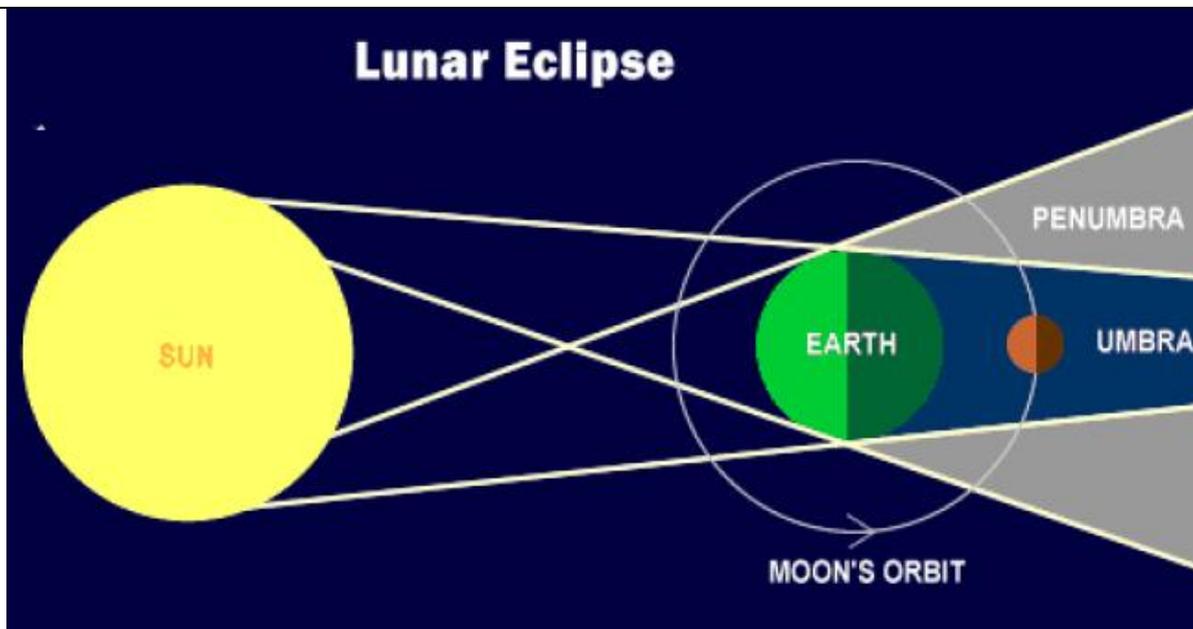


## Lunar Eclipse and the Phenomenon of Eclipses using the Moon Activity

<b>Summary:</b>	<p><b>Grade Level:</b> 6<sup>th</sup> to 8<sup>th</sup> Grade(11-13 years old)</p> <p><b>Subject:</b> Science</p> <p><b>Activities Used:</b> Moon Activity, Paint Activity, Browse Activity and Write Activity</p>
<b>Objectives:</b>	<p><b>Students will know:</b></p> <ul style="list-style-type: none"> <li>• Different celestial bodies i.e. Earth,Sun and the Moon</li> <li>• Rotation of the earth and its consequences</li> <li>• Lunar eclipse</li> </ul> <p><b>Students will understand:</b></p> <ul style="list-style-type: none"> <li>• Umbra and Penumbra regions during an eclipse</li> <li>• Scientific mechanism behind eclipses</li> <li>• Moon’s cycle and duration and the behavior of the Moon</li> <li>• Factors on which type(full/partial) and duration of lunar eclipse depends</li> </ul>
<b>Background:</b>	<p><b>What topic does this lesson cover?</b></p> <p>The Moon Activity provides a graphical representation of the current Lunar phase, and a range of common astronomical information including, phase, Moon age,surface visibility,selenographic terminator longitude (position of shadow on Moon's surface), next Full Moon, next New Moon, next Lunar eclipse.</p> <p>Using the representation of the moon in the activity, the teacher demonstrates phenomenon behind eclipses.</p> <p><b>Where did our idea come from?</b></p> <ul style="list-style-type: none"> <li>• Moon Activity from Sugarlabs Activities Website <a href="http://activities.sugarlabs.org/en-US/sugar/">http://activities.sugarlabs.org/en-US/sugar/</a></li> </ul>
<b>Stage I Pre Learning</b>	<p><b>Using what the students know,how can I introduce this material?</b></p> <p>Students have experienced about different eclipses particularly the lunar eclipse.Whether or not they have realised it,its because of the different spatial orientation of the Earth and the Moon with respect to the Sun.A good way to introduce this activity is to demonstrate a lunar eclipse which has occurred quite recently without solving the mystery behind that lunar eclipse.The mystery can be solved after they understand the scientific phenomenon behind the lunar eclipse.</p> <p><b>What new information should students know beforehand?</b></p> <p>Students should have a basic idea about the different phases of the lunar cycle, orientations of different celestial bodies with respect to each other.One way of explaining this mechanism is to present a graphical representation of the lunar eclipse.From the graphical representation as shown below introduce to the students concepts like Umbra and Penumbra regions during an eclipse.It might also be useful to discuss how the spatial orientations of various celestial bodies leads to the occurrence of eclipses.Lunar eclipse occurs when the earth prevents the rays from the sun from striking the moon.This can occur only when Sun,Earth and the Moon are aligned exactly or very close so,with Earth in the middle.Hence there is full moon on the night of Lunar Eclipse.The type and length of eclipse and duration depends upon Moon’s position relative to the orbital nodes.</p>



**How can I set the stage for this specific activity?**

The integration of the Moon Activity with the curriculum is perfect, and meshes well with the content description and location point on the surface of the Earth as it appears in the curricula Enlightenment for the 6<sup>th</sup> grade of primary education. This activity can be adapted to other educational situations involving different levels of primary and the needs and capacities of teachers, each according to the realities of context of work.

**Stage II  
Guided  
Learning**

1. After creating a diagrammatic view of the lunar eclipse, discussing its mechanisms and various factors affecting the duration and type of the Lunar Eclipse, the mystery behind the Lunar Eclipses could be explained
2. In order to emphasize the significance and practical context of Lunar Eclipse, an outdoor activity could be planned and make students observe the moon phases. The Moon Activity explanation could be further explained during this live demonstration
3. After the follow up of this live demonstration, Write activity could be used where in students will write about their understanding of the Lunar Eclipses which they could share with other classmates using the collaboration feature of Sugar. This write-up activity would facilitate more in sight depth and exploration about Lunar Eclipses and the Moon Activity
4. Students can be asked to research more about Lunar Eclipses using the Browse Activity by using the Internet. Students can take select appropriate number of images from the Internet, download them and import it to the Write Activity from the Journal. They can write a description about what they have researched from the Internet before presenting their work to the class

**Stage III  
Post  
Learning**

Students can be evaluated by their class participation, as well as accuracy and quality of their class participation. After the activity they may be quizzed on the phenomenon of Lunar Eclipse through a labelling or a drawing based Quiz

**Customise  
activity to  
your  
classroom**

Choose your own diagrammatic or graphical representation of Lunar Eclipses, allow students to draw the diagrams using the Paint Activity or connect the lesson plans with agricultural and astrological phenomenon. Advanced students may do an in-depth research about the concept of Eclipses

**Related  
Resources**

Sugar Activities on the Web:  
<http://activities.sugarlabs.org/en-US/sugar/>