

INTERNATIONAL YEAR OF ASTRONOMY 2009 GALILEO ACTIVITY

PERCEPTION OF ILLUMINATION

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).

Background

Galileo wrote in *The Assayer* that the true shape of a star or planet could not be made out with the naked eye because the general aura of illumination obscures the shape. Even when Venus is in crescent phase, the naked eye cannot distinguish any difference. Once put under the telescope, the radiation of light disappears, and the true form of the body is shown. Galileo likens this to a radiant head of hair worn by the celestial body. From a distance, the “hair” dwarfs the size of the body. As he put it, the Earth’s moon is so large in the sky that it dwarfs its own radiant head of hair, and so we can see its shape clearly. In this activity, you will observe this “radiant hair” principle for yourself.

Materials

- Wide-open outdoor space
- A friend
- Flashlight
- Binoculars

Activity

In the evening, after the sun has set, find a wide-open space. Have your friend stand about 5 feet from you, turn on the flashlight, and shine it at you. Can you see the distinct circular shape of the light? Now, have your friend walk until he or she is 50 feet away and then shine the flashlight again. Can you still make out the shape of the flashlight? Repeat by having your friend walk another 50 feet away. What does the light look like now?

Use the binoculars to look at the flashlight. What happens to the image that you saw with the naked eye only when you put it under magnification?

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 <i>Astronomia Nova</i> .
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