

# 100KIN10

ANSWERING THE NATION'S CALL

October 25, 2016

President Barack Obama  
The White House  
1600 Pennsylvania Avenue  
Washington, D.C. 20500

Dear President Obama:

In anticipation of the upcoming nationwide Active Learning Day, we recognize that all children have questions and ideas about how the world around them works. With sufficient time and proper preparation, preK-12 teachers can create and guide opportunities for students to pursue their questions and develop their thinking as they drive their own learning forward. The term for this kind of experience is “active learning,” and in preK-12 classrooms it can take many forms and names, ranging from simple strategies like “think-pair-share” to more intensive approaches like project-based instruction. Active learning *can be* hands-on but it *is always* minds-on, putting students in charge of their own learning and enhancing their higher order thinking skills.

Engaging students in active STEM learning is essential. We rely on the current and next generations of students to develop a deep understanding of STEM content and practices and be able to apply that understanding to solving the problems, known and unknown, that our Nation and world will inevitably face. When science, technology, engineering, and math (STEM) subjects are taught using “active learning,” preK-12 students gain a deeper understanding of the disciplinary core ideas and practices of these subjects. In the long-term, they remain highly motivated to study STEM subjects in school and college and to pursue careers in these areas. Ultimately, active learning can help students develop a deep and lifelong engagement with and love for STEM. Ensuring that the range of voices working in STEM reflects the full diversity of our Nation’s population is also essential to sustaining America’s ability to innovate to solve the Nation’s and world’s future problems. While STEM active learning is important for all students, it is particularly helpful in motivating students from groups that have been historically underrepresented in the STEM workforce, including girls and students from ethnic and racial groups, inspiring them to stay on track to STEM careers. In all these ways, the opportunity for all of our preK-12 students to engage in active learning in STEM is absolutely critical.

While active learning is not a new concept in education, we see a new opportunity to grow a diverse and connected national network of stakeholders who all want to make STEM active learning opportunities available and accessible to all students in their communities. As representatives of just such a national network, we, the undersigned, are deeply involved in preparing and supporting STEM teachers across

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their careers, from their initial coursework through the continued development of their instructional skills and leadership responsibilities. Some of our ranks develop curricula and tools that teachers use to support active learning in STEM. Others reach students' parents and caregivers through their work in the out-of-school time space. As a network of organizations influencing STEM education through these many different touchpoints, we are eager to nurture more active learning in STEM for all preK-12 students.

To build on and solidify your legacy in the innovation fields, we ask that you share your passion for STEM with whoever succeeds you. We look forward to working with your Administration – and with any Administration that follows -- to make this initiative a huge success for the sake of our children, our Nation, and our planet. We would also appreciate your help to ensure that active learning in STEM in PreK-12 remains a priority in the transition to the next Administration.

As the White House prepares to celebrate Active Learning Day this year, we, the undersigned, are committed to getting started or to continuing our efforts by taking one or more of the following steps:

- Identify, develop, and support active learning STEM curricular materials and technologies with research-based evidence of success for use by preK-12 teachers and students;
- Offer professional development and teacher leadership opportunities and long-term support to preK-12 teachers to integrate STEM active learning into their districts' and schools' curricula;
- Develop and implement strategies to engage all preK-12 learners in STEM active learning, both in school and out, that will diversify the pool of future STEM professionals;
- Engage parents, community members, companies, foundations, and out-of-school programs to support these efforts in our communities and in so doing create a vibrant ecosystem around active learning in STEM in preK-12.

Thank you for your leadership in this work, President Obama. To build on and solidify your legacy, we ask that you share your passion for STEM with whoever succeeds you. We look forward to working with your Administration – and with any Administration that follows – to make this initiative a huge success for the sake of our children, our Nation, and our planet.

