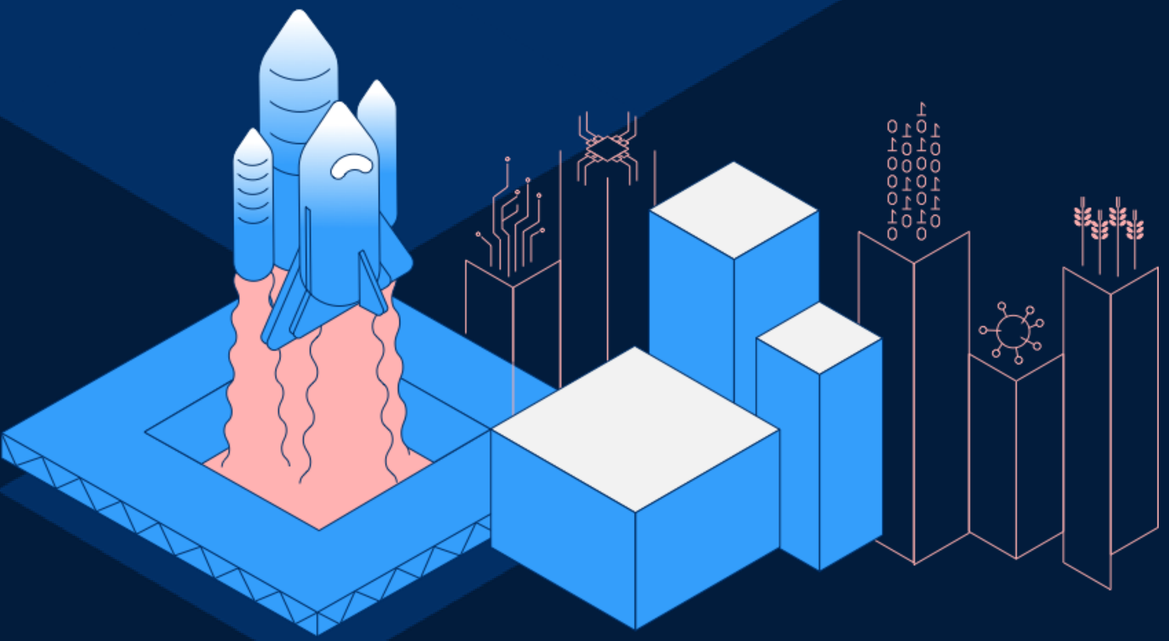
ILLINOIS SCIENCE & TECHNOLOGY COALITION

60x25 Conference

Effective Employer Engagement

February 5th, 2019



We measure, connect and advocate for the state's innovation economy.

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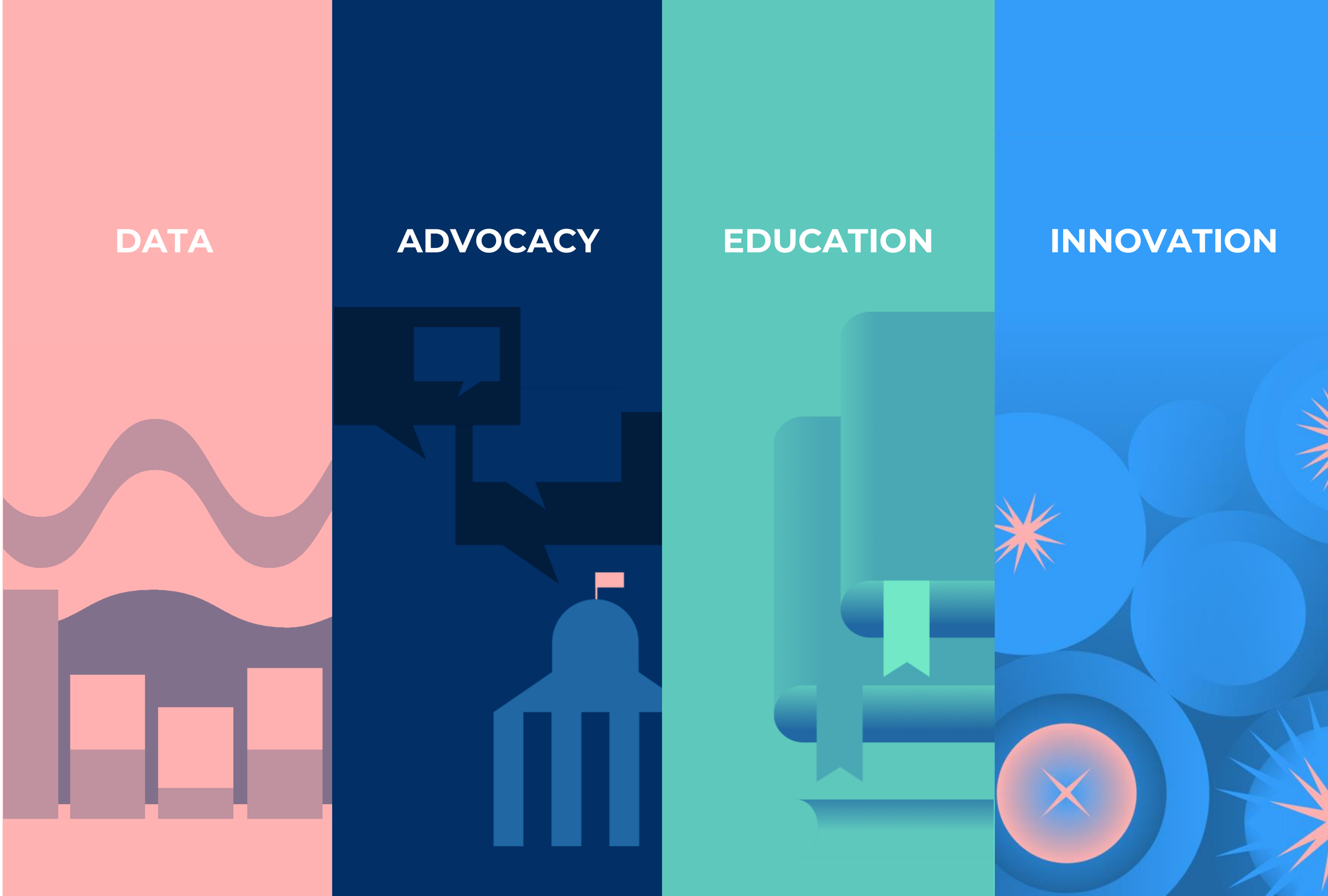
Overview

