

DESCRIPTION: In this event, students will be asked to identify insects and selected immature specimens as to their order (Div. B&C) and family (C only) from 26 common orders of insects. Because taxonomic schemes may vary from source to source, only the **Science Olympiad Official Insect List** will be used for all competitions. Students should be able to use an insect identification resource. In addition to identification, students should become familiar with insects that are beneficial to mankind and those that are considered harmful either to agriculture or man's health.

NUMBER OF PARTICIPANTS: 2

APPROXIMATE TIME: 50 minutes

EVENT PARAMETERS: Teams may bring 1) one identification guide, 2) student developed notes and handwritten or printed resources that can be hole punched and attached to the rings of 1" binder that fit in an area no larger than 12" x 12" x 1.5" and 3) pre-printed stick-on labels (order and family only). Students may not use any electronic devices. The Official Insect List which is available along with references, teaching resources, and suggested regional/state competition emphasis on the Official Science Olympiad website at <http://www.soinc.org>.

THE COMPETITION:





1. Each team will be given an answer sheet on which they will record answers. Students may bring and use resources for identification (printed or photocopied with illustrations and diagrams).
2. 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, a hand lens or a dissecting microscope.
3. For the specimens, questions may also be asked concerning the economic or health impact of the specimen upon the human race.
4. Process skills may include observations, inferences, data and diagram analysis, dichotomous keys.
5. One of the stations may involve students using or formulating a simple dichotomous key.

SCORING:

The team with the highest number of correct answers will determine the winner. Selected questions may be used as tiebreakers.

Division B/C – Common Orders-Specimens will be come from this Official list of 26 insect orders:

- | | | |
|--|--|---|
| A. Protura (proturans) | N. Mallophaga (chewing lice) |  |
| B. Collembola (springtails) | O. Anoplura (sucking lice) | |
| C. Diplura (diplurans) | P. Thysanoptera (thrips) | |
| D. Thysanura (silverfish) | Q. Hemiptera (true bugs) | |
| E. Ephemeroptera (mayflies) | R. Homoptera (aphids, cicadas, hoppers) | |
| F. Odonata (dragonflies, damselflies) | S. Neuroptera (dobsonflies, lacewings, antlions) | |
| G. Plecoptera (stoneflies) | T. Coleoptera (beetles) | |
| H. Orthoptera (crickets, grasshoppers, katydids) | U. Mecoptera (scorpionflies) | |
| I. Phasmatodea (walking sticks) | V. Trichoptera (caddisflies) | |
| J. Mantodea (mantids) | W. Lepidoptera (butterflies, moths) |  |
| K. Blattodea (cockroaches) | X. Diptera (flies) | |
| L. Isoptera (termites) | Y. Siphonaptera (fleas) | |
| M. Dermaptera (earwigs) | Z. Hymenoptera (ants, bees, wasps) | |

Division C-Orders and Families Specimens will be come from this Official list of 26 insect orders and 95 families. Orders Or Families Marked By An "*" Require That The Contestant Be Able To Recognize Larvae Or Nymph Forms. Letters refer to orders - numbers refer to families:

