



*Innovative Technology Experiences
for Students and Teachers*

National STEM Learning Exchange

Spring 2011

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Welcome to ITEST's National STEM Learning Exchange, designed to make ITEST resources more accessible to STEM stakeholders nationally. We invite you to help us shape the products and services that you would like to see offered to support your work in researching, testing and scaling-up STEM career and workforce development programs in your schools and communities. By responding to the survey linked below, you can help us align our current archive of informational materials to your needs/interests; identify content experts, program developers, researchers, and evaluators who can provide you with peer-to-peer guidance and support; and aid us in creating topical interest groups that share ongoing research and lessons learned. Thank you in advance for your input and ideas. Please take a few minutes to complete the [survey](#).

- **Joyce Malyn-Smith, ITEST National STEM Learning Exchange, Principal Investigator**

What's new

ANNUAL ITEST SUMMIT A VISIBLE AND VIRTUAL SUCCESS

On March 3–4, the ITEST National STEM Learning Exchange hosted its annual summit, "[Collaboration, Communication and Dissemination: Building a National Community of Practice in STEM Workforce Development](#)," in West Arlington, Va. The event featured working sessions on identifying and disseminating models and key findings arising out of seven years of ITEST work. Representatives from some of the 176 national ITEST projects, speakers from federal and state education departments, and staff from informal science organizations led sessions and provided keynote addresses. NSF Assistant Director Joan Ferrini-Mundy provided opening remarks.

WEBINAR ARCHIVE | CURRICULUM DEVELOPED IN THE NSF-FUNDED ITEST AND COSEE PROGRAMS

In this webinar, the ITEST National STEM Learning Exchange and COSEE (Centers for Ocean Sciences Education Excellence) <http://www.cosee.net/> showcased curriculum materials on topics ranging from biomedicine to engineering design to ecology to ocean sciences. These curricula - designed for middle/high school teachers and students and available online at no charge - encourage and support innovative STEM learning and teaching and have been adapted through collaboration with partners, educators and students across the ITEST and COSEE education programs. [Webinar archive](#)

2010-2011 ITEST PROJECTS AWARDED

Learn about the newly awarded projects at <http://itestlrc.edc.org/itest-projects>. Once on the page, click on '2010_2011' New ITEST Awards' below the map.

Mark your calendar

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- [SENSE IT - Environmental Sensor Curricula](#)

Resources

- [MSP2 Webinar | Teaching with Scratch Animation](#)
- [Webinar: Visual Literacy and Nonlinguistic Representations: Infographics Part 2](#)
- [EvaluATE Webinar: Developing and Validating Survey Instruments](#)
- [Making Sense of Your Evaluation Data | EvaluATE Webinar Archive](#)
- [Claims + Evidence: Assessing the Impact of Your ATE Grant | EvaluATE Webinar Archive](#)
- [CSCP Webcast | Engaging Latino Youth in Computer Science: Current Research and Program Models](#)
- [The Power of Collaboration: Providing High-Quality Computer Science Opportunities to K-12 Youth | CSCP Webcast Archive](#)
- [Inspiring Girls to Pursue Careers in Information Technology | NGCP Webinar Archive](#)
- [E-News from the National Girls Collaborative Project \(NGCP\)](#)
- [Khan Academy](#)

About ITEST

The ITEST program was established by the National Science Foundation in direct response to current concerns and projections about the growing demand for professionals and information technology workers in the U.S. and seeks solutions to help ensure the breadth and depth of the STEM workforce.

Learn about the program at <http://itestlrc.edc.org/about-itest-lrc>

Share Our Newsletter

If you know someone who would be interested in our newsletter, we encourage you to forward it to them. If you are not currently on our mailing list, click here to [sign up to receive future Newsletters](#).

