6 WONDERS OF THE SKY

Solar eclipse: Kerala comes to a standstill

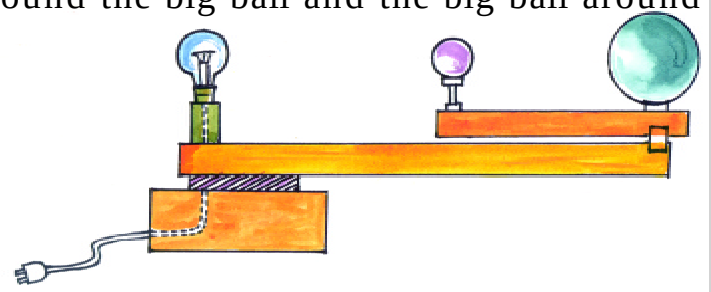
Kozhikode: During solar eclipse, many parts of Kerala almost came to a stand still. Vehicles stopped. People decided to spend the day indoors. Most of the hotels remained closed. But in some places people gathered enthusiastically to observe the eclipse.

Have you read the newsreport on Solar Eclipse.
Why are some people scared of eclipse?
Does eclipse cause any harm to living beings?
There are so many beliefs related to eclipse. Are there such beliefs in your locality?

Does anything happen to the sun during eclipse?

Around the Bulb

Let's do this experiment.
Set a big ball, a small ball and a bulb as shown in the figure.
The arrangement should be in such a way that the small ball can be turned around the big ball and the big ball around the bulb.



Method of construction

Take two *reeper* (wooden) pieces of lengths 50 cm and 20 cm. Fix the big *reeper* onto the stand using a bolt. Fix the small *reeper* at the other end of the big *reeper* using a bolt. Place the bulb where the *reeper* is bolted to the stand. Place the big ball where the two *reepers* are joined. Place the small ball at the other end of the small *reeper*.

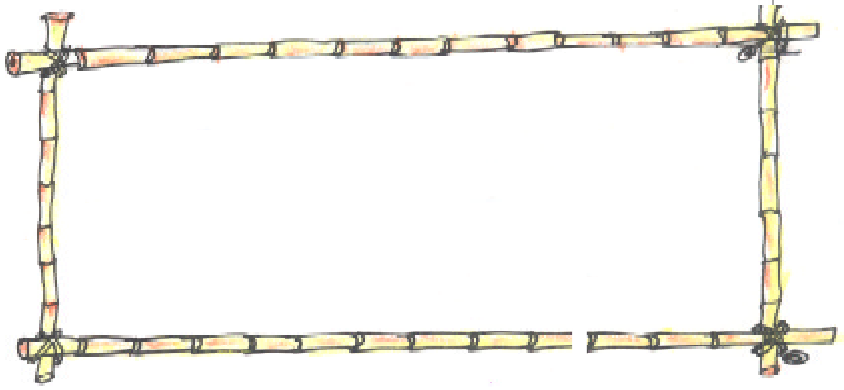
Switch on the bulb. Turn the small ball around the big ball by moving the *reeper*. Turn the big ball around the bulb.
When does the shadow of the small ball fall on the big ball?

Around the Sun

Assume the bulb as the sun, the big ball as the earth and the small ball as the moon. When does the moon's shadow fall on the earth?

Will the people at the region where the moon's shadow falls, see the sun at that time? Why?

Now, can you explain how solar eclipse occurs?



Can we look at the sun during eclipse?


Corona

It is said that we should not look at the Sun with our naked eyes during a solar eclipse. We should never look at the sun directly in any circumstances. The rays of the sun can cause burns and they can damage our eyes. Normally, we can't look at the sun directly. We shut our eyes automatically due to the intensity of sun's light. But during eclipse, as the corona of the Sun is hidden by the Moon, the intensity of light decreases. So we will be able to look at the sun

directly. The moon hides only the corona of the Sun. Even at that time ultraviolet rays and some other rays reach the Earth from the corona. So if we look at the eclipse for a long time, the rays from the corona will damage our eyes. Moreover, the pupils of our eyes will dilate when there is less light. The sun's rays coming out quickly from the craters of the moon (Diamond ring) cause burns to human eyes.


Diamond Ring

We usually observe solar eclipse by watching the reflection of the sun in the water mixed with charcoal powder or cow dung. It would be safer to observe the eclipse through a welding glass, suitably folded aluminium foil or the darker part of an X-ray film.

What are the preparations to be done for watching solar eclipse safely?

Lunar Eclipse

Solar eclipse occurs when the sun, the earth and the moon fall in a straight line. The Moon will be in between the sun and the earth. How does lunar eclipse occur?

