**Solar System Walking Tour**

**Purpose:** To acquire better understanding of relative sizes of the eight major planets and their average distances to the sun in the solar system.

**Items:** GGC campus map

**Introduction:** This lab is an outdoor activity based on the previous lab “a scale model of the solar system” In this lab, your group is required to put the “planets” into their orbit in the solar system, assuming GGC campus is the solar system.



**Procedure:**

**Part I: preparing for outdoor walking**

1. Copy names of the objects representing planets from previous lab “ A scale model of solar system” part I to put in the table below. If you made any mistake in previous lab, please make sure to correct the mistake before proceed.
2. Copy the scale distance from sun and Number of steps from previous lab “A scale model of solar system” part II to put in the table below. If you made any mistake in previous lab, please make sure to correct the mistake before proceed.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Name of the object | scale distance from the sun (m) | Number of steps |
| Mercury |  |  |  |
| Venus |  |  |  |
| Earth |  |  |  |
| Mars |  |  |  |
| Jupiter |  |  |  |
| Saturn |  |  |  |
| Uranus |  |  |  |
| Neptune |  | 1000 |  |

1. Assign group members to put planets on the orbits. Record the name of group member and their assigned planets. You can also all walk together as the group if you like
2. Planning your walking tour using GGC campus map provided by your instructor. Our starting point will be the entrance of parking deck on University center lane (labelled as Sun in the picture above). The location of the sun of the GGC solar system. Decide the path and direction you would like to walk to put each planet on its orbit. Please feel free to draw on the copy of GGC map given to your group. Pay attention to the following point when planning your walking tour:

* You are free to walk towards any direction you want, but Make sure to **NOT** walk out of campus
* **Try to maintain the direction for each planet, don’t make any U-turn or any large turn**
* For the orbits of Uranus and Neptune, you need to walk across campus towards the parking lot near RL 3000 building. **You position for Neptune should be somewhere in RL 3000 building parking lot.**

After finishing the plan, show your plan to the instructor to get approved before proceed.

1. Get a bag of collection of objects representing eight major planets from your instructor, make sure you check the objects inside and know which planets they represents. You need to return the bag with all the objects inside to your instructor after finishing the walking tour. **DO NOT eat any object!**

**Part II: solar system walking tour at GGC campus (read through the whole part before leaving the lab)**

1. Walk with your instructor and class to the parking deck near Collins Hill Rd. The entrance of parking deck on University center lane is the starting point. Your instructor will label the starting point on the ground
2. Please pay attention to the following points before starting your walking tour:

* **Safety First!**
* Always walk on the sidewalks and cross the road using crosswalks.
* Keep alert for incoming pedestrians and vehicles.
* when you walk into the parking lot in RL 3000 building, try to avoid cars parking over there.

1. Give the object representing planets to the assigned group members to put on the orbits. You can walk and count the number of steps you need to reach the orbit of the specific planet according to the table in part I. For example, if the number of steps to reach Mercury is 17, you just walk and count 17 steps from the starting points, you will reach the orbit of Mercury. If you decide to keep walking towards the same direction to the rest of the planets just **keeping counting steps till you reach them.**
2. For each of the eight major planet, record the location of their obit at GGC campus. You should record their location as accurate as you can as if you would like to meet someone over there. For example, you shouldn’t record “H building” as location, instead, you should give the specific location, such as “the entrance of H building near/towards A building”. You can take a picture or record the location on your phone or on a piece of paper while you are in the middle of the walking tour.
3. After finishing the walking tour, comes back to the lab. Record the location of the obits at GGC campus for each planet in the table below.( the campus map attached at the end can help you to locate where you are at campus) **Put all the objects representing planets into the bag and return the bag to your instructor.**

|  |  |
| --- | --- |
|  | Location of the orbit at GGC campus |
| Mercury |  |
| Venus |  |
| Earth |  |
| Mars |  |
| Jupiter |  |
| Saturn |  |
| Uranus |  |
| Neptune |  |

1. Is the solar system a crowd place or mostly empty space? Keep in mind that in the solar system there is no buildings or trees, planets are only major objects in the system.
2. Are the planets close to or far away from each other?
3. Are the size of planets very large or very tiny compared to their distances to the sun?

GGC map with all the building labeled 