NAME: _____ PERIOD: _____ DATE: _____

LAB PARTNERS: _____ LAB #42

WALKING MODEL OF THE SOLAR SYSTEM

OBJECTIVES

In this activity you will demonstrate how big the Solar System is by making a scale model of the Solar System. ***The scale is 1 step = 7.2 million miles***

1 AU equals 93 million miles

MATERIALS tape or stakes, nine index cards, McDougal Littell text book pages 588 - 601

APPROXIMATE TIME 1 – 2 periods

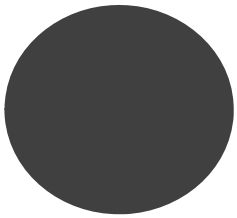
PROCEDURE

1. Each lab group will be making one model of the Solar System in the hallway. It is important to talk very quietly while in the hallway so no classes will be disturbed. This can also be done outside where you can walk a long distance in a straight line.
2. Prepare an index card for each planet and the Sun. Include all the information on ESRT and a circle showing the scaled diameter of the planet.

PLANET NAME: EARTH

- Equatorial diameter
- Distance from Sun
- Revolution
- Rotation
- Density
- Any other interesting facts

Draw pic of planet from textbook



Scaled Diameter

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3. Tape the index card of the Sun to the hall wall. Walk the correct number of steps to Mercury using the distance from the last card column. Tape the index card for Mercury to the wall. Repeat for the remaining eight planets.

Data Table

Planet	AU's	*Distance from last index card*	Scaled Diameter
Mercury	0.4AU	5	Hole made by staple
Venus	0.7AU	3	Thickness of paper clip
Earth	1.0AU	5	Thickness of paper clip
Mars	1.5AU	7	½ Thickness of paper clip
Jupiter	5.2AU	50	Little bigger than thickness of pencil
Saturn	9.6AU	58	Thickness of pencil
Uranus	19.2AU	128	Sneaker lace hole
Neptune	30.0AU	144	Sneaker lace hole

LABORATORY QUESTIONS

Base your answers to questions **1 and 2** on the data table below, provides information about four of Jupiter's moons.

Data Table

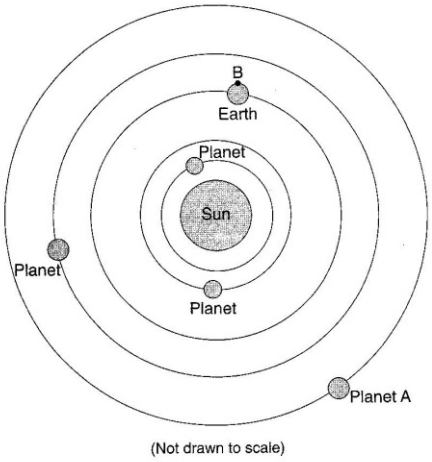
Moons of Jupiter	Density (g/cm^3)	Diameter (km)	Distance from Jupiter (km)
Io	3.5	3630	421,600
Europa	3.0	3138	670,900
Ganymede	1.9	5262	1,070,000
Callisto	1.9	4800	1,883,000

1. Identify the planet in our solar system that is closest in diameter to Callisto.

2. In 1610, Galileo was the first person to observe, with the aid of a telescope, these four moons orbiting Jupiter. Explain why Galileo's observation of this motion did *not* support the geocentric model of our solar system.

3. What is the average distance, in millions of kilometers, from the Sun to the asteroid belt?
(1) 129 (2) 189 (3) 503 (4) 857

Base your answers to questions **4 through 6** on the diagram to the right which shows the heliocentric model of a part of our solar system. The planets closest to the Sun are shown. Point B is a location on Earth's equator.

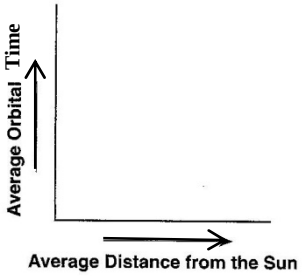


4. State the name of planet A.

5. Explain why location B experiences both day and night in a 24-hour period.

6. Identify one feature of the geocentric model of our solar system that differs from the heliocentric model shown.

7. On the graph to the right, draw a line to indicate the general relationship between a planet's average distance from the Sun and its orbital time.



8. Compared to the terrestrial planets, the Jovian planets are
(1) smaller and have lower densities (3) smaller and have greater densities
(2) larger and have lower densities (4) larger and have greater densities

9. In the diagrams to the below, which pair of shaded circles best represents the relative sizes of Earth and Venus when drawn to scale?