

chemistry

IN ACTION



A LETTER FROM THE EXECUTIVE DIRECTOR



This year, we've been celebrating "**chemistry at work**" – highlighting dynamic scientific careers and the ways that chemistry is woven into our everyday lives. We've introduced middle-school students to industry professionals and brought hands-on chemistry into classrooms nationwide. On our website and social media platforms, we featured 'cool STEM jobs' – interviews with working scientists, researchers, product managers, and more. We're making the case to today's students that the world they live in relies almost totally on scientific innovation – and that they will be the innovators who will shape our future.

Our programs directly impact students' understanding of scientific progress and their interest in learning more. One participant in this year's National *You Be The Chemist* Challenge® told us that before competing in the program: "**I had no knowledge of chemistry, but now, I even know basic organic chemistry... My research of chemistry makes me want to be a chemist!**"

Reaching one student leads to one potential future scientist. **Reaching hundreds of thousands of students each year – as CEF's programs do – can lead us to a generation that values science and technology and uses their knowledge to solve problems on a global scale.**

We call this report "Chemistry In Action" because we believe that students learn best when they're actively exploring and discovering. Also 'in action' is our growing staff, working to expand our programs into new states, schools, and classrooms, and ensuring program quality through continuous development. I invite you to turn the page and read more about how our programs equip educators and inspire students.

Like the atoms that make up everything we see (and everything we don't!), CEF is always in motion! Join us as we inspire students to fall in love with the chemistry that moves their world.

Best wishes,

John Rice
Executive Director



> *Marc, 2015 National Challenge Participant*

His **interest in chemistry** was triggered by the event. He was always STEM inclined, but he has had no chemistry exposure until this event in school. While he is still not sure about his career options, at this point, it looks like it could be a chemistry-related profession!

– **Parent of a 2015 National Challenge Participant**

OUR STORY

The Chemical Educational Foundation® (CEF) is a national organization committed to enhancing science education. Our popular *You Be The Chemist*® programs are geared towards educators and students in grades K–8. By focusing on these grade levels and emphasizing the central role of chemistry in our everyday lives, we strive to inspire our future leaders to pursue science-related careers and gain an appreciation of the value of chemistry to our global society.

Headquartered outside of Washington, DC, we believe in a community approach to science education and rely on a vast network of volunteers to put our programs into action nationwide. We recognize that educational needs vary by community, school, and classroom, and we encourage volunteers to incorporate our programs as they work best for their community. CEF is primarily funded by companies in industries that rely on the science of chemistry and individuals looking to strengthen science education for the next generation. For a full list of our contributors, please see pages 25-28.

OUR PROGRAMS

We take a three-pronged approach to educational enrichment through our *You Be The Chemist*® programs. First, we work to support educators through free, hands-on science activities that use easily-accessible and inexpensive materials – collectively, these are known as the *You Be The Chemist*® **Activity Guides: Lesson Plans for Making**

Chemistry Fun. Secondly, we offer professional development workshops that empower K-8 educators to bring hands-on science into their classrooms; called *You Be The Chemist Essential Elements*™, this program is cost-free for schools and teachers. Finally, we engage middle-school students in deeper, community-supported study through a national

academic competition called the *You Be The Chemist Challenge*®. To learn more about our programs, visit our website: www.chemed.org!



425,273

total students reached across our programs

315,799 more
students than
last year!



You Be The Chemist® CHALLENGE®

493
schools

38,854
students participated

60% MORE STUDENTS



You Be The Chemist® ESSENTIAL ELEMENTSsm

499
educators

32,980
students reached

30 WORKSHOPS



You Be The Chemist® ACTIVITY GUIDES

8,623
distributed

353,439
students reached

354% MORE STUDENTS

> *Shivani, 2015 National
Challenge Participant*



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Chemical Distributors*

Bart Whitaker III

Whitaker Oil Company

This experienced team of industry executives guides CEF's fundraising and investment activities and explores new funding opportunities.

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Greg Roop

Horn

This group of committed Challenge volunteers provides guidance for the program's growth and development.

