

Unit Challenge—Sun-Earth-Moon Calendar

You will complete this challenge at the end of the unit. Read the following introduction now and keep it in mind as you complete the unit’s explorations.

Introduction to the Challenge

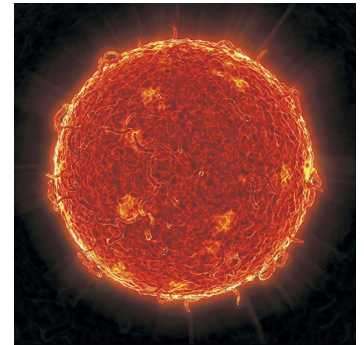
We often take our moon for granted. We watch it rise or set; we listen to songs about it; and we use its changing cycle as a basis for our calendar; the month, based on the word “moon.”

In this challenge, you will construct a wall calendar that will summarize your understanding of different aspects of the motions of the Sun-Earth-Moon system.

Your wall calendar will span 12 months, beginning with the month you start this unit. Each month will feature, in the area above the calendar dates, a decorative section that you will create to explain a particular event or phenomenon resulting from the relative positions of Earth, The Sun, and/or the Moon. At the bottom of each decorative section will be a caption that describes the causes of the picture event, the orientation of the three bodies, and the resulting appearance of the event as seen by humans on Earth.

In the calendar’s lower section, which exhibits the days of the month, you will make annotations in calendar date spaces to note astronomical events and other data. Your teacher will provide you with a template for this section.

You will complete the challenge after you have done all the activities in this unit. A list of the general and specific requirements for each month will be given to you later in the unit.



JANUARY

The Sun's photosphere, as captured by solar imaging instruments, is a highly convective and turbulent plasma surface.

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1 <small>1st of the month</small>	2 <small>2nd of the month</small>	3 <small>3rd of the month</small>	4 <small>4th of the month</small>	5 <small>5th of the month</small>	6 <small>6th of the month</small>	7 <small>7th of the month</small>
8 <small>8th of the month</small>	9 <small>9th of the month</small>	10 <small>10th of the month</small>	11 <small>11th of the month</small>	12 <small>12th of the month</small>	13 <small>13th of the month</small>	14 <small>14th of the month</small>
15 <small>15th of the month</small>	16 <small>16th of the month</small>	17 <small>17th of the month</small>	18 <small>18th of the month</small>	19 <small>19th of the month</small>	20 <small>20th of the month</small>	21 <small>21st of the month</small>
22 <small>22nd of the month</small>	23 <small>23rd of the month</small>	24 <small>24th of the month</small>	25 <small>25th of the month</small>	26 <small>26th of the month</small>	27 <small>27th of the month</small>	28 <small>28th of the month</small>
29 <small>29th of the month</small>	30 <small>30th of the month</small>	31 <small>31st of the month</small>	1 <small>1st of the month</small>	2 <small>2nd of the month</small>	3 <small>3rd of the month</small>	4 <small>4th of the month</small>

Source: NASA's Solar Wind Experiment. © 2013 NASA. All rights reserved.

Our Local Neighborhood

Knowing about your neighborhood is important. You need to know street names, directions, and distances to find your way from one place to another. When you leave your neighborhood and travel to a location you are unfamiliar with, landmarks, distance, and direction become particularly important. Maps and sometimes models are used as aids for measuring distances and scales.

As you proceed in this part of the unit, keep the following essential question in mind:

How do important characteristics of the Sun, the Earth, and the Moon compare to one another?

First thoughts—Making Claims

As we begin, let's start with making some claims about what we think is true about the Sun, the Earth, and the Moon. I bet you're pretty confident about some of these questions already, but it's OK not to know the "answer" or to be unsure about a claim. Just use your best judgment.

1. Of the Sun, the Earth, and the Moon, which do you think is:
 - Hottest?
 - Coldest?
 - Biggest in diameter?
 - Smallest in diameter?
 - Most massive?
 - Least massive?
2. Which have rocky surfaces?
Which have liquid surfaces?
Which have gaseous surfaces?
3. Which have atmospheres?
4. Which is farther from the Earth?