

Dear President Obama,

All children are born makers. They look at the world with a sense of wonder. They tinker and discover. They take things apart to question how they work. They build amazing things using any materials within reach. And they solve problems – for someone in their community or halfway around the world. Inherently curious and creative, children are naturally drawn to making as a way to explore the world around them.

As leaders in education, we are excited about the growing Maker Movement and its potential to transform the way our students learn. An open-ended process of creating, making includes a wide spectrum of activities – from building furniture to growing a community garden, from upcycling to coding, and so much more. Making involves utilizing the design process, learning to use tools and materials, as well as documenting projects and sharing them with others. These experiences challenge young people to combine critical thinking, imagination, and persistence to solve complex problems – with the ultimate goal of students seeing themselves as producers, not just consumers of the world around them.

By focusing on personalized, interdisciplinary learning experiences that are student-centered, making can motivate and inspire young people to develop a deep and lifelong engagement in, and love for, learning. We believe this approach not only improves their academic performance, but also prepares students with core skills for careers in any field – particularly in science, technology, engineering, design, advanced manufacturing, and entrepreneurship. While making is not a new concept in education, with a growing community of supportive educators, leaders, and families, we now have an unprecedented opportunity to move this idea forward in classrooms and schools across the country.

Last year, you hosted the first [White House Maker Faire](#) and challenged “every company, every college, every community, every citizen [to] join us as we lift up makers and builders and doers across the country.” We couldn’t agree more.

We must ensure that all of our children have access to these opportunities. We need an “all hands on deck” effort from school leaders, teachers, parents, skilled volunteers, companies, and more – to broaden participation in making, tinkering and inventing.

As school administrators - superintendents, heads of school, district leaders, principals, and others - we want to do our part to make the most of these opportunities. As the White House prepares to celebrate a Week of Making this year,

we are committed to get started or to continue our efforts by taking one or more of the following steps:

- Invest in the creation of and staffing for a dedicated makerspace for use by teachers, students, and the wider community;
- Identify a champion or lead educator at each school who supports all teachers with the integration of making into the curriculum;
- Offer professional development opportunities and follow-up support for teachers in our schools or districts to integrate making into the current curriculum;
- Empower students to do capstone maker projects and showcase the process of their work through activities like School Maker Faires and shared portfolios;
- Designate a “Maker in Residence” within the district or school to advocate for making, organize making activities, and provide support to teachers;
- Develop and implement strategies to engage all learners in making and diversify the pool of future innovators;
- Develop strategies to allow older students to engage in peer mentoring for younger makers; and
- Engage parents, community members, companies, foundations, and after-school programs to support these efforts and to create a vibrant maker ecosystem.

Thank you for your leadership. We look forward to working with you and your Administration to make this initiative a huge success.

Signed,

Adams 12 Five Star Schools
Albemarle County Public Schools
Avonworth School District
Bettendorf Community School District
Brookwood School District 167
Canon-McMillan School District
Castilleja School
Coachella Valley Unified School District

Da Vinci Center for Innovative Learning
Design Lab Early College High School
District of Columbia Public Schools
Dracut Public Schools
Dripping Springs Independent School District
Duplin County Schools
Eastmont School District #206

Elizabeth Forward School District
Enlarged City School District of Middle-
town
Fox Chapel Area School District
Highline Public Schools
Intermediate Unit 1
Iowa City Community School District
Kettle Moraine School District
Kiski Area School Upper Elementary
Laurel Mountain Elementary
Lincoln Public Schools
Lyme Central School, Fort Drum RISE
Mentor Public Schools
Monessen Elementary Center/Monessen
School District
Montour School District
Nacogdoches Independent School Dis-
trict
Noah Wallace School in Farmington, CT
North Little Rock School District
Owsley County
Pascack Valley Regional High School
District
Perris Union High School District
Phenix City Schools
Piner-Olivet Union School District
Pittsburgh Schiller
Pleasant Valley School District

Port Townsend School District #50
Princeton Public Schools
Pulaski County Public Schools
Ravenswood City School District
REM Learning Center
Roscoe Collegiate Independent School
District
Rowan-Salisbury Schools
South Allegheny
South Fayette Township Township School
District
South Side Christian Elementary School
The Lower Alloways Creek School District
The Marymount School of New York
Vancouver Public Schools
Vista Unified School District
Weslaco Independent School District
West Contra Costa Unified School Dis-
trict
West Genesee Central School
Western Springs, IL District #101

AASA, The School Superintendents Asso-
ciation
Digital Promise
Maker Education Initiative (Maker Ed)

June 4, 2015

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.