CEF COMMITTEES



CONTENT DEVELOPMENT TEAM

This team of volunteers with experience in the sciences, academia, and industry maintains the scientific integrity of CEF's programs by helping develop and review program content.

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Truman College

Serge Fotso
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Christina Smith
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University of Nevada, Reno

Quan Yuan
Bridge Bright Future Consulting LLC



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This group applies their science and education backgrounds in overseeing the educational aspects of CEF's programs.

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Grosse Pointe Public Schools

Mike Davis
Truman College

Michele Flores
Deer Isle Stonington Elementary School

Brenda Nixon
Louisiana State University

Nancy Olenchek
The McCallie School

Paul Russo
Georgia Institute of Technology

Steven Scappaticci
Cranston Public Schools

Larry Sernyk
Dow AgroSciences (retired)

Janice Trainer
Christina School District

< *Brenntag employees at the 2015 National Challenge*

> Vanessa, 2015 National
Challenge Participant



OUR IMPACT

Each year, our *You Be The Chemist*[®] programs impact hundreds of thousands of students, parents, and educators nationwide. Our work also leaves a mark on our industry supporters, as we connect them with the communities in which they operate. On the following pages, we've highlighted just a few of the year's top stories. Read on to learn how chemistry can change schools, workplaces, and lives.



Teaming Up With Clariant to Hit a Home Run



“Clariant has a strong commitment to supporting science education in the communities where we operate. We had an opportunity to reach thousands of children and their parents with a hands-on science event in Charlotte, but needed help making it happen. With the assistance of the Chemical Educational Foundation, Science Education Night at the Charlotte Knight’s stadium was a great success.”

—Ken Golder
CEO, Clariant Corporation

When CEF staff members showed up in Charlotte, NC in August to meet with a team from Clariant Corporation, it wasn't in a boardroom or an office – it was at a baseball stadium! Clariant, a sponsor of the local triple-A team's "Back To School Night," wanted to bring hands-on science to thousands of young baseball fans. We chose five irresistibly fun science activities – ranging from building marshmallow launchers to finding the sweet spot on a baseball bat – and a team of enthusiastic Clariant employee volunteers engaged students in trying them out.

The event brought rave reviews from fans of all ages – after all, when you combine our high-quality educational programs with companies who support local science education, it's a home run!



> Vanessa, Erica, and Larry get ready for a chemical reaction!



Activity Guides, Meet Public Television!

"As a retired research scientist and project manager, I am thrilled to be able to give back by supporting and being an advocate for the *You Be The Chemist*[®] programs. By introducing exciting academic and hands-on science concepts at a young age, CEF's programs show students that chemistry is all around them and can offer exciting career opportunities!"

—Larry Sernyk

You Be The Chemist[®] Coordinator and Certified Instructor & Dow AgroSciences Researcher and Project Success Leader (retired)

In September, *You Be The Chemist*[®] Coordinator and Certified Instructor Larry Sernyk took chemistry to the streets - or at least to the studios of Indy Style on WISH-TV in Indianapolis! The retired Dow AgroSciences Researcher and Project Success Leader joined the host of the program, along with 2015 Indiana State Challenge Champion Vanessa Xiao and Erica Posthuma-Adams, a local high school chemistry teacher, to promote our programs and the Celebrate Science Indiana festival. Of course, no discussion of hands-on science education would be complete without a demonstration, so they performed a colorful version of the Elephant Toothpaste activity from our Activity Guides!

You can view the segment on the WISH-TV website at bit.ly/indystyle. And you can introduce young scientists in your life to Elephant Toothpaste by downloading our free Activity Guides at www.chemed.org!





Organizers Take On the Challenge



“I loved the format of this year's conference!! I felt like it was... engaging and effective. Plus, it was great having all the staff members actively involved and the whole thing just felt very collaborative and connected.”

—Cathi Cox-Boniol
Challenge Organizers & ACHIEVE
Coordinator, Lincoln Parish, LA Schools

We knew our Challenge Organizers – volunteers who coordinate Challenge competitions all over the country – were dedicated and creative. But when they took on a brainstorming exercise this fall as part of our Challenge Organizer Conference, their creativity helped us learn a lot about community partnerships!

