

# Spanish Language Eclipse Resources

Bilingual English/Spanish Resources for Creating Solar Science Programming at Your Library



The webinar will begin at 11 am MT and will be recorded



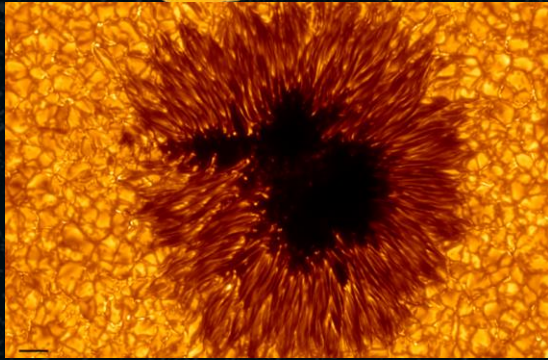
# Agenda

- Introduction/Icebreaker
- Resources for the public
- Bilingual hands-on activities
- STEM Tools
- Q&A

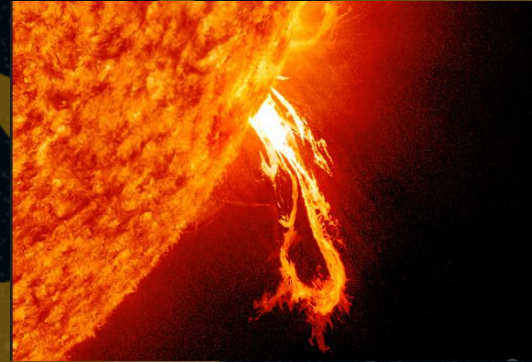




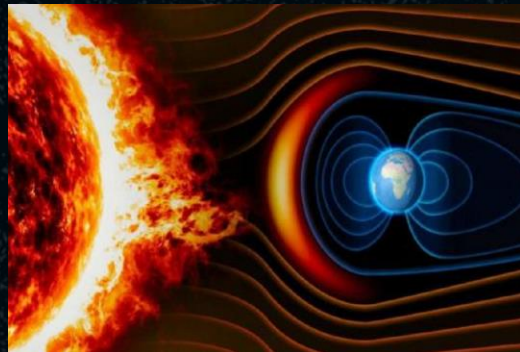
# Icebreaker: What solar feature do you feel like today?



1. Sunspot: (relatively) cool, calm, and collected; embracing change and transition



2. Solar Prominence: showy and bright, while also feeling grounded and connected



3. Coronal Mass Ejection: powerful and influential; ready to mess things up!



4. Sun's Corona: Gassy and Sassy. You won't let anybody's shadow dim your light.



# Resources for the Public





**Total Eclipse of the Sun: Fiske Planetarium, Boulder CO**





*La STAR Library Network presenta*

# **ECLIPSES SOLARES de 2023 y 2024**

Un “doble título” norteamericano

Una guía para las bibliotecas  
públicas y sus comunidades





# Bilingual Hands-on Activities





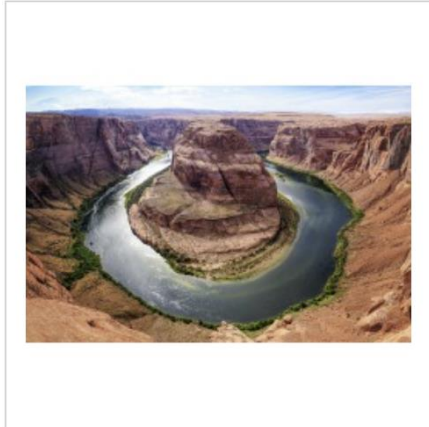
# STEM ACTIVITY Clearinghouse

STAR★net

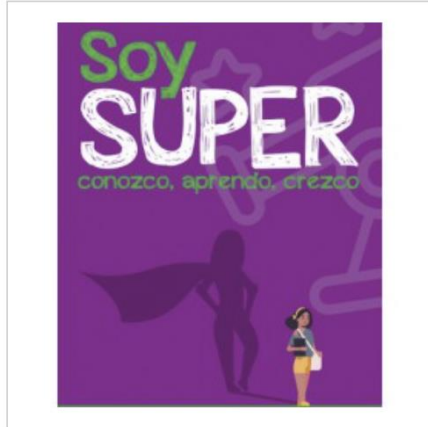
[www.clearinghouse.starnetlibraries.org](http://www.clearinghouse.starnetlibraries.org)