Adams 12 Five Star Schools serves more than 38,700 students within five different communities in the northern suburbs of Denver, Colorado. While 37.9 percent of district students qualify for free and reduced lunch, the percentage of free and reduced lunch students ranges by school from 4 percent to 89 percent.

Nearly half of students in the Five Star District are minority students; the largest minority group of students is Hispanic/Latino (37.7 percent). There are approximately 90 different languages spoken by English language learners in the district.

We firmly believe in providing opportunities for **all** students and that commitment is demonstrated through our districtwide efforts. One way we support student learning is through making. We are investing in the creation of self-directed maker spaces in our libraries for use by teachers and students. We also offer professional development opportunities and follow-up support for teachers to integrate making into current curriculum.

Within the past five years we've opened one new K-8 STEM school, one existing school was redesigned to become a STEM K-8 school and another existing school was redesigned as a STEM high school. The two newest STEM schools serve high poverty areas of our district. All three STEM schools provide challenging hands-on, problem-based learning opportunities that are engaging and exciting students.

At one of our K-8 STEM schools, students used grant dollars to design a maker space. The space, called Atom's Place, is divided into different areas including textiles (looms, sewing machines, press and plotter), artistry (crafts, jewelry making), programming/coding, manufacturing/prototyping (3-D printing, saws, drill presses, sauntering irons, hand tools) and robotics. The vision for the space is a dynamic environment where students can imagine their designs and ideas and then have the ability to create prototypes to bring their solutions from problem-based learning units to life.

The STEM high school library has been transformed to include a KEVA plank building blocks and Anatomy in Clay sculpting area where students can explore, learn, create, test and iterate. The school also has a technology-rich conference room where students can create and collaborate.

Other schools throughout the district have incorporated the best of hands-on learning by implementing maker-type spaces. In one elementary school the space is referred to as the Genius Corner and allows students to use a variety of materials to investigate their own inquiry questions. Out of the school's 524 students, 320 students visited the Genus corner a total of 1,235 times this past school year.

These are just a few examples of our commitment to the Maker Movement. 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,



Chris Gdowski
Superintendent



***Albemarle County Public Schools
Office of the Superintendent
Charlottesville, Virginia***

May 17, 2015

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

President Obama:

Albemarle County Public Schools commits to and advocates for all young people in our community to access and use the tools of making to design, create, build, engineer and engage. We want our young people to use experiential solution-finding and to delight in their curiosity as learners as they make that which is both useful and whimsical.

We believe here in Albemarle County, home community to our most famous maker, Thomas Jefferson, that our nation was built by makers and inventors who saw creativity as the fuel of new ideas to advance the United States and the globe - architecture, agricultural technologies, and new modes of transportation and communication. Makers electrified America and set in motion our Industrial Revolution. Makers brought us jazz and the Harlem Renaissance.

As superintendent of schools, I believe a fresh wind is blowing across America's schools as the result of the Maker Movement. Making sustains attention, creates curiosity, and engages and empowers learners. Young makers learn with their hands and their minds. They pursue knowledge leading to integrated literacy, mathematical thinking, science inquiry, historical understandings and a unique quality of artistry in their work.

We are already a leading school district within the Maker Movement and we are committed to sharing what we have learned with others and to learn with others as we evolve maker spaces, maker work, and maker development across our district. We are pleased to be counted as full partners in the Maker Community.

Sincerely,

Pamela R. Moran

Pamela Moran
Superintendent of Schools

AVONWORTH SCHOOL DISTRICT

258 JOSEPHS LANE
PITTSBURGH, PA 15237
412 369-8738
(FAX) 412 369-8746

"LARGE ENOUGH TO MATTER - SMALL ENOUGH TO CARE"

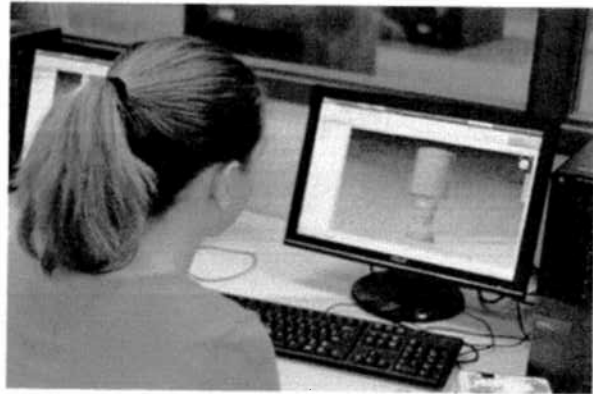
June 5, 2015

Dear President Obama,

With much excitement does Avonworth School District commit to the maker movement as a means to provide application opportunities for our students to create, design, and invent. We have set out to create a culture of making for K-12, so that students have early exposure to capture and continue the excitement for play and to provide structure and access to a multitude of tools, handheld and digital, to increase their problem-solving skills and to develop a mindset of inventiveness.



