

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:**

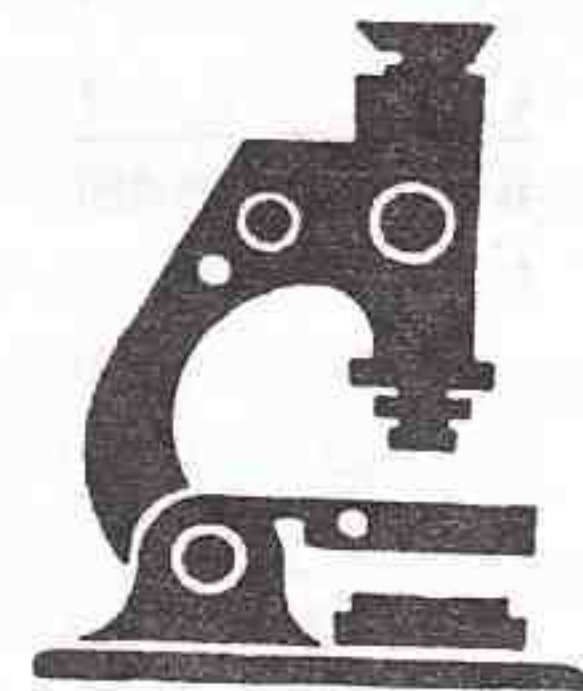
Students will provide safety goggles and non-programmable calculators. Reference materials are not allowed during the competition. Measurements must be made to the accuracy of the device.

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 (BECD) 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. Also see web resource links on the same site.