

Solar Eclipse April 8th, 2024

About the Total Solar Eclipse on April 8, 2024:

- While astronomically speaking, eclipses happen often, these events are SUPER rare to see in your own backyard.
- It's been over 200 years since last seen in Cleveland (1806).
- The next experience of totality in Cleveland will be in 2444! Parts of Ohio will see an eclipse in 2099 (just not Cleveland), and you can see all other future eclipses to pass through the US here: https://nationaleclipse.com/maps/usa_21st_century.html
- Why are total solar eclipses so rare to experience firsthand? Well, everything has to line up and be timed *just* right! Here's a great resource to check out to learn more: <https://www.timeforkids.com/g56/solar-eclipses/?ri=en-1>
- Cleveland is in the path of totality - meaning we will be in the shadow the moon will cast on the earth!
- It will start to get dark hours leading up to the event. At 1:59:23pm, the eclipse will officially begin!
- **Totality starts at 3:13:46pm and ends at 3:17:35pm. The moon will be covering the sun for just those 3.5 minutes, with maximum coverage at 3:15:41pm.**
- But it doesn't end there! The moon keeps moving past the sun, ending the eclipse completely at 4:29:00pm.
- We will experience total darkness during totality - *even if it's cloudy!* The temperature will drop, too!

Safety:

- Protect your eyes.
 - Each HB student is provided with 1 pair of approved eclipse glasses. If sharing glasses, tilt your head fully down away from the sun to remove and put on glasses. If ordering more glasses for family members, check that they are ISO certified to block out the appropriate amount of light to be safe. The American Astronomical Society has recommended manufacturers (<https://eclipse.aas.org/eye-safety/viewers-filters>) from which you can order.
 - <https://www.greatamericaneclipse.com/eclipse-viewing/eclipse-viewing-glasses>
 - https://www.adorama.com/cnecsg.html?nrtv_cid=cf0d90ba6b4a8b269ffcea29093835d48e958ea18a28e19f742cb602d54a74a&utm_source=Howl&nrtv_as_src=1
 - https://www.bhphotovideo.com/c/product/1750787-REG/american_paper_optics_eclipbp_solar_eclipse_glasses.html
 - Starting at 1:59pm, DO NOT LOOK UP AT THE SUN WITHOUT CERTIFIED EYE PROTECTION. It is *more* dangerous than looking at the sun on a normal cloudless day!

- You might not feel pain looking at the sun, but it will cause long-term vision damage down the road.
- Between 3:13pm-3:17pm during totality, you can safely remove your glasses. The safest way to do this is to wait until totality is reached, turn your head and eyes down, away from the sun, remove your glasses, and then look back up. Remember to put your glasses back on **before** totality ends!
- Consider using a pinhole camera or other device to indirectly view the eclipse, especially if you do not have proper glasses.
- Welding masks work, too!
- NASA provides additional safety information:
<https://science.nasa.gov/eclipses/future-eclipses/eclipse-2024/safety/>
- Remember to follow regular sun safety - sunscreen, hat, drink water... especially if you will be out viewing for the entire 2.5 hours of the eclipse!
- Avoid roadways.
 - Northeast Ohio is anticipating over a million visitors flocking to our area to view the eclipse! This means more traffic.
 - It is NOT safe to drive during the eclipse due not only to the changes in lighting, but distracted drivers.

Fun Facts:

- Animals will also react to the event (darkness is a shock).
- Solar eclipses will come to an end. In about 600 million years, due to tides on Earth and the slowing down of the Earth's rotation, the moon will be too far away from the Earth to cover the sun, thus bringing an end to solar eclipses.
- The element helium was discovered on 18 August 1868 by the French astronomer Jules Janssen (1824-1907) when he observed the spectrum of the Sun during a total eclipse in India. Helium is the second most abundant chemical element in the Universe and it was first discovered in the Sun, hence the name "helium" from helios.
- Light filtering through leaves on trees casts crescent shadows as totality approaches.
- Talk about a Trailblazer! Among the scientists drawn to the "Great American Eclipse" of 1878 was a woman who fought in vain to open her profession to others. Read about her here: <https://undark.org/2017/08/17/wilo-maria-mitchell-astronomer-eclipse/>
- Many ancient cultures kept records of eclipses and how these events impacted their social, religious, and political lives. To learn more, check out: <https://www.vox.com/culture/2017/8/18/16078886/total-solar-eclipse-folklore>
- There are many other kinds of eclipses, and they're all pretty cool! To learn more, check out: <https://www.exploratorium.edu/eclipse/three-kinds-solar-eclipses>

What are we doing at HB ahead of the Eclipse?

- Eclipse Models in the atrium
- Make your own Pinhole viewer during X/Lab - with help of Upper School Science Teachers
- Morning Meetings (Upper School)
- 1st Grade Presentation to Prime
- Some teachers are embedding the eclipse into their curriculum and class activities.
- HB Chosen to Participate in Einstein's Incredible Universe Project: HB was one of 19 organizations chosen to participate in citizen science investigations leading up to and during the April 8, 2024 total solar eclipse. The program is part of Einstein's Incredible Universe project distributed by Cosmic Picture, and funded in part by the National Science Foundation. HB's team, represented by Raina Vakharia '25, Maria Flauto '26, and McKenzie Whaley '26, will receive equipment and training to scientifically analyze the sun's inner corona, and will contribute their astrophysical data for scientific study.