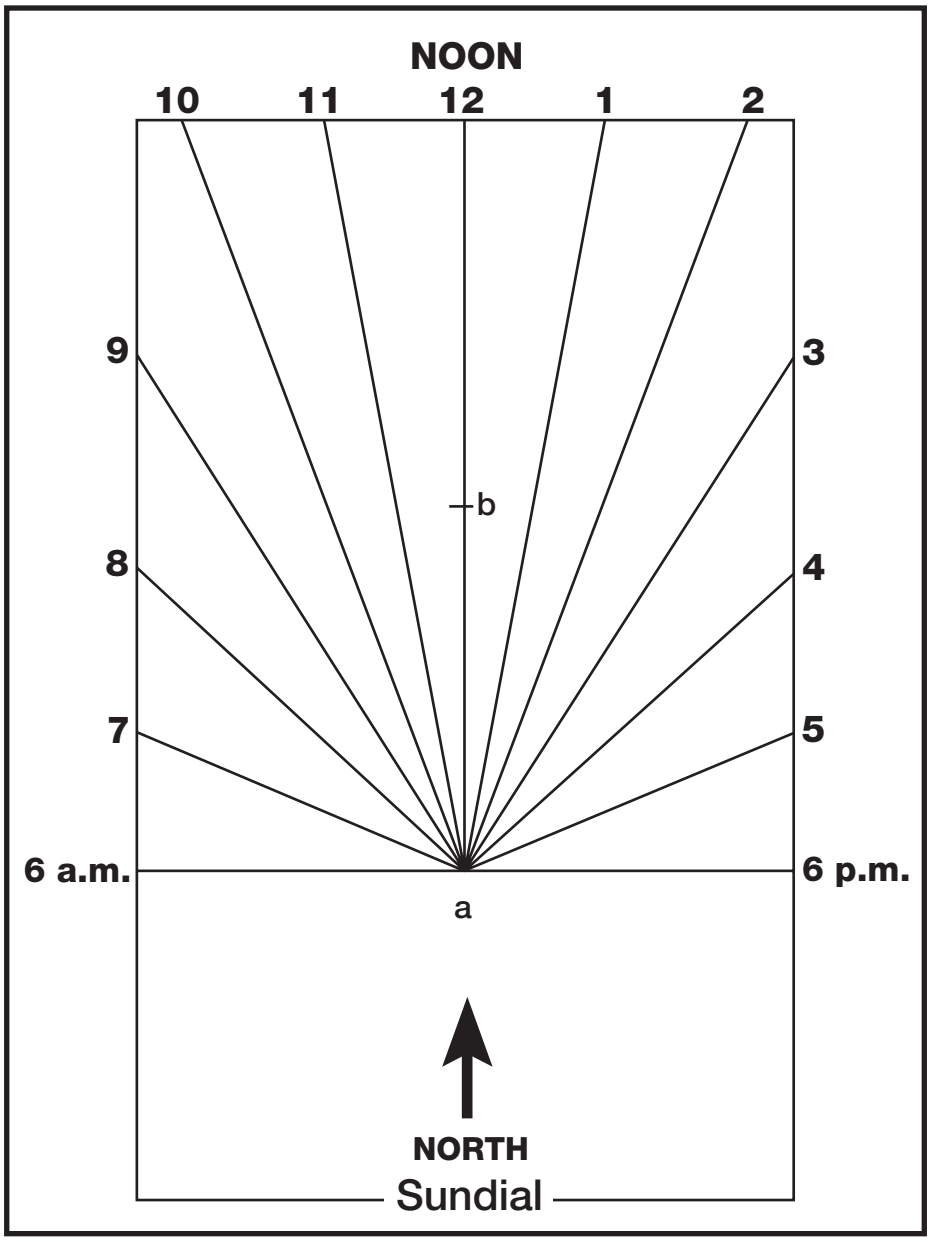
1. How big did the Moon look when Tito used the 4x and 20x eyepieces? What information from the problem will you use to answer this question?

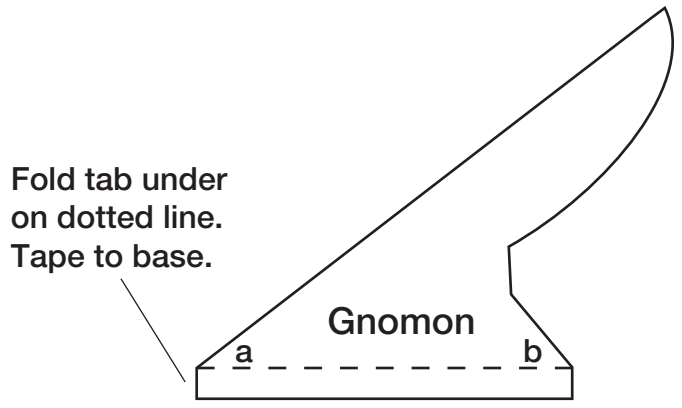
2. The Moon looked 30 cm across when Tito used the mystery eyepiece. What was the strength of the mystery eyepiece? What operation will you use to find the mystery strength?

3. Tito wants to see the Moon 50 cm across. What strength eyepiece should he get? What operation will you use to find the strength of the eyepiece?

HOME/SCHOOL CONNECTION

INVESTIGATION 1: THE SUN





Sundial Pattern

This sundial works best at 38° N latitude, the latitude of San Francisco Bay.

Materials

- Cardboard (tagboard or file folder)
- 1 Scissors or mat knife

- 1 Protractor
- Glue and transparent tape
- 1 Compass

Directions

1. Glue the pattern to a piece of cardboard.
2. Cut out the sundial and the gnomon.
3. Tape the gnomon tab to the sundial on the 12:00 line, matching points *a* and *b*.
4. Place the sundial on a level surface outside. Use a compass to help align the noon end of the sundial towards the North. You can fine-tune the sundial by comparing the time you see on the sundial to the time on a watch. If there is a difference, turn the sundial until the times most nearly match. When you get the sundial adjusted, you might want to mark the location with some chalk. When you place the sundial back in the same position, it should give you an accurate time.

HOME/SCHOOL CONNECTION

INVESTIGATION 2: THE MOON

The full Moon was a monthly beacon in the night sky for Native Americans and early pioneers. Over the years each full Moon acquired folk names that had seasonal or other significance. Some are obvious, like the Harvest Moon of September. Others are more mysterious. Read through the list of names and try to guess why each full Moon got that name. Most full Moons have two or more names.

Make up your own list of names for the full Moons. Bring your list to school to share.

Month	Folk Name
January	Moon after Yule, Old Moon
February	Snow Moon, Hunger Moon, Wolf Moon
March	Sap Moon, Crow Moon
April	Grass Moon, Egg Moon
May	Planting Moon, Milk Moon
June	Rose Moon, Strawberry Moon
July	Thunder Moon, Hay Moon
August	Green Corn Moon, Grain Moon
September	Fruit Moon, Harvest Moon
October	Hunter's Moon
November	Frosty Moon, Beaver Moon
December	Moon before Yule, Long Night Moon