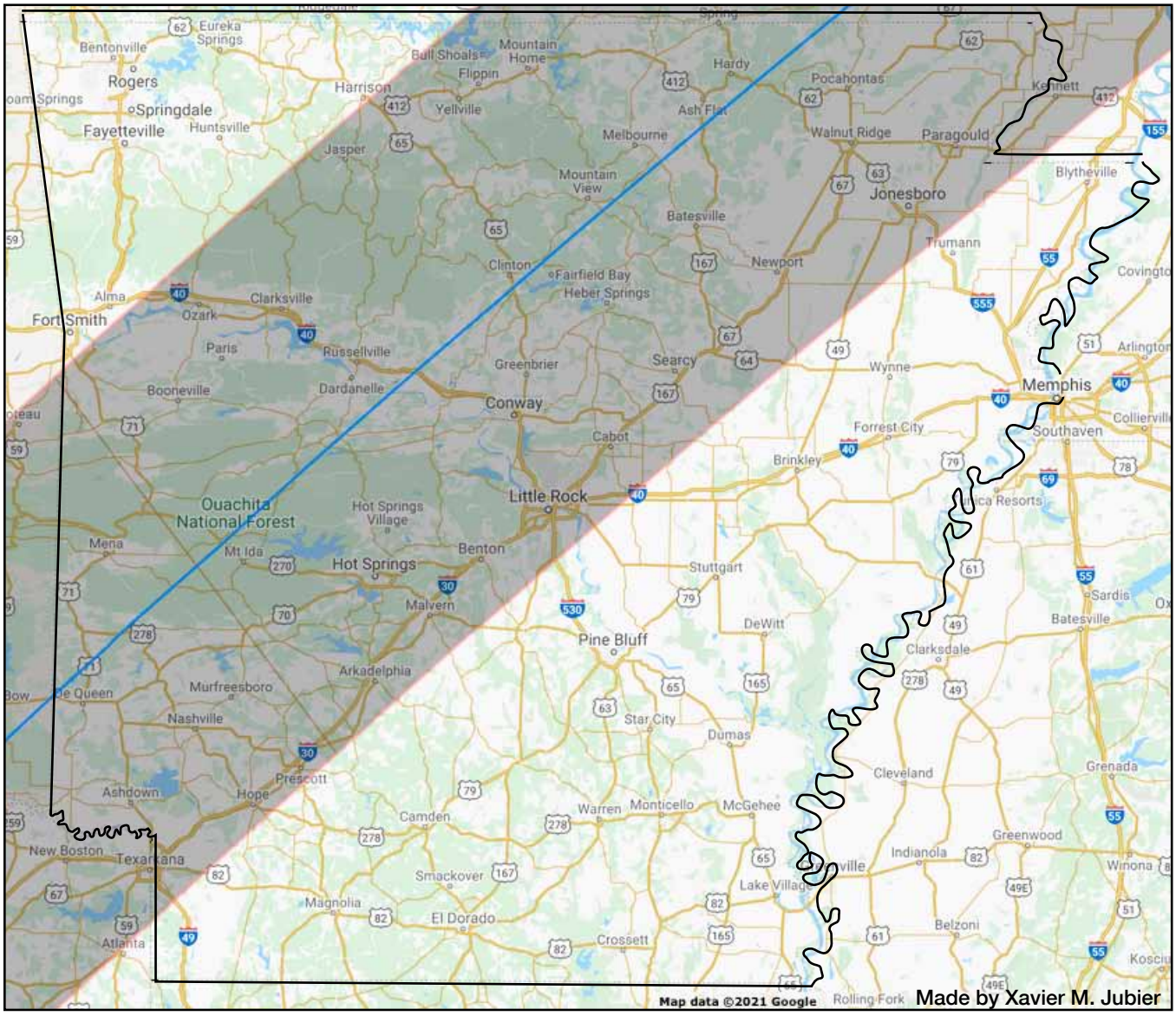
Total Solar Eclipse

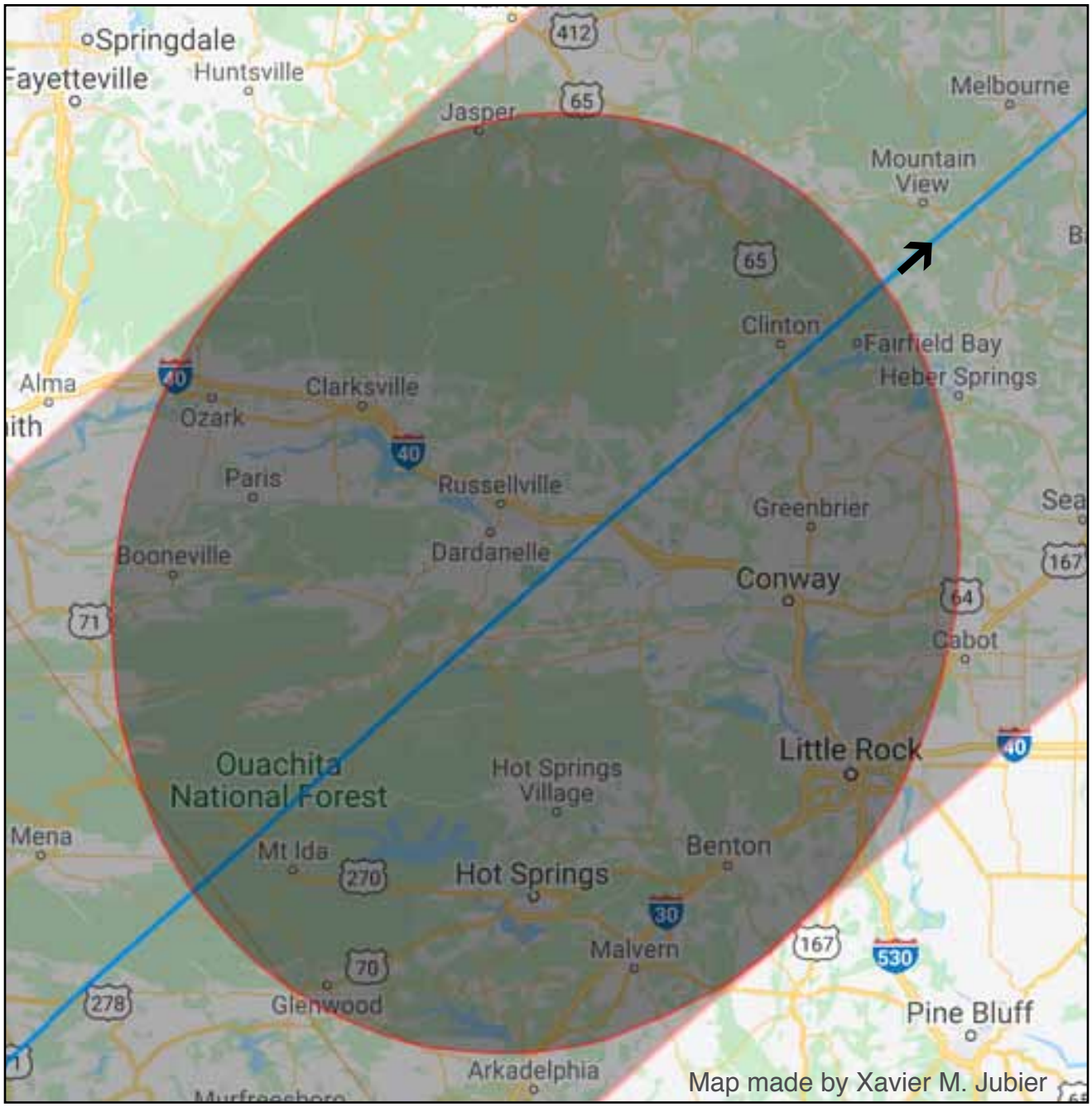
April 8, 2024



Arkansas Eclipse Planning Guide

Carl Freyaldenhoven, Central Arkansas Astronomical Society Eclipse Resource Coordinator

