

A TASTY LUNAR ECLIPSE

Explore the progression of January's Lunar Eclipse in a fun and tasty way!

Materials

- 1 Package of Oreos
- Bowl
- Spoon
- Red Food Coloring
- Gloves (optional)

Time – 30 minutes

Instructions

1. Begin with 12 Oreos on a plate
2. Remove the top cookie leaving the bottom cookie and the white cream on the plate
3. Remove cream from the remaining cookies according to the quantities listed below, deposit the cream in a bowl to use later
 - a. Cookie 1 remains whole as the Moon is in its Full Moon phase
 - b. Cookie 2 has a sliver of cream missing from the bottom left corner as Earth's shadow begins to cross over the Moon
 - c. Cookie 3 has more cream missing from the left side as Earth's shadow continues to progress
 - d. Cookie 4 has half the cream missing on the left side as Earth's shadow has started to cover the Moon
 - e. Cookie 5 has more than half of the cream missing as Earth's shadow progresses
4. Add a few drops of red food coloring to the cream in the bowl and stir until completely mixed
5. Add the red cream onto the next few cookies in the quantities listed below (use the spoon or gloves so that red dye does not end up on your fingers)
 - a. Cookie 6 has a small sliver of white cream on the top right corner and the rest of the Moon is red as the 'blood Moon' begins
 - b. Cookie 7 is completely red as the 'blood Moon' reaches its peak when it is fully covered by the Earth's shadow
 - c. Cookie 8 has a small sliver of white cream on the top left corner and the rest of the Moon is red as the 'blood Moon' ends
 - d. Cookie 9 has a small sliver of white cream on the top left corner
 - e. Cookie 10 has half the cream missing from the right side as Earth's shadow continues to leave the Moon
 - f. Cookie 11 has only a sliver of cream missing from the right side
 - g. Cookie 12 remains whole as the Earth's shadow has left the Moon and the Lunar Eclipse ends
6. Eat and enjoy the tasty Lunar Eclipse!



Background Information

What is a Lunar Eclipse?

For a lunar eclipse to occur, the Sun, Earth, and Moon must be roughly aligned in a line. Otherwise, the Earth cannot cast a shadow on the Moon's surface and an eclipse cannot take place.

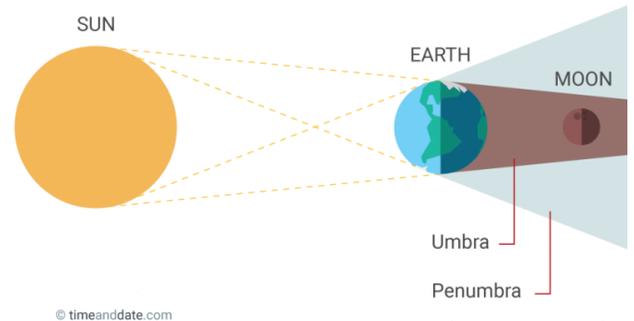
When do they occur?

Total lunar eclipses happen only when:

- The Sun, Earth, and Moon are in a straight line, and
- There is a Full Moon.

Why don't they happen every month during a Full Moon?

This is because the plane of the Moon's orbital path around Earth is inclined at an angle of 5° to Earth's orbital plane around the Sun, also known as the ecliptic. The points where the two orbital planes meet are called lunar nodes. Lunar eclipses occur when a Full Moon happens near a lunar node.



Why is the Moon red?

Even though Earth blocks sunlight from directly reaching the surface of the Moon during a total lunar eclipse, the Moon is still visible to the naked eye. This is because Earth's atmosphere bends sunlight and indirectly lights up the Moon's surface. Light is made up of multiple colors like a rainbow. Blue light from the Sun is scattered by our atmosphere making the sky appear blue, and red light passes through our atmosphere but is bent towards the Moon during a Lunar Eclipse.

References

<https://www.timeanddate.com/eclipse/total-lunar-eclipse.html>

<https://www.timeanddate.com/eclipse/lunar/2019-january-21>