Middle school students work on a bridge design.



Student works with program for 3D printing.

Our journey began three years ago, when we held our administrative retreat at the Children's Museum of Pittsburgh's Makeshop, which led our principals and central administration in a design challenge, requiring all of us to use a small battery pack and circuit to create a moving fan with small gears, wood pieces, close pins, and other assorted materials. That session led to a deeper relationship with the Children's Museum in the realm of making to include sending several teachers to their annual summer Maker Bookcamp and to personalized professional development for our high school and middle school teachers, both at the Makeshop and on our secondary campus. Additionally, our primary grades participated in a pilot that brought a Mobile Makeshop to the elementary campus that included having a Makeshop artist work with our teachers to provide making experiences several days a week throughout an entire school year.

The development of making in the elementary grades continues through the Ohio River Consortium, a making initiative that includes partnerships with three other area school districts and Robert Morris University. This project is supported by the Grable Foundation and will allow us to build upon maker spaces in our new Avonworth Primary Center (K-2), that was designed with collaboration spaces, and to create making spaces at Avonworth Elementary School (3-5).



A high school student explores at the Children's Museum of Pittsburgh.



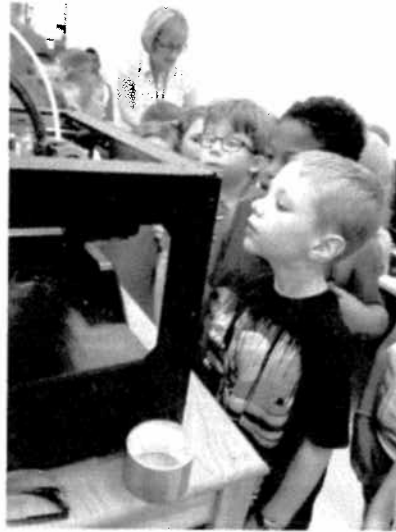
A student-made functional art that is a charging station.

Our middle and high school levels too have incorporated making in its programming. Both schools are under one roof and share a library space that is at the center of the secondary campus. Last year the library was transformed into the Avonworth Collaboration Center that created open spaces for collaboration, a Mac counter of computers, a PC computer alcove, human-centered design team boards for brainstorming, a videoconferencing room, and a maker lab stocked with a 3D printer, sewing machines, handheld drills, and an assortment of other tools and materials. As mentioned above, continuous professional development has been provided and our teachers have incorporated making activities into their curriculum.

Additionally, we created a 7th grade class, that all students take, called the Invention Design Lab, that is co-taught by a graphics art teacher, family consumer science teacher, and a technical education teacher. Throughout the course, students move fluidly under the mentorship of the teachers to complete several design challenges, including creating toys for our Kindergarten students. We are in the planning to create an 8th grade class to partner with Inventionland and just received a STEAM Grant to do so through the Allegheny Intermediate Unit.



Teachers as makers at a professional development session.



A kindergartner watches his design be prototyped on a 3D-printer.

We are committed to continue to further integrate coding, computational thinking, design thinking and making into all of our programs. Our district will participate in the Pittsburgh Maker Faire next fall and will continue to work and learn with other areas school districts, including our League of Innovative Schools partners— Elizabeth Forward School District and South Fayette School District.

We are excited that the White House has embraced and is supporting making in schools, and we offer to share our story and successes so that other districts too can provide opportunities to create, design, and invent for their students.

Best regards,

A handwritten signature in black ink, appearing to read "Tom Ralston".

Thomas Ralston, Ed.D.
Superintendent

A handwritten signature in black ink, appearing to read "Kenneth F. Lockette".

Kenneth F. Lockette, Ph.D.
Assistant Superintendent

School District of the City of Monessen

OFFICE OF THE SUPERINTENDENT OF SCHOOLS

www.monessenschooldistrict.com

DR. LEANNE SPAZAK
SUPERINTENDENT
e-mail: lspazak@wiu.k12.pa.us

1275 Rostraver Street
Monessen, PA 15062

Telephone: (724) 684-3600
Fax: (724) 684-6782

Dear President Obama—

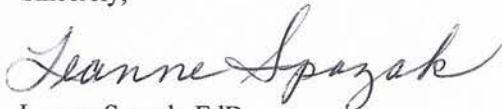
It is with great enthusiasm that I write this letter of commitment to the support, encourage, and catalyze transformative learning opportunities through the Maker Movement. This effort aligns perfectly with our vision for The School District of the City of Monessen to become the model of educational excellence and innovation. In addition, the Maker Movement supports our mission is to inspire every student to persevere as a critical thinker who collaborates to solve real-world problems.

