



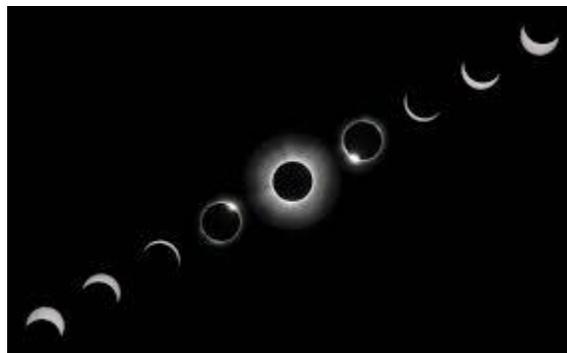
An estimation of  
**Total Solar Eclipse Times and Progression**  
 Marshall, Missouri  
 August 21, 2017

**Preparing for Totality:**

- ✓ Make a pinhole projector: poke small round holes in cardboard to see crescent images during the partial eclipse phases. A colander or straw hat may also be used.
- ✓ Gather other basic viewing supplies: Eclipse glasses, water, sun screen, camera, phone, notepad, large white sheet, transistor radio (tuned to KMMO 102.9FM).
- ✓ Plan to arrive at your viewing site around 10:00AM.
- ✓ Spread the white sheet on the ground to observe changes in light and "shadow bands" which will appear just before and after totality. Shadow bands will sweep across the sheet like waves.
- ✓ Set your phone to make an audio recording of the sounds around you during totality.

**WARNING!**

Failure to use proper protection when observing the partial phases of the solar eclipse with unaided eyes, binoculars, camera or telescope may result in serious eye damage or blindness. Direct observation of the Sun is safe only when professionally made solar-filter glasses for your eyes are worn or a solar filter covering for the front of your telescope or binoculars is used. Sunglasses are *NOT* safe for solar viewing!



Eclipse:	Time:	Description of what you may see:
1 <sup>st</sup> Contact	11:43.57AM	The "First contact" is the moment the Moon's leading edge "touches" the Sun. Look for a tiny black notch on the western side of the Sun. <b>Put your viewing glasses on NOW if you are looking at the Sun.</b>
30% Eclipsed	12:10PM approximately	Look for tiny overlapping solar crescents on the ground created by sunlight passing through tiny, pinhole-like spaces between leaves of trees, pinhole projector, colander or straw hat.
50% Eclipsed	12:27PM approximately	The Sun is only half visible. Has the temperature dropped? Is there a breeze? Is it getting darker?

<b>60% Eclipsed</b>	<b>12:36PM</b> approximately	Look at the eastern horizon. Is it turning yellow? Look at the western sky. Is it dusky and dull? Is it cooler? Look around for changes in light and color.
<b>75% Eclipsed</b>	<b>12:49PM</b> approximately	All things normally bright look dull; your skin starts to look ashen; the ground silvers; shadows sharpen. Look at the eastern horizon. The sky color deepens and if there are clouds, they look bold. Look at the western horizon. Does it look dark and ominous? How are the birds and animals around you behaving?
<b>90% Eclipsed</b>	<b>12:58PM</b> approximately	Light drains from the sky. An eerie gloom is in the western sky, like a summer storm is gathering. Has the temperature dropped? Has the wind kicked up?
<b>95% Eclipsed</b>	<b>1:06PM</b> approximately	Notice the birds. Are they starting to roost? Cows and other animals may appear confused. Has the temperature dropped? Scan the landscape; what color are the earth and grasses? Look at the northern and southern skies. Are there wedges of orange light seeping through?
<b>98% Eclipsed</b>	<b>1:08PM</b> approximately	Look at the sky around the Sun. It should be deep purple. Look at the white sheet for shadow bands. Look at the western horizon. Is it dark? This is the Moon's shadow speeding toward you at over 2200 miles per hour!
<b>99% Eclipsed</b>	<b>1:09PM</b> approximately	Look at the Sun. The crescent breaks into delicate beads of sunlight, called Baily's Beads. They are the last rays of sunlight passing through the deepest lunar valleys.
<b>99.9% Eclipsed</b>	<b>1:10PM</b> approximately	Baily's Beads "dry up". The Diamond Ring forms on the eastern limb of the Moon. When the Diamond Ring disappears, Totality begins and the Moon's shadow washes over you.
<b>100% Eclipsed</b> <b>2<sup>nd</sup> Contact</b> <b>Totality begins</b>	<b>1:10.22PM</b>	<b>Totality! Remove your viewing glasses!</b> Look at the Sun's corona. Perhaps we will see a glimpse of the Sun's red middle atmosphere or chromosphere. The giant prominences are eruptions of massive quantities of gaseous matter spewing from the Sun's surface.
<b>Mid-Totality</b>	<b>1:11.41PM</b> approximately	Notice the sky does not turn completely dark during totality. The Sun's corona is as bright as a full Moon, illuminating softly. The sky will flow orange beyond the Moon's shadow. This is the "ring of twilight". Notice the bright stars and planets that shine for you.
<b>3<sup>rd</sup> Contact</b>	<b>1:13.01PM</b>	Totality has come to an end. <b>Put your viewing glasses on again.</b> Sunlight begins to return, but from the western edge. A second Diamond Ring appears in view.
<b>Reverse order</b>	<b>Reverse times</b>	Everything happens again, but in the reverse order. Don't hurry. Sit back and enjoy. This is a once-in-a lifetime celestial event.
<b>4<sup>th</sup> Contact</b>	<b>2:40.00PM</b>	The Moon separates from the Sun completely. The celestial show is over. Gather your things. Pack the car. We wish you safe travels home.

**Thank you for being our guest at "Moonstruck in Marshall".  
Please come back and enjoy our "hometown hospitality" again!**



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