



MUSEUM OF
NATURAL HISTORY
AND PLANETARIUM
Roger Williams Park

The Sun: Our Living Star Full-Dome

A Pre-Visit Information Guide for Teachers

NGSS: MS-ESS1-1-3, HS-ESS1-1-4

ABOUT THE CORMACK PLANETARIUM

- The ASH Warped Media fulldome projector system surrounds audiences with 360-degree digital visuals on the dome.
- In a planetarium, objects in the universe are projected, as they exist at any time in space.
- These celestial objects are projected onto a dome-shaped ceiling so it appears that one is looking up into the night sky.
- Our Star Projector is capable of displaying images of over 7,000 stars...many more than anyone can see without the aid of a telescope. Planets, comets, satellites and the Milky Way and Andromeda Galaxy can also be projected.

THE SUN: OUR LIVING STAR

The Sun has shone on our world for four and a half billion years. The light that warms our skin today has been felt by every person who has ever lived.

It is our nearest star and our planet's powerhouse, the source of the energy that drives our winds, our weather and all life.

The passage of the Sun's fiery disc across the sky — day by day, month by month — was the only way to keep track of time for countless past civilizations.

Don't be fooled by the terminology; although it is a typical dwarf star, the Sun consumes 600 million tons of hydrogen each second and is 500 times as massive as all the planets combined.

Discover the secrets of our star in this planetarium show and experience never-before-seen images of the Sun's violent surface in immersive fulldome format.

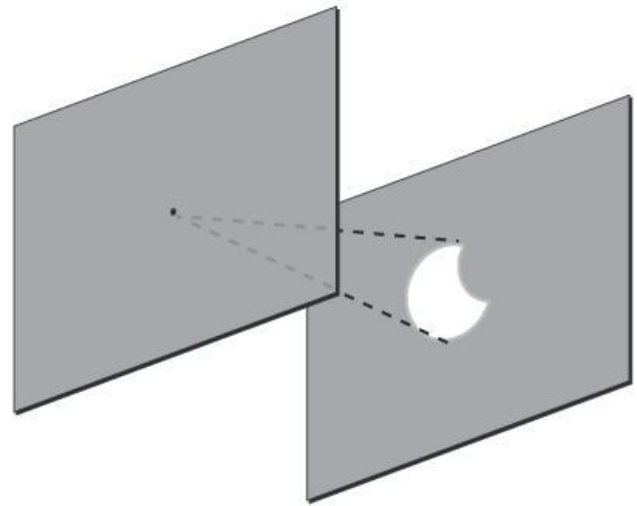
SUGGESTED CONCEPTS TO REVIEW INCLUDE

Aurora	Coronal Mass Ejection (CME)	Plasma
Chromosphere	Magnetosphere	Spectrum
Corona	Photosphere	Sunspot

ACTIVITIES

Teachers are encouraged to conduct pre-visit and post-visit classroom discussions and activities with their classes to make the most of their experience. There are several ways you can observe the Sun, and hopefully sunspots, for yourself. The easiest and safest is to project the Sun by building your own pinhole camera. If you have a telescope, you will have to equip it with a solar filter or use a solar telescope that you can access via the Web.

1. With the pin, punch a hole in the center of one of your pieces of paper.
2. Go outside, hold the paper up and aim the hole at the Sun. (Don't look at the Sun either through the hole or in any other way!)
3. Now, find the image of the Sun that comes through the hole.
4. Move your other piece of paper back and forth until the image rests on the paper and is in focus (i.e., has a nice, crisp edge). What you are seeing is not just a dot of light coming through the hole, but an actual image of the Sun.



Experiment by making your hole larger or smaller.

What happens to the image? What happens when you punch two holes in the piece of

paper? Try bending your paper so the images from the two holes lie on top of each other. What do you think would happen if you punched a thousand holes in your paper, and you could bend your paper so all the images lined up on top of each other? In fact, optical telescopes can be thought of as a collection of millions of "pinhole" images all focused together in one place! You can make your pinhole camera fancier by adding devices to hold up your piece of paper, or a screen to project your Sun image onto, or you can even make your pinhole camera a "real" camera by adding film.