ISTC's Four Pillars



DATA

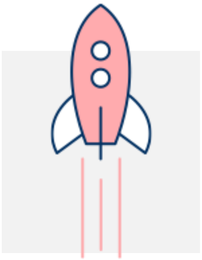
Illinois Innovation Index

The Illinois Innovation Index is a resource that **measures** and **benchmarks** technology-based economic activity in Illinois.

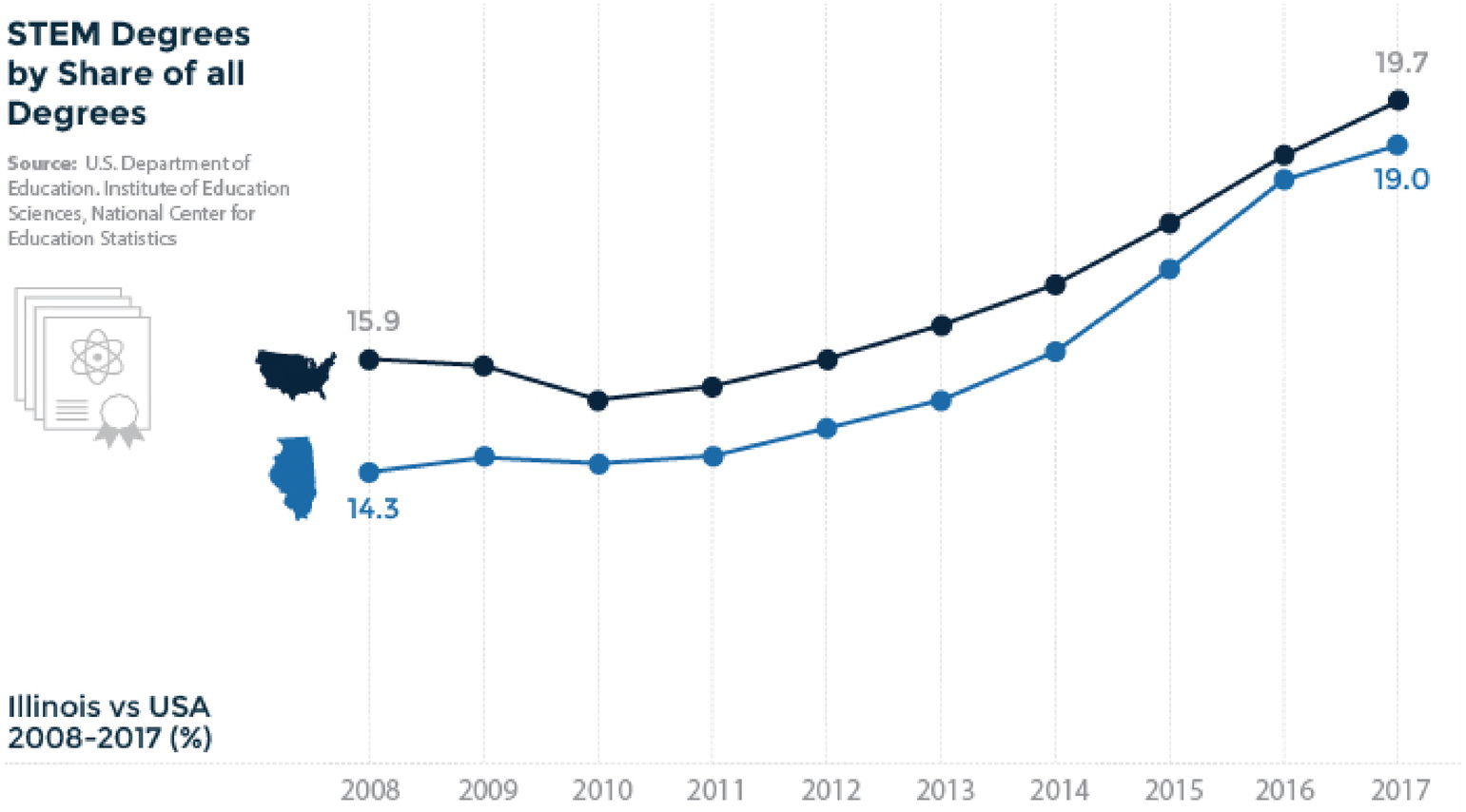
INDEX TOPICS