Darcy Howard, Central Arkansas Astronomical Society Eclipse Resource Developer



Path of the Moon's Shadow over Central Arkansas

The blue centerline shows the time of the greatest eclipse. It is important to know that the longest duration of the total eclipse happens along the centerline. At the center-line, the shadow of the moon takes the longest time to travel across a point. Moving sideways away from the centerline - that means toward the edges - the times decrease because of the shape of the shadow. The edges have only a moment of totality.

http://xjubier.free.fr/en/site_pages/solar_eclipses/TSE_2024_GoogleMapFull.html

Planning for the Total Solar Eclipse of April 8, 2024

The purpose of this document is to provide introductory information for the successful large-scale viewing experience of the upcoming total solar eclipse. Hundreds of visitors will be coming to sites in the path of totality, Arkansans as well as travelers from far away. It will be a much larger event than the traffic of Hot Springs during the race meet or the Razorback games at Little Rock. Some park officials at the lakes predict it will be like "a fishing tournament on steroids."

Since the eclipse occurs on Monday, April 8, 2024, many tourists will arrive on Saturday, April 6, 2024. These extra days will give your visitors opportunities to enjoy activities in the area.

Expect your facilities to be fully booked. Careful preparation and planning will help reduce the stress on your facilities and personnel.

You will need to designate extra parking areas for those viewers arriving at the Day Use areas on eclipse day. Possibly areas with a clear view of the sky may be marked off and people directed to go there.

Place signs directing the public to parking areas and viewing sites. Extra volunteers can direct traffic and give information. The incoming traffic will be spread out during the morning. The really big traffic jam occurs around 3:30 p.m. with a mass exodus because the eclipse is over.

Any preparation such as mowing the grounds and placement of trash containers can be done the week before. You may want to increase bathroom facilities with portable toilets. Before the 2017 eclipse, other states reported a shortage of portable facilities and had to have portable toilets trucked in from out of state. Reserve them early.

Readily available sources of water or extra bottled water is a good amenity since the partial phase begins around 12:30 p.m. and the totality doesn't happen until an hour and eighteen minutes later.

If visitors stay from the beginning of the first contact through the total and the last partial phase, that time is almost three hours: 12:32 p.m. to 3:11 p.m. Some places may

want to have food trucks scheduled for that day. An overload of trash handling is inevitable so arrange for extra refuse containers placed in strategic locations.

A well-stocked first aid station designated for the day will take care of small medical problems, and a well-thought-out plan for any large medical emergency is essential. Keep in mind roads may be impassable during the departing traffic jam around 3:30 p.m. to 4:30 p.m. or longer.

Arrangements need to be made to TURN OFF the automatic outdoor lighting in the viewing area and campgrounds. Workers should be assigned this duty the first thing Monday morning of April 8, 2024, (the day of the eclipse). Nothing ruins a good eclipse viewing moment more than night watchers and car headlights coming on in response to the total darkness of the eclipse. The sensors of the lights don't know it is the middle of the day!

The times specific to each location for the beginning and end of all phases of the eclipse need to be posted on information boards. These times can be found on the AR-Eclipse.info site. This website will be updated as new predictions become available.

Weeks beforehand it would be beneficial to schedule personnel training explaining why eclipses occur and for learning eclipse terminology such as penumbra, umbra, diamond ring effect, Bailey's Beads, and the sun's corona, etc.

Training should especially include safe eclipse viewing methods. Be sure that the eclipse glasses are certified to the ISO 12312-2 international safety standard. Eye safety is paramount, and indirect viewing devices can easily be constructed to view the partial phases.

Include an EYE SAFETY INFORMATION sheet (see page 9) on your information boards for viewing the partial phases of the solar eclipse.

No eclipse glasses are required during the spectacular short minutes of totality itself, for the moon is blocking the sun.

The Central Arkansas Astronomical Society will have eclipse glasses for sale if you need some. If your facility plans to purchase a bulk order of eclipse glasses for employee use, reliable sources are American Paper Optics in Tennessee, Rainbow Symphony in California, and Thousand Oaks Optical in Arizona.