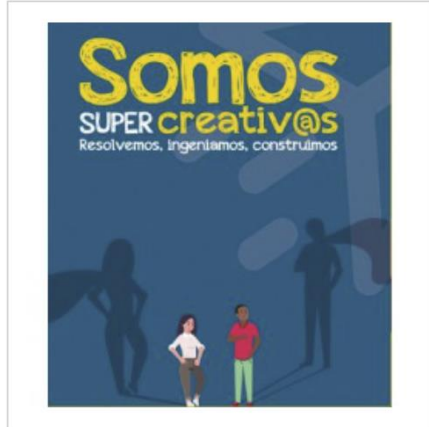




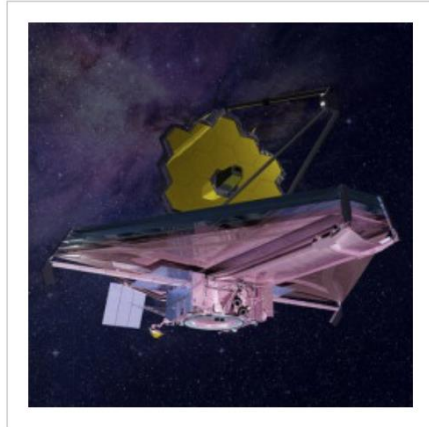
We Are Water



I'm Super



We're Super Creative



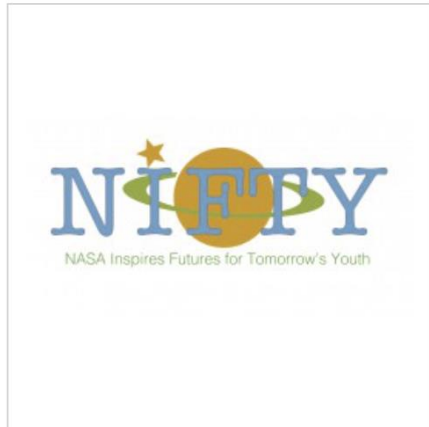
Look Up! Explore Our Universe



Moon, Mars, and Beyond



Solar Eclipse Activities for Libraries



NASA Inspires Futures for Tomorrow's Youth

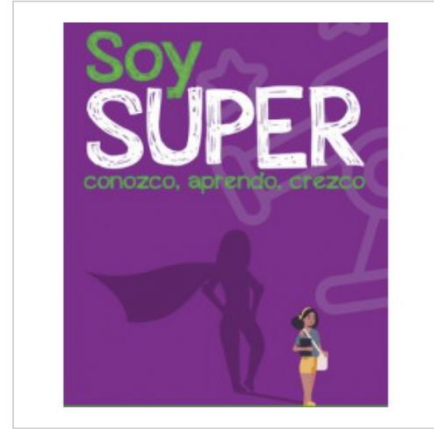


Discover Exoplanets

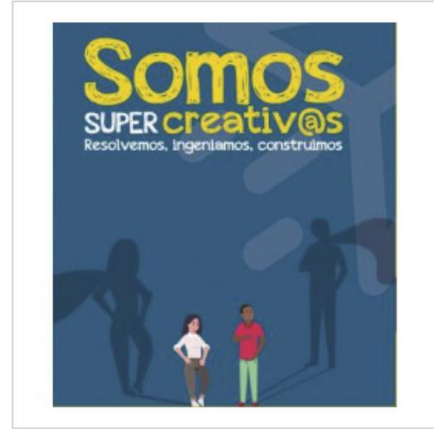




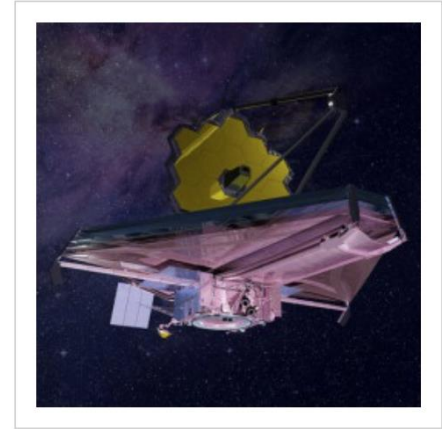
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Solar Eclipse Activities for Libraries



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Discover Exoplanets

# Big Sun Small Moon

# Sol grande, luna pequeña

- Demonstration of how size, distance, and perspective create eclipses
- Two learners, a plate, and a large coin
- Find the exact distance one learner needs to move away from the other so that the coin “eclipses” the plate

