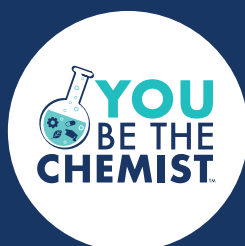




"Student interest in science and chemistry is essential. We must reach the youngest students to inspire them towards careers that propel our businesses and the economy."

~ Business Owner





#YouBeTheChemist

Building the Workforce of Tomorrow By Inspiring Youth 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 – too 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.

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 teachers 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.



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:

- ➔ **Connect business and education locally**, to inspire young students to remain interested in science for study and careers later on – starting early is key!
- ➔ **Help students explore careers** with local industry employers.
- ➔ **Empower educators** through professional development that builds their confidence in teaching science concepts, to lead hands-on learning that captivates students.
- ➔ **Develop science education content** that is engaging for students and accessible for educators.
- ➔ **Celebrate and elevate the science of chemistry** through academic competitions and interactions among industry professionals and students.

Impact:

➔ Making a difference in the community.

You Be The Chemist programs help businesses **reduce worker shortages** at all employment levels.

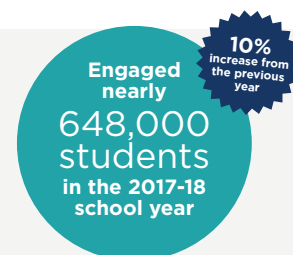


Aidan Blum participated in the National Challenge in 2006. He went on to major in chemical engineering and now works at PVS Chemicals, Inc.—the same company who sponsored the Local Challenge Aidan participated in as a sixth grader.

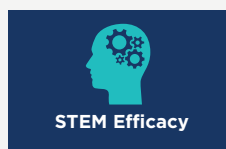
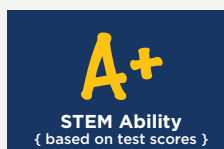
Impact:

➔ Making a difference for students.

We are serving a **large and diverse student population** that challenges national trends about who engages in science learning and activities.

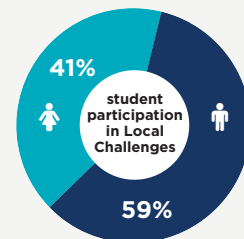


A 2018 feasibility study examining learning gains in students who participated in the *You Be The Chemist* Challenge showed that students experienced increased:



We are reaching boys and girls **nearly equally** in our Local Challenges.

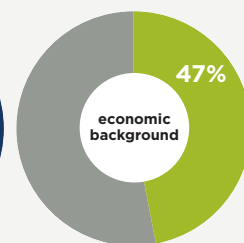
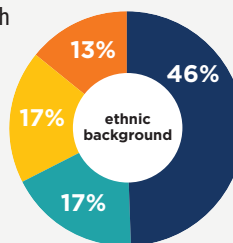
■ 59% Boys
■ 41% Girls



We are reaching students with **diverse backgrounds**.

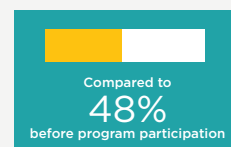
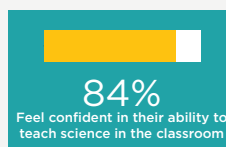
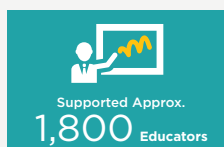
■ 46% White
■ 17% African American
■ 17% Hispanic
■ 13% Asian

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



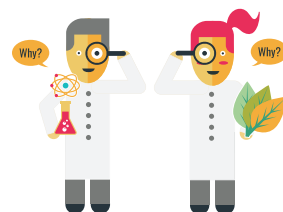
Impact:

➔ Making a difference for educators.