Research & Development

Talent Supply & Demand



University Entrepreneurship



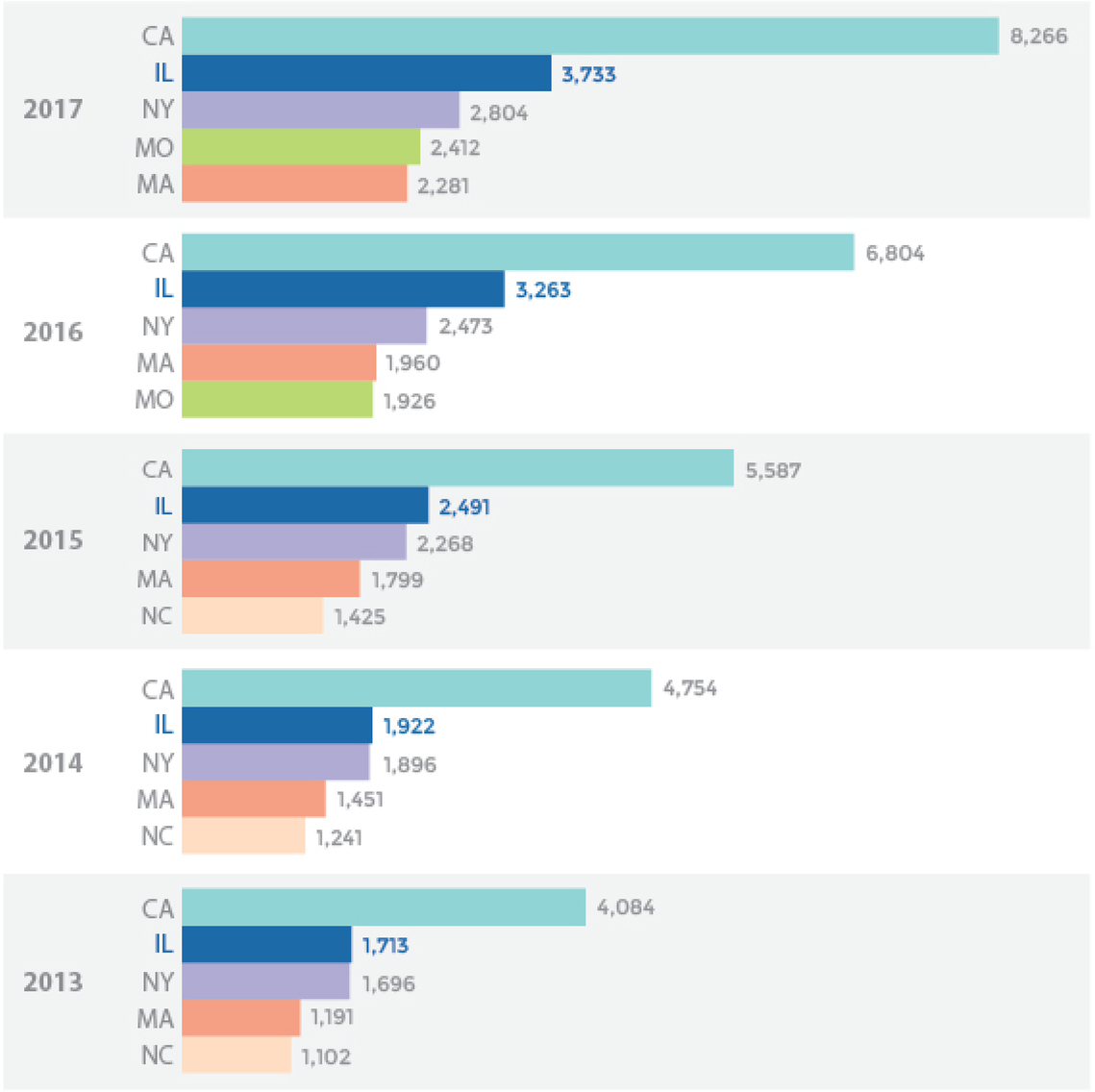
All STEM Degrees

Illinois is the 5th leading producer of STEM degrees in the nation, with 24,474 degrees in 2017.

By share of all degrees, STEM degrees in