- | | |
|--|---|
| A. Protura – tselontails, proturans | 41. Carabidae – ground beetles |
| B. Collembola – springtails | 42. Dytiscidae – predaceous diving beetles |
| C. Diplura - diplurans | 43. Gyrinidae – whirligig beetles |
| D. Thysanura - bristletails | 44. Histeridae – hister beetles |
| E. Ephemeroptera - mayflies | 45. Hydrophilidae – water scavenger beetles |
| * F. Odonata - dragonflies & damselflies | 46. Silphidae – carrion beetles |
| 1. Gomphidae – clubtails | 47. Staphylinidae – rove beetles |
| 2. Aeshnidae – damers dragonflies | 48. Cantharidae – soldier beetles |
| 3. Libellulidae – skimmers, dragonflies | 49. Lampyridae – fire flies |
| 4. Coenagrionidae – narrow winged damselflies | 50. Elateridae – click beetles, wireworms |
| G. Plecoptera - stoneflies | 51. Cleridae – checkered beetles |
| H. Orthoptera - grasshoppers & crickets | 52. Buprestidae – metallic wood boring beetles |
| 5. Acrididae – short horned grasshoppers | 53. Lycidae – net-winged beetles |
| 6. Romaleinae – lumber grasshoppers | 54. Coccinellidae – lady-bird beetles (ladybugs) |
| 7. Cyrtacanthacridinae – bird grasshoppers | 55. Meloidae – blister beetles |
| 8. Acridinae - grasshoppers | 56. Mordellidae – tumbling flower beetles |
| 9. Tettigoniidae - katydids | * 57. Tenebrionidae – darkling beetles |
| 10. Gryllidae – crickets, tree crickets | 58. Lucanidae – stag “bug” beetles |
| 11. Gryllotalpidae – mole crickets | 59. Passalidae – bess beetles, peg beetles |
| I. Phasmatodea - walking sticks | 60. Trogidae – skin beetles |
| J. Mantodea - mantids | 61. Scarabaeidae – dung beetles, June “bug” beetles |
| K. Blattodea - roaches | * 62. Cerambycidae – long-horned beetles |
| L. Isoptera - termites | 63. Chrysomelidae – leaf beetles |
| M. Dermaptera - earwigs | 64. Curculionidae – weevils |
| N. Mallophaga - chewing lice | 65. Halipidae – crawling water beetles |
| O. Anoplura - sucking lice | 66. Geotrupidae – earth-boring dung beetles |
| P. Thysanoptera - thrips | U. Mecoptera - scorpionflies |
| Q. Hemiptera - true bugs | * V. Trichoptera - caddisflies |
| 12. Corixidae – water boatman | W. Lepidoptera - moths and butterflies |
| 13. Notonectidae – backswimmers | * 67. Papilionidae – swallowtail butterfly |
| 14. Belostomatidae – giant water bugs | 68. Pieridae – whites, sulfurs |
| 15. Gerridae – water striders | 69. Nymphalidae – brushfooted butterflyies |
| 16. Cimicidae – bed bugs | * 70. Sphingidae – sphinx moths, hornworms |
| 17. Miridae – leaf bugs | * 71. Saturniidae – royal moths |
| 18. Reduviidae – assassin bugs | 72. Citheroniidae – regal moths |
| 19. Tingidae – lace bugs | 73. Arctiidae – tiger moths, wooly worms |
| 20. Lygaeidae – seed bugs | 74. Phalaenidae (Noctuidae) – noctuid moths, cutworms |
| 21. Pyrrhocoridae – red bugs | X. Diptera - true flies |
| 22. Coreidae – leaf-footed bugs | 75. Tipulidae – crane flies |
| 23. Aradidae – flat bugs | * 76. Culicidae – mosquitoes |
| 24. Cydnidae – burrowing bugs | 77. Tabanidae – horse flies |
| 25. Corimelaenidae (Thyreocoridae) – Negro bugs | 78. Asilidae – robber flies |
| 26. Scutelleridae – shield back bugs | 79. Syrphidae – flower flies |
| 27. Pentatomidae – stink bugs | 80. Tachinidae – tachinid flies |
| 28. Gelastocoridae – toad bugs | * 81. Calliphoridae – blow flies |
| 29. Nepidae – water scorpions | 82. Muscidae – house flies |
| 30. Naucoridae – creeping water bugs | 83. Bombyliidae – bee flies |
| R. Homoptera - cicadas, aphids, hoppers, etc. | 84. Therevidae – stiletto flies |
| 31. Cicadidae – cicadas | 85. Trypetidae – fruit flies, huskfly |
| 32. Membracidae – tree hoppers | 86. Stratiomyidae – soldier flies |
| 33. Cercopidae – froghoppers, spittle bugs | 87. Drosophilidae – pomace flies |
| 34. Cicadellidae – leafhoppers | Y. Siphonaptera - fleas |
| 35. Fulgoridae – fulgorid planthoppers | Z. Hymenoptera - bees, ants, wasps, etc. |
| 36. Aphididae – aphids | 88. Ichneumonidae – ichneumons |
| 37. Coccidae – scale (twig or leaf) | 89. Chrysididae – cuckoo wasps |
| S. Neuroptera - dobsonflies, lacewings, antlions | 90. Mutillidae – velvet ants |
| 38. Chrysopidae – green lacewigs | 91. Formicidae – ants |
| * 39. Myrmeleontidae – antlions | 92. Vespidae – paper wasps |
| T. Coleoptera - beetles | 93. Sphecidae – mud duffers |
| 40. Cicindelidae – tiger beetles | 94. Apidae – bees |
| | 95. Pompilidae – spider wasps |

