



TOPIC- *Our Earth's Natural Satellite*

NAME - _____ CLASS V/ SEC _____ Week – 21/12/2020 to 24/12/2020

Learning Outcomes: - Each child will be able to -

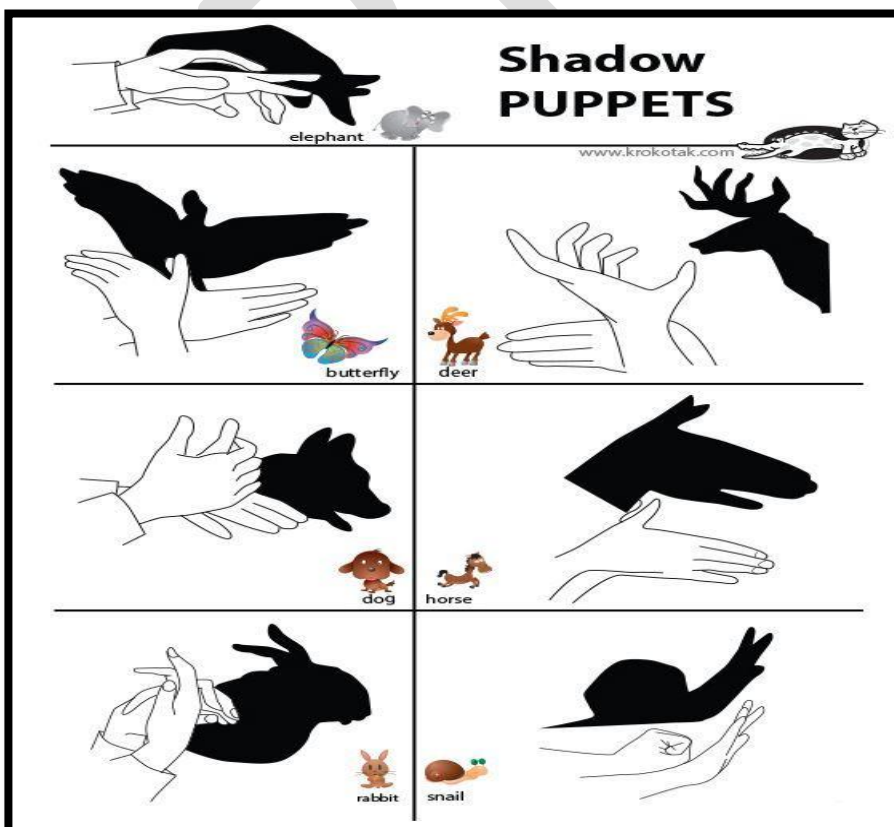
- 1) explain the formation of shadows.
- 2) define an eclipse and its types in nature.
- 3) state and explain the cause and conditions of Solar and Lunar Eclipse in nature.

Terms that you need to know and understand:-

- 1) **Transparent objects** - These are objects that allow light to completely pass through them. Ex- Glass, Air etc.
- 2) **Opaque objects** - These are objects that do not allow light to pass through them at all. Ex- Iron, wood, rocks etc.

Warm Up Activity -LET'S PLAY WITH SHADOWS!!!

You will need - An opaque object, a lighted candle, a dark room, a wall (as a screen)



Try creating these figures using your hands on the wall of a dark room and taking a lighted candle as a source of light. Guess and Enjoy the different shadows you create!!

Time to Think!!!!



How are these shadows formed???

Well children, your hands are opaque objects which block the candle light resulting in the formation of **dark areas** called **Shadows** on the screen.

REMEMBER!!!

When light falls on an opaque object, it is blocked and results in the formation of a shadow.

Shadows are also formed in nature. The sun is the source of light, while the Earth and Moon are opaque objects. We already know that the Earth revolves around the Sun and the Moon revolves around the Earth. So many - a -times, all three of them come in a straight line. In such a situation, the light of the Sun is blocked; casting a shadow. These shadows result in causing the Moon or the Sun to be **hidden from view** or **ECLIPSED**.

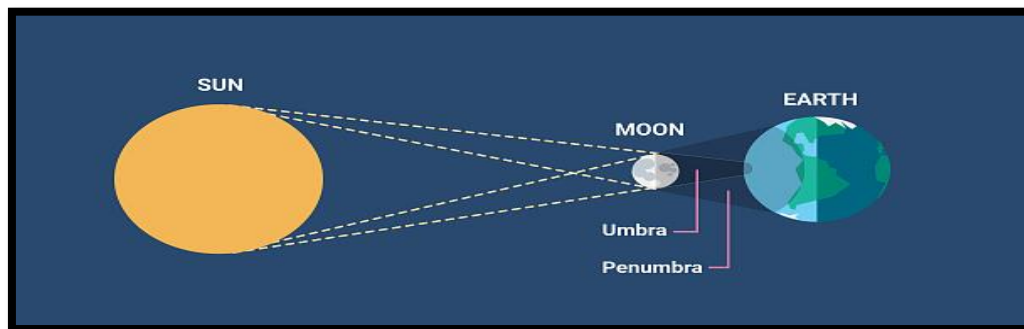
Eclipses are of 2 types. These are-

- 1) **Eclipse of the Sun** (Sun hidden from view) -- **SOLAR ECLIPSE**.
- 2) **Eclipse of the Moon** (Moon hidden from view) -- **LUNAR ECLIPSE**

Let us now, try to understand what causes these eclipses??