Signed,

100Kin10  
Academy for Urban School Leadership (AUSL)  
Arizona Science Center  
American Association of Physics Teachers

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ANSWERING THE NATION'S CALL

ASSET STEM Education

Boise State University

BSCS

Boston Teacher Residency

Center for Science Teaching and Learning, Northern Arizona University, Flagstaff, AZ

EnCorps STEM Teachers Program

Erikson Institute

Exploratorium

Freeport-McMoRan

Ignited

Illustrative Mathematics

INSPIRE Research Institute for Pre-College Engineering

Intrepid Sea, Air & Space Museum

Maricopa County Education Service Agency

National Center for Technological Literacy at the Museum of Science, Boston

National Network of State Teachers of the Year

New Teacher Center

Noble Network of Charter Schools

PEBC

Relay Graduate School of Education

San Diego Zoo Global

Science Friday Initiative

Teaching Channel

University of Houston-Clear Lake and Parkwood Elementary in Deer Park ISD

Washington STEM

WGBH Educational Foundation

WNET New York Public Media



Dear President Obama:

It is our esteemed pleasure to embrace the moment, and share with you about EnCorps STEM Teachers Program and the tremendous work we are doing on behalf of children and education in California. Since 2007, EnCorps has been entrusted to address the conditions severely limiting low income, under-resourced, and minority student opportunities; and to serve as a leading educator training and talent resource, transitioning STEM professionals into teaching. We believe the STEM education initiatives that you have initiated during your administration will affect the trajectory of our students, our country, and the global community in the 21<sup>st</sup> century.

EnCorps continues to recruit and select the best and brightest STEM professionals. Therefore, our success rests on a layered approach of recruitment, placement, and professional development supplemented with active learning STEM curriculum and technologies. Boldly, we have set a moonshot goal of providing one third of California's annual gap in the supply of STEM Teachers, totaling 400 STEM expert teachers for 50,000 high need students annually by June 2020 to:

- ✓ Ensure that EnCorps Fellows develop into impactful, long-term teachers in public schools where they are needed most;
- ✓ Promote diversity in STEM fields by employing recruitment strategies that identify and champion women and minorities; and to
- ✓ Cultivate the science, technology, engineering and mathematics talent for the 1.5 million open jobs in STEM fields in California.

When students are engaged in meaningful learning activities that challenge them to think about what they are doing, they are motivated. They are motivated and inspired to inquire, design, invent and develop ideas in environments where they are safe to experiment. Not only have we seen increases in math and science competencies, but we've seen increased interest in STEM career fields.

The vision of the EnCorps STEM Teachers Program is that:

- **All** children learn to become problem solvers, innovators and creators;
- Students see the real-world application of math and science and how these disciplines are essential to their future;
- STEM professionals are regularly and actively engaged in public education; and,
- Underrepresented populations build a strong presence in STEM professions.

Mr. President, the mission of EnCorps delivers on a social promise of equanimity and opportunity for all students; regardless of socioeconomic background. Thank you again for your leadership and support which has endorsed our common purpose of ensuring that **every** student in America receives an excellent STEM education.

Respectfully,

A handwritten signature in black ink that reads "KC Wilcox".

Katherine Wilcox  
Executive Director  
EnCorps STEM Teachers Program



October 7, 2016

Dear President Obama,

It is with great enthusiasm that I write this letter in support of empowering educators and communities to create more meaningful hands-on opportunities for students through the Maker Movement.

At the Exploratorium, we view learning broadly and believe there are different ways of learning and knowing: through direct experience with phenomena, through art, through dialogue, and through tinkering. We seek to broaden conceptions of learning by designing and studying experiences that focus on play, investigation, creativity, iteration, questioning, and making. We work to change the way the world learns and to promote equal access to these powerful ways of learning about the world.

We engage in this work through designing equity-oriented learning environments, providing training for educators with inquiry-rich, hands-on teaching practices, conducting research on STEM-rich learning, and creating resources to share with the field.

Since 1985, over 450,000 teachers, teacher leaders, and district administrators have participated in our STEM training programs, over 1.6 million students have attended our institution on field trips, and over 1 million educators have downloaded teaching resources from the Exploratorium.

Exploratorium Active STEM Education Programs:

- **Institute for Inquiry:** Professional development for science specialists and classroom teachers engaged in implementation of inquiry-based science in the K5 classroom, including those with high numbers of English Language Learners.
- **Teacher Institute:** Professional development for middle and high school science teachers with an emphasis on integration of hands-on investigations to support student engagement in scientific practices.
- **Tinkering Studio:** Professional development for educators implementing STEM-rich tinkering and maker programs in informal and formal settings.
- **Digital Learning:** On-line professional development and tools for educators to support inquiry-based science teaching and learning.
- **Center for Informal Learning and Schools:** A research group that conducts research and engages policymakers with strategies for expanding more equitable opportunities for learning through partnerships and informal educational efforts and organizations.

