

OUR SOLAR SYSTEM

CROSS CURRICULAR APPROACH

SUBJECT: MATHS (Handling 9 digit numbers, notion of scale)

Ss' age: 11

No of Ss: 25

TEACHING HOURS: 6

OBJECTIVES

- To be able to handle (reading/comparison/problem-solving) 9 digit numbers
- To be able to round 9 digit numbers to the million digit
- To be able to convert different units of measurement (converting the millions of km of the distance of planets from the Sun into cm)
- To realize the notion of scale and use the $1/1.000.000.000.000$ in their constructions (1 cm on the map equals to 10 million km)

SKILLS

To be able to use strategies so that they can handle 9 digit numbers

RESOURCES: ● Internet (Our Solar System - Size Of Planets and Stars to Scale - Astronomy Telescopes https://www.youtube.com/watch?v=y0uYtFvlt_k

- school course book

Arts involved: Art, Designing

- **ACTIVITIES**

1. Ss consult the table of the course book on which the distances of the planets from the Sun are recorded and:
 - round the numbers regarding the distances of the planets to the million digit so that they can handle them more easily
 - locate the planets with bigger size than the Earth, put the planets in descending order according to their distance from the sun
2. Ss study the sizes of the planets consulting their school course book. Each group undertakes the task of studying thoroughly one planet. They then examine the following question: “Which is bigger, the Sun or your planet and how much (bigger)?
 - Ss in each group hypothesize and compare/contrast the Sun’s size with the planet they have chosen to study. Then they construct paper models rendering the relative sizes of the planets.
3. Ss construct a 3-D solar system based on the scale use (see Art class)
4. How old are we on each planet of our solar system?
 - During this activity Ss estimate and then calculate the ages that are connected with the period –time a planet takes to rotate around the Sun. If, for example, Ss divide their age on Earth with the time a planet takes to make a complete rotation around the Sun, they can calculate their age on this planet (actually what really changes is not the age itself but the measurement unit). More specifically, if a student is 10 years old on the Earth and a planet,

let's say Jupiter takes 12 years to make a complete rotation around the Sun,
the student's age on this planet will be 0,8 years (i.e., $10/12=0,8$).

EVALUATION

Ss cooperated/collaborated through creative activities and got accustomed to 9 digit numbers and the sizes they represent.