



# Let's Observe the Moon! (for 25x, 50x)

## Observation and Sketch

In 1609, the Italian Scientist Galileo Galilei became the first person to make an astronomical observation using a telescope. He made a great discovery when he was observing the Moon. What was his great discovery? Let's use our telescope and experience his great discovery!

Name \_\_\_\_\_

Address \_\_\_\_\_

Age \_\_\_\_\_

■ Let's Observe and draw a sketch of the Moon. If possible, draw a couple of sketches on different days. At first, use the eyepiece of 25x. Then next, use the eyepiece of 50x for detailed observation of a part of moon's surface (craters, mare and so on).

**Example**  
weather: clear

Date 18:30 Month 11 Day 20 Aperture of Telescope 5 cm

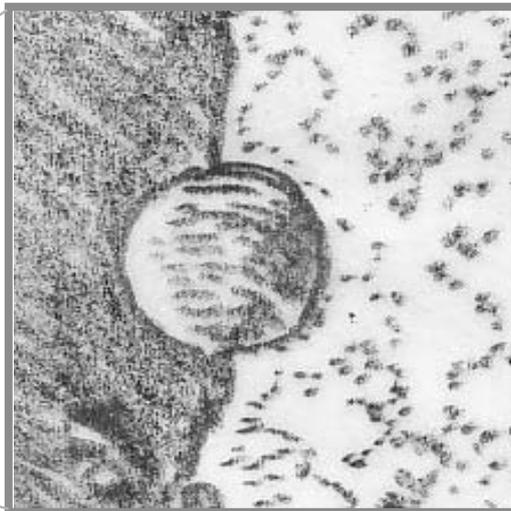
Site Mitaka-shi, Osawa, Japan Magnification\* 25 x

\*Magnification of a telescope can be calculated by dividing the focal length of the eye piece with the focal length of the telescope.

Draw a sketch of the whole moon.

Example

Make a detailed sketch of what you find interesting →



**Day 1**  
weather:

Date \_\_\_\_\_ : \_\_\_\_\_ Month \_\_\_\_\_ Day \_\_\_\_\_ Aperture of Telescope \_\_\_\_\_ cm

Site \_\_\_\_\_ Magnification \_\_\_\_\_ x



# Observation and Sketch

“You are Galileo!” Project  
Let’s Observe the Moon! (for 25×,50×)

Day 2

weather:

Date \_\_\_\_\_ : \_\_\_\_\_ Month \_\_\_\_\_ Day \_\_\_\_\_ Aperture of Telescope \_\_\_\_\_ cm

Site \_\_\_\_\_ Magnification \_\_\_\_\_ x

Day 3

weather:

Date \_\_\_\_\_ : \_\_\_\_\_ Month \_\_\_\_\_ Day \_\_\_\_\_ Aperture of Telescope \_\_\_\_\_ cm

Site \_\_\_\_\_ Magnification \_\_\_\_\_ x

Write down What you have noticed through Observation and Sketch, and anything peculiar you found

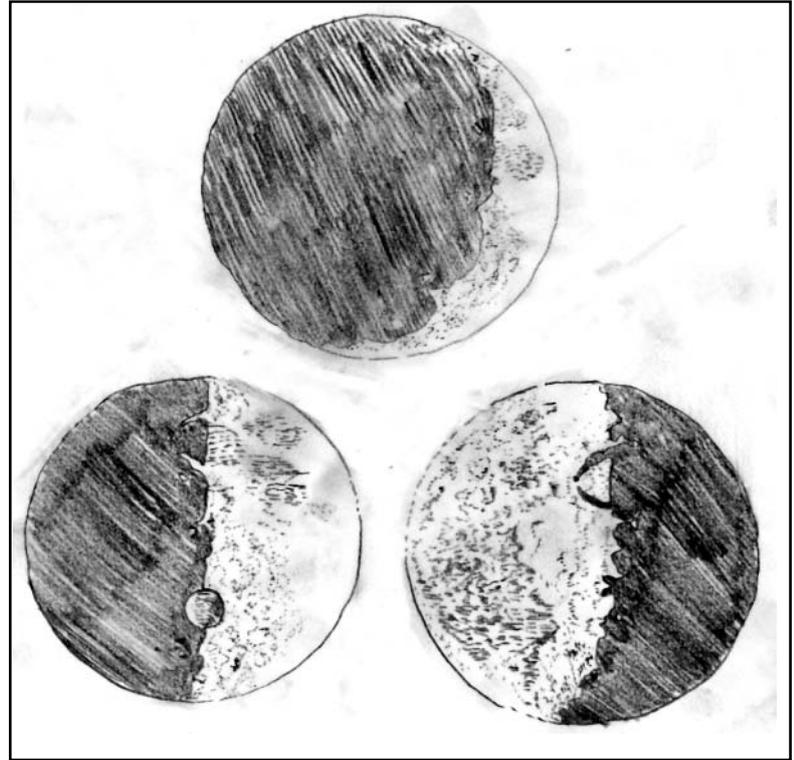


# Let's Observe the Moon!

## Post Observation Study

Name \_\_\_\_\_

From your own observation and Galileo's observations, you can see that the surface of the Moon is uneven and rough and that the apparent shape of the Moon changes on different days.



A copy of Galileo's sketches of the Moon→

■ Now, let's look at the map and find the place you decided to make a detailed sketch of. What kind of name does it have?

\*You can download a map of the Moon from the “You are Galileo!” web site. Also, there is a map of the Moon in the guidebook attached to the telescopes by Hoshi no Techo, Inc.