We are so excited to take the next steps to develop individualized, interdisciplinary learning experiences for our students. Our model in developing the integration of the Maker Movement as a learning process is centered on student engagement with flexible learning spaces and investigative sessions involving problem-solving, discovery, and real-world applications.

The learning opportunities I briefly described in this letter will greatly benefit our student population and community. We anticipate increased student performance in academics, attendance and behavior through the Maker Movement. The success our students acquire through this program will continue in their future learning experiences.

In closing, the School District of the City of Monessen is fully committed to the Maker Movement. We have acquired this grant through a partnership with the Children's Museum of Pittsburgh and look forward to beginning our journey in the Maker Movement.

Sincerely,



Leanne Spazak, EdD
Superintendent

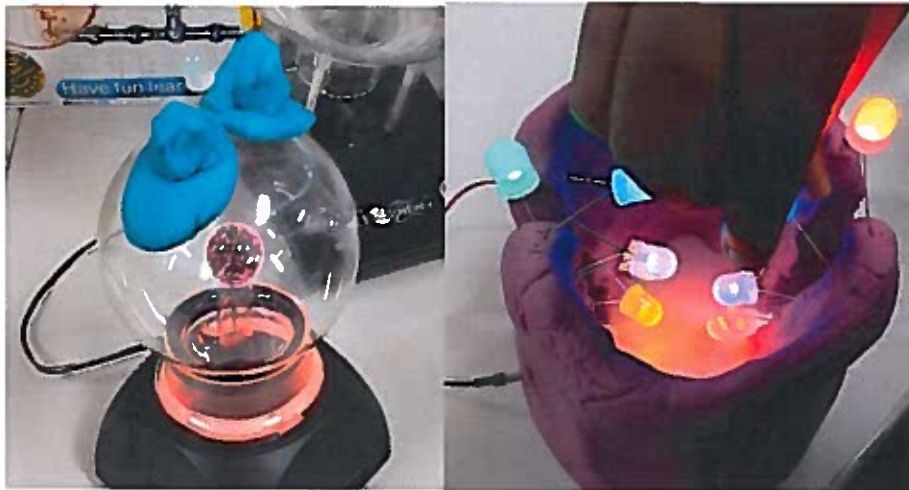
“Committed To The Young People We Serve”



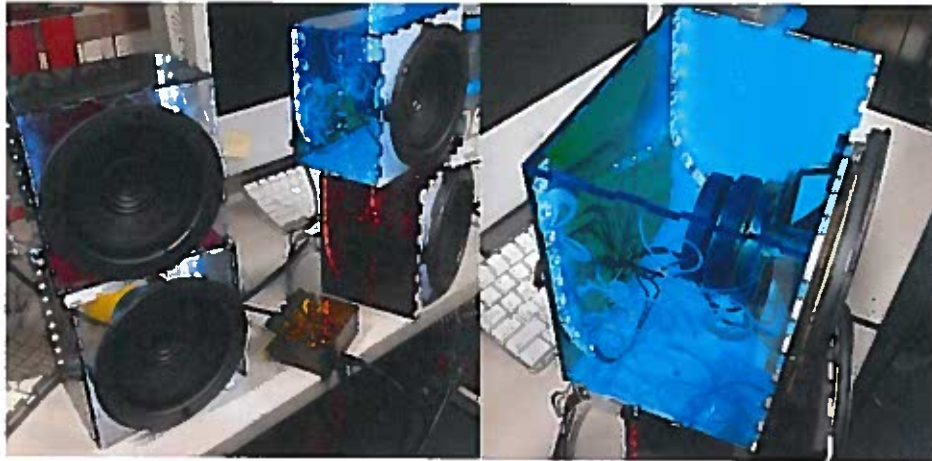
San Joaquin County Office of Education
James A. Mousalimas, County Superintendent of Schools

