

*Excellence*

Center for Excellence in Education



**2010 Brochure**

**US Citizen**

**US Permanent Resident**



**On June 20, 2010**, 80 high school students will gather for six of the most stimulating weeks of their lives at the Research Science Institute (RSI) sponsored by the Center for Excellence in Education (CEE) in collaboration with Massachusetts Institute of Technology (MIT).

Selected from the United States and several nations, students will participate in a rigorous academic program that emphasizes advanced theory and research in the sciences, technology, mathematics, and engineering (STEM).

**The students attend** college-level classes taught by distinguished professors from leading universities. Nationally recognized high school teachers and doctoral level RSI alumni conduct classes designed to sharpen research skills. Students will conduct hands-on research with selected mentors at universities, research organizations, and corporations.

**RSI students** master each step of the research process from literature review to the design, implementation, execution, and analysis of original experiments. Their projects culminate in the form of a scientific paper and in a plenary session reporting their findings. These research skills have helped alumni to garner top awards in the annual Siemens and Intel competitions.

**CEE is unique** in its commitment to the RSI alumni throughout their academic careers – from college selection through graduate studies—to foster camaraderie and intellect. CEE's follow-up programs include assisting alumni with college and university selection, finding suitable summer employment, sponsoring trips to other nations as Junior Ambassadors of science, technology, engineering, and mathematics, and keeping in touch with other alumni through the Research Science Institute Alumni Association (RSIAA) online network and activities.

**The Research Science Institute** is open to students who have completed their third year of high school or the equivalent, by the summer of 2010, and plan to matriculate to a college or university in 2011. The twenty-seventh annual summer session of RSI will be held at MIT from **20 June to 31 July, 2010**.

*“RSI has given me a new perspective on the world’s greatest resource: people.”* **2009 RSI Student**

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**Research Science Institute**

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of Technology**



The Center for Excellence in Education (CEE) was co-founded by the late Admiral H.G. Rickover, the father of the nuclear Navy, and Joann P. DiGennaro, the Center's President. The mission of the Center for Excellence in Education is to nurture young scholars to careers of excellence and leadership in science and technology, and to promote international understanding among future scientific leaders in the global community. CEE is a private, non-profit organization. Its programs are open to students and teachers of all races, colors, creeds, and economic backgrounds. The criteria are academic excellence and the potential for leadership in science, technology, engineering, and mathematics. CEE sponsored its first summer Research Science Institute for students and teachers in 1984.

**Dates to Remember**

**Application Receipt Deadline** **January 15, 2010**  
*(Not Postmark date ):*

**Notification Date:** **March 26, 2010**

**RSI Program Dates:** **June 20 to July 31, 2010**

**The Research Science Institute (RSI)** is the first summer science, technology, engineering, and mathematics (STEM) program to combine on-campus course work in theory with off-campus STEM research. Students work under the guidance of mentors who are scientists, engineers, and mathematicians.

On-campus classes are offered during the first week of RSI. These are followed by four weeks of research internships. During the final week, oral and written presentations are made by each participant. An eminent panel of judges selects five Distinguished Oral Presentations and five Distinguished Research Papers.

**Expenses** for tuition, room, and board are included, but transportation to and from MIT is **not** included.

**Support** for RSI comes from individuals, corporations, foundations, and U.S. governmental agencies. CEE has received grants from the National Science Foundation, U.S. Department of State, U.S. Agency for International Development, the Department of Defense, the Department of Energy, the Department of Agriculture, the National Endowment for the Humanities, the Bureau of Indian Affairs, the National Security Agency, and the Commonwealth of Virginia.

**The RSI Academic Staff** consists of professors, tutors, teaching assistants, and research mentors.

**Professors** from leading US universities and RSI alumni holding a Ph.D., offer classes to highlight current, cutting-edge research in Pure and Applied Mathematics, Physical Science, Biological Science, Chemistry, Engineering, and the Humanities.

**Tutors** include preeminent teachers and graduate-level RSI alumni who have firsthand STEM research experience and provide day-to-day student academic support and supervision.

**Teaching Assistants** are RSI Alumni who collaborate with the faculty in technical classes and provide help with the preparation of scientific papers and presentations.

**Research Mentors** are selected from leading scientists, mathematicians, and engineers in the Boston area to direct each student's research.

**Research Internships** emphasize original work on a question of current research interest. Eminent scientists and mathematicians supervise the projects. Research sites are located at MIT, Harvard University, Boston College, Boston University, Northeastern University, hospitals, and corporate research facilities in the Boston area.