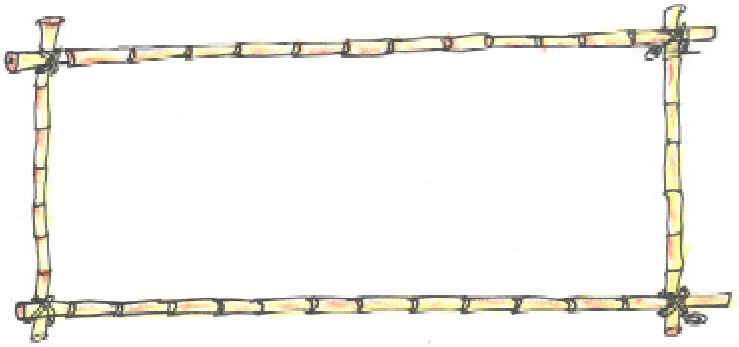
Turn the *reepers* around the bulb. Are there occasions when the small ball comes in the shadow of the big ball?

Explain how lunar eclipse occurs.

Based on the experiments and findings, illustrate the position of the sun, the earth and the moon during each eclipse. Explain how their positions differ.

Solar Eclipse	Lunar Eclipse

How does solar eclipse differ from lunar eclipse?

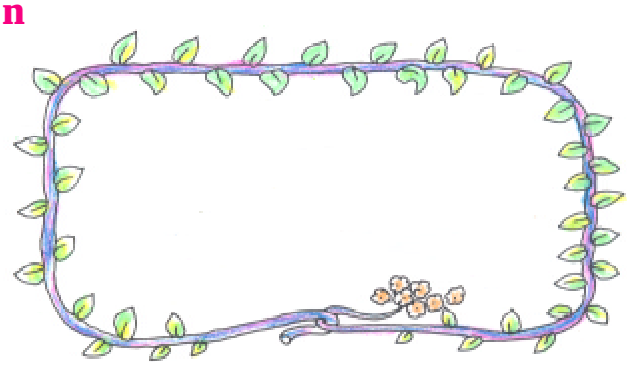


Journey of the Moon

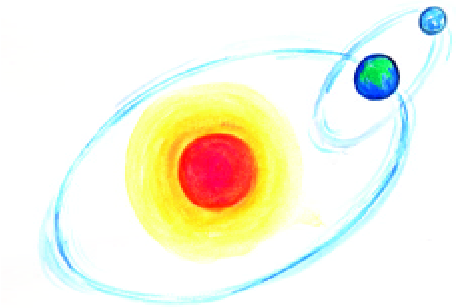
The moon takes 27 days and 8 hours for one revolution round the earth. Simultaneously, the moon completes one rotation of its own.

Won't there be solar and lunar eclipses every time the moon completes its rotation round the earth?

My Assumption



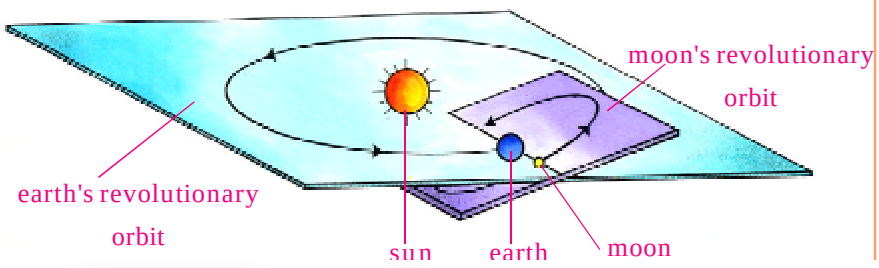
Make the globe and the ball revolve on their own orbits as shown in the picture.



Do the sun, the moon and the earth fall in a straight line every time the moon goes around the earth?

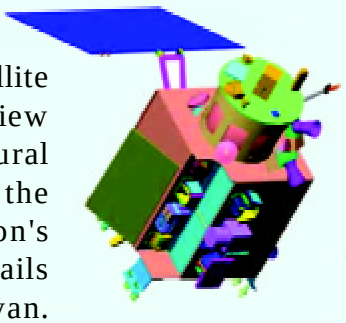
The Orbit

The orbit of the earth around the sun and the orbit of the moon around the earth are not on the same plane. Moon's orbital plane makes an angle of 5^0 with the earth's orbital plane. So, there may not be a solar or lunar eclipse every time when the moon revolves round the earth.



