What is the new San Francisco Bay Area Clean Tech Competition and How Can I Engage My Youth?

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Clean Tech Competition…
Solar Solutions to the Rescue

• **What?**
  - A youth competition within the exciting world of science and technology with a real-world, clean technology application

• **Who?**
  - Your students and other youth in your community---ages 13-18 (pre-college); all interest, ability, and skill levels

• **Where?**
  - Your classroom, after-school program, home dining room, or other community area within the San Francisco Bay Area

• **How?**
  - Using research, scientific principles, and creative thinking

• **Why?**
  - Your students/our youth are our future
The Clean Tech Competition…
It’s New! So What Does It Do?

- Recognizes students for their efforts in exploring science and technology and clean technology solutions to real world issues
- Acknowledges teachers, team leaders, and mentors assisting students with science and technology exploration
- Explores a brighter future for students and society with innovative uses for clean technology
CTC Challenges Your Students to Explore their Potential

• Encourages students ages 13-18 to combine the tools of science and critical, creative thinking to explore an innovative science and technology solution

• Empowers students to identify and solve a problem or improve the quality of life in the aftermath of a natural disaster using a solar technology invention

• Helps students envision a better world and envision themselves as contributors to the future
Sponsorship & Administration

- Funded by Applied Materials, Inc.
- Administered by the National Science Teachers Association

Why? Shared mission to promote excellence in science education and interest in science and technology
Why the Greater San Francisco Bay Area?

• 2011 inaugural Clean Tech Competition challenge only open to young people in two of the world's most historic centers of innovation:
  • USA’s Silicon Valley
  • Xi’an, China

• The Competition allows aligning of efforts with Chinese colleagues in science education and working together to motivate young people in both countries to build, invent, and prepare for the challenges of our technological 21st century.

• While teams compete only with other teams in their own region this year, the program aims to increase student awareness of the commonality of global issues and the importance of global collaboration to solve common real-world issues.
Who Can Participate?

Students ages 13-18 from the following 10 counties in the Greater San Francisco Bay Area are eligible to participate in the competition:

- Alameda County
- Contra Costa County
- Marin County
- Napa County
- Santa Clara County
- Santa Cruz County
- San Francisco County
- San Mateo County
- Solano County
- Sonoma County
Poll Question

Have you engaged students in any science competitions prior to now?

A. No, never.
B. Yes, but not this year.
C. Yes, often.
D. Yes, every year.
The Clean Tech Competition is designed to enhance science education by:

- Fueling students’ imagination and interest in science and technology
- Helping students explore future careers in the STEM fields
- Preparing students for an increasingly technological world
- Illustrating a relevant connection between what students learn in the classroom and the real world by allowing students to work and think like scientists.
The Clean Tech Competition aims to:

- foster a deeper understanding of science and technology,
- motivate students in science and technology,
- increase students’ confidence in their abilities to contribute to our increasingly technological world,
- recognize outstanding talent, and
- help prepare the next generation of globally competitive innovators.
Let’s pause for questions from the audience
2011-2012 CHALLENGE

SOLAR SOLUTIONS TO THE RESCUE

Catastrophic events impact people and communities worldwide. Recently, we have seen the devastating effects of earthquakes, tsunamis, floods, hurricanes, and wild fires. These disasters disrupt all aspects of human life and cause life-threatening problems. People have immediate need for shelter, safe food, clean water, energy, transportation, and methods of communication.

Design a solution to meet a critical need using solar power.
Entry Requirements

• Students ages 13-18 as of January 3, 2012
• Attending Public, Private, Parochial & Home-Schools in the Greater San Francisco Bay Area (See list of 10 eligible counties)
• All ability and interest levels
• Teams of 2-4 students
• Led by Team Leader (teacher, youth program leader, or other adult leader)
• Mentor (optional; e.g., science and technology professional to help advise students on the project)
• Teammates DO NOT need to attend the same school
• A parent can be a team leader but may not be the leader of his/her own team. A parent may be the team mentor.
Project Requirements

• Define a problem, analyze a situation, gather relevant information, and communicate background information

• Generate and evaluate creative ideas to address problem

• Combine critical thinking, problem solving, teamwork, science, and technology skills to develop ideas into tangible solutions