Dear President Obama

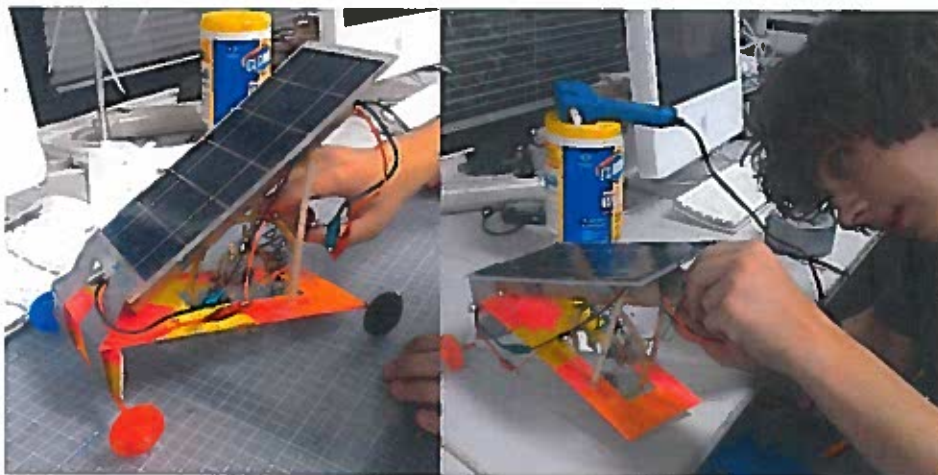
It is with great pleasure that I write this letter of commitment to support, encourage, and catalyze transformative learning opportunities through the Maker Movement. This effort aligns perfectly with our vision for The Da Vinci Center for Innovative Learning to become the model of educational excellence and innovation. In addition, the Maker Movement supports our mission to inspire every student to persevere as critical thinkers who collaborate to solve real-world problems.



Here at The Da Vinci center for Innovative Learning we are committed to providing K-12 students multiple opportunities to learn STEM in learning spaces and “innovation labs” that promote tinkering, discovery, making, and real-world applications. Our courses embed technology, software, and skills to prepare our teachers to help their students to be career and college ready in STEM education fields.



Our history of offerings includes robotics, coding, microcontrollers, Arduino, CNC Laser, 3D Printer, augmented reality, media, film, animation, artificial intelligence, and the many software applications for each technology. We also offer afterschool programs such as the YMCA, Migrant Education, STEM, AmeriCorps Vista Maker Corp, and we have a student engineering fund. We are a resource center for the San Joaquin County Office of Education and offer STEM kits to area schools. Our business partnerships include the San Joaquin Partnership, AT&T, Pacific Gas & Electric, the University of the Pacific, Reach the Stars, Patton Group, and the Tech Shop.



I hope that I have demonstrated our firm commitment to the maker movement at The Da Vinci Center for Innovation. We have taken bold action that has catalyzed rapid expansion of these efforts and we would be grateful, humbled, and inspired to connect our efforts with the White House.

Sincerely,

A handwritten signature in black ink, appearing to read "Bill Engelhardt". The signature is fluid and cursive, with a large initial "B" and "E".

Bill Engelhardt

Director

Da Vinci Center for Innovative Learning

2857 Transworld Drive

Stockton, CA 95207



Digital Promise Commitments to Week of Making 2015

Washington, DC | June 12, 2015 – [Digital Promise](#) is an independent, bipartisan nonprofit organization authorized by Congress to spur innovation in education in order to improve the opportunity to learn for all Americans. Through its work with educators, entrepreneurs, researchers, and leading thinkers, Digital Promise supports a comprehensive agenda to benefit lifelong learning and provide Americans with the knowledge and skills needed to compete in the global economy.

Digital Promise's flagship initiative is the [League of Innovative Schools](#) (League), a national coalition of 57 public school districts and education agencies in 27 states that represents more than 3.2 million students. Through the League, Digital Promise has been working to empower school districts to become better consumers and facilitators of innovative approaches to teaching and learning. The League districts are taking steps to ensure that all of our children have the opportunity to participate in making, tinkering, and inventing.

Specifically, League districts and their leaders have signed a letter to the President committing to take concrete steps to empower students to learn through Making; expand access to makerspaces; incorporate Making into student projects; offer professional development opportunities and support for teachers who want to integrate making into curriculum; and engage community members and other key stakeholders in supporting a vibrant Maker ecosystem.