Points for Eclipse Planning Discussions

Here is the REALITY and the CHALLENGE: The Eclipse Will Happen. It's a cycle of nature, whether you are prepared or not. Large numbers of people will come to Arkansas to see the eclipse. When you are prepared your visitors will have a good experience and will return, and spread the word. If not, they won't want to come back. Here is your best chance to get returning visitors!

WHO CAN HELP: the communities and local citizens. Tell them what an eclipse is, and that it will cause the largest influx of visitors they have ever seen. Economic opportunities abound.

Eclipse Coordinator – person in charge (with knowledge of Tourism/Government connections)

- Communities might consider forming a 501(c) nonprofit and hiring a coordinator
- Elected officials may be reluctant to lead but will have an interest
- Who is going to be in charge of Fire, Law Enforcement, Traffic Control, EMS, Sanitation, and Maintenance
- How to support the preparation and planning

Funding (a REALITY)

- Extra Personnel
- Expenses, this list is only a beginning...
    - Develop an ad campaign
    - Signs and print productions
    - T Shirts and eclipse items
    - Advertise in travel magazines
    - Train park interpreters
- Now is a good time to invest in improvements you've been thinking about

Safety Plan

- Traffic safety
- First Aid Stations
- Drinking water
- Plans for medical emergency (hire paramedics or ER nurses)
- Fire, Law Enforcement, EMS (Ambulance or Helicopter) Access
  (Practice drills for emergencies)
- Eye safety: education and available low-cost eclipse glasses
- What is your limiting capacity? (maybe your Fourth of July crowd can be a reference)
- What happens when the facility is full?

Traffic (A big REALITY)

- Traffic director
- What number of cars/people is your capacity?
- Designated parking areas
- Overflow parking
- Signs
- Handicap access
- Admission tickets?
- Shuttle Bus

From *Astronomy Magazine* March 2022, p.28
All things being equal, a town of 10,000 is more likely to have event-related problems than a city of 75,000. Small towns with one main road may suffer hours of gridlock. If you opt to travel to such a location, get there early, perhaps even a day or two ahead of the eclipse.
(Remember April 8, 2024 is a Monday, and most people will be free the entire weekend beforehand.)

Grounds

- Extra Trash Bins
- Turn off automatic lights, night watchers
- Extra areas to be mowed
- Signs, message boards
- Contact information for Person in Charge at the viewing site
- On-site announcements of events, location, times, and descriptions
- Cleanup plans at the site the day after

Bathroom Facilities (a REALITY and may become a CHALLENGE)

- Portable toilets
- Plenty of toilet paper (lack of said item can spoil any event)

Food Trucks

Are any permits required: to issue or to get

Website and social media announcements – a year in advance

Media kit for announcements

- Events planned
- Handouts for eye safety

Volunteers or staff

- Traffic directions
- Direct parking of cars
- Hand out eye safety sheets
- Tell people where activities and facilities are
- Handicap transport: golf carts, access ramps
- Advise drivers to turn their headlight switch off of automatic, so headlights don't come on during the eclipse (It happens if you have the switch on for the radio)

Community (can be a SUCCESS)

- If they are skeptical or ask "Why so early?"
  - Share traffic jam photos from 2017 eclipse
  - Share info about eclipse chasers and all the people who will come
- Motels sell out, consider B&Bs, home rentals, dormitories, campers, and alternate housing
- Landowners who have dry fields may want to set up camping areas
- Economic factors: in Casper WY 2017, visitors spent an average of $900 per person
- Visitors, whether from far away or local, will need other things to do
- Private development: outdoor dining, entertainment, restaurants
- Hospitality industries will need extra food, supplies, and staff
- Put out the welcome mat and red carpet!