Illinois have closed the gap compared with the national average.

Computer Science Degrees Awarded by State

Top 5 States
2013-17

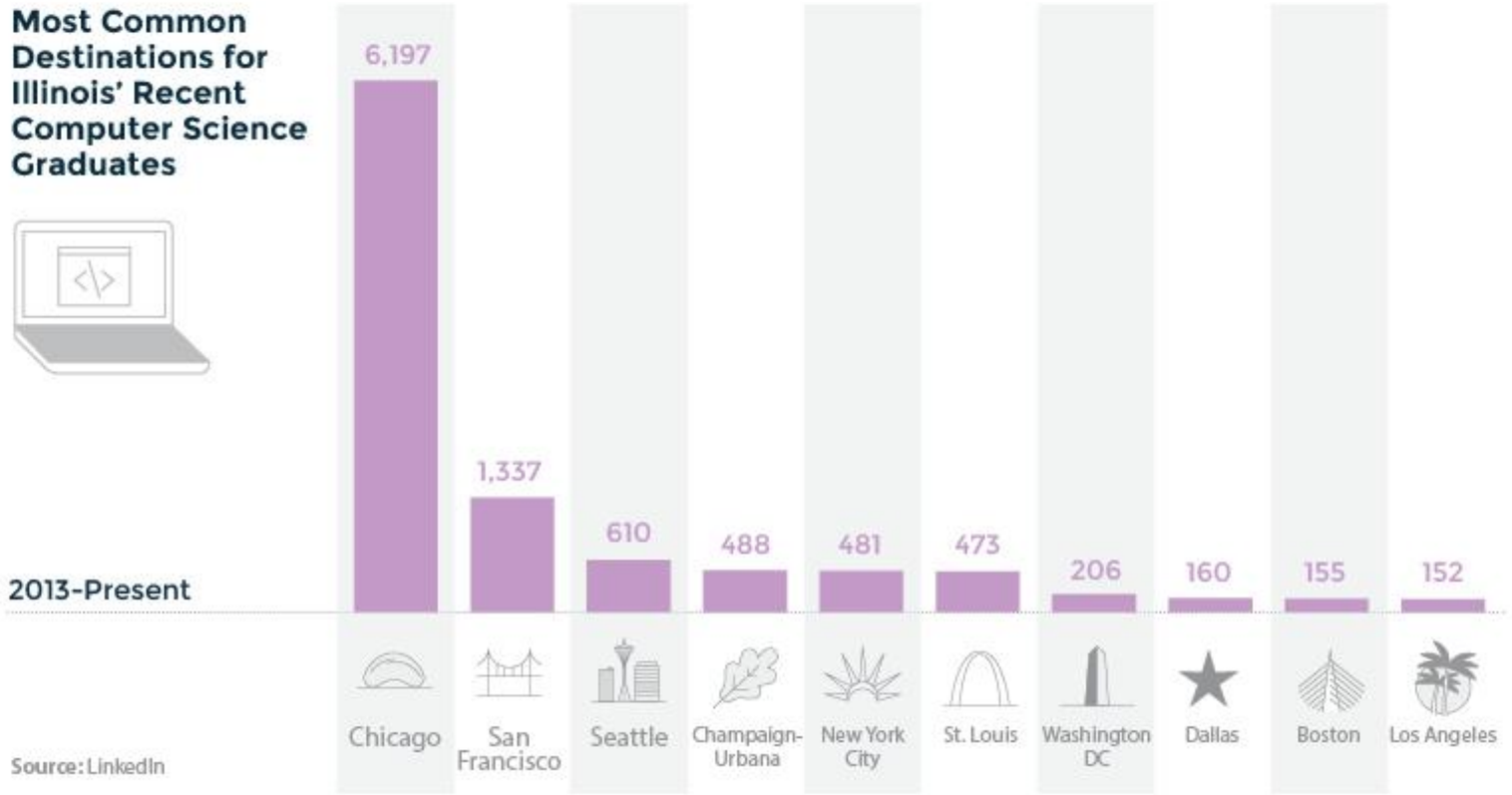


Source: U.S. Department of Education. Institute of Education Sciences, National Center for Education Statistics