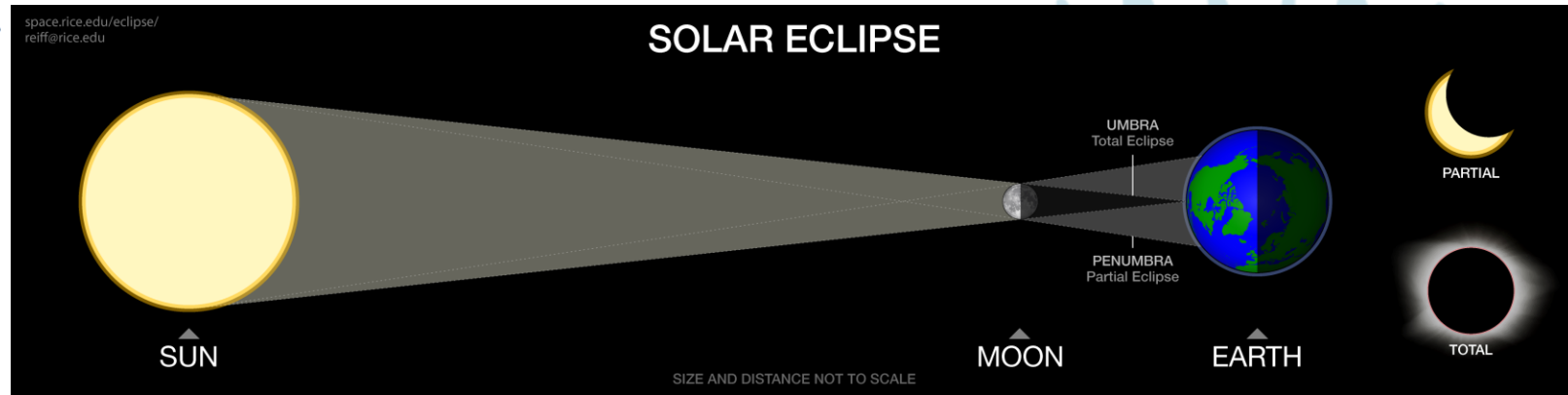




# Big Sun Small Moon

# Sol grande, luna pequeña

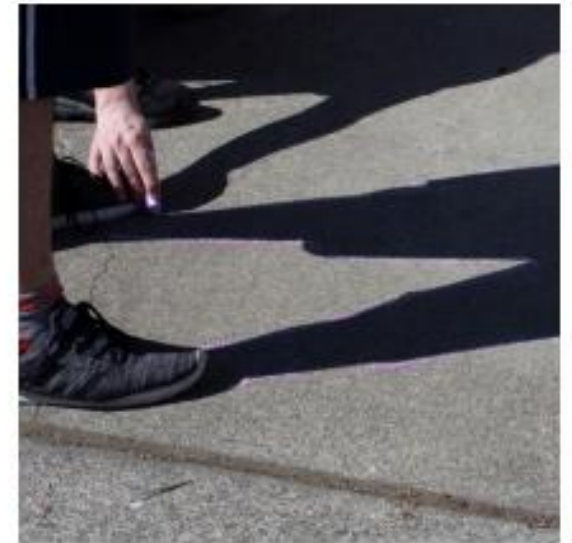
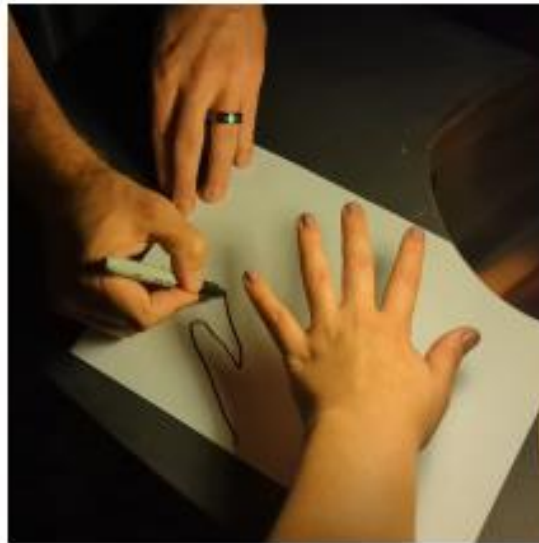
- Demonstration of how size, distance, and perspective create eclipses
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# Shadow Tracing

## Trazando sombras

- Indoor or outdoor activity
- Track the movement of shadows as the sun or light changes position
- Pair with Big Sun Small Moon to show how time and position together create eclipses on the Earth's surface





