Teacher Instructions

- All information is available from data on the Student Reference. Copy Student Reference for each student and fold in half.
- Copy the Team Exercise Sheet, one for each team.
- Break the class up in teams of not more than five students.
- Have each team pick one spokesperson.
- Using the information in the Student Reference, each team answers the eleven Astronomy Trivia questions as a team, coming to consensus, in about fifteen minutes.
- In succession, each team spokesperson gives the team's answer to the questions.
- Score their right and wrong answers.
- Tally up the right and wrong answers by team. Discuss as necessary.

Astronomy Trivia Contest Answers

1. **How many moons orbit planets have been discovered in our Solar System? Answer: 173 officially, includes those orbiting the dwarf planets, Pluto, Huamea and Eris. (See footnote in the Student Reference.)**
2. **What planet is named after the Roman God of Agriculture? Answer: Saturn.**
3. **Which planet has the most ring segments? Answer: Uranus, with 11 known major ring segments.**
4. **How many times farther from the Sun is Neptune than the Earth? Answer: 30.1 times.**
5. **What is an Astronomical Unit? Answer: An Astronomical Unit is the mean distance from the Earth to the Sun, about 93,000,000 miles.**
6. **How many total ring segments are around all the planets in the Solar System? Answer: 25.**
7. **How many official planets (including dwarf planets) are there in the Solar System? Answer: 13 (See footnote in the Student Reference.)**
8. **How many times farther from the Sun is Mars than the Earth? Answer: ~1.5.**
9. **What planets (including dwarf planets) have the least number of moons? Answer: Three have zero! Mercury, Venus and Ceres.**
10. **Are kilometers always a bigger number or smaller number than miles? Answer: Kilometers is always the bigger number when measuring the same distance in miles. Therefore, a kilometer is shorter in length than a mile.**
11. **Can you answer why Neptune, Pluto and Eris change the positions as the orbit the Sun? Find the "Why do they change?" chart in the Student Reference. Answer: Neptune, Pluto and Eris are in a sort of ballet as they orbit the Sun. Neptune's orbit is nearly circular while the dwarf planets, Pluto and Eris, have egg-shaped (elliptical) orbits. For twenty years of its 248 year orbit, Pluto comes closer to the Sun than Neptune and is the 8th planet from the Sun. The last time was between 1979 and 1999. In its 557 year orbit, Eris comes closer to the Sun than Neptune. Occasionally, Eris is closer to the Sun than either Neptune or Pluto making it in 8th position. That happens 800 years from now!**

Tessmann Planetarium

Teacher's Handout

Santa Ana College's Randall G. Smith Space Education Center

"The mind is not a vessel to be filled, but a fire to be ignited. - Plutarch"

About our universe...

Objectives of this Exercise

It is intended that this exercise will enhance students' analytical abilities to extract answers to the questions from written matter and:

- **Promote abilities to work together in teams to come to consensus.**
- **Develop an understanding that progress is made by asking questions and conducting careful investigations.**
- **Augment and strengthen the K-12 State of California Science Content Standards.**
- **Learn to analyze data to develop a logical conclusion.**
- **Understand, that as we discover more about our Universe, we have a lot more to learn.**
- **Learn a little astronomy in the process.**
- **Have fun with it!**

Astronomy Trivia Contest

(Recommended for 3rd Grade and up.)

Team: _____

Team Spokesperson: _____

Astronomy Trivia Contest Questions:

1. **How many moons have been discovered in our Solar System? ANSWER: _____**

2. **What planet is named after the Roman God of Agriculture? ANSWER: _____**

3. **Which planet has the most ring segments? ANSWER: _____**

4. **How many times farther from the Sun is Neptune than the Earth? ANSWER: _____**

5. **What is an Astronomical Unit? ANSWER: _____**

6. **How many total ring segments are around all the planets in the Solar System? ANSWER: _____**

7. **How many planets & dwarf planets are there in the Solar System? ANSWER: _____**

8. **How many times farther from the Sun is Mars than the Earth? ANSWER: _____**

9. **What planets have the least number of moons? ANSWER: _____**

10. **Are kilometers always a bigger number or smaller number than miles? ANSWER: _____**

11. **Bonus: Look at the chart, "Why do they change?" in your Student Reference. You will see that the positions of Neptune, Pluto and Eris change over time. Can you figure out why? Explain.**

(To be used in conjunction with the Tessmann Planetarium Student Reference)