INTERNATIONAL YEAR OF ASTRONOMY 2009 GALILEO ACTIVITY

LUNAR OBSERVATIONS

From *Galileo for Kids: His Life and Ideas* by Richard Panchyk (Chicago Review Press, 2005). There is extensive background information and many more activities in this book recommended by the National Science Teachers Association (NSTA).

PART ONE – LUNAR OBSERVATIONS

Background

Based on the position of the moon relative to the Earth, the phases of the Moon change throughout the month. In this activity you will observe the phases of the Moon for a two-week period. The key to the scientific progress that took place during the European Renaissance (14^{th} – 17^{th} centuries) was the belief that truth had to be sought through observation.

Materials

- Drawing compass
- Pencil
- Tablet of plain white paper

Activity Part One

Set your compass at 2 inches and draw a 4-inch wide circle at the center of each of 14 notebook pages. After sunset everyday for two weeks, go outside with your pencil and paper. Using the circles you've already drawn as the moon shape, darken the portion that is in shadow. If it is too cloudy or you can't see the moon, you can check on the internet for the current moon phase. Observe changes in the moon's appearance. How much change is there per day? How long do you think the entire cycles of phases will take?

Extension

You can find a more complete version of this activity for home or classroom use in the NASA MESSENGER middle school modules, **Lesson 4: "Going Through a Phase."** The lesson can be downloaded as a pdf file at http://btc.montana.edu/messenger/teachers/MEMS_CompPlanetology.php#voyage

IYA2009 is modern astronomy's quadricentennial and an international celebration of numerous astronomical and scientific milestones. It marks the 400^{th} anniversary of Galileo's first use of a telescope to study the skies and Kepler's publication of *Astronomia Nova.*

PART TWO – LUNAR OBSERVATIONS

Background
Observation is good because it can help you understand something for yourself and is the key to learning. In this activity you will continue your studies of the Moon.

Materials
- Drawing compass
- Pencil
- Sheet of 9” x 12” yellow construction paper
- Scissors
- Sheet of 11” x 17” white paper
- Glue stick
- Watch

Activity
Using your compass, draw eight 1-inch diameter circles on the sheet of yellow paper. Cut out the circles. In the early evening on a clear day, just after sunset, go outside and locate the moon. Facing the moon, note the various structures and trees that are in front and on either side of you. On the white paper draw the trees and other landmarks you see around you. Use the glue stick to paste one of the colored circles onto the paper in the position where it appears. Write the time inside the circle. Go back outside a half hour later and find the moon again. Paste another colored circle where the moon’s new position is and write the time on it. Repeat this every half hour for as long as you are allowed to stay up.

Extension
You might want to repeat this more than once on different days of the month to see what you observe. You could also draw in the phase on your circles.