# Eclipse Chalk Art

## Eclipse arte de tiza

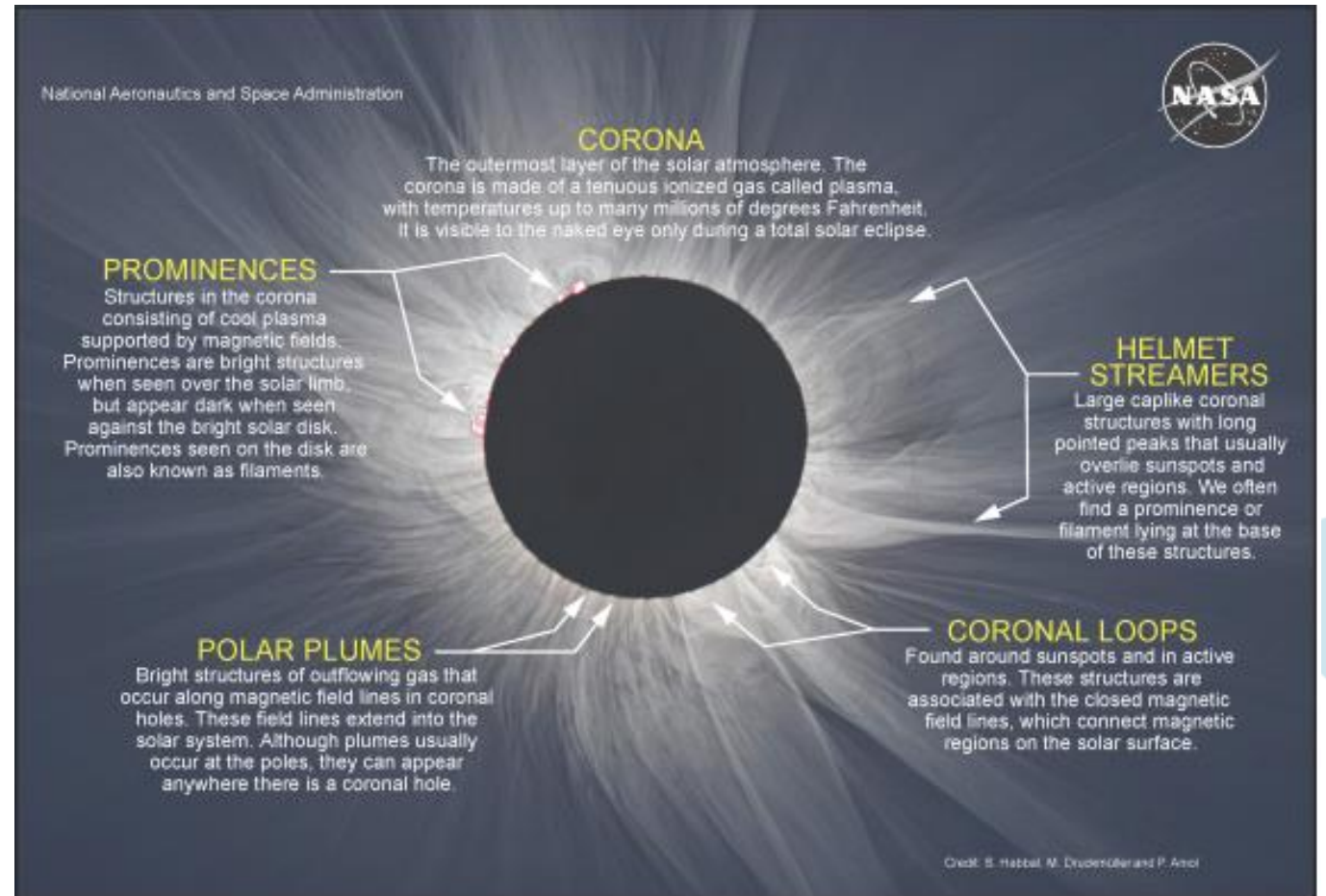
- Use chalk and paper to create art of a total eclipse
- Materials
  - Chalk
  - Pencil
  - Scissors
  - Tape
  - Cardstock for template
  - Paper for art



# Eclipse Chalk Art

# Eclipse arte de tiza

Create different types of coronal features!





# Build a Sizzling Solar Oven

# Contruya un horno solar



## Reflection

The foil lining of your solar oven reflects and concentrates the light energy from the sun.



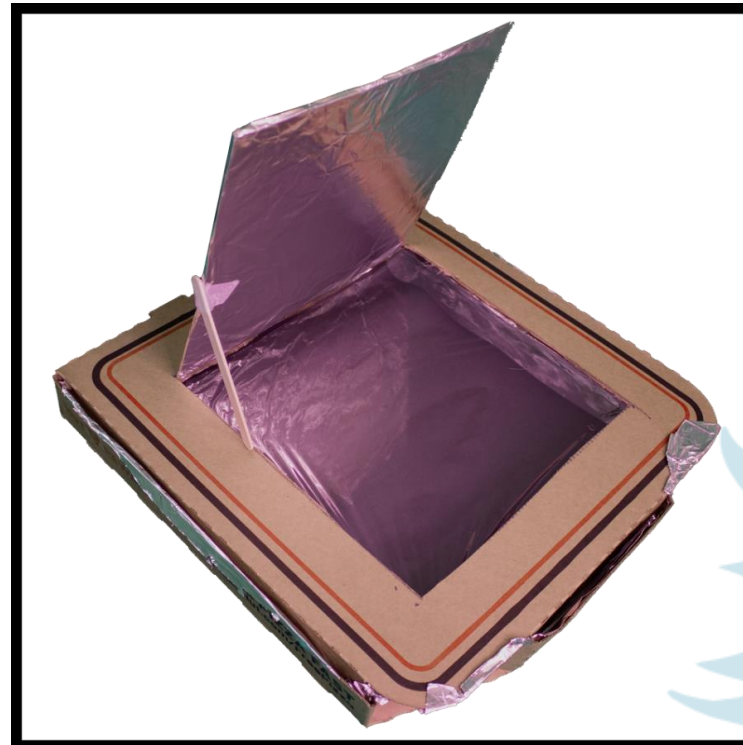
## Absorption

The black paper at the bottom of your solar oven acts as a heat sink, absorbing the solar energy and allowing it to become heat or infrared energy that cooks your food.



## Retention

The plastic film that covers the opening of your solar oven not only allows light to be absorbed but also prevents heat from escaping.



## Solar Oven Materials

Pizza box or similar box with a hinged lid

Something to prop open solar oven lid (ruler, craft sticks, etc.)

Foil

Something sharp enough to cut pizza box (scissors, craft razor, etc.)