Student-mentor matches are made by mutual interest and student ability. Each student becomes included in the mentor's research group, and each student conducts valuable research while contributing to the ongoing group investigations. RSI does not provide students an opportunity to continue previous research initiated during the high school years nor does the RSI research paper guarantee a project for national competitions.

Regardless of discipline area, research internships require well-developed computer skills. Computational models play an important role in current biological and mathematical research.

**Guest Lectures** are presented by distinguished experts in science, mathematics, business, and the humanities. Past RSI sessions have included Nobel Laureates Professor Philip Sharp, Professor Dudley Herschbach, and Professor Wolfgang Ketterle; Dr. Tom Leighton, Co-Founder & Chief Scientist, Akamai Technologies, Inc.; Dr. Jagadeesh Pamulapati, Deputy Director for Lab Management, U.S. Army; Dr. Jennifer Chayes, Managing Director New England Research, Microsoft; and Dr. John McQuade, Senior Vice President for Science & Technology, United Technologies Corporation.

**Extracurricular Activities** offer student scholars a variety of activities to foster camaraderie, such as July 4th on the Esplanade, an ultimate frisbee "grudge match" against other Boston summer programs, and trips to museums and the beach.

**The RSI Community** of alumni maintain a tight-knit community throughout their academic and professional careers. Alumni from all years of the program stay in contact with one another through social, academic, and professional activities. Former RSI students also form an integral part of the program staff each summer.

# Application Procedure

## Who is Eligible?

The application is designed to show superior scholastic achievement and potential for leadership in science, technology, engineering, mathematics, and the verbal arts. Student computer skills should be sufficient to model complex systems and analyze scientific data.

CEE uses the same selection process for all US students, US Permanent Resident Students possessing a green card, and US Citizens abroad who are **not** attending a Department of Defense Education Activity (DoDEA) school. DoDEA students should apply for RSI through their schools using the DoDEA procedure.

Students who are not US Citizens as described above or Permanent Residents should contact CEE at rsi@cee.org to confirm that their country participates in RSI and who their country representative is if their country does participate. International students should follow the schedule and selection procedures of their country.

## How are Students Selected?

The RSI Student Selection Committee is made up of educators, scientists, and RSI staff. Selections are made on a competitive basis. Candidacy is assessed on intellectual merit and leadership potential in science, technology, engineering, and mathematics. Domestic applicants must be US citizens or permanent residents (Green Card holders) who intend to become citizens. International applicants must contact CEE to determine if their country is a participating partner.

## US Citizen and US Permanent Resident Application Procedure

The RSI 2010 application form is available on the CEE website at www.cee.org. It may be completed online, printed out, and mailed to CEE and may be photocopied for distribution to interested students.

The application packet has five parts. *Part I: Applicant and School Information* is completed by the applicant. *Part II: Applicant Questions & Self-Nomination* must be completed by the applicant and should be reviewed by his/her teachers to ensure accuracy and completeness of information. *Part III: Teacher Recommendations* must be completed by the applicant's math and/or science teachers. *Part IV: Academic Documentation* should be completed by the applicant. A certified copy of the student's high school record that includes student's transcript

of courses and standardized test scores showing evidence of exceptional intellectual performance and potential must be included with the application packet. The standardized test scores would include \*PSAT math, verbal and writing scores (or SAT or ACT test results).

*\* Please note: PSAT math scores should be at least 75, and combined math, verbal, and writing PSAT scores should be at least 220. ACT minimum math scores should be 33 and reading, 34. Lower scores must be offset by strong indications of mathematical, scientific, and academic potential exemplified in recommendations, high school grades, and science activities.*

*Part V: Permissions Request* must be completed by the applicant **and** a parent/guardian.

## Application Checkoff List

Place all application materials (*Parts I, II, III, IV, & V*) in one envelope large enough to accommodate an original unfolded application. Please do not staple or fold the pages of the application.

- Part I:* Applicant and high school information
- Part II:* Applicant questions and self-nomination
- Part III:* Recommendations by two teachers familiar with the applicant and the applicant's scholastic record.
- Part IV:* Academic documentation to include the applicant's official high school transcript and PSAT math, verbal and writing scores (or SAT or ACT test results) showing evidence of exceptional intellectual performance and potential.
- Part V:* Applicant and Parent/Guardian Permission Releases

Send the *complete* set of application materials **to:**  
**Center for Excellence in Education, 8201 Greensboro Drive, Suite 215, McLean, VA 22102.**

**Your application must be received** at the CEE office on or before **January 15, 2010**. Applicants who do not conform to the requirements and applications received after January 15, 2010, will not be considered.