Digital Promise

In addition to supporting the League districts in launching and/or expanding their Maker education initiatives (some of which are outlined above), Digital Promise signed the letter to the President and will seek funding to take the following steps to expand Maker education opportunities across the country:

- Partner with the Children's Museum of Pittsburgh on a Kickstarter campaign to fund makerspaces in League schools and associated professional development for teachers who want to integrate making into their classrooms. Museums, libraries, or other organizations identified as hubs will support League districts within their home communities while receiving training in implementation from the Children's Museum of Pittsburgh.
- There is a growing movement for [competency-based credentialing](#) that acknowledges that educators learn skills in a variety of formal and informal

- settings and seeks to recognize them for that learning, regardless of where it happens. [Digital Promise](#) is building a coalition of educators and partners to develop a [micro-credential system](#) that provides teachers with the opportunity to gain recognition for skills they master throughout their careers.
- Digital Promise will develop a set of 20 Maker education micro-credentials with partners that may include Sonoma State University and Maker Ed. The testbed for these micro-credentials will be educators in the League of Innovative Schools and other Maker education networks.
 - Digital Promise will launch a communications campaign about makerspaces to capture the stories of spaces funded through the Kickstarter campaign, Maker experiences and environments already in place across the League, student and teacher stories using engaged in Maker education, and teacher experiences earning Maker micro-credentials through the Digital Promise platform.
 - Digital Promise will focus on Maker education and learning experiences at the upcoming League of Innovative Schools meeting in Pittsburgh (October 25-27, 2015). The Pittsburgh region is recognized as a leader in Maker education and technology-centered project-based learning.
 - Digital Promise is a member of 100Kin10, a multi-sector network addressing the national imperative to train 100,000 science, technology, engineering, and math (STEM) teachers by 2021. Through this affiliation, we have committed to providing micro-credentials and other professional development opportunities to educators in this area, which includes Making education.

For more information on the Digital Promise League of Innovative Schools, visit: digitalpromise.org/league.

Press Contact:

Jason Tomassini
Communications Director
Digital Promise
jason@digitalpromise.org

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About Digital Promise

Digital Promise is a nonprofit organization authorized by Congress to spur innovation in education in order to improve the opportunity to learn for all Americans. Through its work with educators, entrepreneurs, researchers, and leading thinkers, Digital Promise supports a comprehensive agenda to benefit lifelong learning and provide Americans with the knowledge and skills needed to compete in the global economy.



DRACUT PUBLIC SCHOOLS
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www.dracutps.org

Steven Stone
Superintendent of Schools

May 22, 2015

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

Re: Commitment to Maker Movement Initiative

Dear President Obama,

I write this letter of commitment on behalf of the Dracut Public Schools in regards to your leadership in support of the Maker Movement Initiative as a vehicle to spur STEM education, entrepreneurship in manufacturing, and in the development of a skilled workforce.

The Dracut Public Schools, serving a community with limited resources located along the Merrimack River just a few miles from the birthplace of manufacturing in the United States, and situated within one of the country's hubs of high-technology development, is focusing efforts on preparing our students for success in the region. Our struggles providing learning environments with sufficient internet access, wireless environments, and the technology tools necessary to prepare our student to compete are not holding us back from creating innovative opportunities for our students. We are adopting concepts of the Maker Movement in support of our efforts.

We have undertaken a number of initiatives that all seek to enhance STEM educational opportunities and develop requisite skills to ensure the success of our graduates:

- The recent renovation of our high school included a new robotics lab to support engineering education.
- We have partnered with Project Lead the Way (PLTW) to provide a nationally recognized engineering program of studies for our students.
- We partner with the University of Massachusetts, at Lowell in a variety of ways in support of providing opportunities for our students.
- Teachers and administrators have participated in the Gateway Program, a long term professional development program sponsored by Boston's Museum of Science in support of STEM education.
- I invited Nicco Mele, author of "The End of Big" to speak with our faculty about the future of manufacturing, social media, and other related topics so that we better understand the world into which we send our graduates.

The Town of Dracut is an Equal Opportunity/Affirmative Action Employer


To specifically link the Maker Initiative with our other efforts:

- We have convened a working group to study the implementation of explicit Maker programming and concepts in the district.
- We are creating alternative scheduling that will see art, computer, and library class time augment traditional science classes.
- We are connecting our Dracut High School Junior Engineering Technical Society (JETS) and DECA clubs with elementary and middle school students to provide opportunities for our younger students to learn from their older peers; and to provide high school students with an opportunity to share their knowledge with younger children.
- I have reached out to our local colleges and universities to strengthen our existing partnerships and to seek supports for additional opportunities for our students.
- We have begun discussions with local engineers in an effort to explicitly link professionals with our programming at all levels.
- I am working with our local Rotary Club and regional networking professionals to bring additional resources to our district from the private sector and to support Maker initiatives.

Like many public school districts in the United States, the Dracut Public Schools struggles with providing the technology tools that are ubiquitous in wealthier districts. While we lack bandwidth, wireless environments, and technology based teaching tools especially at the elementary level, we look for opportunities to provide innovative alternatives and are making the Maker Movement an integral connective construct across disciplines. We believe that this initiative uniquely connects STEM education, creativity, entrepreneurship, and business.

