

## AMAZING ARTHROPODS

**DESCRIPTION:** Students will be required to demonstrate an understanding of key concepts in taxonomy (including basic identification and morphology), ecology, life history, and the economic impacts of the major terrestrial arthropod groups. This knowledge will also be applied to recognizing the arthropods in their own neighborhood by assembling a collection of arthropod specimens or specimen photographs and identifying them in advance of the tournament.

**TEAM SIZE:** 1 or 2 students

**APPROXIMATE TIME:** 30 minutes

**WHAT TO BRING:** A #2 pencil for the test and the team's completed arthropod collection. Each team may also bring one, 8 ½" x 11", two-sided sheet of paper of notes.

### **THE COMPETITION:**

**Part 1:** A test consisting of multiple choice, matching, and true or false questions presented in a station-based format. Teams will rotate among approximately 20 stations and be allowed about 1 minute at each station. Each station may include 4 to 6 questions. Students will record their answers on a Scantron form. The scope of subjects listed below may be the basis for questions on the test. The associated Study Guide will aid coaches and students with this material.

<b>Arthropod Classes</b>	<b>Insect Orders</b>	<b>Species</b>	<b>Concepts</b>
Visually recognize, be familiar with the major groups included, their basic biology & anatomy	Visually recognize, use a dichotomous key to identify, be able to recount basic biology, life history and ecology	Visually recognize, recount the taxonomy life history, ecology, economic impact and conservation status	These general topics will help the student be more successful on this event
<ul style="list-style-type: none"> <li>• Arachnida</li> <li>• Chilopoda</li> <li>• Collembola</li> <li>• Diplopoda</li> <li>• Insecta</li> <li>• Malacostraca</li> </ul>	<ul style="list-style-type: none"> <li>• Blattodea</li> <li>• Coleoptera</li> <li>• Dermaptera</li> <li>• Diptera</li> <li>• Hemiptera</li> <li>• Hymenoptera</li> <li>• Lepidoptera</li> <li>• Mantodea</li> <li>• Neuroptera</li> <li>• Orthoptera</li> <li>• Odonata</li> <li>• Siphonaptera</li> </ul>	<ul style="list-style-type: none"> <li>• American Burying Beetle</li> <li>• Antlion</li> <li>• Black-legged Tick</li> <li>• Bumble Bees</li> <li>• Eastern Carpenter Ant</li> <li>• Eastern Subterranean Termite</li> <li>• German Cockroach</li> <li>• Gypsy Moth</li> <li>• Hine's Emerald Dragonfly</li> <li>• Honey Bee</li> <li>• Human Bed Bug</li> <li>• Japanese Beetle</li> <li>• Karner Blue Butterfly</li> <li>• Leadplant Moth</li> <li>• Multicolored Asian Lady Beetle</li> <li>• Paper Wasps</li> <li>• Pavement Ant</li> <li>• Yellow Jackets</li> </ul>	<ul style="list-style-type: none"> <li>• Linnaean Classification</li> <li>• Basic Arthropod Anatomy</li> <li>• How to use Identification Keys</li> <li>• Various methods and tools of collecting arthropods</li> <li>• Insect Growth &amp; Metamorphosis</li> <li>• Insect Defenses</li> <li>• Insect Respiration</li> <li>• Economic Impacts</li> <li>• Pest Control Tactics</li> </ul>

**Part 2:** An arthropod collection that is brought to the tournament. Specimens may either be pinned or presented as photographs of the actual specimen that the student found. The team number and students' names should be clearly identifiable on the collection. The collection may be required to be impounded before the tournament begins. Check the tournament schedule for details.

The Study Guide contains guidance on creating the bug collection and its presentation, including the allowable size for each format. Students may choose to create a pinned collection or a photograph collection, but not a mix of the two. One type of collection is not preferred over the other, and will not systematically receive more points.

### **SCORING:**

**Test: 70% of the total score** (215 total points available)

- T/F questions worth 2 point each
- multiple choice & matching worth 3 points each

**Collection: 30% of the total score** (92 total points available)

- 3 points for each unique Arthropod Class collected and properly identified (no maximum)
- 5 points for each unique Insect Order collected and properly identified (up to 10 orders)
- 1 point per specimen (up to 30 specimens)

The tie-breaker will be based on the overall aesthetic quality and scientific worth of the arthropod collection (nicely mounted specimens, not broken or beaten up specimens, neat and clear labels, proper identifications, and all instructions followed). ***Note:*** *if it appears that the student misrepresented their arthropod collection (for instance, used online photos or old specimens) no points will be given.*

**References:** See the supporting Study Guide provided on the Macomb Science Olympiad website.

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>