Indian tricolour flutters on moon

Bangalore: Chandrayan-I is an artificial satellite launched by India on 22 October, 2008 with a view to learning more about the moon, the only natural satellite of earth. Chandrayan revolves round the Moon at a height of 100 km from the moon's surface. We have started getting many details about the surface of the Moon from Chandrayan. It is Indian Space Research Organisation (ISRO) that gives leadership to this project.



Chandrayan casket

Satellite

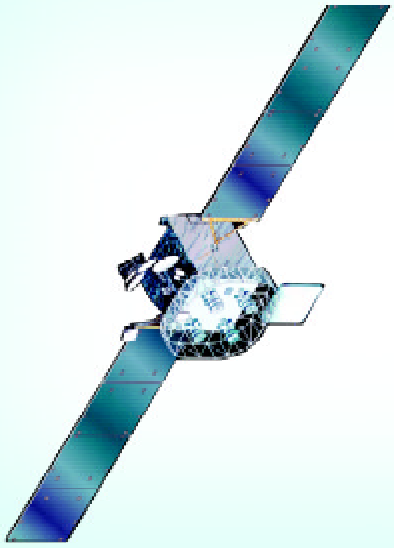
Satellites are objects that revolve around the planets. Earth has only one natural satellite. Jupiter has the largest number of satellites (63). Mercury and Venus have no satellites.

Our knowledge about heavenly objects and the universe is being enriched day by day. we send equipments to the orbit around the earth for acquiring more knowledge and information. These equipments are called Artificial Satellites.

What are these artificial satellites used for?

- To study about the universe
-

Artificial Satellites

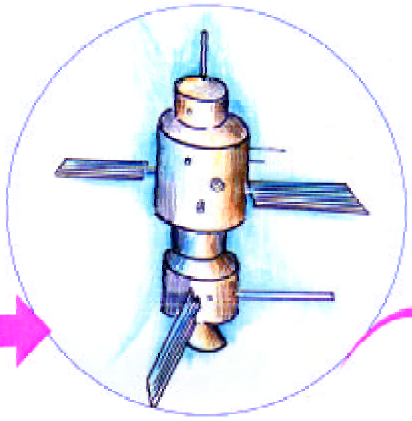


The first artificial satellite, Sputnik was launched by Russia on October 4, 1957. India launched its first artificial satellite Aryabhatta, on April 15, 1975. ISRO gives leadership to space researches in India. The Indian National Satellite (INSAT) project was formulated with the view to having a permanent space station for communication. India has been launching many satellites on INSAT series since its formulation. EDUSAT is a satellite launched by India exclusively for educational needs.

Collect pictures and news reports related to space researches to be included in your class magazine.

Artificial satellites have played a major role in the great leap made in the field of communication. Artificial satellites help in providing services like mobile phone, internet, television telecast etc.

LIVE

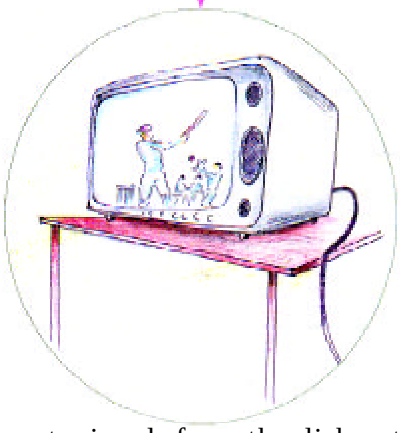


Receives signals and send back

Editing and converting into signals and sent to artificial satellites

Signals from the satellites are received by the dish antenna receiver

Shooting the match



Converts signals from the dish antenna into pictures and sounds.

Observe the diagram given. How can you watch a match played at a distant place live on your TV?
Write it in your science diary.

How do the modes of communication of the past differ from that of the present?

Past	Present
• Telegram - carries message within hours	• Telephone - sends message instantly and directly
•	•
•	•
•	•

Information Technology

Information Technology (IT) is a modern technology used for collecting, storing and exchanging information quickly and efficiently. The invention of computers brought a sea change in this area. Internet is a system of network of computers through which information is exchanged. We get many facilities like e-mail, video conferencing, chatting etc. through the internet. Fax is used for sending copies of documents and photographs instantly from one place to another. We can say that there is no sector which doesn't make use of the possibilities of IT. Nowadays we can collect and exchange any information from anywhere within a short span of time. So it can be said that the whole world has shrunk into a single village.

The growth of science has brought in many changes in our day-to-day life. Many facilities we enjoy today are the result of this growth.

Discuss and prepare a brief note on the changes brought about in our lives by the growth of Information Technology.