Computer Science

Illinois is the 2nd largest producer of computer science degrees, more than doubling since 2013.

The state produces nearly 10% of all CS degrees awarded nationwide.



CS Retention

Illinois' recent computer science graduates are more than 4.5 times more likely to work in Chicago than any other city.

STEM Degree Diversity

Illinois trails the national average for the share of women earning STEM degrees, but progress has been made in computer science.

Hispanic and African-American STEM graduates lag the nation

Illinois' Path Forward

istcoalition.org/data/index

Employer engagement

Create and increase connections between the state's employers and top students that increase retention and inclusion.

Increase inclusion

Promote diversity that increases equitable economic growth by providing a line-of-sight to STEM careers for underrepresented groups.

Immigration reform

Illinois' global talent attraction can be used as a tool for talent growth, but only if federal immigration policy allows highly skilled workers to stay in the country.

Startup growth

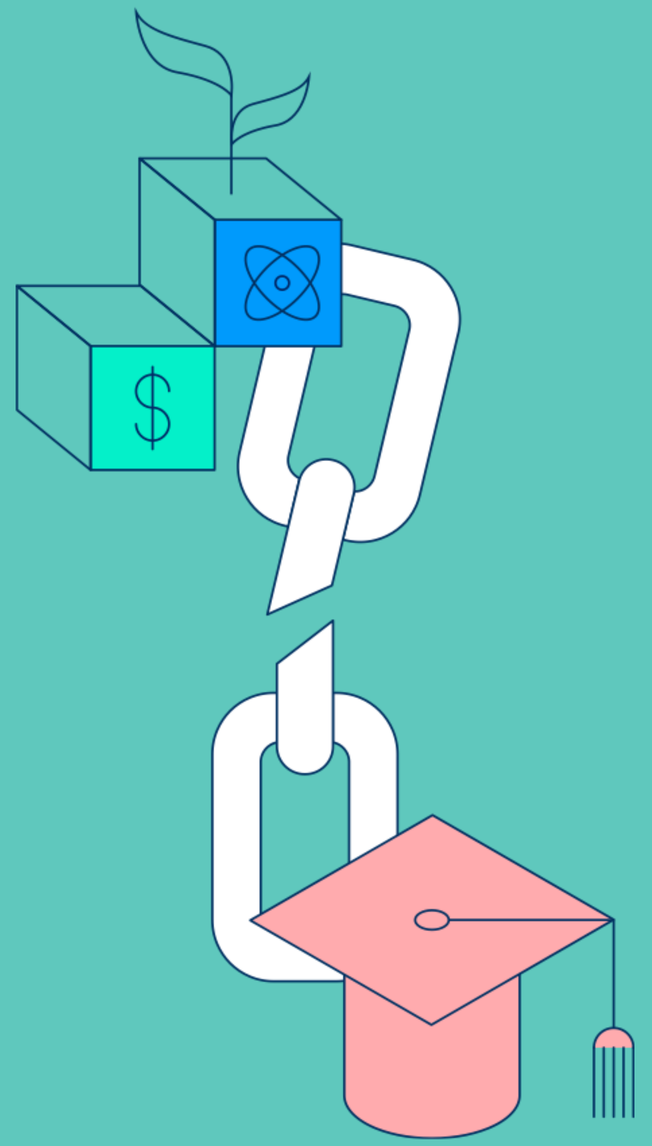
Find new ways to promote the growth of job-creating startup companies, especially those backed by university support.

ILLINOIS SCIENCE & TECHNOLOGY INSTITUTE

EDUCATION

The Problem

Today’s students lack industry connections and relevant STEM skills. This creates **a mismatch between education and industry.**



Perceptions of STEM

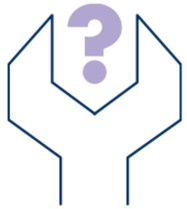
A recent study highlighted the **disconnect between high school students and jobs** in STEM.

Lack of connections

52% said they don't know anyone with a job in STEM.

Unaware of breadth

87% think people who study STEM work at companies such as NASA,.