\*The map shows around the time of full moon. When you watch the moon in the evening, the left side of the map (East side of the Moon) is bright. When you watch the moon at dawn, the right side of the map (West of the Moon) is bright. You can see an inverted image in the field of view of the telescope.

■ There are craters, maria and mountain ranges on the Moon. Did you find them in your observation and sketches? Mark the ones you've noticed.

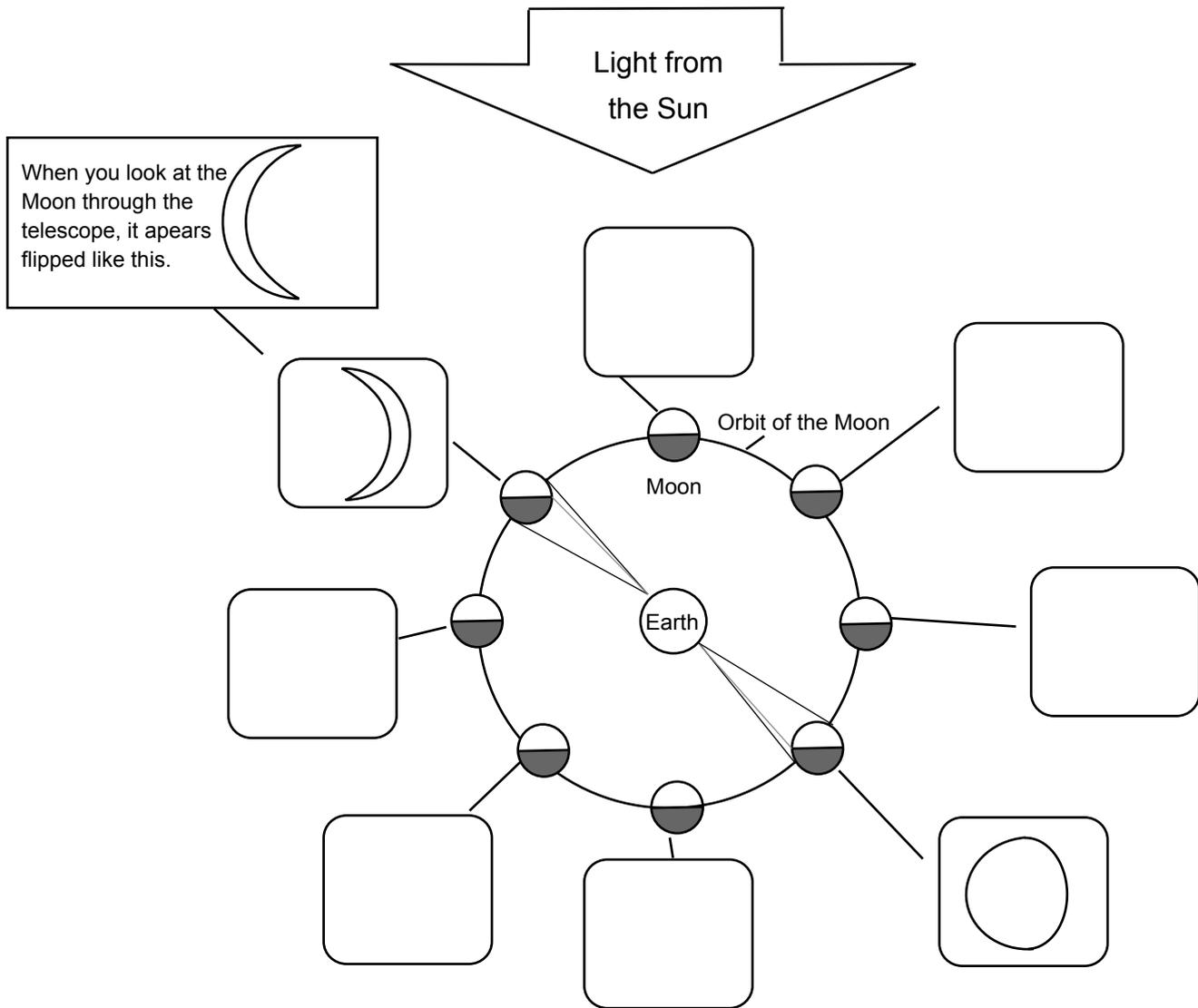
□ Craters: Dents on the surface of the Moon. Most are round.

□ Maria(seas), lacus(lake), sinus(bay): Sections that look dark on the Moon. Though they are called the sea, they are covered with rocks and have no water. They don't have many craters and are flat.

□ Mountain range: Sections were mountain form a line just like mountain ranges on Earth.

# Post Observation Study

Next, let’s consider why the phases of the moon changes. This is because the relative positions of the Moon, Sun and Earth changes. The Moon rotates around the Earth like the figure below. Draw how the Moon looks like from the Earth.



→You can see that the shape changes like they do in your sketches.

■ Let’s write down what you learned with this observation and what you want to learn more about.

Did you experience Galileo’s Discovery?

### ★ Post Observation Study – Memo –

About 400 years ago, the telescope which Galileo Galilei made and used to his observations had a very narrow field of view. That situation can be experienced with this assembly telescope. By comparing the field of views of the 25x, 50x eyepieces with that of the Galileo's eyepiece, you notice that the field of view of the Galileo's telescope was really narrow. And you will notice that the image becomes erect from the inverted image. In this respect, the Galileo's telescope is suitable for observations of ground scenery. It would be nice to compare the scenery through the 25x, 50x eyepieces with that of the Galileo's eyepiece in a daytime. Although you may easily imagine difficulties of Galileo Galilei who continued observing celestial objects through the narrow field of view, the telescope could be a miracle tool for observations of celestial objects, compared with naked eye.