The American Workforce Needs STEM Workers

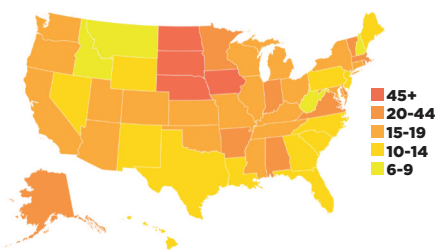
Students Must Be Better Activated to Consider Jobs in Science-Related Industries



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

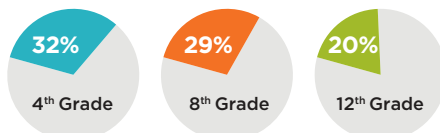
middle skill
{ growing 2.5 times faster than non-STEM jobs }

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

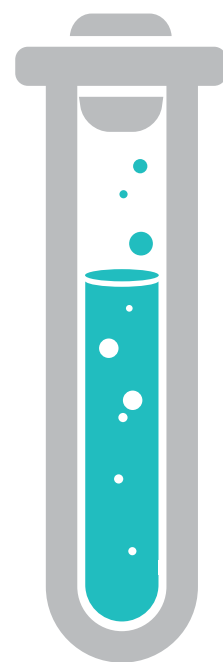
Research Shows:



U.S. Students Lag International Students in STEM Rankings



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, 2015

ONLY 39%

of elementary school teachers feel very well prepared to teach science

48%

low confidence

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

You Be The Chemist Programs Are A Solution For Building The Workforce Of The Future



You Be The Chemist builds capacity in K-8 science instruction in schools and programs nationwide.

Essential Elements —

professional development workshops that build confidence in teaching science.

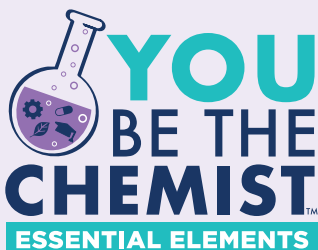
We equip K-8 educators with best practices for STEM education, share resources for science learning, and build educator confidence in leading inquiry-based, hands-on learning.



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 —

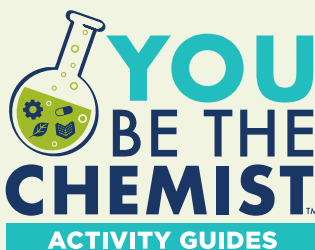
hands-on science lessons with low-cost materials that educators need.

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 into on-going study and careers.

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.



48,000
GRADE 5-8
students

In the 2017-18 School Year



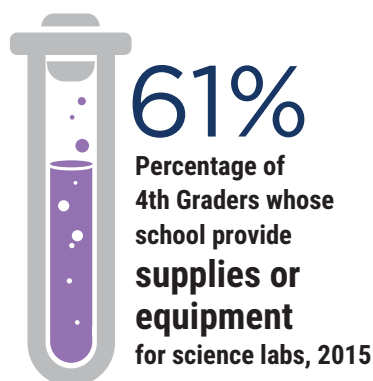


You Be The Chemist: Essential Elements

Building Educator Confidence to Teach More Science, Better



Research Shows:



**ONLY
39%
PREPARED**

Only 39% of elementary school teachers
feel very well prepared to teach science



48%
low confidence

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

Essential Elements Provides:

- Professional development that builds K-8 educator confidence to implement hands-on science activities with students
- Connections among educators and chemistry professionals to grow local workforce interest
- Acknowledgement and celebration of the role of chemistry in everyday life

Program Specifics:

In the U.S., minority students have the least experienced teachers, limited access to supplies and equipment for science labs, and teachers who lack the resources to succeed. Our Essential Elements program tackles these issues head on:

Workshops taught by
trained professional
development providers



Alignment with learning
standards yet flexible
for local use



Time to practice using
materials and *You Be
The Chemist* activity guides



Ability to deliver in
partnership with local
chemistry businesses



Scheduling for K-8
educators' convenience



Impact:



Teachers surveyed before and after Essential Elements workshops and again 30 months later indicated an increased confidence in teaching science and plan to offer more science-based activities in the future.



Our data show that workshop participants are **more confident teaching science** and they **offer more hands-on learning in the classroom**, and they report that **their students enjoy learning science more**.

"I loved the connection between educators and professionals in chemistry."