I thank you and your staff for taking time taken to consider the work of the Dracut Public Schools, and would truly appreciate an opportunity to participate in efforts organized by the White House to share our experiences, and most importantly to learn from other leaders, in service to my school district and community.

Sincerely,

A handwritten signature in black ink, appearing to read "Steven Stone". The signature is fluid and cursive, with a large initial "S" and "S".

Steven Stone
Superintendent of Schools



Duplin County Schools

Office of the Superintendent

Board Members:

Brent Davis,
Chairman

Reginald Kenan,
Vice-Chairman

Hubert Bowden

Pam Edwards

David Jones

Austin Obasohan, Ed.D.
Superintendent

Carol Wimmer
*Executive Administrative
Assistant to the Superintendent*

June 4, 2015

Dear President Obama,

It is with great enthusiasm that I write this letter of commitment to support and encourage the innovative and transformative learning opportunities made possible through the Maker Movement. The Maker Movement aligns with Duplin County Schools' mission to work collaboratively with the community to prepare all students for career, college, and life success. Our district has adopted a district-wide early college approach to college and career excellence for all and we are encouraged by the early successes our students have experienced.

To accomplish our vision and mission, Duplin County Schools has a strong commitment to STEM education for students in Pre-K through grade thirteen. Building upon our district's strong partnership with North Carolina New Schools and the success of our Career and Technical Education Program, our high schools adopted STEM themes beginning in 2011 as part of our district-wide early college model. Our four comprehensive high schools focus on Agriscience and Biotechnology, while our early college high school students focus on Energy and Sustainability. Each of these schools has received support through professional development and committed funding in order to provide STEM learning opportunities for students aligned with the needs of our local business and industry. In addition to an extensive number of STEM courses offered through our Career and Technical Education Program, students are also expected to complete STEM-related challenges and projects in their other courses. Students are given the opportunity to showcase their creativity and innovation at annual STEM symposiums at both the local and state level. Exciting student STEM projects include a portable aquaponics system, a fully operational barnyard focused on the genetics of chickens, a beehive and surrounding ecosystem, programmable robotics, and a solution to the local problem of potholes using recycled plastic.

315 N. Main St. • Kenansville, NC 28349 • Phone: (910) 296-6615 • Email: cwimmer@duplinschools.net

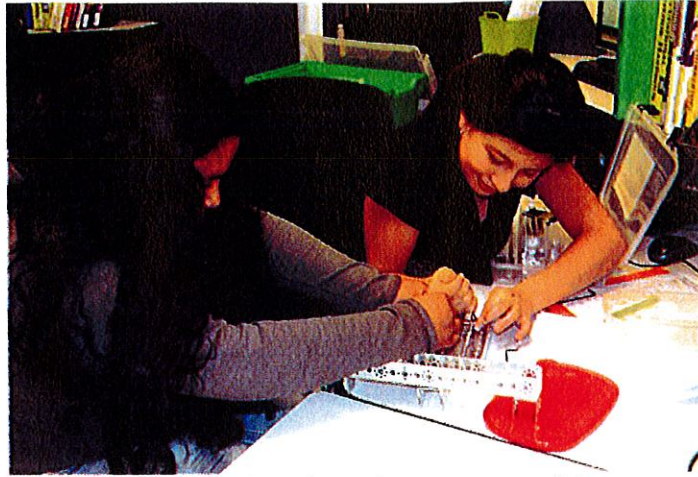


Model aquaponics system designed and constructed by high school students

Our ongoing district-wide STEM efforts aim to provide expanded opportunities for all students, including females and underrepresented minority students. To work toward meeting this goal, Duplin County Schools was able to open the first middle school STEM lab during the 2013-14 school year with support from the Golden Leaf Foundation. In the middle school labs, students work collaboratively to learn, problem-solve, and generate creative solutions in modules chosen with input from local business and industry leaders. The content and experiences in these modules provide students with skills and knowledge aligned with the needs of the local workforce of the future. During the 2015-16 school year, all seven middle schools in our district will have operational labs serving students in grades six through eight.



Students in a middle school STEM lab working collaboratively to determine why an engine is not functioning properly so they can repair it



Middle school students designing a model car

To scale our STEM efforts further, Duplin County Schools will open STEM Missions Labs for students in grades three through five at all elementary schools beginning next year. The first lab will open during the 2015-16 school year, three labs will open during the 2016-17 school year, and four labs will open during the 2017-18 school year. In the labs, students will explore science, technology, engineering and math through hands-on activities as they strive to become more independent learners and critical thinkers. During this time, the district will also provide STEM resources and professional development for teachers in kindergarten through second grade so students will be immersed in a culture of STEM, creativity, problem-solving, and making as soon as they enter our schools. Teachers will receive ongoing professional development and support from our district STEM coordinator. This initiative will be supported with a combination of funds from a North Carolina Education Workforce Innovation Fund grant and local matching funds. Anticipated outcomes include gains in student achievement in all tested areas (reading, math, and science) as well as improvements in students' critical thinking, collaboration, and reasoning skills.