Our goal is to continue to develop and implement strategies to engage students in hands-on making opportunities. We would be very grateful and honored to connect our efforts with the White House.

Sincerely,

A handwritten signature in black ink, appearing to read "Chris Flink". The signature is fluid and cursive, with a large initial "C" and "F".

Chris Flink  
Executive Director

Dear President Obama,

Children and youth learn best when their learning is connected throughout the day – in school and out, in formal and informal settings, with classmates, friends and family. STEM subjects, in particular, are more engaging when students can connect them to their lives. Research shows that under-represented groups in STEM fields benefit from family engagement with STEM. The learning must be active, curiosity-fostering and relevant. At the Intrepid Sea, Air & Space Museum we are committed to providing these experiences everyday, serving 30,000 people each year through programming that reaches schools, afterschools, teachers, families and community organizations. Because of our deep believe in access for all to quality STEM programs we offer many of these programs at no cost to participants, such as our 6-week summer intensive for NYC Girls, GOALS for Girls, now in its 10<sup>th</sup> year. Our outreach team goes into schools for incarcerated teens, runs programs in the furthest reaches of the City and even Skypes across the nation. We have a strong and committed Access team, adapting programs for children, youth and adults with physical, cognitive and emotional challenges. We also work to support more than 500 STEM educators each year, providing courses and professional learning experiences as well as materials for use back in their classrooms.

As an institution whose mission is to promote the awareness and understanding of history, science and service through its collections, exhibitions and programming in order to honor our heroes, educate the public and inspire our youth, the creation of active learning experiences is at our core. The team at the Museum has been delivering quality education programming for more than 25 years. Programs incorporate the Museum's unique restored spaces, the Space Shuttle Pavilion, artifacts, aircraft collection, oral histories and exhibits, exploring topics in history, science, technology, engineering and math through a truly interdisciplinary approach. Grounded in the best practices of inquiry-based, experiential and object-based learning, our education programs are designed to engage learners of all ages with the lessons of the past in order to understand the present and envision the future. We have appreciated your support of active STEM learning and anticipate that the new administration will also appreciate its importance. We look forward to continuing our service as part of the STEM – learning ecosystem.

Sincerely,



Lynda Kennedy, MS Ed, PhD  
VP, Education & Evaluation  
Intrepid Sea, Air & Space Museum



October 18, 2016

Dear President Obama:

It is an honor to write a letter of commitment to support the recruitment and retention of great STEM teachers. The members of the National Network of State Teachers of the Year [NNSTOY] are among the most recognized teachers in the United States, identified as National Teachers of the Year, State Teachers of the Year, and Finalists for State Teacher of the Year. As an organization, we support STEM practices that promote creativity and innovation in the classroom and provide students with unique learning opportunities and skills to prepare them for the challenges of the 21<sup>st</sup> Century.

We are also concerned about the need to recruit strong, master STEM teachers who will develop students and encourage them to pursue science, technology, engineering and mathematics. As Assistant Secretary Alan Bersin recently said, the importance of ensuring our students have a quality education is a national security issue. Nowhere is this more evident than in the area of STEM education.

NNSTOY is addressing the issue by advancing teacher leadership in the STEM field and by focusing on STEM policy at all levels. Our goals are to put great teaching and learning at the center of the education debate, and to elevate our profession so that we attract, develop and keep our most talented teachers. NNSTOY laid this ground work by leading in the development of Teacher Leader Model Standards and by creating a series of teacher leadership training modules that are based on the standards. Our training modules help teachers to develop leadership skills and to work with administrators, family and community members and policymakers to transform classrooms into vibrant learning environments that unlock the doors of student creativity and innovation.

Through our work in classrooms and schools, we have noticed a lack of quality examples of what a STEM classroom of the future could look like, one where students work on cutting-edge projects focused on changing the world. Many of our members are STEM master teachers, nationally recognized as experts in their field. We are working with them to share their best practices and to help administrators and policymakers understand the mechanisms that need to be in place to support STEM student learning at the highest level.