Contact Us

<http://itestlrc.edc.org/contact>

STEM CAREERS QUARTERLY WEBINAR SERIES

The ITEST National STEM Learning Exchange, in partnership with ITEST PIs and STEM professionals who work with ITEST projects, will be hosting a quarterly public webinar series. These are designed to provide guidance counselors and educators with resources and strategies to increase student awareness of STEM career opportunities. The series will feature STEM professionals who will speak about their fields of expertise and how they contribute positively to society. Tips for transferring these learnings to increase students' engagement in and motivation for STEM will be included. The webinars will be archived for future access, and topics will include the four major areas of ITEST program content focus: Bioscience, Computer Science, Engineering, and Environmental Science. Access information will be included in the notices for each event.

EVENT #1: JUNE 6, 3:00-4:00 : ENVIRONMENTAL SCIENCE CAREERS, hosted by Liesl Hotaling, Co-Principal Investigator of the ITEST [SENSE-IT](#) project, with guest scientists

Recent and upcoming conferences

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ITEST ENGINEERING WORKSHOPS FOR EDUCATORS AT INTERNATIONAL TECHNOLOGY AND ENGINEERING ASSOCIATION (ITEEA) ANNUAL MEETING | MARCH 26, 2011 – MINNEAPOLIS, MN

At ITEEA 2011, four engineering project PIs offered hands-on workshops for middle and high school educators providing opportunities to explore engineering design activities developed in the ITEST program. [Read more.](#)

ITEST AT SOCIETY FOR INFORMATION TECHNOLOGY AND TEACHER EDUCATION (SITE) | NASHVILLE, TN | MARCH 7-11, 2011

Several ITEST projects—including members of the LRC presented at SITE, [view the project abstracts](#).

ITEST AT AMERICAN EDUCATIONAL RESEARCH ASSOCIATION (AERA) | NEW ORLEANS, LA APRIL 8-11, 2011

Several ITEST projects—including members of the LRC presented at AERA, [view the project abstracts](#).

LEAGUE FOR INNOVATION ANNOUNCES CALL FOR PROPOSALS FOR SECOND ANNUAL STEMTECH CONFERENCE | DUE DATE APRIL 15, 2011

Building on its hugely successful inaugural STEMtech conference in 2010, the League for Innovation is pleased to announce the Call for Proposals for the second annual STEMtech conference being held October 2-5, 2011, at the new JW Marriott in downtown Indianapolis. [Read more.](#)

Opportunities

NSF PROGRAM SOLICITATIONS:

- [RESEARCH IN ENGINEERING EDUCATION](#)
- [COMPUTING EDUCATION FOR THE 21ST CENTURY \(CE21\)](#)
- [CYBERLEARNING: TRANSFORMING EDUCATION](#)

ITEST community news

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Visit the [News and Events](#) section of the LRC website to see the most recent news

Web

<http://itestlrc.edc.org>



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from ITEST projects.

ITEST projects publications and resources

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USING BIOINFORMATICS: GENETIC RESEARCH – CURRICULUM

The curriculum unit explores how bioinformatics is used to perform genetic research. Specifically, the bioinformatics tools of BLAST, ORFinder, ClustalW and Cn3D are used to analyze genetic sequences the cytochrome c oxidase subunit 1 (CO1) gene, which is used for "DNA barcoding," identification of animal species through the use of a standardized genetic marker. [Read more](#).

Project: [Bio-ITEST: New Frontiers in Bioinformatics and Computational Biology](#)

USING BIOINFORMATICS: GENETIC TESTING – CURRICULUM

The curriculum unit explores how bioinformatics is applied to genetic testing. Specifically, the bioinformatics tools of BLAST and Cn3D are used to investigate the genetic and molecular consequences of a mutation to the BRCA1 (breast cancer susceptibility) gene. [Read more](#).

Project: [Bio-ITEST: New Frontiers in Bioinformatics and Computational Biology](#)

SENSE IT - ENVIRONMENTAL SENSOR CURRICULA

SENSE IT will provide four project-based educational modules: 1) Sensor development 2) Sensor deployment and data gathering 3) Water quality investigation 4) Sharing data across observatories. [Read more](#).

