

## How to Observe Safely

A rare and special event, a total solar eclipse, will occur on Monday, August 21<sup>st</sup>, 2017. The path of totality, the area where people will be able to see the entire Sun blocked, will be 67 miles wide and will pass through 12 states from Oregon to South Carolina. While the rest of the country will not see a total eclipse, they will still see a partial eclipse with the amount of the Sun that is blocked by the Moon varying depending on your location; here in Greeley about 95% of the Sun will be covered by the Moon. The eclipse will begin at 10:23 am and last until 1:14 pm with the peak occurring at 11:47 am.



**Fig. 1** During a total solar eclipse, the entire Sun will be blocked by the Moon (left picture). During a partial eclipse part of the Sun is blocked by the Moon, resulting in the Sun looking like a bite has been taken out of it (right picture).

### Are Eclipses Dangerous?

Contrary to some popular myths, there are no special eclipse rays or radiation released during an eclipse and no reason to hide indoors from them. All of the light involved in an eclipse comes from the Sun and is the same as the light from the Sun on any other day; there is just less of it due to the Moon getting in the way. Eclipses are a rare and special event that are worth observing but you should make sure you take the proper precautions. The Sun is extremely bright and looking at it for an extended period of time without proper protection can cause potentially permanent eye damage. Even though part of the Sun is covered during an eclipse, the Sun is still bright enough to cause eye damage if proper precautions are not taken.

### Observing the Eclipse

There are two ways to safely observe an eclipse.

**1. Eclipse Glasses** – The best way to observe an eclipse is by using a pair of specially made eclipses glasses. These glasses contain lenses made out of aluminized Mylar or a special black polymer; both of which block 99.99% of the visible light from the Sun and 100% of UV rays. While eclipse glasses may look like sunglasses, they are much stronger. **Sunglasses are not safe to use to view an eclipse.** Eclipse glasses will be available at the public eclipse talks listed on the UNC Department of Physics and Astronomy webpage. Eclipse glasses can be used to view the Sun on a normal day as well which can allow you to see things like sunspots on its surface.



**2. Pinhole Camera** – The simplest way to observe the eclipse is use a pinhole camera. Simply take two thick sheets of paper, card stock works well. Place one sheet of paper on the ground and poke a very small hole in the other. Hold the paper with the hole in it a few feet off the ground and align the hole with the Sun so that a small image of the Sun from the hole falls on the sheet of paper on the ground. You can then observe the image of the Sun on the ground during the eclipse.

