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 the science and possible applications of solar power and alternative energy 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:

- Basic information and definitions about energy, work, heat and heat transfer, temperature, temperature scales, thermal energy and insulation.
- General information about renewable energy including but not limited to solar, wind, hydroelectric, tidal, ocean thermal energy conversion (OTEC), and geothermal.
- General information about energy conservation practices including but not limited to recycling, reusing, and using materials with greater efficiency.
- Mathematical relationships and equations used in determining heat loss and gain, specific heat, and heat transfer.
- Components of solar power systems used in commercial and residential applications.
- Arrangement, location, and components of large-scale solar power fields

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 for alternative energy that may be useful for this topic.
- Other resources may be found on the Trial Event Page at soinc.org.