Plastic Wrap

Glue

Tape

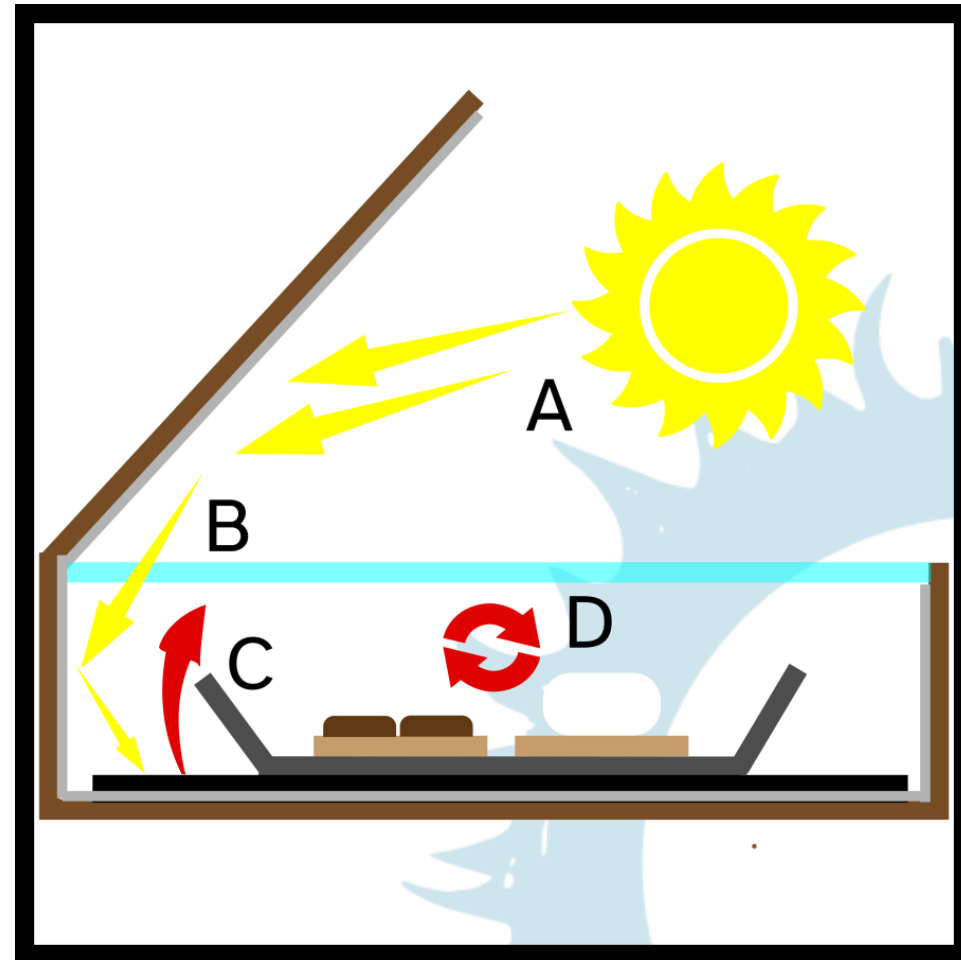
Pie tin or cooking dish (line with parchment to save mess)



# Build a Sizzling Solar Oven

Contruya un  
horno solar

- A. Sun's energy reflects off foil
- B. Foil refracts light in oven
- C. Black paper converts energy to heat
- D. Heat trapped in oven cooks food





# Build a Sizzling Solar Oven

# Contruya un horno solar

- 3 recipes
  - Nutty for Solar Science Cookies
  - Sun-baked S'mores
  - Tortilla Eclipse Quesadillas
- Printable recipe cards for each

## Nutty for Solar Science Cookies

### Ingredients:

- 1 Banana (the riper the better)
- $\frac{1}{2}$  cup oats
- $\frac{1}{4}$  cup nut butter (peanut butter, sunbutter, almond butter, etc.)
- $\frac{1}{3}$  cup chocolate chips

### Ingredients



### Instructions:

1. In a mixing bowl, smash the banana until the banana is completely turned to mush.
2. Mix the nut butter into the mashed banana until the nut butter and banana are combined.
3. Stir in the oats and chocolate chips.
4. Spoon your cookie mixture onto your solar oven cooking dish or pie tin, making each cookie about the size of a golf ball.
5. Move your cooking dish or pie tin to your solar oven. Your cookies are done when they are firm and the chocolate chips are all melty!





# Build a Sizzling Solar Oven

# Contruya un horno solar

- 3 recipes
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## Galletas de nuez por ciencia solar

### Ingredientes:

- 1 plátano (cuanto más maduro mejor)
- ½ taza de avena
- ¼ taza de mantequilla de nueces (mantequilla de maní, mantequilla de girasol)
- 1/3 taza de chispas de chocolate

### Ingredientes



### Instrucciones:

1. En un tazón, triture el plátano hasta que se convierta completamente en papilla.
2. Mezcle la mantequilla de nuez con el puré de plátano hasta que la mantequilla de nuez y el plátano se mezclen.
3. Agregue la avena y las chispas de chocolate.
4. Vierta la mezcla de galletas en la fuente de cocción del horno solar o en el molde para pastel, haciendo que cada galleta tenga el tamaño de una pelota de golf.
5. Mueva su plato de cocina o molde para pasteles a su horno solar. ¡Tus galletas estarán listas cuando estén firmes y las chispas de chocolate estén todas derretidas!

