

Astronomy 1050 Observing the Total Solar Eclipse

Read Chapter 3 in your textbook (Seeds and Backman, p. 33). It gives a detailed explanation of eclipses. Section 3-3 focuses on solar eclipses.

Weather permitting, make sure you experience the total eclipse. You will want to travel a short distance south of St. Louis to experience totality. The eclipse will only be a partial eclipse from north county and the UMSL campus.

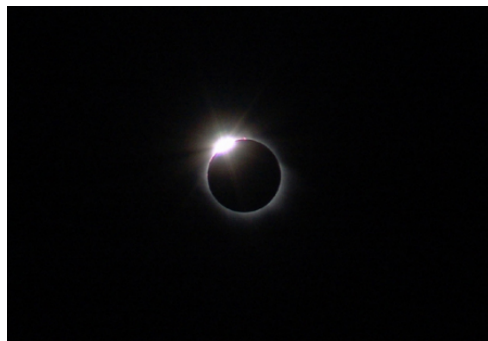
https://eclipse2017.nasa.gov/sites/default/files/interactive_map/index.html

You should get a pair of eclipse safety glasses to use before and after totality.

1. Record the position of your location (latitude and longitude) and the times when the Moon first blocks sunlight (first contact), start and end of totality (second and third contact), and when the Moon no longer eclipses the Sun (fourth contact). Make certain you wear approved eclipse glasses at all times except during totality.
2. Look at the ground around bushes and trees for images of the crescent Sun *near totality*. Holes in the leaves are acting like pinhole cameras.
3. Watch for Bailey's beads *right before or right after totality* (still with glasses on). The Moon is not a smooth ball and lunar valleys can allow "beads" of sunlight to shine through.

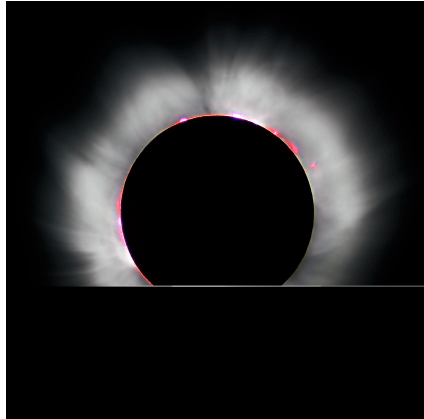


4. Perhaps you can observe the diamond ring effect. *Shortly before (or after) totality*, the opposing horns of the crescent sun begin to converge on one another.



5. Try and find the Moon's shadow, first appearing in the western horizon and sweeping over you at *totality*. It is moving at about 1000 mph.

6. Observe the Sun's 2 million degree outer atmosphere, or corona, *during totality*. You may discern streamers that trace the Sun's magnetic field. Solar prominences erupting from the Sun's surface may appear as pink structures around the Moon's periphery.



7. Do one or more of the following activities:

- Smartphone Photography of the Eclipse (Practice first on full moon around August 7. Photograph or record reactions of people and things around you during totality.)
- Temperature Changes during Totality (Cannot use internal sensor of smartphone. An external thermometer is best.)
- Measuring the Dimming of Daylight (Use light meter app for iPad or light meter on digital camera.)
- Exploring shadow bands (Take video of bands on white paper or poster board just before and just after totality.)

Go to the NASA eclipse page <https://eclipse2017.nasa.gov/citizen-explorers> and find detailed suggestions and instructions for each activity. If you get good data, NASA will be interested in seeing your results!