- 1) **SOLAR ECLIPSE** - During its motion around the Earth, the Moon sometimes comes between the Sun and the Earth such that the three are in a straight line. The Moon blocks the sun light casting its shadow on the Earth. So, we, standing on the Earth, cannot see the Sun as it gets hidden behind the Moon. This is called a **Solar Eclipse**.

If the sun is **completely hidden** by the shadow of the moon, it is called a **Total Solar Eclipse**. If the shadow of the moon **partially hides the sun**, some part of the sun can be seen, this is called a **Partial Solar Eclipse**. As the moon moves on and the three heavenly bodies are no longer in a line, the eclipse is over and we can see the sun again. A solar eclipse is seen during the day time on a **New Moon (Amavasya) day**.

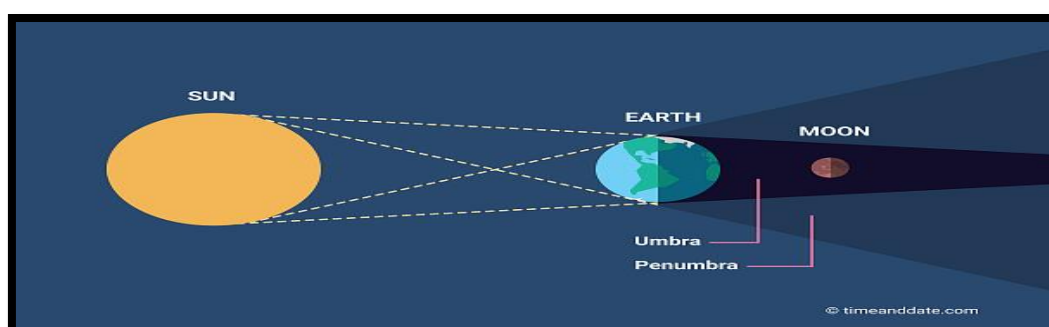


We should not look at the solar eclipse with our naked eyes as it can harm our eyes, even leading to blindness. Use of sunglasses or smoked glasses too can be dangerous. So, use a pinhole camera to view the solar eclipse.

For a quick recap - Click on the links given below:-

- a) <https://youtu.be/BNH5sNlcTqM>
- b) <https://youtu.be/E6OtlfszaVI>

2. **LUNAR ECLIPSE** - When the Sun, Earth and the Moon are in a straight line, the Earth blocks the light of the sun from reaching the Moon; casting its shadow on the moon. So, we, on Earth, cannot see the moon as it is hidden behind the shadow of the Earth. This is called a **Lunar Eclipse**. A lunar eclipse always occurs on a **Full Moon (Poornima) night**. If the moon is **completely hidden** by the shadow of the earth, it is called a **Total Lunar Eclipse**. If the shadow of the earth partially covers the moon and **some part of the moon** can be seen, it is called a **Partial Lunar Eclipse**. The eclipse gets over when the moon comes out of the shadow of the earth. It is absolutely safe to watch the Lunar Eclipse with naked or unaided eyes.



For a quick recap, click on the following links-

- a) <https://youtu.be/LH-aSizsx1o>
- b) <https://youtu.be/SPuMVcmm7dE>

Fascinating Facts about Eclipses



One of the longest eclipses will occur on July 16, 2186.

Uranus, Saturn, Neptune and Jupiter often experience Eclipses.

Local animals and birds often prepare for sleep or behave confusedly during totality.

The Longest duration for a total solar eclipse is 7.5 minutes.

You can even explore common myths and realities surrounding eclipses!!! For this, you can try talking to your grandparents or the elderly in your family or neighbourhood. Share your findings in the class.

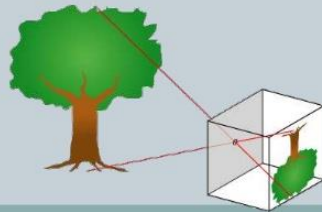
Activity Time

Watch the video link given below and learn to make your own Pinhole Camera!!!!

<https://youtu.be/IJ2cUh0N1RI>

What is the pinhole camera?

- It is a simple camera without a lens and with a single small aperture
- Light proof box with a small hole in one side
- Light from a scene passes through a single point and projects an inverted image on the opposite side of the box



Once done, wait for the next Solar Eclipse (June 10, 2021) to be viewed safely by you!!

LET'S REVISE

(To be done in the notebook)

Q1. Write True or false against the following statements:-

- a) A wooden box is a transparent object.
- b) Shadows are dark areas formed when the path of light is blocked by an opaque object.
- c) Lunar Eclipse occurs on every full moon night.
- d) Solar Eclipse causes the Earth to be hidden from view.

Q2. List the conditions that lead to the formation of a:-

- a) Solar Eclipse
- b) Lunar Eclipse

Q3. Give reasons:-

- a) A Lunar Eclipse does not always occur on every full moon night because

- b) A Solar Eclipse should never be viewed with naked eyes because
