



#YouBeTheChemist

BUILDING THE FUTURE WORKFORCE BY INSPIRING STUDENTS TODAY

You Be The Chemist connects businesses and educators to achieve a critical need: **preparing students for the workforce.**

When it comes to preparing the STEM workforce – those industries relying on science, technology, engineering, and mathematics – often the focus is on students in high school and post-secondary education.

But the truth is, if students aren't inspired by science when they are young – **as early as five years old** – it gets increasingly harder to engage them in learning and ultimately, enter careers in STEM industries.

The Chemical Educational Foundation's *You Be The Chemist* programs uniquely connect business and education in local communities to reach students early in life and ignite a passion for chemistry and science-related careers.

Companies and individuals in the science and chemistry industries have invested in *You Be The Chemist* since 1989, to inspire young students into a lifelong passion for these fields. Programs are implemented in partnership with schools and education programs so activities align with local workforce and learning needs.

You Be The Chemist continues helping businesses and education providers show young students the potential to build a better world through the science of chemistry.



Together, our programs



Inspire and motivate youth to seek careers in STEM fields



Raise educator confidence in teaching chemistry concepts and content



Spotlight employee expertise through impactful local volunteer opportunities

Start Early

Research shows that if more children are to enter the STEM pipeline, then educators in early elementary grades need to be prepared to provide interesting and engaging lessons that focus on developing children's problem-solving and spatial ability while encouraging their intrinsic interest in STEM.



You Be The Chemist Programs: BUILDING THE FUTURE WORKFORCE

You Be The Chemist celebrates the role of science and chemistry in everyday learning and life.

Essential Elements

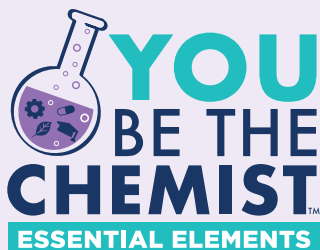
Professional development workshops that build confidence in teaching science.

We equip K-8 educators with best practices for STEM education, share resources for science learning, and build educator confidence in leading inquiry-based, hands-on learning.



Over 70%
of attending educators
since 2015 work in public
schools ✓

PARTICIPANTS ARE:
more confident teaching science;
offer more hands-on learning in the
classroom; and report that their
students enjoy learning
science more



Activity Guides

Hands-on science lessons that use common, inexpensive items to teach science in the classroom.

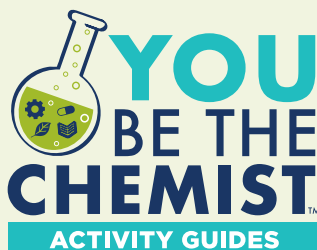
Hands-on learning is proven to engage young students in exploring science.

Our Activity Guides are educator-friendly roadmaps for using household items, without formal lab space, so students can explore foundational science concepts anywhere.



Now in its **5th** edition, with
over 1,000
activities

Organized by content to align with standards | Spanish translation in production



Academic Challenge

Celebrate and elevate the science of chemistry to inspire students in the field.

This local, state, and national academic competition targets students in grades 5–8, when most U.S. students have not studied chemistry as its own subject. Students prepare for multiple-choice quiz bowl competitions and advance to the annual, prestigious National Challenge that celebrates the role of chemistry in businesses and communities.



82%
of students are
more interested
in STEM careers
after participating in the
You Be The Chemist
Challenge



THE AMERICAN WORKFORCE NEEDS STEM WORKERS

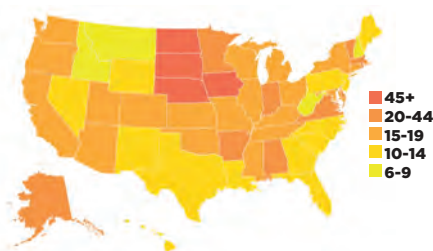
Students Must Be Better Activated to Consider Jobs in Science-Related Industries



America needs a workforce ready for STEM-related jobs at all levels – but it's not happening.

Jobs are unfilled – opportunities abound for skilled and degreed workers.

Number of STEM jobs advertised online for every unemployed STEM worker (2015)



In 2018, an estimated
1.2 Million STEM JOBS
will not be filled
by our nation's employers

**WE'RE
HIRING**

The Basic STEM Skills Gap
38% of companies

say at least half of their entry-level job applicants
in the U.S. lack even basic STEM skills

BY 2022: **1 Million STEM Opportunities**

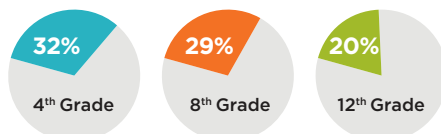
middle skill
growing 2.5 times faster
than non-STEM jobs

4-year
degree

Projected for individuals who are
STEM literate or have related degrees.
Half will not will not require a 4-year degree.

Too few students receive early,
hands-on science instruction to
prepare them for employment.

Few students are proficient in science



More than half
of 4th graders receive
**less than
3 hours
of science
instruction/week**

Research Shows:



Hands-on
Science
Experience



Collaborative
Learning



Higher
Performance
in Science

U.S. students lag international
students in STEM rankings



Science

23rd



Math

30th

Educators need more support
to confidently teach science to
young students.



61%

Percentage
of 4th graders
whose schools
provide supplies
or equipment
for science labs

**Only
9%**

of 4th graders had
teachers who learned
about instructional
methods in science
"to a large extent"

**ONLY
39%**



of elementary school educators
feel very well prepared to teach science

48%

low confidence

Educators surveyed
before participating in
You Be The Chemist
programs report low
confidence in their
ability to teach hands-on
science instruction.

Strategies & Impact: HELPING BUSINESSES INVEST & EMPLOY

You Be The Chemist fills the workforce gap by engaging young students in science experiences.

You Be The Chemist Strategies:

- ➔ **Inspire students early** in life to pursue science and chemistry in study and careers.
- ➔ **Engage educators** to build their confidence in teaching hands-on science using common, inexpensive items.
- ➔ **Strengthen communities** by connecting students and educators with volunteers from science industries.

Impact:

➔ Strengthening communities.

We are **creating connections** among students and volunteers from science and chemistry industries.

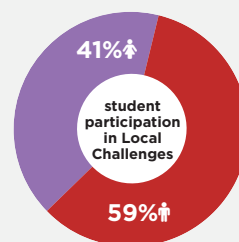
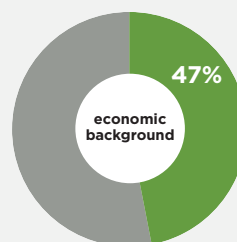
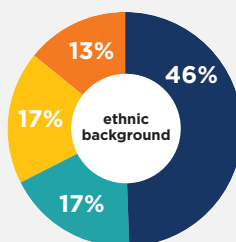
Aidan Blum participated in the National Challenge in 2006. He went on to major in chemical engineering and now works at PVS Chemicals, Inc.—the same company who sponsored the Local Challenge Aidan participated in as a sixth grader.



Impact:

➔ Inspiring students.

We are serving a **large and diverse student population**.



Engaged nearly
648,000 students
in the 2017-18 school year

10%
increase from
the previous
year

■ 47% Received Title 1 Funding
(designation based on % of low income students)

Impact:

➔ Engaging educators.

We are **empowering educators** to teach science in grades K-8, and with the supplies needed to do so.

Approximately
1,800
educators
supported



84%
Feel confident in their ability to
teach science in the classroom

versus

48%
before program
participation