During the exercise, Organizers were split into groups and each group was asked to suggest ways to connect with a specific type of community partner – university, YMCA, museum, etc. – to promote the Challenge. After an hour of preparation, the groups presented – and laughed until their sides split at the imaginative assortment of skits, spoofs, and even a parodied Broadway song! Along with the laughter, we gained a wealth of information about how CEF and our volunteers can work within communities to better support the Challenge program and its growth.

We've always appreciated the wide range of experience our Organizers bring to the table, and we can't wait to see how they put it into action next year!

STEM Professional Development is Coming to a School Near You!

Since the *You Be The Chemist* Essential ElementsSM program was launched in 2013, our free professional development workshops have been in high demand. To support this growing segment of our educational outreach, last year we launched the Essential Elements Certified Instructor program, through which qualified educators can apply to become workshop leaders. Certified Instructors receive intensive training from our staff and then schedule and conduct workshops in their local communities. Currently, we've trained 23 instructors and we'll continue training new ones until we have instructors placed in all 50 states!

So now, when we hear from educators who want to build the confidence and skills to do more hands-on science in the classroom, a certified local trainer is just a phone call away!



> 2015 Essential Elements Certified Instructor Training Conference



"I am so excited to be part of this organization!"

—Kathleen O'Connor
Essential Elements Certified Instructor & Grade 6-8 Science Teacher

Our Youngest-Ever National Challenge Champion



"[The Challenge program] is great because you get to experience a deeper view of chemistry. Then you can use that for your future careers. Chemistry is like the building block for all careers."

–Daniel Liu
2015 National Challenge Champion

Daniel Liu takes fractional distillation and organic compounds more seriously than your average 10-year-old – but even when he's honed in on chemistry, he can't resist the occasional joke. After outlasting 35 other top students at our 2015 National Challenge, Daniel accepted his \$10,000 scholarship check with a firm handshake and a query: "Can I cash this at an ATM?" (The reply: "Not until you head to college!")

At just 10 years old, Daniel's sense of humor goes hand in hand with an astounding intellect and enthusiasm for chemistry! He is the youngest student to ever win the National Challenge, which is the culmination of a year of chemistry competitions at the local and state levels.

Daniel told the Toledo Blade that he enjoyed the competition because "you had to be prepared for anything." This fall, he matriculated at Ottawa Hills High School as a freshman, skipping the eighth grade. In the future, he wants to be a computer programmer or a chemist!





We Went to the White House!

"As a society, we have to celebrate outstanding work by young people in science at least as much as we do Super Bowl winners. Because superstar biologists and engineers and rocket scientists and robot-builders... they're what's going to transform our society."

—President Obama

When 13-year-old Audrey Gallier returned home after winning the 2014 National Challenge, she thought the fanfare was over. That is, until she received an invitation from the president of the United States.

Audrey was selected to attend the 2015 White House Science Fair, a celebration of young scientists from around the country. In recognition of her accomplishments in the Challenge program, Audrey was asked to participate in a special round table discussion about women and girls in STEM! She also met President Obama and senior advisor Valerie Jarrett, as well as "science guy" Bill Nye.



"I noticed that [everyone at the round table] met with a lot of resistance when growing up because people were saying 'You're a girl; you can't do that.' They said to not believe it if anyone tells you that you can't do science because you're a girl."

—Audrey Gallier
2014 National Challenge Champion



The Chemical Educational Foundation® (CEF) is a nationally-recognized, award-winning nonprofit organization committed to enhancing science education among every generation, beginning with our youth.

[LEARN MORE ABOUT US »](#)

[You Be The Chemist® Overview](#)

[You Be The Chemist® Activity Guides](#)

[You Be The Chemist® Essential Elements](#)

[You Be The Chemist® Challenge](#)

You Be The Chemist®

The Chemical Educational Foundation's You Be The Chemist® (YBTC) programs are designed to enhance K-8 science education by introducing the central role of chemistry in all the sciences and in our everyday lives. To accomplish its mission, CEF relies on the collaboration of industry, educators, and all members of a community to enhance science education among every generation, beginning with our youth.



