GREEN GENERATION

1. **DESCRIPTION:** Students will demonstrate an understanding of general ecological principles, the history and consequences of human impact on our environment, solutions to reversing trends and sustainability concepts.

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

2. **EVENT PARAMETERS:**

   Each team may bring one 8.5" x 11" sheet of paper, which may be in a 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 along with two stand-alone non-programmable, non-graphing calculators.

3. **THE COMPETITION:** This event will be composed of three sections of approximately equal point value. This may include analysis, interpretation or use of charts, graphs and sample data. Note: Green Generation is designed for a two year rotation – the first year (**2022**) will cover aquatic issues, air quality issues and climate change while the second year (**2023**) will cover terrestrial issues and population growth issues.
   a. Part 1: Review of the General Principles of Ecology
      i. General Principles of Ecology – food webs and trophic pyramids, nutrient cycling, community interactions, population dynamics, species diversity and indicator species **and invasive species** (**2022** and **2023**)
      ii. Overview of Aquatic Environments – freshwater, estuaries, marine (**2022**)
   b. Part 2: Problems resulting from human impacts on the quality of our environment
      i. Aquatic Environmental Issues – Water Pollution, Ocean Dead Zones, Water Diversion, Overfishing **and Habitat Destruction, Impacts on Excess Nutrients** (**2022**)
      ii. Air Quality Issues – Acid rain, Air Pollution, Nuclear Pollution, and **Atmospheric Deposition** (**2022**)
      iii. Climate Change – Effects on Plants, Animals, and Ecosystems, Greenhouse Effect, and Ozone Depletion (**2022**)
   c. Part 3: Solutions to reversing/reducing human impacts that harm our environment
      i. Legislation and Economic Opportunity for Solving Problems (Div. C) (**2022** and **2023**)
      ii. Sustainability Strategies – Environmental Stewardship of Aquatic Ecosystems (**2022**)
      iii. Bioremediation Strategies (**2022**)
      iv. **Pollution Prevention**
      v. **Green Infrastructure**

4. **SCORING:**
   a. **High score wins.**
   b. **Selected questions will be used to break ties.**

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

This event is sponsored by Corteva Agriscience