Solar System Scale Model

Objective: To develop and use a model of our solar system to understand the relationship of objects within our solar system.

Background Information:
What do you think? How big is or Solar System: *Draw or explain in the space below:*

Astronomical Unit (AU):

Light Year:

Scale Model:

Scaling factor:

Procedure:

1. Calculate the sizes and distances of the object in our solar system and complete the data table on the next page using the website: http://www.exploratorium.edu/ronh/solar_system/
2. Sign-up for your object and work (collaborate) with your partner to research your object at http://nineplanets.org and create a poster that contains:
    a. The name of the object (Heading)
    b. Actual diameter (width) and distance to the next object (both ways).
    c. Scale Model size and distance (both ways)
    d. Picture of the object
    e. Mythology about your object
    f. Three interesting facts about your object
3. Take a guided tour of the solar system, present and post your object
4. Complete reflection questions about the Scale Model of our Solar System

Calculate the Size of our Scale Model

1. Determine the size of the scale model. We will start at the west end of the building where the sidewalk meets the parking lot, walk along the sidewalk in front of the building to the street and then down the road towards the park until we reach 737 steps or paces. This will be the "distance" of our scale model. The distance of our model is _____ steps.
2. The actual distance from the Sun to Neptune is _____ AU
3. Calculate the scaling factor. Determine the scaling factor by dividing the total usable distance around the school (Step 1) by the size of our Solar System in AU (Step 2).

_____ steps / _____ AU = _____ steps / AU

Calculate the Scale Sizes and Distance: http://www.exploratorium.edu/ronh/solar_system/

Planet / Star	**Actual diameter** (Kilometers)	**Orbit Diameter** in AU	**Body diameter** in inches	**Scaled Orbit Radius** (ft & in)
Sun (a star)	1,391,980 km	.0093 AU	8 in	
Mercury	4,880 km	.000033 AU		
Venus	12,100 km	.000081 AU		
Earth	12,800 km	.000085 AU		
Mars	6,800 km	.0000453 AU		
Jupiter	142,000 km	.0008 AU		
Saturn	120,000 km	.0008 AU		
Uranus	51,800 km	.000345 AU		
Neptune	49,500 km	.00033 AU		

Project Planning

My Object is:_____ My Partner is:_____

You and your partner are to equally share the work to meet the objectives for: researching your topic, preparing your poster and presenting your object during the guided tour.

Topic	**Partner #1**	
Research		
Poster		
Presentation / Tour		

Guided Tour: Record what you learned about the objects in our solar system:

The Sun	Mercury
Venus	Earth
Mars	Jupiter
Saturn	Uranus
Neptune	

Reflection: Questions and Conclusions: After the Outside Walk

1. Describe what our model looks like. Is this different from what you pictured in your mind, see page 1? If so, how? Be specific and use observations, calculations, etc…

2. What are some of he advantages and disadvantages that you see in using a scale model? Be specific and use examples from this activity.

3. The nearest star to Earth is Alpha Centauri, 273,332 AU away. Where would this star be placed in your scale model of the Solar System distance? Show how you figured this out.