It was Written in the Stars:

Benjamin Banneker the Astronomer

From 1792 through 1797 Benjamin Banneker, an African American mathematician and amateur astronomer, calculated ephemerides (tables of the locations of stars and planets) for almanacs that were widely distributed and influential. Because of these works, Banneker became one of the most famous African Americans in early U.S. history

Benjamin Banneker made several contributions to the field of astronomy. At the age of fifty-eight Banneker became interested in astronomy through the influence of a neighbor, George Ellicott, who lent him several books on the subject as well as a telescope and drafting instruments (tools used in astronomy). Without further guidance or assistance, Banneker taught himself the science of astronomy. He had a very interesting way of studying astronomy: he would lie on his back at night gazing into the heavens until the early hours of the morning. After reading several borrowed books--Mayer's Tables, Ferguson's Astronomy and Leadbetter's Lunar Tables--Banneker devised a plan to project a solar eclipse. While researching the information needed to follow through with his plan, Banneker detected several errors in calculation. In 1789, he wrote Elllicott: "It appears to me that the wisest men may at times be in error; for instance, Dr. Ferguson informs us that, when the sun is within twelve degrees of either node at the time of full, the moon will be eclipsed; but I find that according to his method of projecting a lunar eclipse, there will be none by the above elements. . .." After correcting these mistakes, Banneker went on in 1792 to develop his first almanac; at the time, almanacs were the most comprehensive medium of scientific information available. He included projections for solar (of the Sun) and lunar (of the Moon) eclipses and computed ephemerides for his almanac.

Math Challenges

One of the reasons that ancient peoples could not predict total solar eclipses was because they did not appreciate the mathematics involved in forecasting. Also, many of the parameters needed to accurately predict eclipses had not been astronomically measured until the first century CE. If you are taking a trip to visit Grandma in another town and want to predict at what time you will arrive, it really helps to know how, many road miles you will be traveling and how fast you will go!

[**Here**](http://eclipse2017.nasa.gov/math-challenges) NASA has created a selection of math challenges that will take you through some of the basic mathematics related to the August 21, 2017 eclipse. The mathematics level spans all grades and abilities from elementary proportions and algebra all the way up to trigonometry and, yes, the calculus!

References

(n.d.). Retrieved October 26, 2016, from http://eclipse2017.nasa.gov/math-challenges

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