Thank you for your commitment to addressing the recruitment and retention of excellent STEM teachers so that every student receives a world class education. It has been an honor to serve your administration as thought partners with the United States Department of Education. As we transition to a new administration, we stand ready to continue to develop frameworks and

partnerships around this effort that will encourage your successor to remain committed to the work at hand.

Respectfully,

A handwritten signature in black ink that reads "Katherine Bassett". The signature is written in a cursive, flowing style.

Katherine Bassett  
CEO and President  
National Network of State Teachers of the Year



October 7, 2016

President Barack Obama  
The White House  
1600 Pennsylvania Avenue NW  
Washington, DC 20500

Dear Mr. President:

On behalf of Teaching Channel's board, staff, and the nearly 1,000,000 teachers we serve nationwide, it is with great pleasure that I am writing in support of the upcoming nationwide Active Learning Day. As we affirmed in our letter co-authored with members of the 100kin10 network, we are committed to advancing active learning as a strategy in lifting student achievement around the country.

Teaching Channel is dedicated to active learning for students--and for the teachers that work with them everyday. We encourage teachers to see, reflect, understand, and share their learning. The experiences teachers encounter on our website, TeachingChannel.org and our blended learning platform, Teams are built around a common idea that "community leads the community." While different in format, teachers are leading each other in powerful, transformative learning. We believe that by providing educators with the tools they need to learn, we can help them engage their students in developing their intellectual capabilities and readiness for the careers of the future.

Because of the way science and math has been taught in our country, we have seen a precipitous drop in student interest and achievement in STEM. American businesses suffer a dearth of qualified candidates to fill the positions essential to future economic growth and industrial innovation. Our students lack the critical thinking skills, science and math literacy, and innovative thinking that is so integral to their success in college and career. With study after study showing that teacher quality is critical to student learning, we know that this kind of innovative education starts in the classroom. Our mission is to transform the way teachers learn and grow in order to lift student achievement. We believe that teachers can and do get better at their craft when they have opportunities well beyond the one-time demonstrations and lectures that comprise most professional development today. We know that finding better, more active ways for teachers to learn and think about their own instructional practice, is a first step in helping students succeed.

In the past five years, Teaching Channel has crisscrossed the United States to film in classrooms. We have made it a point to capture great teaching, emerging teaching, tough moments, triumphs, and illustrations of kids caught in the act of learning. We have affirmed the critical role of video in helping teachers see and experiment with new ways of teaching. We have successfully tested our Theory of Professional Learning--moving away from merely viewing video - toward trying out new strategies, reflecting on these attempts, and seeking feedback from peers and mentors. We have built a vibrant online community where educators actively share ideas, best practices and enhance their knowledge.



We have lifted the curtain on classrooms and, in doing so, Teaching Channel has begun to revolutionize how K-12 teachers can learn and improve.

We have committed to the 100kin10 network's charge of helping at least 10,000 teachers to access these resources and to try to integrate active learning into their classroom that week; and look forward to working with our partners in continuing to make this a priority in our children's education. We thank the administration for its leadership and commitment to education.

Sincerely,

*Erika Nielsen Andrew*

Erika Nielsen Andrew  
Chief Academic Officer



University  
of Houston  
Clear Lake

October 7, 2016

Dear President Obama,

The University of Houston-Clear Lake (UHCL), in partnership with Parkwood Elementary in the Deer Park Independent School District (DPISD), is committed to engaging young children in active STEM learning. Parkwood Elementary serves 770 students in grades K-2 from predominantly low-income, Hispanic families. The campus is made up of English, Bilingual, and Dual Language classrooms and 76 percent of the student population qualifies for free and reduced lunch.

Two years ago, UHCL and DPISD entered into partnership designating Parkwood Elementary as a professional development laboratory school. Since that time, UHCL and Parkwood Elementary have collaborated on different initiatives. However, the one that holds the most promise is the new STEAM (STEM with integrated arts) program. Currently, Parkwood Elementary is implementing an integrated STEAM-based curriculum in seven kindergarten classrooms and three first grade classrooms. We have created a process of gradual transition toward a campus-wide STEAM curriculum; by the 2018-2019 school year the entire campus will be fully implementing a STEAM curriculum. The gradual transition process allows for us to collect formal data on the impact of this new and innovative curriculum versus the traditional district curriculum.

