

# SOLAR ECLIPSE OBSERVING

## Solar Eclipse Observing Challenge Coordinator

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## CHALLENGES

Welcome to the Astronomical League's Solar Eclipse Observing Program. Completion requires tasks to be performed that will enhance your observing skills and add scientific value to your viewing experience during a solar eclipse.

### 3. Total Solar Eclipse Challenge in 2024. (deadline for submission: October 31, 2024)

A Total eclipse of the sun is a stunning event of the natural world. It allows you to experience the three-dimensional nature of the universe—events occurring in the cosmos can be experienced directly on Earth. During a total eclipse of the Sun, the Sun, the Moon and the Earth are all in perfect alignment. The scale is unimaginable, yet here it is happening right on top of you and around you.

After what seems like a moment, the moon continues its journey and the total eclipse is over. It is then you ask, "When is the next one?"

**\*\*\* WARNING \*\*\***

**Before you start any solar observing program, make absolutely certain that you have safe filters and a safe set-up. Only use filters from reputable sources, and never use a "solar filter" that screws into an eyepiece. As Richard Hill states in *Observe and Understand the***

**Sun:** “Observing the sun is the only inherently dangerous observing an amateur astronomer can do. Be aware of this at all times and take all necessary precautions. If you do not know a filter or procedure is safe then do not use it! Always err on the side of safety. An eye once damaged is forever damaged. Filters that let too much INFRARED light through can burn an eye if used visually. There is NO PAIN when this happens. Burned retinas can not be repaired. Excessive ULTRAVIOLET light has been shown to cause cataracts. So be very careful.”

For more information on ways to safely observe the sun, click [here](#).

## The Awards

The program offers two levels of accomplishment (certifications):

**SILVER** – a certificate of completion will be awarded. **You do not need to be a member of the Astronomical League to earn the Silver Level.**

Successful submittal will require completion of the [Total Eclipse Experiences Checklist](#).

- Observe the eclipse directly using your eyes or equipment and report the four contact times and a detailed description of each phase of the eclipse. Remote imaging is allowed.
- If you cannot travel to the eclipse, observe the partial phase that you can see, and report as much data and description as circumstances allow. In addition, you must use images acquired via the internet and report the timings as seen at that location, along the line of totality, of all four contacts. The substituted images must be submitted and be from a source that can be verified by the administrator. The event must be total at that location (allowing for all four contact points to be reported). This method may also be used if you are clouded out at your location, even if you traveled to view the eclipse.

**GOLD** – a certificate of completion and pin will be awarded. **You need to be a member of the Astronomical League to earn the Gold Level.**

Successful submittal will require completion of the silver level award described above and calculation of the Saros period via the process described in “[Determining the Saros](#)”. Include with the submittal all moon positions, sketches and images used, and the calculations involved to determine your answer.

Determining the Saros requires a minimum timespan of six (6) months (a longer span is preferred). During that time, a minimum of four (4) moon positions each month, for a minimum of 24 total positions will be needed to accomplish the task. Again, more will lead to greater accuracy. The Moon’s positions can be done before or after the eclipse.

## Other Awards

There is also an “I Observed the Eclipse” downloadable certificate [available here](#) that may be distributed to anyone attending and observing the event.

## Requirements and Rules

You do not need to be a member of the Astronomical League to participate in the Silver Level of this challenge. You do need to be a member of the Astronomical League to participate in the Gold Level of this challenge. If you are not a member and would like to become one, check with your local astronomical society, search for a local society on the [Astronomical League Website](#), or join as a [Member-at-Large](#)

The observer should report all of the following information with the submittal:

1. Location of the observer’s site, including longitude and latitude\*
2. Date and time of the observations (either UT or local time)\*
3. Instrument used with aperture and focal length of the telescope and binocular specifications (or state that naked eyes were used [all with proper filters!])
4. Eyepiece and magnification as it applies
5. Filters used (eye protection solar filters are assumed) (Are you looking for “additional” filtering then?) Yes like Hydrogen-Alpha
6. A detailed description of each phase of the total eclipse\*
7. Reticule devices used for measuring solar features as it applies
8. Imaging equipment as it applies

\*completion of the required [Experiences Checklist](#) will satisfy these requirements