What do engineers do?

76% of students reported not knowing a lot about what engineers do.

Our Institute is a STEM-focused non-profit that connects companies and universities with classrooms.

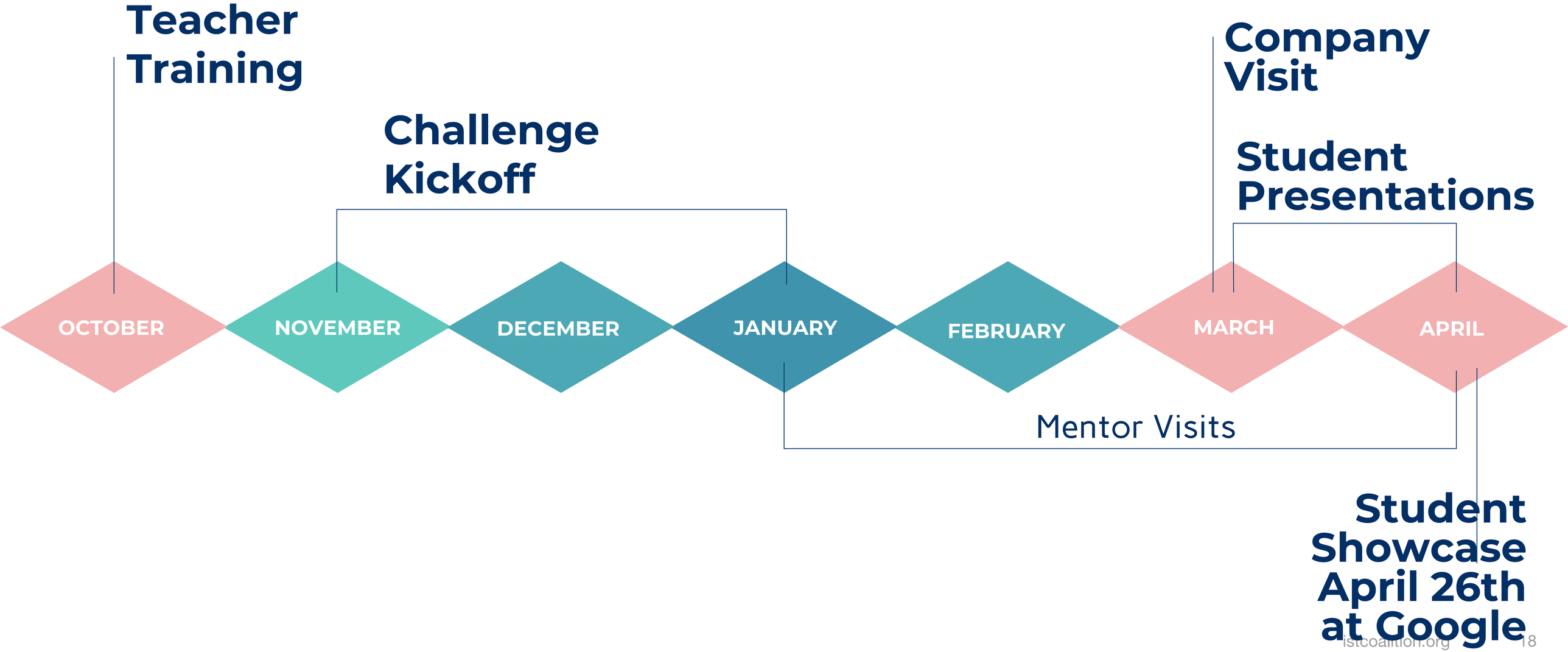
Education

The STEM Challenge Program

STEM Challenges are problem-based learning experiences that pair up high school students with the state's most innovative companies to address real business problems.

2018-19 Company Partners

STEM CHALLENGE TIMELINE



Microsoft

Microsoft challenged students at three Chicago public high schools **to create their own chatbots**, which is a robot programmed to respond like a human, **to address a community problem**.

Student Solutions

Corliss High School

Corliss Students designed **a chatbot to combat violence** by connecting users with real-time data, local resources and aid.

