Solar and Lunar Eclipses
CO: I can explain why solar and lunar eclipses occur.

- Notes are in the yellow.
- You will want to draw pictures to help yourself as well.
What is an eclipse?

• An eclipse occurs any time something passes in front of the Sun, blocking its light. This can be the Earth or the Moon.
Is there more than 1 kind of eclipse?

• Yes!! There are lunar and solar eclipses.
Lunar Eclipses

• The Earth moves between the Sun and the Moon, blocking the Sun’s light, and causing the moon to glow red.
• Umbra – The dark inner portion of the shadow cone.
• Penumbral – the lighter outer portion of the shadow.
• THESE NOTES ARE OPTIONAL
Types of Lunar Eclipses

• Total Lunar Eclipse – when the Moon passes completely into the Umbra, or total shadow of the Earth.

• Partial Lunar Eclipse – Occur when the Moon does not fully move into the Umbra.

• Penumbral Lunar Eclipse – When the moon passes only through the penumbra, or partial shadow. They are barely visible.
Total Lunar Eclipse – when the Moon passes completely into the Umbra, or total shadow of the Earth.

**Total Lunar Eclipse**

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Partial Lunar Eclipse – Occur when the Moon does not fully move into the Umbra
Penumbral Lunar Eclipse – When the moon passes only through the penumbra, or partial shadow. They are barely visible.
Solar Eclipse

- When the Moon’s shadow covers part of the Earth
- Only happens when the moon is positioned between the earth and the sun
- Three types: Annular, Partial, and Total
Types of Solar Eclipses

• Total Solar Eclipse – can only occur if you are at the exact spot within the moon’s umbra (which isn’t very big).

• Partial Solar Eclipse – Visible is you are in the penumbra of the shadow. Only some of the moon will be shadowed.

• Annular Eclipse – occurs when the moon is farthest from the Earth in its orbit. This makes the moon look smaller, so during the eclipse you see an outer ring of light from the Sun.
Total Solar Eclipse – can only occur if you are at the exact spot within the moon’s umbra (which isn’t very big).

https://www.youtube.com/watch?v=N8RM9
Partial Solar Eclipse – Visible if you are in the penumbra of the shadow. Only some of the moon will be shadowed.
Annular Eclipse – occurs when the moon is farthest from the Earth in its orbit. This makes the moon look smaller, so during the eclipse you see an outer ring of light from the Sun.
How often do Eclipses Happen?

• That depends!! Lunar Eclipses happen more often than Solar Eclipses.

• Why? Well everyone who is experiencing nighttime during a lunar eclipse can see it.

• But you have to be at the exact spot on Earth to see a Solar Eclipse.

• The spot on Earth is so small, that the same place only sees a Solar Eclipse every 350 years!!
Why Don’t We See Lunar Eclipses More Often?

- Well, lunar eclipses don’t happen everyday because the Moon’s orbit is tilted. So, during most months, the Moon is above or below the Earth.