

MY SO STEM SHOWDOWN

CONTENT, RECOMMENDED MATERIALS & SCORING

STEM SHOWDOWN CONTENT

The STEM Showdown will consist of a series of online multiple-choice questions. Middle school (Grade 6-9) Participants in both Middle School (Grade 6-9) and High school (9-12) will answer questions about general ecological principles, the history and consequences of human impact on our environment, solutions to reversing trends and sustainability concepts. A Showdown participant will have 50-minutes to answer as many questions as possible.

The content and skills for both middle school (Grade 6-9) and high school (Grade 9-12) covered by the Showdown this month are as follows:

Review of the General Principles of Ecology

- General Principles of Ecology
 - Food Webs And Trophic Pyramids,
 - Nutrient Cycling,
 - Community Interactions,
 - Population Dynamics,
 - Species Diversity and Indicator Species; and,
 - Invasive Species
- Overview of Aquatic Environments
 - Freshwater,
 - Estuaries; and,
 - Marine

Problems Resulting From Human Impacts on the Quality of Our Environment

- Aquatic Environmental Issues
 - Water Pollution,
 - Ocean Dead Zones,
 - Water Diversion,
 - Overfishing,
 - Habitat Destruction; and,
 - Impacts on Excess Nutrients
- Air Quality Issues
 - Acid rain,
 - Air Pollution,
 - Nuclear Pollution; and,
 - Atmospheric Deposition

- Climate Change
 - Effects on Plants, Animals, and Ecosystems,
 - Greenhouse Effect; and,
 - Ozone Depletion

Solutions to Reversing/Reducing Human Impacts that Harm Our Environment

- Legislation and Economic Opportunity for Solving Problems – High School Only
- Sustainability Strategies – Environmental Stewardship of Aquatic Ecosystems
- Bioremediation Strategies
- Pollution Prevention
- Green Infrastructure

Recommended Materials

- Each Showdown participant will need a computer with internet access, scratch paper, something to write with, and a stand-alone calculator of any type
- Showdown participants may use resources available to help them answer the questions asked during the Showdown. These resources could be a collection of notes on the topics listed below, copies of magazine or journal articles, a textbook, or any combination of these items.

Scoring

- High score wins.
- Ties will be broken using:
 - a. The time it takes to complete the test; and
 - b. The results to the questions indicated as tiebreakers.

Additional Resources

- The Science Olympiad Store (store.soinc.org) carries a variety of resources that may be useful for this topic.
- Additional resources can be found on the Green Generation Event Pages at <http://soinc.org/>