Objectives of this Exercise

This exercise is intended to enhance students’ analytical abilities as they extract information from the Tessmann Student Reference pamphlet and use that information to answer questions. This exercise is also designed to:

- Promote working together in teams to reach consensus.
- Develop an understanding of answering questions through careful investigation of data.
- Augment and strengthen the K-12 State of California Science Content Standards.
- Analyze data to develop logical conclusions.
- Appreciate that as we discover more about our universe, we always have a lot more to learn.
- Learn a little astronomy and have fun with it through a team building experience.
Astronomy Questions:

1. How many moons have been discovered in our Solar System as reported in the Student Reference? (Hint: some addition is necessary.) ANSWER #1: ______________

2. Which planet has the most rings, arcs, ringlets, divisions, and gaps? ANSWER #2: ______________

3. How many times farther away from the Sun is Neptune than the Earth? ANSWER #3: ______________

4. What is an Astronomical Unit (AU)? ANSWER #4: ______________

5. Are kilometers always a larger number or a smaller number than miles? ANSWER #5: ______________

6. Who discovered Pluto? ANSWER #6: ______________

7. How many moons does Jupiter have? ANSWER #7: ______________

8. How many Earths, based on volume, could our Sun hold? ANSWER #8: ______________

9. What is Newton’s 3rd Law of Motion? (Hint: *For every action…*)

   ANSWER #9: __________________________________________________________________________

10. How long does it take Makemake to make one orbit of the Sun? (Hint: Answer in years.)

    ANSWER #10: ______________

11. Bonus for upper grades: See the “Why do the change?” section in your Student Reference. You will see that the positions from the Sun of one planet (Neptune) and two dwarf planets (Pluto and Eris) change over time. Can you figure out why? Explain and discuss.