

Total Solar Eclipse Provides Unique Teaching Opportunities

On the afternoon of August 21, 2017 a total solar eclipse will be visible through much of the United States. While your students are in class on that Monday afternoon the sky will go dark for several minutes and the day will seem as night.

The “path of totality” cuts a diagonal line from Salem, Oregon to Columbia, South Carolina. The point in the country with 100% eclipse for the longest duration is near Hopkinsville, Kentucky. The town will be hosting a number of eclipse events throughout the weekend of August 18-21. Many eclipse resources are available on the Hopkinsville eclipse website - <http://www.eclipseville.com/>. Most of West Virginia will experience 80-93% total eclipse depending on your location. In any case, there will be a significant eclipse event for us around 1:30 pm on Monday, August 21. This is first total solar eclipse visible in the United States since March 7, 1970 and we won't have another one until April 8, 2024.

This eclipse is a great opportunity to teach students what happens during a solar eclipse and why it only happens during a new moon. Teachers can model the eclipse with flashlights, globes, Styrofoam balls and other manipulatives. It is also interesting to discuss how eclipses were perceived by human cultures through history and prehistory. See the sun go black in the middle of the day would certainly have been frightening to people with limited knowledge of the solar system.

In reviewing science standards for most grades, there opportunities for teaching about the eclipse. Many websites have free educational material available for teaching students of all grade levels about the eclipse. One of the best sites that I have found for eclipse teaching resources is - <https://eclipse.aas.org/resources/educational-materials>.

Educators, parents and others should be aware that the sun, even during an eclipse, should NEVER be viewed without eye protection. Even high quality sunglasses are not adequate to prevent damage. Looking at the sun will cause permanent retinal damage and even blindness. Adults wishing to view the eclipse can purchase eclipse glasses that look like the cardboard 3-D glasses used in movie theaters. However, these are not recommended for children, especially younger ones since they will likely peer over or around the glasses toward the sun. A better option would be make a simple pinhole eclipse viewer. Instructions for making these safe and inexpensive devices are available online (<http://www.space.com/15995-safe-sun-projector-binoculars.html>, <https://www.youtube.com/watch?v=bjVwOZjMPfE> or <https://www.youtube.com/watch?v=EGCYu7RMZLo>) that will allow students to see what is happening without potential eye damage.

For young children, perhaps the best option is to do lessons on the eclipse before and after the event on the afternoon of August 21. During the eclipse, the teacher can display one of the online eclipse streams (<https://www.exploratorium.edu/eclipse>) starting around 1:15 pm so students can see the moon causing Earth to be in a shadow that blocks the sun for a time. As the date of the eclipse nears, additional live streams of the sun, taken with special cameras that can handle the intense solar radiation, will be available. Since young children will, despite your cautions, invariably gaze at the sun during an eclipse it is not recommended that they go outside during the eclipse but rather should experience the darkening outside with the live video of the sun being hidden by the moon.

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