

**Science Olympiad  
Goshen College Regional Tournament  
February 14, 2015  
Event Information**

This document incorporates information posted at rules clarifications web pages (through 1/18/2015) and by event supervisors via email or at the Team Coaches and Event Supervisors Meeting held January 19, 2015. Some rules are restated here for emphasis.

**Rules Clarifications** can be found at the following sites:

- National: [http://soinc.org/official\\_rules\\_clarif](http://soinc.org/official_rules_clarif)
- Indiana: <https://www.indianascienceolympiad.org/resources/clarifications.cfm>

General National Rules Clarifications:

- [Science Olympiad Policy for Significant Figures \(12/5/12\)](#)
- **Events requiring Eye Protection #5 (High Impact Protection - ANSI Z87+)** - Goggles with lenses identified as Z87+ regardless of markings on other parts of the goggles and Spectacles identified as Z87+ with side shields regardless of markings on other parts of the spectacles will be acceptable for events requiring High Impact Protection #5. **(4/8/10)**

General Indiana Rules Clarifications:

- **RESOURCES (DIVISION B ONLY)**  
The following B Division events may use binders of any size during **invitational and regional** competitions. The event parameters, as outlined by the National rules, will be followed at the State tournament.

B Division events that may use binders at invitational and regional levels:

Anatomy & Physiology  
Bio-Process Lab  
Disease Detectives  
Dynamic Planet  
Entomology  
Green Generation  
Meteorology  
Solar System

These B Division events may have binders at all levels of competition:

Crave The Wave  
Crime Busters  
Fossils  
Road Scholar  
Simple Machines

**ANATOMY & PHYSIOLOGY (BC):**

National: B & C are the same for both divisions in 2015.

Ryan Sensenig: There will be stations. Some may require data collection. Instruction will be provided for any equipment that must be used.

**DYNAMIC PLANET (BC):**

National: 4.e. should read "Calculate the buoyancy of a given watercraft in water samples of varying **density**." (12/29/14)

**ASTRONOMY (C):**

Michael McNeely: Likely to be power point slides with questions for teams to answer.

**BOTTLE ROCKET (B):**

John Buschert: Will be using a pair of aquapods for launching. If the air temperature is low, filling may occur indoors and the rocket and aquapod then moved outside for launch.

**BRIDGE BUILDING (BC):**

Paul Meyer Reimer: Currently use manual sand placement but looking into using the buster equipment used at the Northridge invitational to better automate the process.

Rule 5a: "Once teams enter the event area to compete, they must not leave, receive outside assistance, materials, or communication."

**CELL BIOLOGY (C):**

Jody Saylor: About 15 stations. All topics listed in the rules will have questions. Students should know how to use a microscope.

**DISEASE DETECTIVES (BC):**

Jody Saylor: 3-4 case studies with short answer questions/computations. C more math oriented than B. Will likely use CDC Reports on mortality.

**ELASTIC LAUNCHED GLIDER (B):**

Room Dimensions: The area where flights will take place is about 12 meters wide, 18 meters long, and 7 meters high.

Rule 4b: "Once competitors enter the cordoned off competition area to trim, practice, or compete they must ... not receive outside assistance, materials, or communication. Teams violating these rules must be ranked below all other teams."

**ENTOMOLOGY (BC)**

Indiana: Orders and Families Specimens will be come from this Official list of 20 insect orders and 59 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: (The taxonomic scheme is based upon the Audubon Insect and Spider Field Guide. Any arbitrations questions will defer to this resource as the correct answer.)

- A. Thysanura-bristletails, silverfish
- B. Ephemeroptera-mayflies
- \*C. Odonata-dragon/damselflies
  - 1 Aeshnidae-darners, dragonflies
  - 2 Libellulidae-skimmers, dragonflies
  - 3 Lestidae-Spreadwing
  - 4 Coenagrionidae-narrow winged
- D. Blattodea-roaches
- E. Mantodea-mantids
- F. Isoptera-termites
- G. Dermaptera-earwigs
- H. Plecoptera-stoneflies
- I. Orthoptera-grasshoppers & crickets
  - 5 Acrididae-short-horned grasshoppers
  - 6 Tettigoniidae-katydid
  - 7 Gryllidae crickets/tree crickets
- J. Phasmatodea-walking sticks
- K. Hemiptera-true bugs
  - 8 Gerridae-water striders
  - 9 Miridae-leaf bugs
  - 10 Reduviidae-assassin bugs
  - 11 Phymatidae-ambush bugs
  - 12 Coreidae-leaf-footed bugs
  - 13 Pentatomidae-Stink bugs
- L. Homoptera-cicadas, aphids, hoppers, etc.
  - 14 Cicadidae-cicadas
  - 15 Membracidae-tree hoppers
  - 16 Aphididae-aphids
  - 17 Cicadellidae-leafhoppers
- M. Megaloptera- dobsonflies
- N. Neuroptera- (lacewings, antlions)
  - 18 Chrysopidae-green lacewigs
  - \*19 Myrmeleontidae-antlions
- O. Coleoptera-beetles
  - 20 Cicindelidae-tiger beetles
  - 21 Carabidae-ground beetles
  - 22 Staphylinidae-rove-beetles
  - 23 Lucanidae-stag beetles
  - 24 Passalidae-bess beetles
  - 25 Buprestidae-metallic wood-boring beetles
  - 26 Elateridae-click beetles, wireworms
  - 27 Lampyridae-fire flies
  - 28 Cantharidae-soldier beetles
  - 29 Coccinellidae-lady-bird beetles (ladybugs)
  - \*30 Tenebrionidae-darkling beetles
  - \*31 Cerambycidae-long-horned beetles

