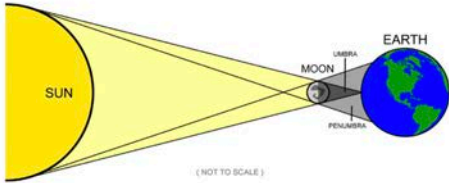


NAME	Eclipse Math activity
EXAMPLE	<div style="border: 1px solid black; padding: 10px;"> <p style="text-align: center;">Eclipse Math - Proportions and Angular Size Patricia Reiff, Rice University</p>  <p>The Moon can appear to cover the Sun because the Moon, even though 400 times smaller than the Sun, is 400 times closer than the Sun!</p> <p>The angular size of an object, in degrees, is given by</p> <p style="text-align: center;">Angle (deg) = 57.29 (Length/Distance)</p> <p>So, if the Sun is 1.495×10^8 km away, and its diameter is 1.391×10^6 km, what is its angular size in degrees? (for younger children use 1.4 million km and 150 million km)</p> <p>Let's do that again, now let's look at the Moon. If the Moon's diameter is 3474 km and its distance is 384,400 km, what is its angular size in degrees? Actually, however, we want the distance from the Earth's surface, not from the center, so we have to subtract the radius of the Earth = 6378 km, so that makes the distance = 378,000 km. For the Sun it doesn't matter much, but for the Moon it does.</p> <p>So, these numbers are about the same, but which number is bigger? So which object is a tiny bit larger in the sky in angular size?</p> <p>So, can the Moon appear to completely cover the Sun? What is the problem here? We know total eclipses happen - what is the solution?</p> <p style="font-size: small; text-align: center;">©2017 Patricia Reiff, Rice University. Permission granted to copy for non-commercial educational use. reiff@rice.edu You can find more eclipse math activities at: https://space.rice.edu/eclipse/math and more eclipse info: Eclipse2017.nasa.gov</p> </div>
DESCRIPTION	Math activity on angular sizes of Sun and Moon, eccentricity of moon's orbit.
URL	https://space.rice.edu/eclipse/eclipse_training.html
DOWNLOAD	https://space.rice.edu/eclipse/pdf/Eclipse_Math.pdf
TYPE	Data with learning activity
FORMAT	document
LEVEL	9-12
TOPIC	solar eclipse
NOTES	Free under Creative commons / attribution / no commercial use license
ADDITIONAL RESOURCES	
KEYWORDS	eclipse, Sun, Earth, Moon, umbra, penumbra, activity

