

# ACTIVITY 3

## EVENING MOON

Grades :  
**4 and higher**

Level of preparation:  
**easy**

Student groupings:  
**individual**

Length:  
**5 minutes each time, total length of two weeks**

Location of activity:  
**at home**

### BRIEF DESCRIPTION

In this activity, students observe the Moon when it is visible in the early evening, just after sunset. This observation period lasts about 14 days and allows observers to see the evolution from a thin crescent moon to full moon. In addition, the motion of the Moon in the sky during this period is easily observed.

### LEARNING GOALS

- Observe the Moon in the sky.
- Describe the changes in the appearance and position of the Moon in the sky.
- Identify the different phases of the Moon.

### MATERIALS

- Activity sheet

### INTRODUCTION

The best time to easily observe the moon begins a few days after the new moon. The crescent Moon is visible in the evening when looking west. Over the next days, it is possible to observe the growing crescent become a quarter moon, a gibbous moon, and then a full moon. At the same time, the Moon moves from west to east if we observe it at the same time each day. For younger students, just after sunset is a good time to observe the Moon because it is easy to find in the sky. For older students, this observation provides insight into the movement of the Moon around the Earth.

**For a visual explanation of the phases of the Moon, please watch the accompanying video:** <http://youtu.be/iF8k9ibNKo8>.

## PREPARATION

- Plan the observation period by finding the date of the next new moon. Most calendars have this information, but it is also possible to find it by searching online. The *Rio Tinto Alcan Planetarium* in Montreal offers a lunar calendar on their website: <http://espacepourlavie.ca/en/phases-moon>
- Print the activity sheet so that everyone has a copy.

## METHOD

- Explain to students that they will observe the Moon as often as possible in the next two weeks. It will obviously be impossible to record observations every single day, especially because of the weather. This is fine; it is not necessary to make observations on all days to see the changes in the appearance and position of the Moon.
- Review the instructions on the worksheet with your students to make sure they understand.
- On cloudless days over the next two weeks, make sure to remind students to observe the Moon in the evening.

Here are some ideas for discussion with students:

- How has the Moon changed from night to night? Was it always in the same place in the sky?
- After some observations, have students predict and draw where the Moon will be the next day.

## ADDITIONAL INFORMATION

The Moon rises on average 50 minutes later every day and moves eastward from night to night if we observe at the same time (see Figure 2). A few days after the new moon, we can see a crescent moon on the western horizon. From night to night, the crescent thickens and becomes a quarter moon a week after new moon. The quarter moon is directly south at sunset. In the following days, we see a gibbous moon towards the southeast and finally, about 2 weeks after new moon, we see the full moon rise in the east at the same time as the Sun sets in the west.

These observations show the motion of the Moon in our sky as the Moon orbits around the Earth. Throughout the lunar cycle, the Moon changes phases but also the time at which it is visible in the sky.

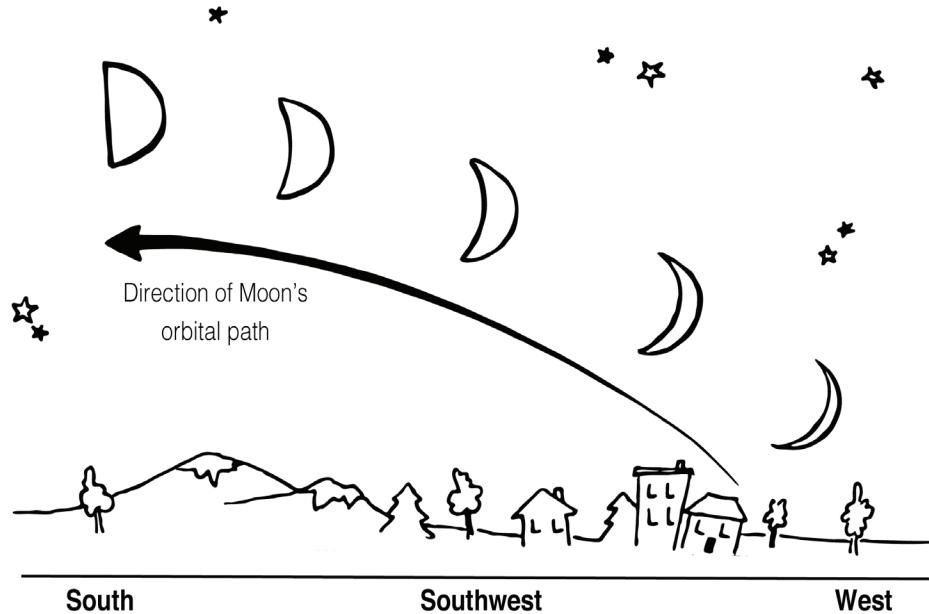


Figure 2. Change in the position and phase of the Moon a few nights after new moon.

If you would like more details about the motion of the Moon around the Earth and how that affects our view, including the fact that it rises 50 minutes later every day, have a look at this explanatory video which includes basic mathematical concepts: <http://www.showme.com/sh/?h=BamO0IU>.

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

## EVENING MOON

Begin your observations a few days after new moon. Look west after sunset; you should be able to see a thin crescent moon. Draw it in the box below and add some landmarks such as trees or houses. **Make sure you always observe from exactly the same spot** so you can place the Moon on your drawing as it appears in the sky compared to the landmarks you included. Try to observe the Moon as often as possible during the next two weeks and draw each of your observations.

What do you notice?

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