Chemed.org Has a Whole New Look



If you haven't stopped by lately – come check us out at www.chemed.org!

You might have noticed that CEF's public face in cyberspace – our website – got a makeover this year. As our programs have grown exponentially over the past decade, we've worked with experienced web developers to create a digital resource that will support them for years to come! The new site, launched in March, puts our programs front and center, with branding that reflects our goals, values, and spheres of action. On the back end, Challenge volunteers and Essential Elements Certified Instructors can use the site to coordinate competitions and workshops. And online inquiry forms facilitate inquiries from educators, parents, industry members, and interested volunteers, so that the right CEF staff member can respond to questions right away.



Welcome, Puerto Rico!



We're always looking to expand the Challenge program into new schools, cities, and states. So when representatives from

Dow AgroSciences and The Dow Chemical Company asked us about the possibility of sponsoring a competition in Puerto Rico, we were all in! It didn't take long for two Dow employees in Guayama, Puerto Rico to volunteer as Challenge Organizers, and only a few months later, Puerto Rico's first Local Challenge took place, with students from both Guayama and Salinas. After winning the competition, eighth-grader Steven Lebrón Merced traveled to Philadelphia to represent Puerto Rico in the 2015 National Challenge!

We can't wait to see Puerto Rico represented at the 2016 National Challenge - along with several new states! See page 21 for details.



"I'm looking forward to keeping in the line of chemistry so I can study chemistry at university and I could also become a chemist when I grow up."

-Steven Lebrón Merced
2015 Puerto Rico representative to the National Challenge

IS YOUR STATE INVOLVED?

Contact CEF for more information about the sites listed or to start your own Local Challenge site!



LOCAL CHALLENGE sites/sponsors

ALABAMA

• Madison County

Sponsored by: BASF Corporation; Best Western Plus Madison-Huntsville Hotel; Industrial Chemicals, Inc.; Research Solutions Group Inc.; The University of Alabama in Huntsville

ARIZONA

• Maricopa County

Sponsored by: Arizona State University; Arrowhead Cadillac; Center for Educational Excellence; Chemical Strategies, Inc.

ARKANSAS

• River Valley

Sponsored by: Clarksville School District

• Union County

Sponsored by: Clean Harbors; El Dorado Chemical Company; El Dorado Education Foundation; Murphy USA, Inc.; Tetra Technologies, Inc.

CALIFORNIA

• Brea East

Sponsored by: Horn

• Brea West

Sponsored by: Coast Southwest, Inc.

• Dana Point

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• Long Beach

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• Los Angeles County

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• Placentia South

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• Placentia North

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• Pomona

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• Vista

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DELAWARE

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FLORIDA

- **Tampa Bay Area**
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GEORGIA

- **East Georgia**
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- **Westside (Iberville Parish & West Baton Rouge Parish)**
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- **Lincoln Parish**
Sponsored by: Bricks 4 Kidz; Louisiana Tech University Department of Chemistry; Science and Technology Education Center at Louisiana Tech University (SciTEC)

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- Georgia Institute of Technology
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- McCullough & Associates
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- The LSU Chemical Engineering Department
- The LSU/SU Regional Collaborative for Excellence in Science and Mathematics Teaching
- The LSU Student Affiliates of the American Chemical Society

