

A PSCS Newsletter

# Eclipse Edition



## **Cookie Monster Taking a Bite Out of the Sun?**

The Great American Eclipse 2024!

On Monday, April 8, 2024 we will have the opportunity to experience a natural phenomenon that won't be seen again for 20 years. A total eclipse of the Sun will be viewable on a narrow path from Texas to New York. Charlotte, isn't in the path of totality, but we will have the opportunity to experience 83% of the Sun being blocked by the Moon.

### **What is a Solar Eclipse?**

A solar eclipse happens when the Moon passes between the Sun and Earth. If the Moon only blocks part of the Sun's light, we see a partial solar eclipse. When the Moon blocks all of the Sun's light, it is called a total solar eclipse.

As the Moon blocks the Sun's light, a shadow is cast on part of the Earth. The Moon's shadow creates a trail as Earth rotates. This trail is called the path of totality. If you are in the path of totality, you will experience total darkness for a few minutes during the eclipse. When the Moon blocks the Sun's light, the atmosphere of the Sun called the corona can be seen! The eclipse gives scientists and us the opportunity to see the streams and ribbons of the corona.

### **How do animals react?**

Animals often react to a total eclipse by starting their nightly routines. Birds nest or roost, frogs begin their evening croaking, crickets chirp, spiders will begin spinning webs, cicadas will go silent, and horses will often cluster together. What animal behaviors will you observe during the 2024 Solar Eclipse? Share your observations on social media and tag #pioneerssprings

### **What will we see in Charlotte?**

The simplest comparison would be to imagine Cookie Monster eating increasingly bigger bites of the sun. When he is full, Cookie Monster leaves a small crescent shaped piece for later. Once 83% of the sun is covered the moon will continue its path and the Sun (cookie) will appear to slowly increase back to normal shape and size. To get a preview of what the eclipse will look like in Charlotte, visit [eclipse2024.org](https://eclipse2024.org). The website has an eclipse simulator that will show the eclipse from cities across the country.

### **When will the Eclipse be visible?**

The eclipse will begin to be visible at about 1:54pm and continue until its peak at 3:12pm.

## Is it safe to watch the eclipse?

Looking at the sun without proper protection, however briefly and however much of it is blocked by the moon, can cause permanent damage to the retina. Don't be tempted, even for a second. The safest ways to view the eclipse are with specifically designed glasses that contain lenses that are specifically designed to view a solar eclipse. Many people may still have eclipse glasses laying around from the eclipse in 2017. If ordering eclipse glasses please be sure that they are certified and meet international safety standards.

Looking through cameras, telescopes, or binoculars without specifically designed solar filters **will instantly cause severe eye damage!**

A popular way to view the eclipse without looking directly at the sun is to build a pinhole camera viewer. Pinhole viewers are a fun STEM project to complete before the eclipse. They can be made utilizing materials easily found around the house. Not only are pinhole camera viewers a great way to experience the eclipse, they are also a great way to learn about photography.

## Use Nature!

Families can also view the eclipse by using nature. Find a shady spot and watch as the eclipse shadows change over the course of the event. Instead of the one shadow that a standard pinhole projector creates, you can view hundreds by standing under a tree.



## Ancient Beliefs on Total Solar Eclipses

### Chinese and Vietnamese

Chinese and Vietnamese believed long ago that it was demons who ate the sun!

### Hindy

Also believed that demons ate the sun as well. They actually believed by banging on pots and pans they could cause the demon to be frightened away!

### Bear-eating Sun

North Americans had a legend of a bear who got into a fight with the sun, and actually took a bite out of the sun! (Went on to fight with the moon as well, causing lunar eclipse which is the opposite of a solar eclipse).

## Italy

In modern day Italy, people believe that planting flowers during an eclipse can ultimately lead to the flowers blooming brighter than usual and more colorful!

### Time for Reconciliation

Some believed the people on earth had to resolve their differences in order for the moon to unblock the sun.

### Don't Go Outside!!

Even today, some people believe it is bad luck for women who are pregnant as well as children to go outdoors during a solar eclipse.

## India

People in India believe any food cooked during a solar eclipse could possibly be poisoned!

**This** resource also gives different myths and misconceptions about solar eclipses as Jordan Hill gives them in a storytelling format. This is a great way for students to learn about different myths as it is a different format than just research on the subject. There is a video and short description for each story. He is very engaging and I think your students would enjoy this!

### References:

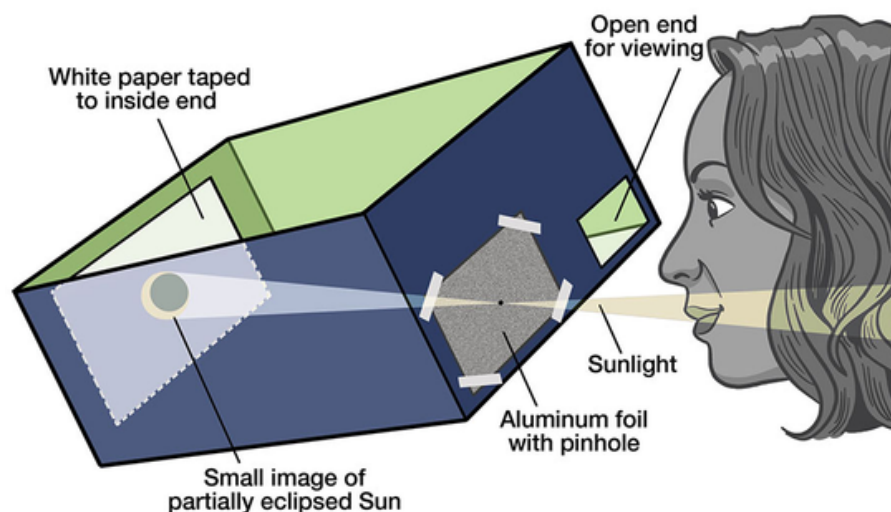
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Lee, Jane J. "Solar Eclipse Myths From Around the World." National Geographic. National Geographic Society, 2 Nov. 2013. Web. 10 June 2016.

"Solar Eclipse Myths." And Superstitions. Time and Date, n.d. Web. 10 June 2016.

## Pinhole Viewer Project Directions



1. Use a shoe box or a long cylindrical or triangular tube that a mailing service might use to mail rolled up posters or prints. The longer the box, the bigger the image will be. To make a longer box, you can tape together two boxes and just remove the dividing wall between them.
2. Now cut a hole in one end of the box and tape a piece of aluminum foil over the hole.
3. With a pin, make a small hole in the middle of the aluminum foil.
4. Tape a piece of white paper to the opposite end of the box. This is where the image will be.
5. Cut a large rectangular hole on one side of the box so you can look at the image projected from the pinhole to the opposite side (see diagram). If the shoe box has no cover, the open side can be your viewing portal.
6. Stand with the Sun behind you. Point the pinhole end of the box toward the Sun until, looking through the opening on the side, you see an image of the Sun on the opposite end from the pinhole. The longer the box is, the larger the image of the Sun will be.
7. Be careful not to look at the Sun! The idea is to have the pinhole pointing at the Sun and your eyes pointing at the image in the opposite direction.
8. This method doesn't show you much detail, but it is useful during a partial eclipse to see the "bite" the Moon takes out of the Sun

Did you build a camera or use nature to observe the eclipse? If so, share on social media and tag #pioneerssprings.



Annie Dillard's essay, '[Total Eclipse](#)', is a compelling and thought provoking description of experience an eclipse