

STARRY, STARRY NIGHT

DESCRIPTION: This event will test students' knowledge of astronomical facts and concepts relating to the earth, moon, solar system, celestial sphere, stars and constellations.

TEAM SIZE: 1 or 2 students

APPROXIMATE TIME: 30 minutes

THE COMPETITION:

The students will take a written test, consisting of a variety of question formats, including: true/false, multiple choice, matching, fill in the blank, and sketch a diagram.

Part I: A series of written questions about our solar system:

1. Distinguish between the motions of rotation and revolution.
2. Explain the astronomical basis for units of time--day, month, year.
3. Explain the causes for seasons on the earth.
4. Identify the phases of the moon and understand why they occur.
5. Compare solar and lunar eclipses and the conditions that produce them.
6. Demonstrate knowledge about the planetary members of the solar system.
 - a. Characteristics of the planets, such as which has the longest day or year, the most number of moons, the widest temperature variance, order from the sun, and relative size.
 - b. Visual identification of planets and planetary features.
 - c. Glossary of terms listed on www.macombso.org.

Part II: Demonstrate knowledge about the celestial sphere and the following concepts: zenith, horizon, celestial meridian, celestial poles, celestial equator and ecliptic.

Be able to identify these constellations and specific stars or star cluster, on a star chart of any month with no constellation lines visible.

Constellation	Star or Star Cluster
Bootes	Arcturus
Canis Major	Sirius
Cassiopeia	
Cepheus	
Cygnus	
Draco	
Gemini	Castor, Pollux

Constellation	Star or Star Cluster
Leo	
Orion	Betelgeuse, Rigel
Scorpius	
Taurus	Aldebaran, Pleiades
Ursa Major	
Ursa Minor	Polaris
Virgo	Spica

Part III: A series of written questions and visual identification of the non-planetary members of the solar system:

- 1. Meteoroids, meteors, meteorites, comets, asteroids – location, origin, composition.**
- 2. Dwarf planets (aka Plutoids or Trans-Neptunians) – definition, names, locations.**
- 3. Moons – In addition to Luna, be familiar with the characteristics of, and be able to visually identify the following moons:**
 - a. Phobos, Deimos (Mars)**
 - b. Io, Europa, Ganymede, Callisto (Jupiter)**
 - c. Mimas, Enceladus, Hyperion, Iapetus (Saturn)**
- 4. Structure of the outer solar system – Kuiper Belt, Oort Cloud, Interplanetary Medium.**
- 5. Know glossary terms specific to non-planetary members of the solar system, posted on www.macombso.org.**

Part IV: A series of written questions on various space missions, posted on www.macombso.org.

- 1. Be able to recognize a basic description of each mission.**
- 2. Know the important findings from each mission.**

SCORING: One (1), two (2) or three (3) points will be awarded for each correct answer, depending on the level of difficulty. There will be about **65** questions that add up to about **130** points. Tie-breaker questions will be included on the test.

If a rule clarification is posted on the Macomb Science Olympiad website, the supervisor will score this event accordingly. Please visit: <http://macombso.org/index.php/esofaqs>