Foreman High School

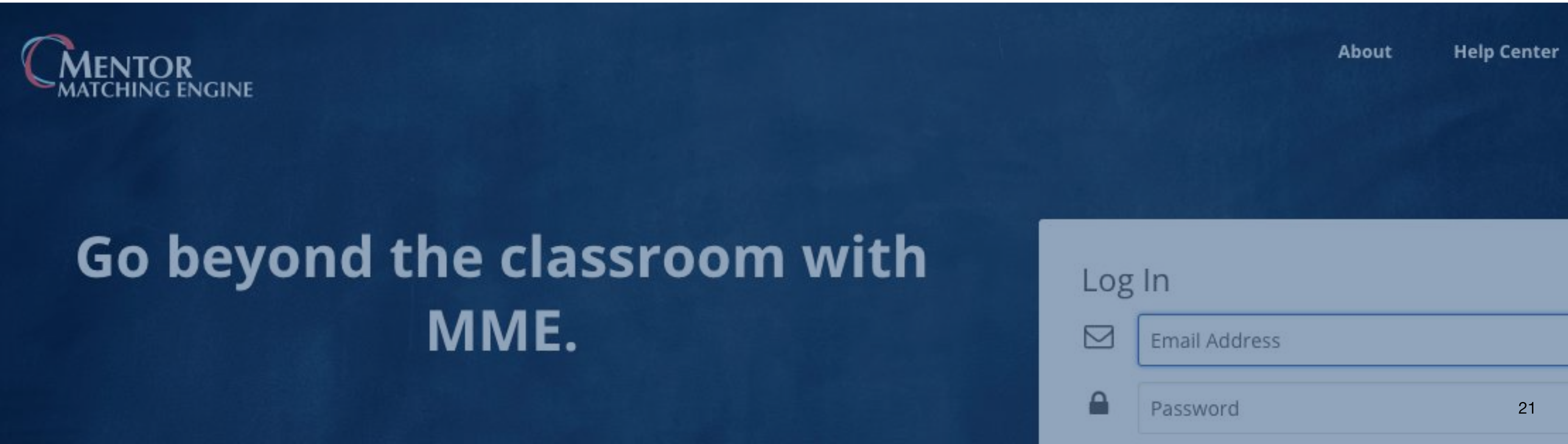
Foreman students designed and developed a **multilingual chatbot to assist non-native speakers** at their school and in the community.

Lake View High School

Lake View students created a chatbot that would **translate American English into American Sign Language**

Mentor Matching Engine

The Mentor Matching Engine (MME) is a project-based, **online collaboration platform that links students with mentors** anytime, anywhere in a safe and secure environment.



MENTOR MATCHING ENGINE

About Help Center Contact Us

MME CASE STUDY

Most efficient way to unfold a protein

Edit Mark as Active

Details Discussion Video Conference Participants Documents

Research Description

I love chemistry. The most interesting topic for me is experimenting with elements to see different reactions. I'm a hands on person and I'm looking into chemical engineering. I love the idea of creating things from scratch and utilising elements in different ways.

Letter of Introduction

My name is XXX and I am a XXX at XXX High School. I'm excited to start researching but I still need help pinpointing a topic. I know I'm interested in chemistry, algebra, and pre-calc. I wanted to join MME to get an idea of what kind of careers I could use these skills in. Thank you for your time!

Research Categories

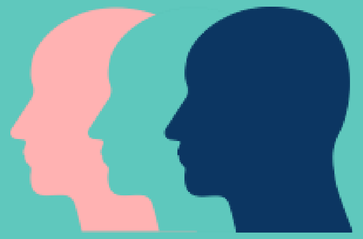
Chemistry Engineering Mathematics

Mentor & student communicate via messaging, document sharing, and video conferencing.

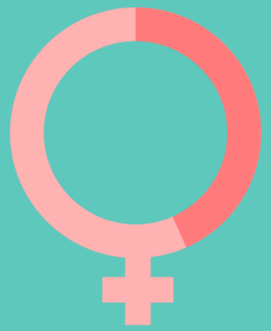
Our Schools & Students

45 participating high schools in 2018-19

More than half are Chicago Public Schools.



About half of participants are students of color.



More than 45% of participants are girls.

Student Outcomes

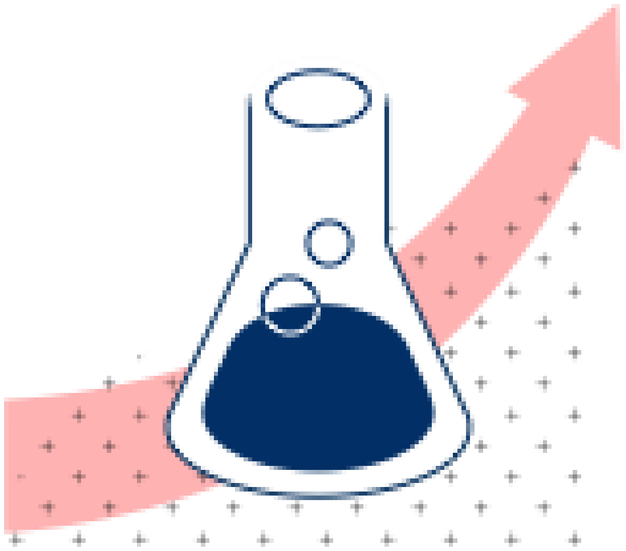
86% of students reported improved confidence in STEM skills - with higher increases for females and students of color