Eclipse Specific:

- Meteorologist for weather prediction on the day of the eclipse
- Designated science person
  - Information about the exact time of the eclipse at that location
  - Explain terms like First contact, Diamond Ring, etc.
  - Tell visitors what effects to look for: Shadow Bands, tree leaf shadows
  - When it is safe to take off eclipse glasses and put them back on
- Create places for Group Photos and Selfies with signs or banners saying "Total Solar Eclipse, April 8, 2024"
- Souvenir certificate handout: "_____ Saw the Total Eclipse of the Sun." Include the name of your facility/ event and the April 8, 2024 date
- Consider placing a large world map in your visitor center where visitors can stick pins on their hometown locations
- Build pinhole projectors to show the progress of the eclipse
- Make a pinhole sign (see page 10) with your facility name and date – a photo opportunity to photograph the projected images as crescent suns
- In the event of clouds or rain, have large screen TVs to live stream the event

Web sites for reference
https://eclipse.aas.org/sites/eclipse.aas.org/files/Russo-White-Paper-Community-Eclipse-Planning.pdf

https://AR-Eclipse.info

Prepared by Carl Freyaldenhoven and Darcy Howard, Central Arkansas Astronomical Society
Updated 2/14/2022

If we can help you in any way feel free to contact us. We are volunteers and are enthusiastic about seeing the eclipse. We hope you are also excited to see it.
It is a rare event and an opportunity to witness one of nature's most awesome sights.

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Central Arkansas Astronomical Society, "Events" tab
https://www.caasastro.org/

https://ar-eclipse.info is a web site of the Arkansas Natural Sky Association, the Central Arkansas Astronomical Society, and the Arkansas Space Grant Consortium. On this web site you will find Community Planning, Times and Places, Observation Tips, History, and information about the ASGC.

A new section for the AR-Eclipse.info site is in progress, it will be called LEARNING ACTIVITIES. This guide is for **teachers**, with activities and additional explanations for **home schoolers, parents, scout leaders, park interpreters** and **other informal instructors.**

If your location is not on the website above, we can calculate the times of the eclipse at your facility's location, such as shown below.

Name of Site	Total Time in Eclipse	Beginning of Partial Phase CDT	Beginning of Totality CDT	End of Totality CDT	End of Partial Phase CDT
Arkansas River Visitor Center	4m 10s	12:33 p.m.	1:49:58 p.m.	1:54:08 p.m.	3:11 p.m.

How to View a Solar Eclipse Safely **EYE SAFETY**

A total solar eclipse is about as bright as the full Moon - and just as safe to look at. But the Sun at any other time is dangerously bright.

Looking directly at the Sun is unsafe **except** during the brief total phase ("totality") of a **total solar eclipse**, when the Moon entirely blocks the Sun's bright face, which happens only within the narrow path of totality. .

The only safe way to look directly at the **uneclipsed**, **partially eclipsed**, or **annularly** eclipsed Sun is through special-purpose solar filters, such as "eclipse glasses" (rated ISO 12312-2) or handheld solar viewers. Homemade filters or ordinary sunglasses, even very dark ones, are not safe for looking at the Sun; they transmit thousands of times too much sunlight.

Instructions for safe use of solar filters/viewers:

Always inspect your solar filter before use; if scratched, punctured, torn, or otherwise damaged, discard it. Read and follow any instructions printed on or packaged with the filter.

Always supervise children using solar filters.

If you normally wear eyeglasses, keep them on. Put your eclipse glasses on over them, or hold your handheld viewer in front of them.

Stand still and cover your eyes with your eclipse glasses or solar viewer before looking up at the bright Sun. After looking at the Sun, turn away and remove your filter — do not remove it while looking at the Sun.

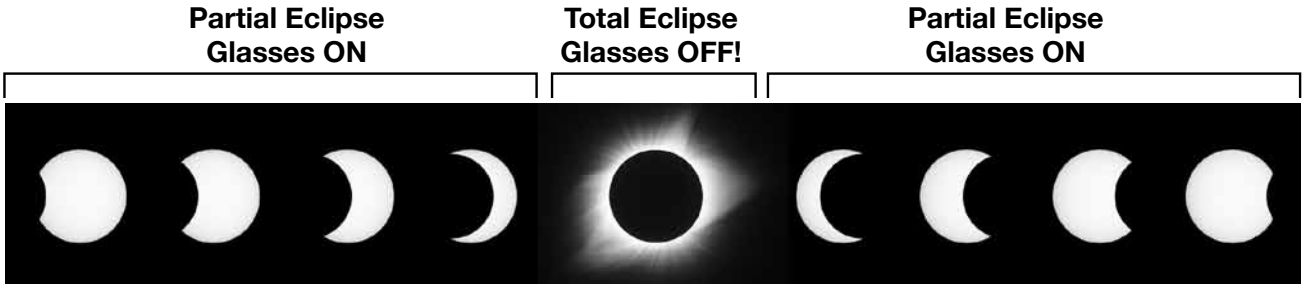
Do *not* look at the uneclipsed, partially eclipsed, or annularly eclipsed Sun through an unfiltered camera, telescope, binoculars, or other optical device.

