1. **DESCRIPTION:** This event is a lab-oriented competition involving the fundamental science processes of a middle school life science/biology lab program.

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

2. **EVENT PARAMETERS:**

   Students will provide safety goggles and non-programmable calculators. Reference materials are not allowed during the competition. Measurements must be made to the accuracy of the device.

3. **THE COMPETITION:**

   This event will consist of a series of lab stations. Each station will require the use of process skills to answer questions and/or perform a required task such as formulating and/or evaluating hypotheses and procedures, using scientific instruments to collect data, making observations, presenting and/or interpreting data, or making inferences and conclusions.

4. **SAMPLE QUESTIONS:** Possible stations include:

   a. Formulating and/or evaluating hypotheses and procedures.
   b. Making predictions.
   c. Making observations and collecting data by measuring length, volume, temperature, pH, and mass using a variety of tools—both traditional and/or electronic (i.e., rulers, calipers, pipettes, graduated cylinders, balances, thermometers, and electronic probes).
   d. Using compound microscopes and stereomicroscopes as measurement and identification tools.
   e. Interpreting data in the form of tables, charts, graphs, food labels, food webs, flow charts, pedigrees, karyotypes, etc.
   f. Making simple calculations such as area, density, percentages, averages (mean, median, mode).
   g. Determining genetic ratios and probabilities.
   h. Using or formulating a taxonomic/dichotomous key.
   i. Using indicators.
   j. Making inferences and conclusions based upon data and observations.

5. **SCORING:**

   Points will be awarded for correct answers and/or proper technique. Contestants will be ranked from the highest to lowest total score. All ties will be broken using a designated task or a series of questions that are a part of the lab test or a separate station designated as a tiebreaker.

**SUGGESTED RESOURCES:**

*A Bio-Process Coaches Handbook (Print or CD) and a Biology/Earth Science CD (BECED)* for coaches and supervisors are available for purchase from the Science Olympiad National website at the store on-line or using a School Purchase Order at [www.soinc.org](http://www.soinc.org). Also see web resource links on the same site.