

OUR SOLAR SYSTEM

CROSS CURRICULAR APPROACH

SUBJECT: Physics

TEACHING HOURS: 4

OBJECTIVES

- To become familiar with the concept of gravity, which governs the movement of the planets
- To be able to understand the concept of weight, which is related to gravity and varies from planet to planet.
- RESOURCES: Internet, school course book

ARTS INVOLVED: dramatization

- **ACTIVITIES**

1. THE FORCE OF GRAVITY

We ask for each group to tie a tennis ball onto a string (length :1-1.5 m). Then we ask a pupil to hold tightly the end of the sting in one hand and raise the other hand above the head in such a way as the ball makes a circular orbit having the head as the centre. We simulate the s's hand with the Sun and the Erath with the ball. We correlate the force that is exercised by the hand through the string with the force of gravity exercised by the Sun (hand) on the Earth (ball).

We explain that gravity can be exercised from far away. We encourage Ss to do the experiment with the planets movement, to hypothesize and then find out what happens when they suddenly set the string free while the ball is moving in a circular way.

2. OUR WEIGHT ON EACH PLANET

In this activity Ss multiply the gravity of a planet by their weight on Earth and discover how much they weigh on this particular planet.

Gravity on each planet in relation to our planet: Earth:1, Mercury: 0,38, Venus: 0,9, Mars:0,38, Jupiter: 2,6, Saturn: 0,9, Uranus: 0.8, Neptune:1,1, Pluto: 0,04.

On which planet do we weigh more?

On which planet do we weigh less?

To verify their results they play the following entertaining educational online game:

https://geodromio.files.wordpress.com/2012/02/hliako_systema_diptyxo.pdf

- more ideas :
- <https://www.youtube.com/watch?v=z8aBZZnv6y8> (SOLAR SYSTEM)
- <https://www.youtube.com/watch?v=GoW8Tf7hTGA> (STAR SYSTEM)

EVALUATION

Ss being involved with the aforementioned activities and by means of their active participation became familiar with the concepts of gravity and weight, concepts that are 'non-accessible' or 'tangible'. They found the activities challenging yet interesting and entertaining.