Similarly, do *not* look at the Sun through a camera, telescope, binoculars, or any other optical device while using your eclipse glasses or handheld solar viewer — the concentrated solar rays could damage the filter and enter your eye(s), causing serious injury.

Different rules apply when viewing or imaging the Sun through camera lenses, binoculars, or telescopes; consult an expert astronomer before using a solar filter with any type of magnifying optics.

If you are inside the path of totality on **April 8, 2024**, remove your solar filter only when the Moon completely covers the Sun's bright face and it suddenly gets quite dark. Experience totality, then, as soon as the bright Sun begins to reappear, replace your solar viewer to look at the remaining partial phases. Note that this applies only to viewing without optical aid (other than ordinary eyeglasses).

Outside the path of totality, and throughout a partial or annular solar eclipse, you must **always** use a safe solar filter to view the Sun directly.



This safety information has been endorsed by the American Astronomical Society, the American Academy of Ophthalmology, NASA, the American Academy of Optometry, the American Optometric Association, and the National Science Foundation.

https://eclipse.aas.org/eye-safety

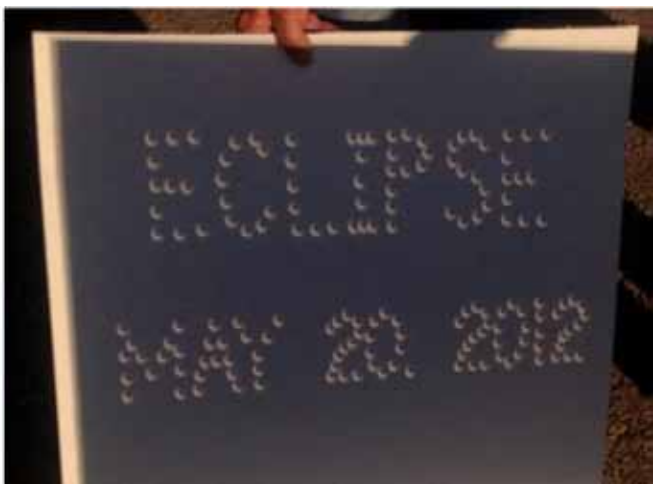
Prepared by D. Howard and C. Freyaldenhoven, Central Arkansas Astronomical Society 11-4-2021

Set up Photography Opportunities

Making a pinhole projector is a safe way to view the progress of the eclipse. Set up photography stations for your visitors to make pictures of the crescent sun. Include the date and the name of your facility.

Poster board or heavy index card stock works well to make holes in. Print pages 11 and 12 for guides. Tape the paper guide to the poster board and use a punch to make holes. Hold the page in front of another piece of poster board. The shadows and projected images spell out the message in small crescent images of the sun. Remember to turn the flash off or the flash will make the images disappear. Take photos, note the time, and repeat before and after totality.

Many varieties of pinhole projector projects can be found online.



Materials needed: a 3/16 hollow punch (available from local hardware stores or online), a mallet, a coat hanger for cleaning dots out of the punch, a magazine to protect your work surface, some tape, poster board, and a copy of this page for the pattern.

Tape your pattern on to the poster board. Make holes where the circles are using the punch and hammer. A good, clean circle will make a better image than a rough cut edge. Be sure to protect your work surface with an old magazine.

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ECLIPSE

APRIL 8

2024

This page can be enlarged to Poster Size 22” x 18”