ENTOMOLOGY B

See General Rules, Eye Protection & other Policies on www.soinc.org as they apply to every event.

1. **DESCRIPTION:** Students will be asked to identify insects and selected immature insects by **indicated taxonomy (order, subclass, or family),** answer questions about insects, and use or construct a dichotomous key. **All specimens will be representatives of insects found in the Contiguous United States.**

   A TEAM OF UP TO: 2 **APPROXIMATE TIME:** 50 minutes

2. **EVENT PARAMETERS:**
   a. Each team may bring one 2" or smaller three-ring binder, as measured by the interior diameter of the rings, containing information in any form and from any source. Sheet protectors, lamination, tabs, and labels are permitted. If the event features a rotation through a series of laboratory stations where the participants interact with samples, specimens, or displays, no material may be removed from the binder throughout the event.
   b. Each team may also have one commercially produced field guide which may be tabbed or annotated.
   c. In addition to their resource binder and field guide, each team may bring one (1) copy of either the **2026** National Entomology List or a State or Regional Entomology List if issued.
   d. Each team may bring one hand lens or magnifying glass. The Supervisor will provide dissecting microscopes, if needed.
3. **THE COMPETITION:**
   a. Teams will be asked to identify an insect's Order, Subclass, Family or common name and answer a related question(s). Questions are limited to topics below and insects are limited to those listed on the 2026 National Entomology List, which is based on **the Insects of North America Princeton Field Guide (2023)**.
   b. Insect specimens or images (nymph or larva for selected orders and families) will be exhibited so that students will be able to see pertinent features with the unaided eye or a hand lens. **Students may be asked to use or formulate a simple dichotomous key to identify insects.**
   c. For each specimen, students will be asked correlated questions that pertain to the insect's internal and external anatomy, ecology, economic characteristics, or **systematics**.
   d. Ecological characteristics may include habitats, adaptations to the environment, behavior, relationships (e.g. symbiosis and competition) with animals, plants, and public health, as well as climate change impacts.
   e. Economic characteristics may include beneficial or detrimental aspects of insects such as sources of food, medicine, **disease**, chemicals, nutrients, and insects as nuisance species.
   f. **State and Nationals Only: For specimens, students may be asked questions that pertain to management. Such questions may pertain to pest/disease/invasive species concerns, Integrated Pest Management (IPM), conservation, and urban entomology. (IPM refers to preventing or suppressing damaging populations of insect pests by application of comprehensive and coordinated integration of multiple control tactics: chemical, biological, and cultural controls in context of their economic, environmental, and social consequences.)**
4. **SCORING:**
   a. The high score wins.
   b. Preselected questions will be used as tiebreakers.

Recommended Resources: The Science Olympiad Store (store.soinc.org) carries a variety of resources to purchase; other resources are available on the Event Pages at soinc.org.

2026 NATIONAL ENTOMOLOGY LIST

See General Rules, Eye Protection & other Policies on www.soinc.org as they apply to every event.

Specimens will be limited to those on the 2026 National Entomology List, made up of 26 orders, 2 subclasses and 113 families. **All specimens will be representatives of insects found in the Contiguous United States**

- Orders or Families marked by an "*" require that the participants be able to recognize larvae or nymph forms.
- Orders or Families designated in "*Italics*" are only to be used at the State and National levels of competition.
- The taxonomic scheme is based upon the Insects of North America Princeton Field Guide (2023)**.**

Class Entognatha

Order Protura - telsontails, proturans
Subclass Collembola - springtails, snow fleas
Order Diplura - diplurans

