We’re a STEM-focused non-profit that provides programs and partnerships that connect companies with classrooms. ISTI is for schools and companies who want to impact the next generation of innovators. It is a bridge between the classroom and real world that facilitates collaboration between students and industry mentors.

ISTI programs are a departure from the way students typically learn, providing authentic challenge topics and mentoring to prepare students for future STEM careers.
PROJECT TEAM

Mark Harris
President & CEO
Illinois Science + Technology Institute

Allie Barwise
Managing Director
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Emily Cooper
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Emma Niendorf
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A disconnect exists between STEM fields and the next generation of innovators.

Traditional learning fails to engage students in authentic STEM experiences.

No easy way to bridge the gap between the classroom and the real world.

Cost of building one-off programs and maintaining relationships is significant.

Illinois students are underprepared for the workforce.

ISTI is preparing the next generation of problem solvers.
Key Initiatives

STEM R&D Learning Exchange
CHALLENGES

MENTOR MATCHING ENGINE

STEM R&D Learning Exchange
RESOURCE REPOSITORY
Problem-Based Partnerships

STEM Challenges are semester-long projects that offer high school students the opportunity to collaborate with industry partners to investigate and solve problems relevant to Illinois Industry.

2015-16 STEM Challenge Partners

[Logos of partner companies]
STEM Challenge Timeline

**Summer 2016**
Discovery session with industry partners - develop STEM Challenges

Match industry partners with high school partners, identify mentors

**October 2016**
Professional development for partner teachers

**January 2017**
STEM Challenge student kick-off - introduction of industry partner and STEM Challenge

**January - March 2017**
Support student research through 2-3 in person engagements and via Mentor Matching Engine

**April 2017**
Student Showcase - one team from each school to present 4 minute pitch to all partners
Students from across Illinois presented their research and solutions to over 250 partners.

Video: Student Showcase Highlights
**Takeda Pharmaceuticals**

How can we address the problem of medication adherence in one of Takeda’s therapeutic areas (diabetes or depression) and develop solutions to present to Takeda Pharmaceuticals and other industry stakeholders?

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**Featured Challenge**

PHASE 1
- Understand the disease state

PHASE 2
- Understand treatment plans

PHASE 3
- Develop a solution

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“**My hope is they’ll come up with something that will help and make progress in this area. It’s a real problem. Part of the goal is to connect them to real problems that real people in the industry are trying to figure out.**”

- Matt Kirkpatrick, Division Head
  Oak Park & River Forest High School

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MAINE SOUTH HIGH SCHOOL
Engineering Club

EVANSTON TOWNSHIP HIGH SCHOOL
Healthcare Pathway

OAK PARK & RIVER FOREST HIGH SCHOOL
Junior Biology Class
Mentor Matching Engine

Go beyond the classroom with MME.

Log In
- Email Address
- Password
- Remember me

Sign In  Forgot password?
Mentor Matching Engine
Virtual Mentorship

The Mentor Matching Engine (MME) is an online platform that connects Illinois high school students and their teachers to STEM professionals to support and enhance student-led research through virtual mentoring.

MME allows mentors and students to connect in a way that reduces transaction costs for all - students and mentors can collaborate anytime, anywhere. Teachers act as facilitators for their students view all project communication.

Video: Learn more about the Mentor Matching Engine
Case Study: Mentor Matching Engine

Washington High School

The Amount of Tannic Acid in Different Kinds of Trees

Research Description
We are testing wood samples to find the levels of tannic acid they contain. In this experiment we plan to test apple, walnut, and maple trees. In order to obtain this data, we will use a substance called iron oxide. This substance, when added to the wood, will be used to blacken the wood. Ebonizing is the term used for blackening the wood in reaction to the iron oxide. The purpose of this experiment is to find the amount of tannic acid, which is used in many antibiotics.

Letter of introduction
Hello, our names are Margaret and Maggie. We are sophomores at Washington Community High School and our favorite subjects are English and Spanish. Both of us participate in band and various other school activities such as basketball. Outside of school we are also members of many clubs like Spanish club, Leadership club, and Drama club. Outside of band, we enjoy drawing, lacrosse, and painting.

Students & mentors are matched based on project research categories and mentor areas of expertise.
Mentor & student communicate via messages, file project sharing & video conferencing.
Washington High School

Students thank and update their mentors at the project conclusion.
TRACKING ENGAGEMENT: 2015-16 METRICS

1200 | Students working with mentors on STEM Challenges or in 1:1 research projects on MME

344 | Mentors from more than 50 companies and universities supporting student research

55 | Teachers leading students in RDLE programs and participated in professional development

29 | High Schools in Illinois partnering with the R&D STEM Learning Exchange
TRACKING ENGAGEMENT: METRICS & EVALUATION

**Evaluation Areas**

*Implementation*

*Effectiveness*

*Impact*

*Sustainability*

**Data & Analysis**

Data gathering and analysis from students, teachers and mentors

- Measurement pre and post program
- Focus groups
- Project analysis
- Longitudinal data

External evaluation informed by University of Illinois I-STEM
OPRF students to use STEM skills to help others

A medical company looking for help recently tapped an unlikely group, Oak Park and River Forest High School juniors. The problem? Patients aren’t taking their antidepressant medication, officials from Takeda Pharmaceuticals say. According to Dena Gayle...

Microsoft Chicago

The Future of Mentoring: Mentor Matching Engine

February 1, 2016 by Ailee Barwise and Emily Cooper - Leave a comment

As part of our ongoing series focusing on the Illinois Science and Technology Institute (IS&T) statewide STEM Challenge, this guest blog will focus on a technical solution to solving a big undertaking—getting volunteer to work with students on STEM and “soft” skills. While there are many, many great stories about corporate and other businesspeople volunteering their time and...

High school STEM students show off inventions

High school students solve real world ‘STEM’ challenges

STEM Challenge asks Chicago students to solve real problems | Chicago Inno

chicago.inno.streetwise.co · by Karis Hustad · Staff writer 05/20/15 @5:39pm in Education
BENEFITS OF PARTNERSHIP

COMPANIES
High impact community engagement - talent pipeline development - program support - convenient volunteer management - metrics

HIGH SCHOOLS
Real world exposure - connections to experts - partnership support - personalized learning - enhanced student opportunities

UNIVERSITIES & NON-PROFITS
Connect with students and teachers - expand reach of existing programs - align outreach opportunities
The Hub for STEM Programs: stemlearningexchange.org

The Resource Repository is a platform that offers teachers, students, and parents access to more than 100 high-quality STEM resources offered by more than 50 leading Illinois-based organizations.

The Repository serves as the central hub of STEM-focused programs and NGSS aligned resources in a digital library for students and teachers.
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