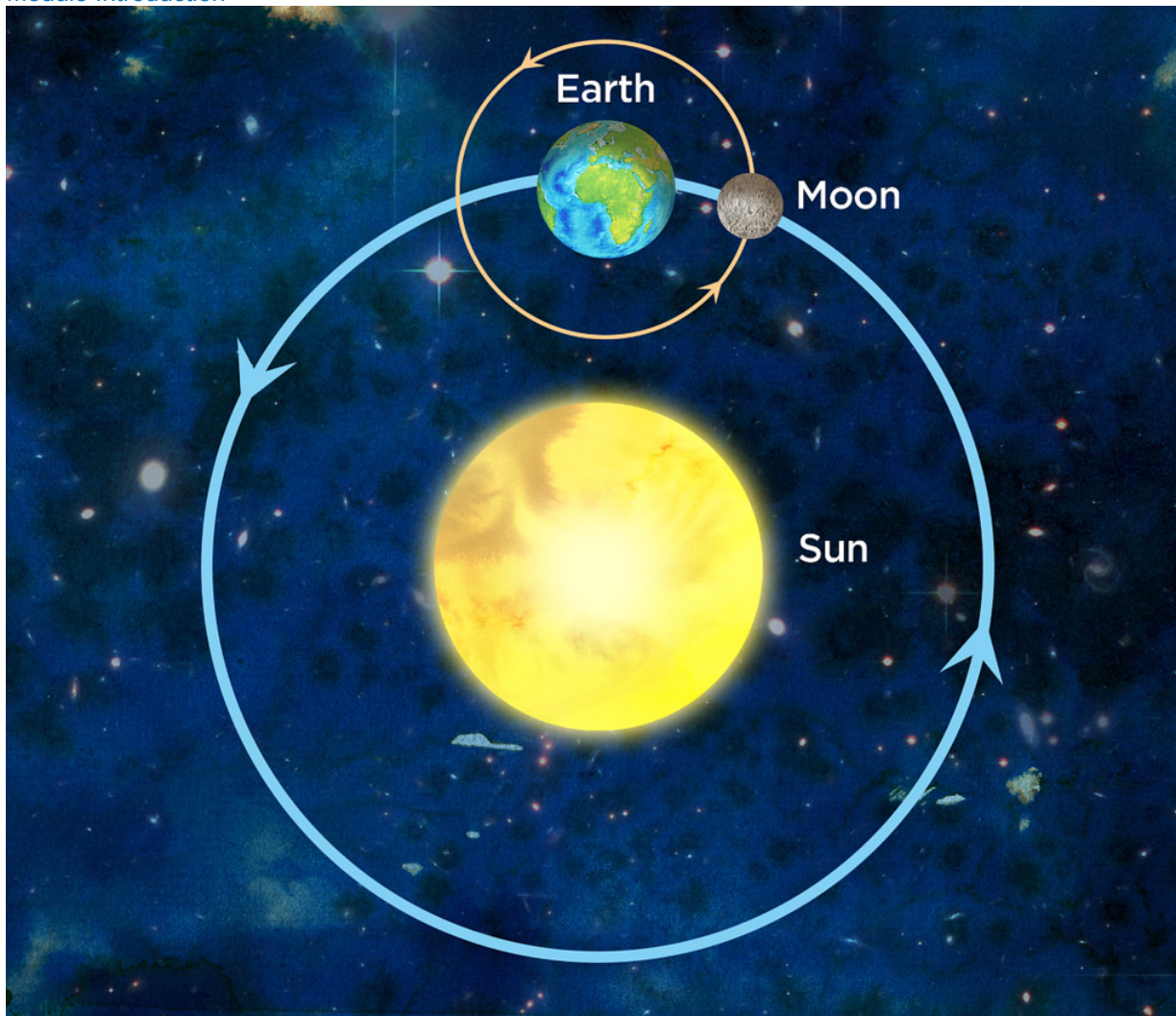


1.1: Introduction

Astronomy Laboratory 1: Sunrise, Sunset — Moonrise, Moonset

Module Introduction



As Earth orbits the Sun, the Moon orbits Earth. [“Earth, Moon and Sun system” by [Siyavula Education](#) , flickr commons is licensed under [CC BY 2.0](#)]

Lab 1 will be completed throughout the term, requiring your work and participation over many weeks. The final submissions for this lab and the quiz will occur at the end of the term. Please, do not wait to start on this lab, as you will need to record data and take photographs in each week in order to receive a grade.

In this lab, we will explore the day-night cycle, essential knowledge to ancient civilizations as well as indirectly, our modern society. You will first read the Learning Unit below for background information about the location and movement of Earth, the seasons, the orbit of the Moon, and using data to predict the motions of Earth and the moon as well as the effects of the motions on all of us. You will then complete the three lab activities, and quiz.

Note: throughout the term, you will need to do observations outdoors. Be sure to check the weather forecasts ahead of time so that you are able to plan around possible obstructions, such as clouds. Contact your instructor ahead of time to discuss a plan of action, if needed, to work around those obstructions. ⁽¹⁾

Objectives

At the end of this module, students will be able to:

- Navigate the United States Naval Observatory (USNO) website and utilize the tools on the site.
- Analyze data to determine times and locations of Sunrise, Sunset, Moonrise, and Moonset.
- Record data pertaining to the rising and falling of the Sun and Moon.
- Calculate the average change in Moonrise time. ⁽¹⁾

Outcomes

The material in this module includes content designed to meet the following course outcomes:

- Explain and apply major concepts in astronomy including planets, satellites, stars, meteors, galaxies, and theories of the universe.
- Demonstrate knowledge of scientific method.
- Communicate scientific ideas through oral or written assignments.
- Interpret scientific models such as formulas, graphs, tables and schematics, draw inferences from them and recognize their limitations.
- Demonstrate the ability to think critically.
- Demonstrate the ability to use scientific and quantitative reasoning. ⁽¹⁾

Assigned Readings

Learning Unit 1

Assignments

- USNO Astronomical Applications Website Summary
- Sunrise / Sunset Activity
- Moonrise / Moonset Activity
- Lab 1 Quiz ⁽¹⁾

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