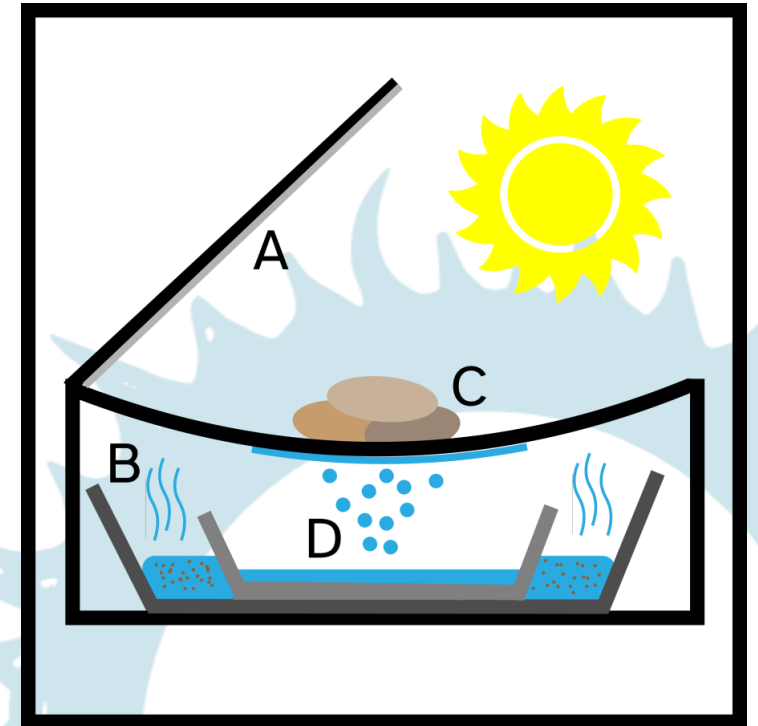




# Build a Sizzling Solar Oven

## Contruya un horno solar

- Solar still extension
- Great for cloudy days where sun is not enough to cook food
- Stones concentrate condensation so evaporated water from dirty container drips into clean container



# Make a Protective Case for Your Solar Viewing Glasses

Bicolaje estuche  
protector para  
sus gafas  
visión solar

- Template for patrons to make a personalized protective case to keep their Solar-Viewing Glasses safe
- Opportunity to discuss safe viewing
- Commemorative and connects the two eclipse events



staple staple

Put glasses in a safe place to view the solar eclipses on:

Saturday, October 14, 2023 Monday, April 8, 2024

The diagram illustrates the sequence of solar eclipses for two dates. For Saturday, October 14, 2023, it shows a sequence of five crescent moons, with the third being a solid black circle representing a total eclipse. For Monday, April 8, 2024, it shows a sequence of four crescent moons, with the third being a stylized eye with a black pupil and blue iris, representing an annular eclipse.



# Make a Protective Case for Your Solar Viewing Glasses

Bicolaje estuche  
protector para  
sus gafas  
visión solar

- Can be passive or part of a program for all ages
- Low-cost, printable materials



staple staple

Put glasses in a safe place to view the solar eclipses on:

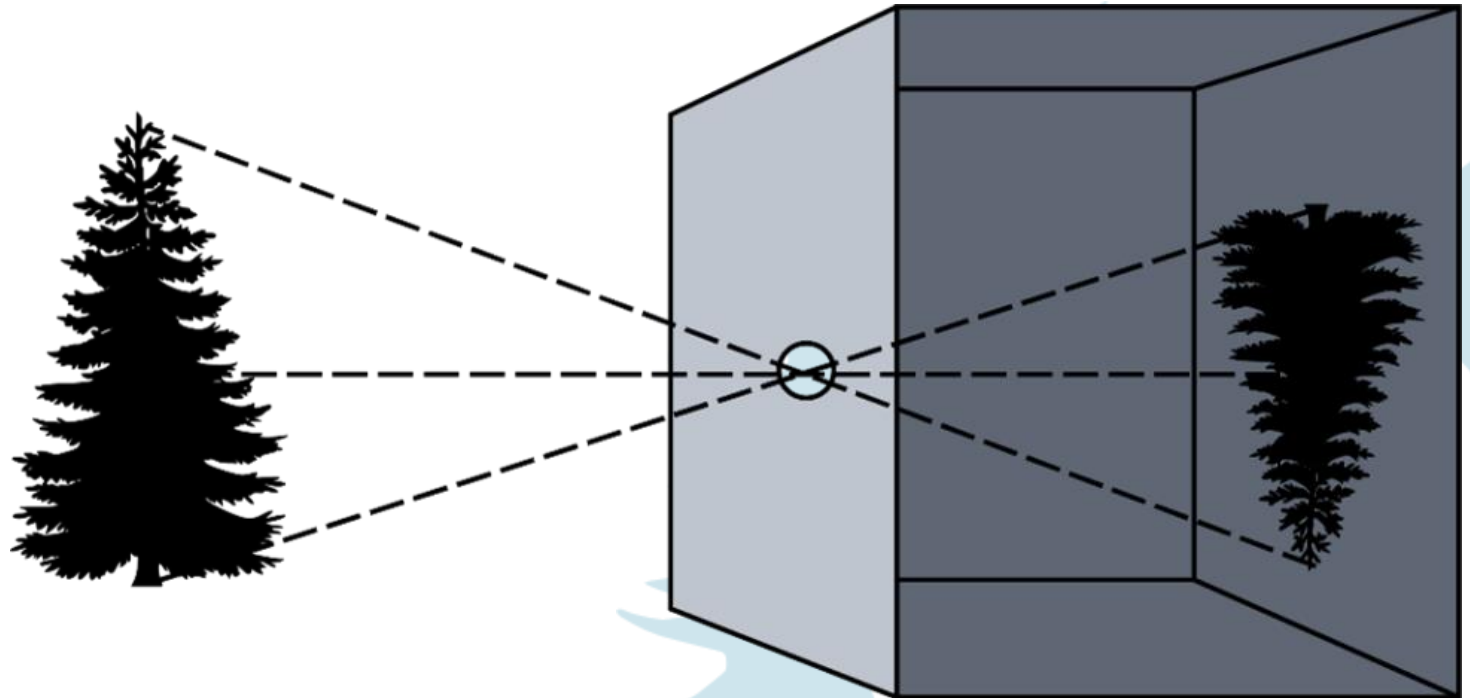
Saturday, October 14, 2023      Monday, April 8, 2024

