

Name: _____

Date: _____ Period: _____

Lab Activity: The Solar System

INTRODUCTION:

The planets range in size from our smallest terrestrial planet Mercury to the gigantic gaseous planet Jupiter. The volume of Jupiter is about 200,000 times that of Mercury the smallest inner planet. If one is to appreciate the sizes of the inner planet versus the outer planet, it is necessary to make scale models of the planets. Scale is the ratio between the dimensions of a representation and those of the object.

OBJECTIVE:

Using the planetary data and scale conversion you will construct diagrams that show the relative sizes of the planets.

VOCABULARY:

Planet

Solar System

Jovian

Terrestrial

Light Year

Astronomical Unit

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PROCEDURE A:

1. Complete Data Table 1 below using the scale 1 cm = 7000 km. Be sure to round to the nearest tenths place.
2. Using the scale diameters in Data Table 1, construct circles representing the planets on an piece of paper.
 - For the terrestrial planets, draw a straight line that is equal to the diameter and approximate the circle by drawing it free-hand.
 - For the Jovian planets, use a safety compass to draw the circle (be sure to use the radius when using the compass).
3. Label each circle with the name of the planet.

DATA TABLE 1

Planet	Equatorial Diameter (km)	Scale Diameter (cm)
Mercury	4,880	
Venus	12,104	
Earth	12,756	
Mars	6,787	
Jupiter	142,800	
Saturn	120,000	
Uranus	51,800	
Neptune	49,500	

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PROCEDURE B:

1. Complete Data Table 2 below using the scale 1 cm = 10,000,000 km. Be sure to round to the nearest tenths place.
2. Obtain 5 meters of cash register tape and spread it out along the desks or floor.
3. Measure 10 cm from the end of the cash register tape and label it "Sun". This will represent the Sun's surface and will be your starting point for all your measurements.
4. Using a meter stick, measure all the distances of the planets from the line labeled "Sun".
5. Label each line with the name of the planet.

DATA TABLE 2

Planet	Scale Distance from the Sun (km)	Scale Distance from the Sun (cm)
Mercury	57,900,000	
Venus	108,200,000	
Earth	149,600,000	
Mars	227,900,000	
Jupiter	778,300,000	
Saturn	1,427,000,000	
Uranus	2,869,000,000	
Neptune	4,496,000,000	

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DISCUSSION QUESTIONS:

1. Which are the two largest planets?
2. Which planet is closest to the size of the Earth?
3. How do the sizes of the inner planets (terrestrial) compare to the sizes of the outer planets (jovian)?
4. How do the distances between the inner planets differ from that of the outer planets?
5. Which two planets are closest to Earth?

CONCLUSION: Compare the sizes of the planets and the distances between them.