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SOUTH CAROLINA CHALLENGE

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TEXAS CHALLENGE

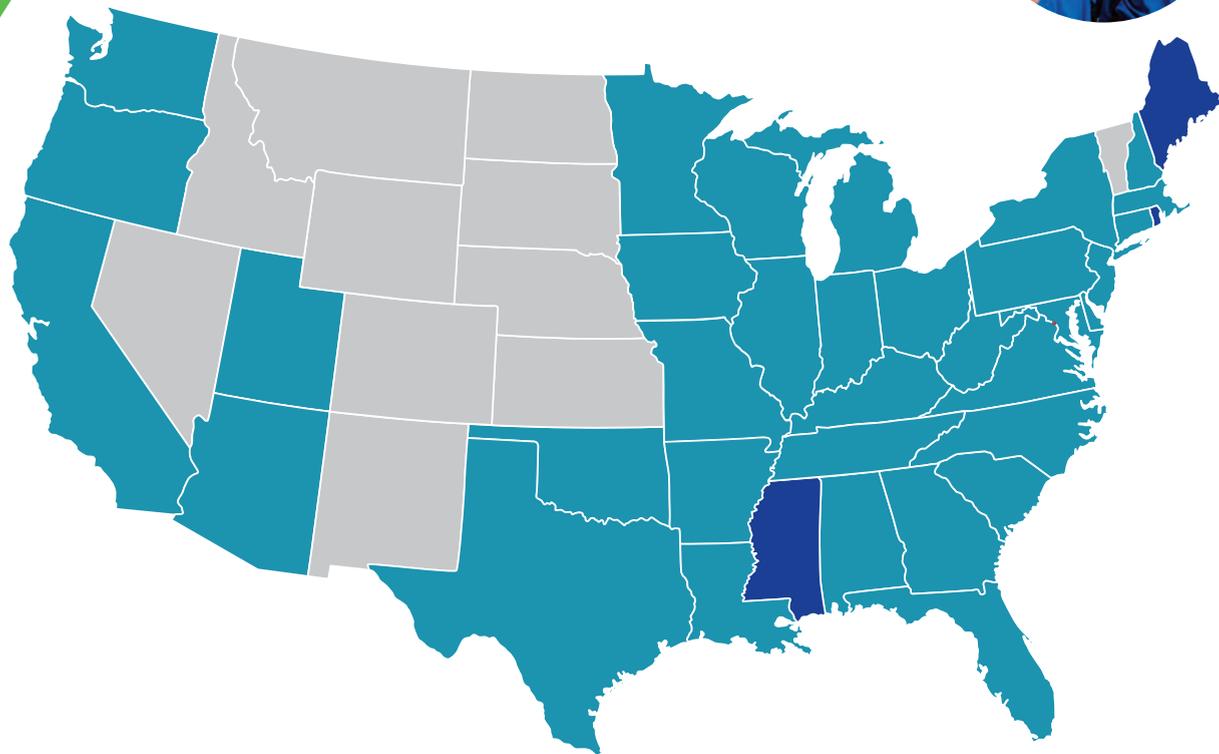
- The Dow Chemical Company
- Houston Chemical Association
- Shell Chemical Company
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VIRGINIA CHALLENGE

- BASF Corporation
- National Association of Chemical Distributors (NACD)



WHERE ARE THE CHALLENGE SITES IN YOUR AREA?



AK



HI



PR

-  2015 Participating State
-  Awaiting a Challenge
-  New Participating State in 2016!

< Roc, 2015 National Challenge Participant, and his mother

NATIONAL CHALLENGE sponsors

DIAMOND

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> Certified Instructors with industry and education backgrounds work together to practice teaching methods.



THANK you

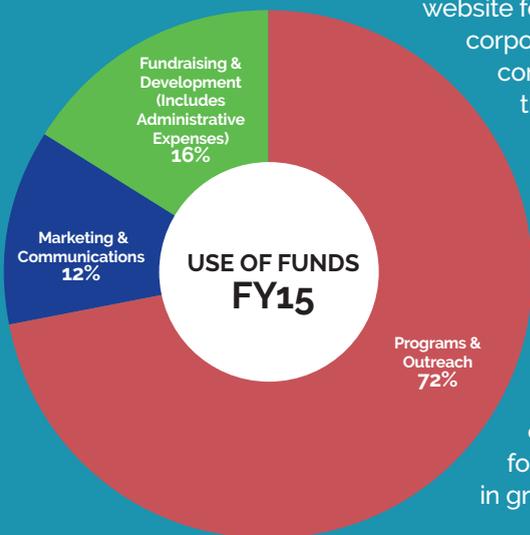
Without our dedicated industry supporters, the *You Be The Chemist*[®] programs simply would not be possible. **Thank you!**

2015 FINANCIALS

Financial Stability Feeds Program Growth

CEF is a not-for-profit 501(c)(3) charitable entity. Our financial position remained strong in 2015, thanks to a network of committed corporate and individual donors. Our programs are growing at an unprecedented rate, which would not be possible without the support of our valuable contributors.