In addition to the STEAM curriculum, Parkwood has a start-of-the-art science lab and outdoor learning area, facilitated by a full-time, dedicated Science teacher. Last year, an Engineering lab with a full-time Engineering teacher was also added to the school's enrichment.



*A kindergartener is comparing properties of a live worm to a gummy worm.*



*Second graders are coding Bee Bots to complete a course.*

Since the introduction of STEAM at Parkwood Elementary, teachers have noted (among other things) students' increased demonstrations of social interactions, collaborative behaviors toward peers, and autonomous problem-solving behaviors; increased perseverance when confronting challenging tasks; increased and self-initiated ability to "attend" and concentrate for extended periods of time; and increased verbalizations of students asking questions.



*Kindergarteners are designing and building a pulley system to reinforce their learning about the way things move.*



*First graders are using Lego WeDo Robotics to build and program animals in their habitat.*

Unfortunately, there are a number of barriers to active STEM/STEAM learning opportunities in grades P-3. Some of the challenges we have personally discovered at Parkwood Elementary relate to teacher support and professional development. In recognizing the critical importance of these particular areas, we are committed to addressing them in impactful ways. For example, we are in the process of developing a year-long professional development cohort with multiple stakeholders from the district, including the Assistant Superintendent, Department of Instruction content area coordinators, campus administration, and grade-level lead teachers. This "pilot" project will focus on collaboration and co-creation of STEAM curriculum. We believe this cohort could be a game changer because it has the potential to bring stakeholders from all levels together in order to gain a collective understanding of the positive impact of STEM/STEAM and work toward a shared vision of deeper learning through STEAM.

Together, UHCL and Parkwood Elementary have made great strides toward facilitating more active learning in STEM/STEAM and we believe we are just getting started. We are happy to share our journey—successes and challenges—with others in hopes that STEM/STEAM efforts will continue to expand nationally, and particularly in early childhood.

Sincerely,

Shanna L. Graves, Ph.D.  
Associate Professor, Program Coordinator  
Early Childhood Education  
University of Houston-Clear Lake

Kelly Tryer, M.Ed.  
Engineering Teacher/STEAM Lead  
Parkwood Elementary  
Deer Park ISD

October 25, 2016

President Barack Obama  
The White House  
1600 Pennsylvania Avenue  
Washington, D.C. 20500

Dear President Obama,

I am honored to write this letter in support of Active Learning Day, a day to promote active learning in preK-12 schools throughout the country.

Washington STEM is a nonprofit that works to advance excellence, innovation, and equity in science, technology, engineering, and math (STEM) education for all students. Our goal is to position all of Washington's young people as "future ready" community members – people with the technical and critical skills needed to thrive in today's jobs and create and excel in the unknown jobs of tomorrow; people who exemplify opportunity and create shared prosperity for our communities.



A high-quality, accessible, and equitable STEM education is key to unlocking future opportunities, particularly for students of color, girls, and rural students. And active learning – particularly in computer science, early math, science and engineering, and career-connected learning – is key to a successful STEM education.

One example of active learning Washington STEM is launching, in partnership with 100Kin10, statewide direct service program focused on underrepresented groups and under-served communities Washington MESA, and teachers and students across the state, is our Engineering Fellows programs. The Engineering Fellows program brings together engineers, teachers, and college and graduate engineering students to design and implement design challenges focused on real-world human problems integrated with their local curriculum. Fifth grade students then work with each other throughout the year to design creative solutions to these design challenges.

Just last month, we supported a family engagement event in the Sunnyside School District in rural Washington at one of the pilot schools participating in the Engineering Fellows program. One hundred forty parents, students, and siblings participated together in a design challenge based on

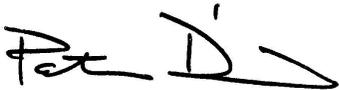


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the book *Those Darn Squirrels*. The families worked together to construct catapults to help the squirrels (represented by marshmallows) launch themselves toward bird feeders. By engaging in this active learning opportunity, families learned about the engineering design process and left with a better idea of what active learning can look like in the context of the Next Generation Science Standards.

We thank you for supporting active learning and look forward to continuing to work with you and future Administrations to continue to support active learning in Washington state and the nation.

Sincerely,



Patrick D'Amelio  
CEO, Washington STEM