- 32 Chrysomelidae-leaf beetles
- 33 Curculionidae-weevils
- P. Mecoptera-scorpionflies
- 34 Panorpidae-common scorpionflies
- Q. Diptera-true flies
- 35 Tipulidae-crane flies
- 36 Culicidae-mosquitoes
- 37 Simuliidae-black flies
- 38 Stratiomyidae-soldier flies
- 39 Tabanidae-horse flies
- 40 Asilidae-robber flies
- 41 Bombyliidae-bee flies
- 42 Muscidae-house flies
- 43 Calliphoridae- blow flies
- R. Trichoptera-caddisflies
- S. Lepidoptera-moths and butterflies
- 44 Hesperiiidae-skippers
- 45 Papilionidae-swallowtails
- 46 Pieridae-whites, sulfurs
- 47 Lycaenidae- hairstreaks/blues
- 48 Nymphalidae-Brush-footed
- 49 Satyridae-Satyrs, nymphs and arctics
- 50 Danaidae-milkweed butterflies
- 51 Pyralidae-pyralid moths
- 52 Saturniidae-Giant Silkworm moths
- 53 Sphingidae-sphinx moths, hornworms
- T Arctiidae-tiger moths, wooly worms
- 54 Hymenoptera-bees/ants/wasps...
- 55 Siricidae-horntails
- 56 Ichneumonidae-ichneumons
- 57 Formicidae-ants
- 58 Vespidae-paper wasps
- 59 Apidae-bees

### **FOSSILS (BC)**

Tony Hurst: Following is a list of things that will be covered at the stations: (Information based on Smithsonian Handbook "Fossils")

1. Identification of fossil samples.
2. Dinosaur identification from pictures.
3. Fossil formation and typical rocks.
4. Geological time chart
5. Fossil Index

Because of the complexity of identification, many questions will be in multiple choice form. I will also be adding the Petoskey stone to the list of fossils since it is common to the eastern shore of lake Michigan.

**GREEN GENERATION (BC):**

Ryan Sensenig: Several stations with questions. May require some data collection. If so, then instructions would be given for any equipment used.

**PICTURE THIS (B):**

National: **A TEAM OF:** 3. should read **A TEAM OF UP TO:** 3. (10/29/14)

**SCRAMBLER (C):**

Rule 4a: “Only competitors and the ES will be allowed in the impound and track areas while the teams are competing. Once competitors enter the event area, they must not leave the area or receive outside assistance, materials or communication.”

**SOLAR SYSTEM (B)**

Steve Shantz: May be stations with pictures and questions to be answered.

**TECHNICAL PROBLEM SOLVING (C)**

National: 3. For 2015 there are TWO stations but only ONE topic and delete 3.c. as it contradicts 3.b. (9/29/14)

**WHEELED VEHICLE (B)**

Indiana: 4.d. to state the following:

“A weighted #10 can (approx. 6 3/16 inches in diameter x 7 inches high) **MAY** be placed on the track centered on the midpoint between the Start and Finish Points. If a team chooses to run with the can and successfully goes around it (stops beyond the plane of the can), 100 points will be added to the team’s score.”

Rule 4b: “Only competitors and the Event Supervisors will be allowed in the vehicle impound and track areas while the teams are competing. Once competitors enter the event area, they must not leave the area or receive outside assistance, materials, or communication.”

**WRIGHT STUFF (C)**

Room Dimensions: The area where flights will take place is about 12 meters wide, 18 meters long, and 7 meters high.

Rule 4b: “Once competitors enter the cordoned off competition area to trim, practice, or compete they must not receive outside assistance, materials, or communication. Teams violating these rules must be ranked below all other teams.”

**WRITE IT/DO IT (BC)**

Larry Benjamin: Students must not touch the object that is shown. If a student touches the object, the team will be disqualified. Please be courteous in allowing each other to see the object. There will be one object for the 7 B teams to view, but there will be 2-3 identical objects for the 13 C teams to view.