A list of corporate contributors is located on page 25 of this report, with members of the President's Club noted in blue. A list of individual contributors is listed on page 28. Visit our website for the most current list of corporate and individual contributors and members of the President's Club.



In FY2015, 84% of CEF's total expenses were used for the development, implementation, and marketing of the *You Be The Chemist*[®] programs to enhance science education opportunities for students and educators in grades K-8.

	FY2015	FY2014
Total Revenue	\$1,648,344	\$1,262,874
Expenses		
Programs – Outreach & Development	\$1,131,006	\$904,347
Marketing & Communications	\$183,939	\$149,065
Fundraising & Administrative	\$250,572	\$230,752
Total Expenses	\$1,565,517	\$1,284,164
Change in net assets	\$82,827	\$(21,290)
Net assets, beginning of year	\$2,130,163	\$2,151,453
Net assets, end of year	\$2,212,990	\$2,130,163

CEF would like to thank
The Dow Chemical Company for their
 Diamond Sponsorship of the *You Be The Chemist*[®] programs.

IN MEMORY OF JACK HESS

In 2015, we mourned the passing of John R. "Jack" Hess, a longtime supporter of CEF and a stalwart of the chemical distribution industry. Jack was the driving force behind the creation of CEF as an organization, and his passion and advocacy on our behalf will always be remembered and cherished. In 1996, we selected him to receive the CEF Vanguard Award, given in recognition of his community outreach efforts and tireless support of science education. To honor Jack, a number of contributors made in memoriam gifts to CEF, and those contributions have been noted in the lists below. Thanks to all who are working to keep Jack's memory alive.



[^] Jack Hess, CEF Co-Founder, and his son, Peter Hess, former CEF Trustee

CORPORATE contributors

As of December 1, 2015

*Contribution, in part or in full, made in memory of Jack Hess.

In 2014, we introduced the President's Club, a special level of recognition for chemical distribution companies that contribute at a level meeting the CEF Board of Trustees' suggested contribution amount of \$50 per million in sales. As of December 2015, 69 companies have joined the President's Club – and we want to thank them for being especially committed to building the next generation of scientists!

We are grateful to the following companies for their financial support. Companies highlighted in blue have distinguished themselves as members of the CEF President's Club:

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Occidental Chemical Corp.

Ohio Chemical Services, Inc.

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As of December 1, 2015

We are grateful for the following individuals for their financial support:

*Contribution, in part or in full, made in memory of Jack Hess.



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a look ahead: 2016 AND BEYOND



> *Robert & Shantel, Challenge Organizers & BASF employees*

After a year of astronomical growth, we're busy preparing for the next one! We have ambitious goals for 2016, but with our nationwide network of volunteers, committed supporters, and consistently high level of interest from educators, parents, and schools, we're ready for all of the opportunities ahead!

2016 PROGRAM GOALS

You Be The Chemist[®]
CHALLENGE

55,000

students participating from
40 states



You Be The Chemist[®]
ACTIVITY GUIDES

390,000

students reached



You Be The Chemist[®]
ESSENTIAL ELEMENTS

1,500

educators trained reaching
60,000 students



UPCOMING MILESTONES

We're launching the redesigned **5th edition of the Activity Guides** in December 2016!

In June 2017, we're moving the **National Challenge to Washington, DC!**

We're working toward the goal of training **Essential Elements Certified Instructors in all 50 states** and the District of Columbia!

CALENDAR AT A GLANCE

- **January 1 – March 19, 2016**
Local *You Be The Chemist* Challenge[®] competitions
- **March 6-7, 2016**
Pittcon 2016, Atlanta
- **April 16, 2016**
State *You Be The Chemist* Challenge[®] competitions
- **April 30, 2016**
Philadelphia Science Festival Carnival, Philadelphia
- **June 20, 2016**
National *You Be The Chemist* Challenge[®] competition, Philadelphia
- **September, 2016**
Registration opens for 2016-2017 Challenge cycle!

We attend science festivals and educator conferences throughout the year – head to www.chemed.org/events for more details!

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