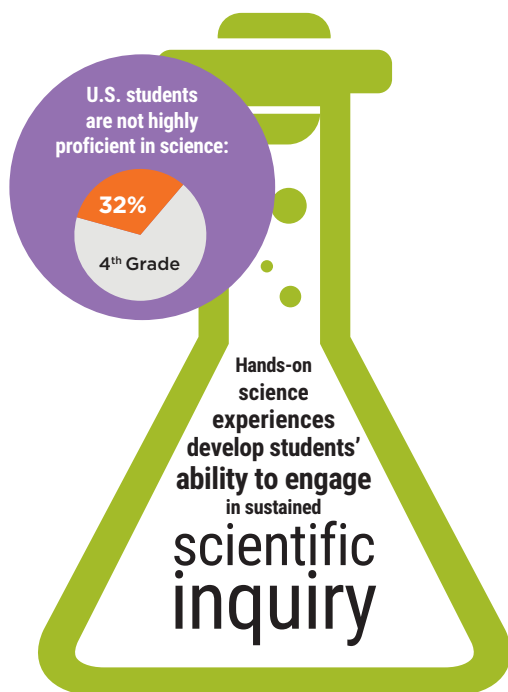


You Be The Chemist: Activity Guides

"I love the hands-on activities. I can't wait to take all these activities back to my classroom!"



Research Shows:



Activity Guides Provide:

- Flexibility for hands-on science learning: no lab space or equipment needed; deliver in classroom or out-of-school time learning
- Student engagement with foundational science concepts that align with learning standards
- Educator and student confidence to explore science and chemistry

Program Specifics:

Includes experiments, activity sheets, and supplemental resources for educators



Nearly 50 science activities using common, inexpensive household materials



Explanations to help educators build confidence with science content and instruction



Real-world connections to careers and life that rely on science and chemistry concepts



Differentiation techniques to enrich learning in K-8, and across ability levels



Impact:

Nearly **150,000** students are reached through distributed Activity Guides



Activity Guide Topics:

- ✓ Properties of Matter
- ✓ Chemical Reactions
- ✓ Energy
- ✓ Forces & Interactions
- ✓ Life & Earth Sciences

Where can I use the Activity Guides?

- ✓ Classrooms
- ✓ Libraries and museums
- ✓ At home
- ✓ Afterschool programs
- ✓ Science fairs
- ✓ Children's hospitals
- ✓ Camps
- ✓ School family nights

...and more!

"You made it so easy to follow along and gave us everything we needed. So simple since I am so busy so
THANK YOU!!!!!!"



You Be The Chemist: Challenge

Celebrate and elevate the science of chemistry to inspire on-going study and careers



Research Shows:

- Q Early science exposure inspires students to further study and work in these fields
- Q Before high school, most U.S. students have not studied chemistry as its own subject, making it more difficult to prepare them for higher learning, training, and working in STEM fields

Challenge Provides:

- Exposure to chemistry concepts in grades 5-8 – earlier than most U.S. students even begin studying chemistry
- Connections with industry professionals to see how chemistry offers needed and fulfilling careers
- Inspiration for girls and students of color who benefit most from having scientist role models and early science learning experiences
- Acknowledgement and celebration of the role of chemistry in everyday life

Students attend **FOR FREE** thanks to generous sponsor partnerships

Program Specifics:

Students prepare and then compete individually for their local challenge, if available in their communities. Participants seek to advance to their state and then National Challenge. Only one student from each state and territory is represented at the National Challenge annually. Nominated educators join their state's student at the National Challenge to further celebrate the science of chemistry. In 2019, the Challenge is in its 15th year.

Local, state, and national academic competitions



Collaboration among science industries, educators, and community partners



Flexible local programming so preparation can be part of the school-day or out-of-school time activities



Approximately 100 Challenge volunteers, in 42 states plus D.C. and Puerto Rico, receive technical assistance and training



College scholarships plus other prizes to National Challenge winners and participants



Impact:

86%
of students feel more confident in their **ability to understand chemistry**

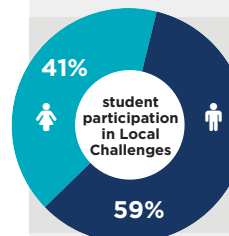


82%
of students are **more interested in STEM Careers** after participating in the You Be The Chemist Challenge

80%
of students report having an **increased awareness** of chemistry's role in everyday life



48,000
Grade 5-8 Students
In the 2017-18 School Year

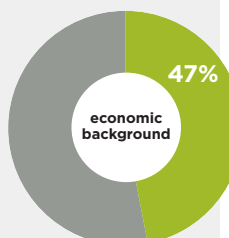
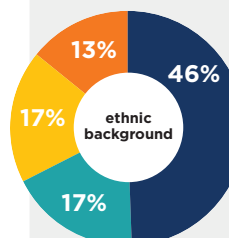


We are reaching boys and girls **nearly equally** in our Local Challenges.

