

Read the General Rules in the manuals and on www.soinc.org as they apply to every event.

- DESCRIPTION:** Students will demonstrate an understanding and basic knowledge of the properties and evolution of stars, open clusters and globular clusters, and normal and star-forming galaxies.

A TEAM OF UP TO: 2

APPROXIMATE TIME: 50 Minutes

- EVENT PARAMETERS:** Each team may bring only two 8.5" x 11" two-sided pages of notes containing information in any form from any source and must provide their own clipboards and red-filtered flashlights.

- THE COMPETITION:** This event is divided into two parts. Notes may be used during both parts.

- Part I:** Participants may be asked to identify the stars, constellations, and deep sky objects included in the lists below as they appear on star charts, H-R diagrams, portable star labs, photos, or planetariums, and must be knowledgeable about the evolutionary stages of all stars and deep sky objects on the list below. Note: Constellations are underlined; **Stars** are boldface; *Deep Sky Objects* are italicized.

Andromeda: *M31 Andromeda Galaxy*

Aquila: **Altair**

Auriga: **Capella**

Bootes: **Arcturus**

Cancer: *M44 Beehive Cluster*

Canes Venatica: *M51 Whirlpool Galaxy*

Canis Major: **Sirius**

Canis Minor: **Procyon**

Centaurus: **Proxima Centauri**

Cetus: **Mira**

Cassiopeia: *Cas A & Tycho's Star*

Cygnus: **Deneb**

Dorado: *LMC*

Gemini: **Castor & Pollux**

Libra: **Gliese 581**

Hercules: *M13 Globular Cluster*

Leo: **Regulus**

Lyra: **Vega & M57 Ring Nebula**

Mensa: *LMC*

Orion: **Betelgeuse, Rigel & M42 Orion Nebula**

Perseus: **Algol**

Sagittarius: *Sgr A*

Scorpius: **Antares**

Taurus: **Aldebaran, Hyades Star Cluster, M1 Crab Nebula & M45 Pleiades**

Tucana: *SMC*

Ursa Minor: **Polaris**

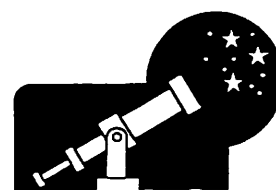
Ursa Major: **Mizar & Alcor**

Virgo: **Spica**

Also the Milky Way Galaxy

- Part II:** Participants will be asked to complete one or more hands-on or interpretive tasks selected from the following topics:

- Spectral classification of stars
- Stellar evolution
- Open and globular clusters
- Galactic types and structure



4. **SAMPLE PERFORMANCE TASKS:**

- Given the properties and/or spectra of stars and deep sky objects, participants will identify their proper placement on an H-R Diagram.
- Given a sequence of evolutionary stages for sun-sized and massive stars - red giant, red supergiant, planetary nebula, white dwarf, type Ia and type II supernovae, neutron stars and black holes - participants will match a set of images in the correct sequence.

- SCORING:** Each task and/or question will have been assigned a predetermined number of points. Places determined by total number of points. Ties will be broken by the accuracy and thoroughness of responses.

Recommended Resources: All reference and training resources including the **Audubon Field Guide to the Night Sky** and the **Bio/Earth CD** are available on the Official Science Olympiad Store or Website at <http://www.soinc.org>