Project: [Student Enabled Network of Sensors for the Environment Using Innovative Technology \(SENSE IT\)](#)

RECENT JOURNAL PUBLICATIONS

Journal of Technology and Teacher Education (JTATE) special issue: Innovative Technology Experiences for Students and Teachers; VOL. 18 NO. 2 (2010)
Guest Editors: Caroline Parker, Joyce Malyn-Smith, Suzanne Reynolds-Alpert.
Articles by numerous ITEST PIs. [Read more](#).

Contemporary Issues in Technology and Teacher Education (CITE); Volume 11, Issue 1 (2011)

Editorial: C.E. Parker; Innovative Professional Development for STEM Workforce Development. Articles by several ITEST PIs. [Read more](#).

Additional resources

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MSP2 WEBINAR | TEACHING WITH SCRATCH ANIMATION | TUESDAY, APRIL 12, 2011, 7:00 – 8:00 PM ET

Are you looking for a fun way for your students demonstrate what they have learned using technology? Scratch Animation is a free tool that allows students to express themselves through presentations, cartoons, and even video games. Come learn how virtually any subject can be taught through Scratch. This webinar will include the "basics," additional resources, and a brainstorming session for this wonderful software produced by MIT. Registration is not required. Click the link to join this webinar <http://tinyurl.com/participateMSP2>.

WEBINAR: VISUAL LITERACY AND NONLINGUISTIC REPRESENTATIONS: INFOGRAPHICS PART 2 | THURSDAY, APRIL 14, 2011, 4:00 – 5:00 PM ET

Science and literacy instruction in the elementary grades is the focus of a new

series of web seminars just announced for the 2010-2011 school year. The series is sponsored by Beyond Penguins and Polar Bears, an NSF-funded project that provides professional development and instructional resources to elementary teachers. [Read more](#).

CSCP WEBCAST | ENGAGING LATINO YOUTH IN COMPUTER SCIENCE: CURRENT RESEARCH AND PROGRAM MODELS | THURSDAY, MAY 12, 2011, 10:00 AM - 11:00 AM PACIFIC

This webcast brings together research and practice to highlight effective strategies for engaging Latino youth in Computer Science activities, featuring Jill Denner of Education, Training, Research (ETR) Associates and Irene Lee of Growing Up Thinking Scientifically (GUTS). [Register](#)

ITEST project: [GUTS y Girls](#)

EVALUATE WEBINAR: DEVELOPING AND VALIDATING SURVEY INSTRUMENTS | WEDNESDAY MAY 18, 2011 | 1-2:30 PM ET

You know your project's goals. And you know you need to measure your progress toward reaching them. You probably even know whether a survey questionnaire would help you measure that progress. But what sort of questions belong on a survey instrument? And how should they be worded? This webinar will explain the questionnaire development process, using ATE survey work as examples. [Register](#)

MAKING SENSE OF YOUR EVALUATION DATA | EVALUATE WEBINAR ARCHIVE

Sometimes what seemed crystal-clear when the evaluation of your grant was being planned gets a little fuzzy once the data are actually in. [Webinar archive](#)

CLAIMS + EVIDENCE: ASSESSING THE IMPACT OF YOUR ATE GRANT | EVALUATE WEBINAR ARCHIVE

The 2011 ATE program solicitation says that PIs "should establish claims as to the project's effectiveness, and the evaluative activities should provide evidence on the extent to which the claims are realized." This webinar walked ATE evaluators and PIs through a five-step process. [Webinar archive](#)

PRESIDENT OBAMA HIGHLIGHTS SUCCESS OF TECHNOLOGY-DRIVEN TECHBOSTON ACADEMY

Source: NSF website

On March 8, President Obama paid a visit to TechBoston Academy in Dorchester, Mass.--a technology-driven, 6th-12th grade pilot school within the Boston Public School System (BPS)--to promote the importance of education in today's society and to highlight TechBoston as a model school for student success. [Read the full article](#). *Several ITEST projects are mentioned in this article on the President's visit to TechBoston Academy high school.*

