

Botany
Core Knowledge Event
Life Science Committee Trial Event

1. **DESCRIPTION:** Participants will demonstrate their knowledge of plant life and general botany principles.
2. **A TEAM OF UP TO:** 2 **EYE PROTECTION:** None **EVENT TIME:** 50 minutes
3. **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.
 - b. Each team may bring one stand-alone non-programmable, non-graphing calculator.
 - c. Event Supervisors will provide appropriate pictures, tables, graphs of data for the event.
4. **THE COMPETITION:**
 - a. This event may be run as a sit-down exam.
 - 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. cryptograms, 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
 - xii. Principles of horticulture and aquaculture
 - xiii. Plant biochemistry
 - xiv. The roles of plants in medicine and environmental management
 - xv. Importance of plant diversity
5. **SAMPLE QUESTIONS/TASKS:**
 - a. What leaf structure is being shown??
 - 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.
6. **SCORING:**
 - a. High Score wins.
 - b. Selected questions will be used to break ties.

Recommended Resources:

- a. For the introductory Study of Botany - <http://botany101.jstor.org/>
- b. The botanical Society of America - <https://www.botany.org/>
- c. A full course on botany in Wikibooks - <https://en.wikibooks.org/wiki/Botany>
- d. A wide-ranging free online course in botany - <https://www.easybiologyclass.com/topic-botany/>
- e. <https://www.fairchildgarden.org/Education/Camps-at-Fairchild/Downloadable-Learning-Modules#bb>
- f. A free online text of botany - http://herba.msu.ru/shipunov/school/biol_154/textbook/intro_botany.pdf