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# Guide to Building Solar Eclipse Viewers

## Guía para construir visores de eclipses solares

- Create a “camera obscura” projector out of any box
- Materials required: box, scissors, paper, foil, tape





# Guide to Building Solar Eclipse Viewers

## Guía para construir visores de eclipses solares



Projection Screen



Aperture



Viewing Window

- Three essential parts of pinhole viewer
- Create many different designs from any box



# Guide to Building Solar Eclipse Viewers

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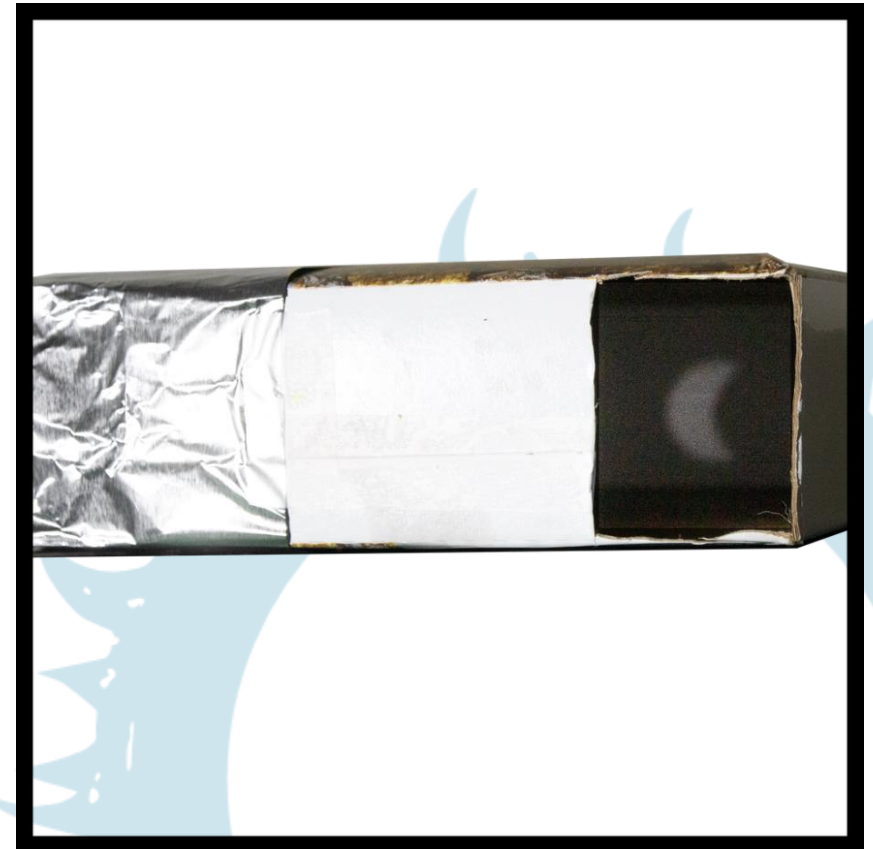


Aperture



Viewing Window

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# Guide to Building Solar Eclipse Viewers

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Projection Screen



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Viewing Window





# Sorting Games: How Big, How Far, How Hot?

Juegos de  
clasificación:  
¿Qué tan  
grande? ¿Qué  
tan lejos? ¿Qué  
tan caliente?

- Work together to sort the cards in order of:
  - Green border = size (smallest to largest)
  - Blue border = distance (closest to farthest from Earth)
  - Red border = temperature (coldest to hottest)



**Sorting Games:  
How Big,  
How Far,  
How Hot?**

**Juegos de  
clasificación:  
¿Qué tan  
grande? ¿Qué  
tan lejos? ¿Qué  
tan caliente?**



Discuss: what is the order of these objects from smallest to largest?



# STEM Tools





# Maya Constellation cards

## What do you see in the sky?

This Maya constellation from the Guatemalan highlands is the *Seven Macaw* (*Big Dipper in Greek Mythology*).