92% of teachers reported seeing improved STEM skills from students

86% of students reported their intent to major in a STEM field in college increased or stayed the same

74% of students reported working with a professional mentor for the first time

Key Learnings



Dosage Matters

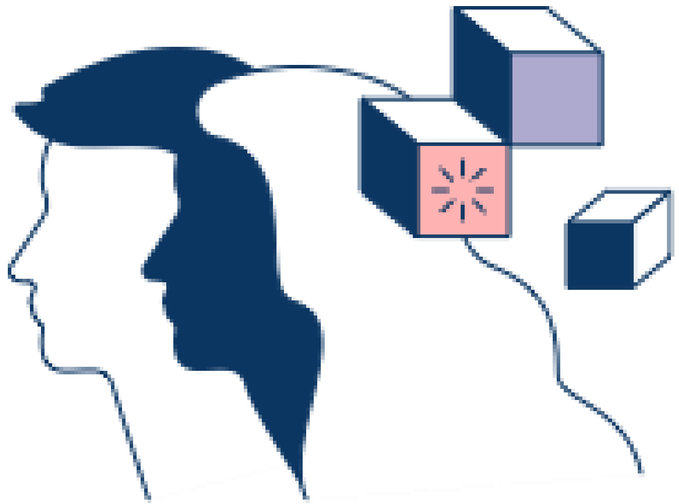
Academic year-long process with 80%+ of students spending 2+hours/week on projects

Key Learnings

Student Agency

Real-world projects give students purpose and ability to bring own ideas and interests to the table

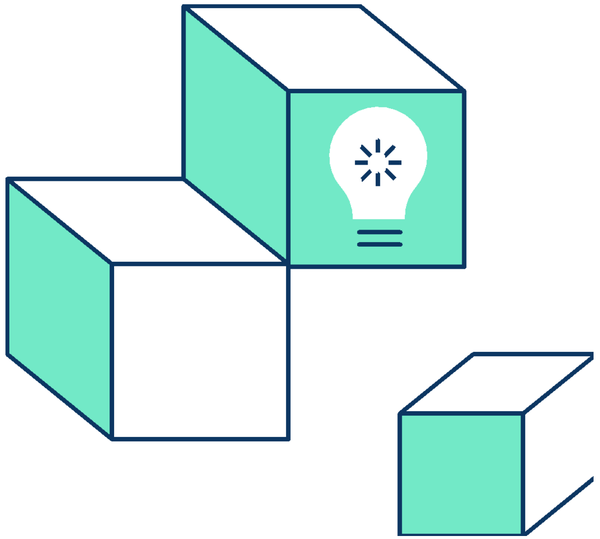
Key Learnings



Mentor Engagement

Validation/feedback from working professional through sustained relationships

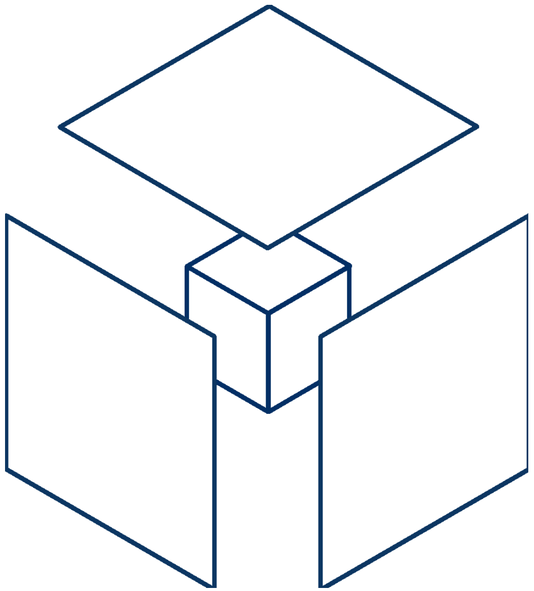
Key Learnings



Develop In-Demand Skills

Problem-solving, critical thinking, communications, collaboration/teamwork & research most sought after skills

Key Learnings



De-Mystify STEM

Problem-based and work-based learning experiences provide new perspectives and lines of site into careers and pathways in STEM fields

Education

Other Lessons on Employer Partnerships...

- Set and manage expectations
- Communication is key
- Invest in teacher training
- Turn-key program support important
- Sustained commitment from both sides builds stronger relationships

Let’s Partner!

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