■ 59% Boys
■ 41% Girls

We are reaching students with **diverse backgrounds**.

■ 46% White
■ 17% African American
■ 17% Hispanic
■ 13% Asian
■ 47% Received Title 1 Funding



Invest in the Workforce for Tomorrow

Your support changes lives for students, educators, and communities

You Be The Chemist is designed to fill the pipeline with students interested in science-related careers. The programs create high quality, fun, and memorable experiences that engage communities in bringing science to life for students. With the support of companies and individuals, we ensure that every student — regardless of geographic location or background — has access to hands-on science learning experiences.

Here are ways to invest in the STEM workforce pipeline:

\$300,000

Inspire **60,000 future STEM leaders** through participation in the Challenge; provide study materials, academic mentoring and educational **support from 1,000 industry, teacher and community volunteers**.

\$200,000

Empower **3,000 educators** to bring science to life for **500,000 students** through Essential Elements Teacher Training Workshops.

\$100,000

Engage **150,000 students in hands-on science experiments** by increasing access to Activity Guides.

\$50,000

Update resources to reach **diverse and underserved populations**.

\$30,000

Celebrate academic excellence in chemistry by **supporting college scholarships** for the top four National Challenge students.

\$20,000

Bring **science education programs to your community** through support of a *You Be The Chemist* certified instructor; building community partnerships and employee engagement opportunities.

\$10,000

Provide **200 students with Challenge Study Materials** or **60 educators with 3+ hours of training** at Essential Elements Workshops.

\$5,000

Provide **100 educators with chemistry career highlights** through employee participation in Essential Elements Webinars.

\$1,000

Provide **25 classrooms with all the materials needed to perform 50 Activity Guides experiments**.

\$500

Support a local *You Be The Chemist* Challenge for **50 students**.

You are investing in a better world through the science of chemistry



Be an Investor: Which one are you?



INDIVIDUAL INVESTOR

Join the cadre of students, educators, families, community members, professionals, and industry leaders who make individual investments to *You Be The Chemist*.

INDIVIDUAL INVESTMENT LEVELS

- **Legacy Club** Lifetime investment of \$100,000+, or Planned Giving Partner
- **Catalyst Club** \$5,000+ annually
- **Reactors** \$1,000 - \$4,999 annually
- **Conductors** Under \$1,000 annually
- **Individual Donor Affinity Groups**
Individual investors who participate in *You Be The Chemist* programs (past or present), including students, parents, educators, and volunteers



CORPORATE & FOUNDATION INVESTOR

Join the community of private and philanthropic investors who realize the value of building the STEM workforce pipeline.

CORPORATE & FOUNDATION INVESTMENT LEVELS

- **Impact Champions** \$150,000+
- **Innovators** \$100,000-\$149,999
- **Influencers** \$50,000-\$99,999
- **Ambassadors** \$20,000-\$49,999
- **Advocates** \$5,000-\$19,999
- **Allies** Under \$5,000
- **President's Club Members**
NACD Member distributor companies who contribute based on a formula of \$50 or more, per million dollars in sales

Select from Three Investment Options:

Sponsorship



Provide designated funds for specific initiatives; work in partnership to collaborate on local program implementation. Sponsorships are not tax deductible.

Donation



Directly fund our mission to inspire students in grades K-8 into the STEM workforce pipeline. Donations are tax-deductible under law.

Planned Giving



Planned giving may allow individual donors to give with income and estate tax reduction and potentially avoid or lessen tax liabilities.

www.ChemEd.org/Invest

You Be The Chemist: A Sound Investment for 30 Years

You Be The Chemist is the signature program of the Chemical Educational Foundation (CEF), which was founded by the National Association of Chemical Distributors (NACD) in 1989. Since becoming a distinct entity in 1997, CEF continues its strong relationship with NACD members who see the growing need for a skilled, qualified workforce in all stages of the their business.

CEF has grown its circle of supporters to include even more investors from the chemistry and chemical industries, as well as consumer product corporations and a range of STEM and science-related businesses that are U.S. and global leaders. **Join us!**