



1. **DESCRIPTION:** Participants will demonstrate their knowledge of plant life and general botany principles.

**A TEAM OF UP TO:** 2

**EYE PROTECTION:** A

**EVENT TIME:** 50 minutes

2. **EVENT PARAMETERS:**

- a. Each participant may bring one 8.5" x 11" sheet of paper, which may be in sheet protector sealed by tape or laminated, that may contain information on both sides in any form and from any source without any annotations or labels affixed as well as a stand-alone, non-programmable, non-graphing calculator.
- b. Each participant must wear a lab coat and goggles when dealing with specimens.
- c. Event Supervisors will provide live/preserved specimens, pictures, tables, graphs of data, microscopes, slides, and any other required equipment for the event. If used, toxic/irritating plants or specimens in liquid (e.g., Algae, protists) must be in closed, non-breakable containers.

3. **THE COMPETITION:**

- a. This event may be run as either a sit-down exam or a series of laboratory stations with questions.
- b. Participants will be expected to master the structure of plant cells, roots, stems, leaves, spore forming bodies and flowers, aspects of plant growth and differentiation, and the transport and storage of gases, water, and nutrition throughout the plant body.
- c. Participants should also have a broad knowledge of the major divisions between groups of plants (i.e., algae vs. multicellular plants, monocot vs. dicot, embryophytes vs. cryptogams, woody vs. herbaceous plants).
- d. In addition to the above listed topics, participants should know:
  - i. The history of botany
  - ii. Basic plant genetics and reproduction
  - iii. Photosynthesis
  - iv. Differences between the major taxonomic groups of plants
  - v. Paleo-botany and plant evolution
  - vi. The role of plants in global energy and nutrient cycles
  - vii. Use of plant materials by animals and humans
  - viii. Competition in the plant community
  - ix. Genetically Modified Organisms (GMOs)
  - x. Production of foodstuffs and plant products
  - xi. Plant diseases; including nutrient deficiencies and infections
- e. For Division C Only, participants are expected to know:
  - i. Principles of horticulture and aquaculture
  - ii. Plant biochemistry
  - iii. The roles of plants in medicine and environmental management
  - iv. Importance of plant diversity

4. **SAMPLE QUESTIONS/TASKS:**

- a. What leaf structure is being shown on this microscope slide?
- b. Using the graph, identify the peak wavelength for chlorophyll absorbance.
- c. Identify three key differences between flowering plants and ferns.
- d. Which plants would be in the next wave of plant succession for the region shown?
- e. Describe the role plants play in the nitrogen cycle.

5. **SCORING:**

- a. High Score wins.
- b. Selected questions will be used to break ties.

**Recommended Resources:** The Science Olympiad Store ([store.soinc.org](http://store.soinc.org)) carries a variety of resources to purchase for this event; other resources are on the Event Pages at [soinc.org](http://soinc.org)

**This event is sponsored by Corteva Agriscience**