7 bright stars make up the body and tail of Seven Macaw, a bird who is arrogant and brags about his dazzling light.

In the Guatemalan highlands, the constellation disappears below the horizon for part of each night due to the tilt of Earth's axis.

According to Popol Wuj, the Maya origin story, the disappearance of the constellation symbolizes how the hero twin (*the Sun and the Moon*) punishes arrogance by taking away his



## ¿Qué ves en el cielo?

Esta constelación maya del altiplano guatemalteco es la *Siete Guacamayo* (*Osa Mayor en la mitología griega*).

7 estrellas brillantes componen el cuerpo y la cola de Siete Guacamayo, un pájaro que es arrogante y se jacta de su deslumbrante luz.

En el altiplano guatemalteco, esta constelación desaparece bajo el horizonte parte de cada noche debido a la inclinación del eje de la Tierra.

Según Popol Wuj, la historia de origen maya, la desaparición de la constelación cada noche simboliza cómo los gemelos héroes JunAjpu' y Xb'alamke (*el Sol y La Luna*) castiga a Siete Guacamayo por su arrogancia quitándoles su luz brillante.

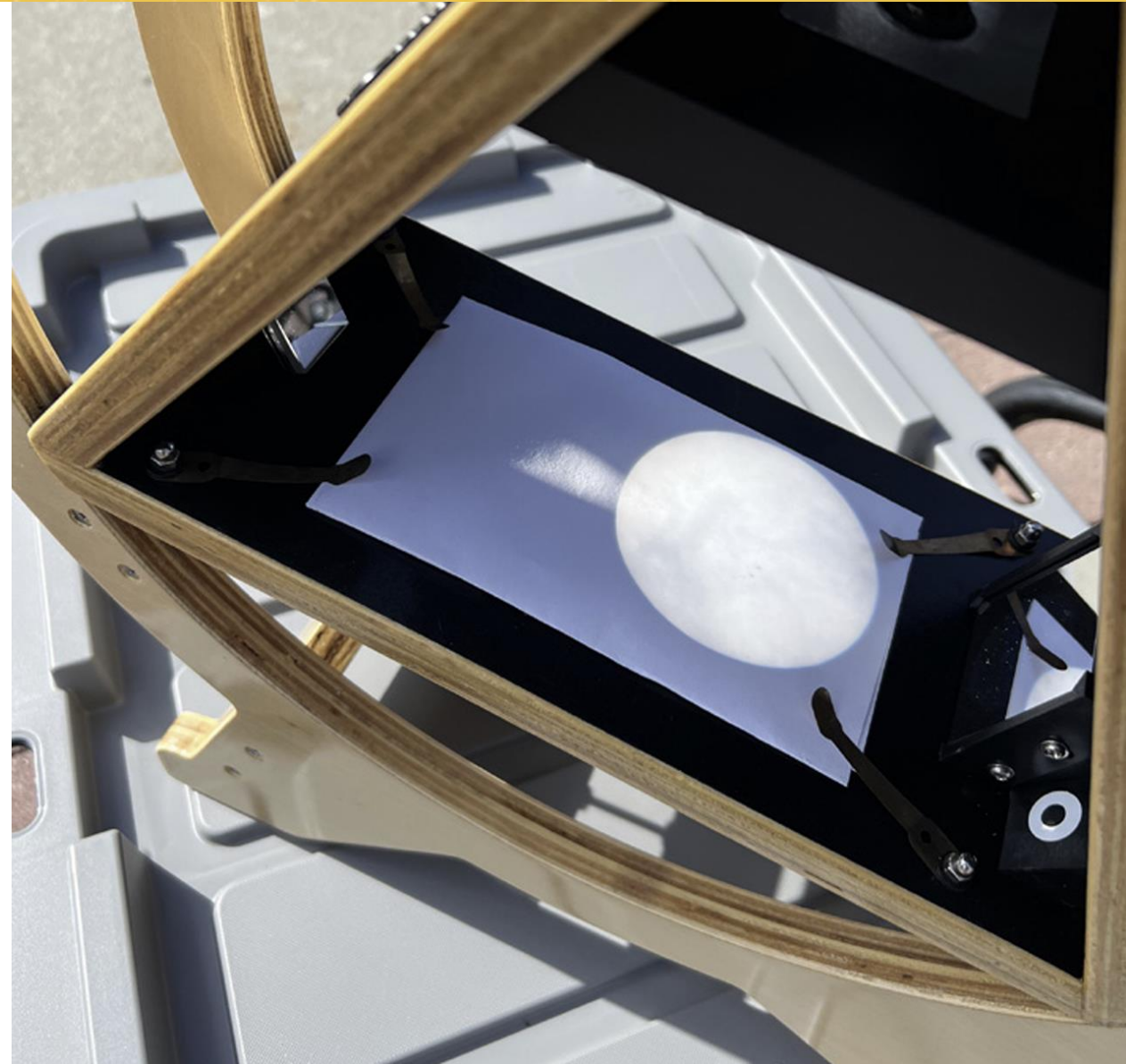


Siete Guacamayo





# Instrucciones de Sunspotter





Q&A