ITEST Projects: [Urban Ecology, Information Technology, and Inquiry Science for Students and Teachers](#); [CAPSULE: CAPStone Unique Learning Experience](#); [Probes and Models Across the Curriculum: Information Technology in Science Instruction \(IT-SI\)](#)

A SPECIAL REPORT ON INFORMAL SCIENCE EDUCATION

Source: Education Week

As concern mounts that U.S. students lack sufficient understanding of science and related fields, it has become increasingly clear that schools can't tackle the challenge alone. This special report explores the field often called "informal science education," which is gaining broader recognition for its role in helping young people acquire scientific knowledge and skills. Opportunities abound outside the

classroom to learn about science, and to inspire a passion for it. [View the full report online.](#)

BUILDING A COMMUNITY OF EVALUATION PRACTICE WITHIN A MULTISITE PROGRAM

Goodyear, L. K. (2011). Building a community of evaluation practice within a multisite program. In J.A. King & F. Lawrenz (Eds.), *Multisite evaluation practice: Lessons and reflections from four cases*. *New Directions for Evaluation*, (129), 97-105.

ABSTRACT: New and novel uses of evaluation processes and findings are possible when a community of practice develops as evaluation stakeholders participate in multisite evaluations in multiple ways. Developing such communities takes advantage of what makes multisite evaluations special. This chapter uses the example of the ITEST Program's Learning Resource Center, funded by the National Science Foundation, to articulate how the provision of evaluation technical assistance to a large, multisite program and its funded projects can contribute to evaluation use.

THE LEARNING WORLDS INSTITUTE ANNOUNCES THE ART OF SCIENCE LEARNING CONFERENCES 2011

Responding to concerns that the U.S. risks lagging behind other nations (See "Bridging the Innovation Gap") in both the scientific literacy and the innovative capacity of its workforce, the Art of Science Learning is convening scientists, artists, educators, business leaders, researchers and policymakers in three conferences in Spring 2011 to explore how the arts can be engaged to strengthen STEM skills and spark creativity in the 21st-Century American workforce. [Read more.](#)

THE POWER OF COLLABORATION: PROVIDING HIGH-QUALITY COMPUTER SCIENCE OPPORTUNITIES TO K-12 YOUTH | CSCP WEBCAST ARCHIVE

This webcast featured two projects that utilize collaboration to engage underrepresented youth in Computer Science activities. [Webcast archive](#)
ITEST project: [Animando a Estudiantes con Tecnologia \(AET\) - Encouraging students in the field of information technology](#)

INSPIRING GIRLS TO PURSUE CAREERS IN INFORMATION TECHNOLOGY | NGCP WEBINAR ARCHIVE

This webcast highlighted free materials and information for attracting more girls and underrepresented groups to computing and information technology and shared how formal and informal educators are using these resources to strengthen programming for girls. [Webinar archive](#)

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E-NEWS FROM THE NATIONAL GIRLS COLLABORATIVE PROJECT (NGCP)

The goal of the National Girls Collaborative Project is to maximize access to shared resources within projects and with public and private sector organizations and institutions interested in expanding girls' participation in STEM. [View the e-newsletter](#)

KHAN ACADEMY

A free world-class education for anyone anywhere. [View this resource.](#)

DRLNET WEBSITES

The ITEST National STEM Learning Exchange is a member of DRLnet, a group of

resource centers serving five NSF [Division of Research and Learning in Formal and Informal Settings](#) (DRL)-funded program communities including: [Academies for Young Scientists](#), [Discovery Research K-12](#), [Informal Science Education](#), and [Research and Evaluation on Education in Science and Engineering](#). Each of these websites has information of interest to the STEM education and workforce development community.

The ITEST National STEM Learning Exchange