• Articulate the design process

• Organize and present results of student team research and design

• Summarize the clean tech solution
**Team Process**

1. Identify a catastrophic natural event (actual or potential).

2. Describe the cause, scope, and effect of the disaster.

3. Choose a human need to address in the aftermath of the disaster.

4. Design a solar powered solution that could be employed to meet the need.

5. Explain how the solution will help to solve the problem or address the identified need.

6. Discuss the current limitations of the solution and how they could be overcome.

7. Discuss whether the idea is new or if it is an improvement over an existing idea.
For Round I Judging, teams submit a written entry containing the following:

- Abstract (150 Words)
- Background and Problem Description (1-2 Pages)
- Results/Solution (2-4 Pages)
- Research and Design Process/Scientific and Technological Elements (2-4 Pages)
- Bibliography
Round I Judging (written entries)

TOTAL POSSIBLE POINTS = 100

- Abstract = Possible 10 Points
- Natural Disaster Assessment & Background = Possible 20 Points
- Solar Design Process & Research = Possible 60 Points
- Bibliography = Possible 10 Points
See


for the Complete Scoring Rubric
Two Entry Categories:

Ages 13-15

- Each entry is judged within its grade category.

- Students may participate in a higher age category but students may not participate in a lower age category than their age as of January 3, 1012.

- Teams must participate in the category that corresponds to the oldest student on their team (age as of January 3, 2012).

Ages 16-18
Finalist Phase

• 10 Finalist Teams selected in the Round I judging develop a prototype to convey their solar technology solution.

• Finalist Teams are invited to present their solution and prototype before a live panel of judges.

• Judges include a distinguished panel of educators, scientists, engineers and technology professionals.

• Finalist Presentations and Awards Event will be held on March 17, 2012 (date to be confirmed).
Finalist Awards – 10 Teams

• One first-place student team receives a $6,000 cash prize.
• Two second-place student teams receive a $3,000 cash prize.
• Three second-place student teams receive a $1,000 cash prize.
• Four finalist student teams receive a $500 cash prize.
• Team leaders of all Finalist Teams receive a $500 cash prize.
In Summary, Clean Tech Competition Participants will…

- SOLVE a real world problem using science and technology,
- GAIN awareness of the global impact of science and technology,
- DEVELOP critical thinking, problem solving, science, and technology skills in an interactive, collaborative, student-centered environment,
- INCREASE confidence in their potential to make the world a better place,
- ACQUIRE an understanding of how science and technology professionals think and work, and
- RECEIVE recognition for their efforts in science and technology.
Poll Question

How do you plan to involve students in the competition?

A. In-class project
B. School-based club
C. After-school program
D. Other (including other informal education program)
21st Century Workplace Skills

The Clean Tech Competition builds critical skills for future workplace success and living in our increasingly technological society.

- Teaming
- Research
- Communication
- Problem Solving
- Presentation
- Critical and Creative Thinking
- Scientific Inquiry
- Project Management
Supports Standards of Learning

► Promotes investigation and understanding of science and technology and underlying concepts of technology

► Makes connection between science and technology

► Illustrates link between classroom concepts and real life

► Demonstrates use of science and technology to solve problems and improve quality of life

► Emphasizes the impact of science on society
Supports Standards of Learning

► Means of demonstrating scientific reasoning, logic and critical thinking

► Serves as framework to incorporate learning about technology into various aspects of the curriculum

► Supports learning and use of research skills to gather, interpret, and disseminate data

► Promotes generation and organization of ideas

► Demonstrates decision-making process

► Provides format for sharing work and learning experiences
Treat Yourself to More Than A Competition

- Offers an engaging and fun way to approach science instruction
- Illustrates connections between classroom science concepts and real world
- Promotes student learning across disciplines
- Develops 21st century workplace/lifelong skills
- Increases student initiative in learning
- Everybody wins
Everyone’s a Winner!

Certificates and entry gifts for all students, team leaders and mentors

Additional Intrinsic Program Benefits
• Learn how youth in another country solved the problem
• Have an opportunity to consult with an industry mentor
• Gain 21st century skills
Timeline for 2011-2012 Program

Now through January 2, 2012 – Teams register, begin design work, and develop written solutions

January 3, 2012 – Team written solutions are due

February 3, 2012 – Finalist Teams Notified
Finalist Teams begin work on prototypes and oral presentations

March 17, 2012* – Finalist Teams make presentations to judges

March 17, 2012* – Recognition event for Finalist Teams

*Date to be confirmed
www.cleantechcompetition.org

- Resource for participants
- Registration for Team Leaders and student teams
- Team and project management
- Entry instructions
- Tips for Success
Let’s pause for questions from the audience
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