Class Insecta

Order Archaeognatha - bristletails,
Order Zygentoma - silverfish, firebrats
*Order Ephemeroptera - mayflies
*Order Odonata - dragon/damselflies
*Family Aeshnidae – darners
**Family Gomphidae - clubtails*
*Family Libellulidae - skimmers
*Family Lestidae - spread-wing
*Family Coenagrionidae - narrow-winged
Order Blattodea- cockroaches/termites
Family Termitidae – termites
Family Blattidae – household roaches
Family Cryptocercidae – brown-hooded roaches
Order Mantodea - mantids
Order Embioptera - webspinners
Order Dermaptera - earwigs
*Order Plecoptera - stoneflies
Order Orthoptera - grasshoppers & crickets
Family Tetrigidae - pygmy grasshopper
Family Acrididae - short-horned grasshoppers
Family Tettigoniidae - katydids
Family Rhaphidophoridae - camel crickets
Family Gryllidae - crickets/tree crickets
Family Gryllotalpidae - mole crickets
Order Phasmatodea - walkingsticks
Family Diapheromeridae - common walkingsticks
Order Psocodea - Book/Bark Lice
Order Hemiptera - true bugs
Family Corixidae - water boatmen
Family Notonectidae - backswimmers
Family Belostomatidae - giant water bugs
Family Nepidae - waterscorpions
Family Gelastocoridae - toad bugs
Family Gerridae - water striders
Family Cimicidae - bed bugs
Family Miridae - plant bugs
Family Reduviidae - assassin bugs
Family Scutelleridae – metallic shield bugs
Family Tingidae - lace bugs
Family Lygaeidae - seed bugs
Family Coreidae - leaf–footed bugs
Family Pentatomidae - Stink bugs
*Family Cicadidae - cicadas
Family Membracidae - treehoppers
Family Cercopidae - froghoppers, spittlebugs
Family Cicadellidae - leafhoppers
Family Fulgoridae - fulgorid planthoppers
Family Aphididae - aphids
***Family Pseudococcidae – mealybug**
***Family Coccidae – soft scale insect**
Order Thysanoptera - thrips
*Order Megaloptera - dobsonflies
Order Neuroptera - lacewings, Antlions
Family Chrysopidae - green lacewings
*Family Myrmeleontidae - antlions
Order Coleoptera - beetles
Family Carabidae - ground and tiger beetles
Family Dytiscidae - predaceous diving beetles
Family Gyrinidae - whirligig beetles
Family Hydrophilidae - water scavenger
***Family Psephenidae – water penny beetles**
***Family Elmidae – riffle beetles**
Family Histeridae - hister beetles
Family Staphylinidae - rove beetles
Family Silphidae - carrion beetles
Family Lucanidae - stag beetles
Family Passalidae - bess beetles
Family Scarabaeidae - dung beetles
Family Buprestidae - metallic wood-boring/ jewel beetles
**Family Elateridae - click beetles*

**Family Lampyridae - fireflies*
Family Cantharidae - soldier beetles
Family Lycidae - net-winged beetles
Family Cleridae - checkered beetles
*Family Coccinellidae - lady-bird beetles (ladybugs)
*Family Tenebrionidae – darkling beetles
Family Meloidae - blister beetles
*Family Cerambycidae - long-horned beetles
Family Chrysomelidae - leaf beetles
Family Curculionidae - weevils
Family Zopheridae – diabolical ironclad beetles
***Family Cucujidae – flat bark beetles**
Order Mecoptera - scorpionflies
Family Boreidae - snow scorpionflies
Family Panorpidae - common scorpionflies
Order Raphidioptera - Snakeflies
Family Raphidiidae - Raphidiid Snakeflies
Order Siphonaptera - fleas
Order Diptera - true flies
*Family Tipulidae - crane flies
*Family Culicidae - mosquitoes
*Family Chironomidae - midges
**Family Simuliidae - black flies*
Family Stratiomyidae - soldier flies
Family Tabanidae - horse flies
Family Asilidae - robber flies
Family Bombyliidae - bee flies
*Family Syrphidae - hover/flower flies
Family Tephritidae - fruit flies, husk fly
Family Drosophilidae - pomace flies, fruit/ vinegar flies
Family Muscidae - house flies
*Family Calliphoridae - blow flies
Family Tachinidae - tachinid flies
****Family Oestridae - botflies***
*Order Trichoptera - caddisflies
Order Lepidoptera - moths and butterflies
Family Sesiidae - clear winged moths
Family Tortricidae - Tortrix moths
Family Hesperiidae - skippers
*Family Papilionidae - swallowtails
Family Pieridae - whites, sulfurs
Family Lycaenidae - hairstreaks, blues
*Family Nymphalidae - brush-footed butterflies
Family Geometridae - geometer moths
****Family Lasiocampidae - tent caterpillar/ lappet moths***
Family Pyralidae - snout moths
Family Saturnidae – Giant Silkworm moths
*Family Sphingidae - sphinx/hawk moths, hornworms
*Family Erebidae - tiger/tussock moths
Family Noctuidae – owlet moths
Order Hymenoptera - bees/ants/wasps.
Family Tenthredinidae - common sawflies
Family Siricidae - horntails
Family Ichneumonidae - ichneumons
Family Cynipidae - gall wasps
Family Mutillidae - velvet-ants
Family Formicidae - ants
Family Vespidae - paper wasps, hornets, yellowjackets
Family Sphecidae - thread- waisted wasps
Family Braconidae – braconid wasps
Family Halictidae - Sweat bees
Family Megachilidae - leaf cutter bees
Family Apidae - bees

<u>Non Insect Arthropods</u>
Subclass Acari - Ticks
Family Ixodidae – Hardbacked tick