Additionally, each of our sixteen elementary, middle, and high school media coordinators has been challenged by our Chief Officer for Digital Learning and Technology to create a makerspace within their school's media center during the 2015-16 school year. The goal of this project is to create at least one maker challenge for students in each school during the first semester of the school year with additional challenges and projects occurring during the remainder of the year. Media coordinators will collaborate with teachers to design and implement maker challenges that are customized for each school's needs. In an effort to teach students the value of sustainability and "upcycling" of materials, this program will require limited funding. Media coordinators will utilize resources that already exist within the schools, support from parent/teacher organizations, and local school funds to establish and support the program. Students will have increased opportunities to work collaboratively as they engage in the engineering design

Page 4
June 4, 2015

process to create and innovate at LEGO walls, "genius bars," and small-scale production studios.

The learning opportunities described in this letter have and will continue to have a tremendous impact on our schools and community. Hands-on, real world learning opportunities are appealing and accessible to students from all backgrounds. Our focus on STEM education has the power to transform the lives of students and their families. As students experience success through STEM learning, they gain the skills and aptitudes needed to move from poverty to prosperity by becoming independent thinkers, problem solvers, and innovators.

Duplin County Schools has a firm commitment to the Maker Movement, as demonstrated by our expanding focus on STEM education for all students. We have taken bold steps to prepare our students for college and career in our rapidly changing global economy, and we would be honored to connect our efforts with the White House.

Sincerely,

A handwritten signature in black ink, appearing to read "Austin Obasohan". The signature is fluid and cursive, with a large initial "A" and "O".

Austin Obasohan, Ed.D.
Superintendent



Dear President Obama,

K-3 Lower School

309 S. Braddock Ave.
Pittsburgh, PA 15221
Tel: 412.242.1480
Fax: 412.242.0196

It is with great enthusiasm that I write this letter of commitment to support, encourage and catalyze transformative learning opportunities through the Maker Movement. The Environmental Charter School at Frick Park (ECS) is not only leading our region in this movement, but serves as model for many schools across the country.

4-8 Upper School

829 Milton St.
Pittsburgh, PA 15218
Tel: 412.247.7970
Fax: 412.247.7971

The Environmental Charter School at Frick Park is a Pittsburgh Public School (PPS) serving students in grades K-8. As a PPS chartered school, ECS is known for innovative practices, a progressive education model, and a place-based approach to learning. More importantly, we are a learning laboratory to do school differently.

ECS offers an educational experience that develops students into critical thinkers, thoughtful innovators, and well-rounded scholars. ECS was recently featured as "100 Schools Worth Visiting" by the organization Getting Smart. According to Tom Vander Ark, CEO of Getting Smart, "The Environmental Charter School (@ECSinnovator) in Pittsburgh is a good example of a school promoting Deeper Learning with powerful questions and applied learning—often in 561 acre Frick Park next door. The featured image is the Thinking Lab—a cool art and STEM mash-up space."

In the Thinking Lab classroom, students engage in authentic projects and processes, they further hone their ability to see the interconnectedness of the disciplines of science, art, design, engineering, and the social sciences. Through multiple methods and experiences, students push beyond content to activate critical and creative thinking, in addition to collaboration and communication.

ECS is leading the development of a collective vision for technology fluency and connected learning in the city of Pittsburgh. Through collaboration with many organizations like Assemble, an open physical space in an urban neighborhood in Pittsburgh, students explore hands-on projects – like sewing with electricity, building with hand tools, and programming in HTML. Each student completes projects within our intensive two-week mini-semesters. Students use new tools, learn new software, and participate in the design process. As a class students explore the theory and methods behind the Maker Movement. The capstone project requires students to scaffold on previous exploratory projects and knowledge to make something awesome.

Sincerely,

Jon McCann, CEO



913 Pine Avenue
Holland, Michigan 49423
May 19, 2014

The President
The White House
1600 Pennsylvania Avenue, N.W.
Washington, DC 20500

Dear Mr. President,

The little kindergarteners who bustle about learning and playing in our classrooms will retire around the year 2070. Image that. When you consider all that has evolved over the past five years, we can't begin to fathom what their life will be comprised of in 2070. As educators, we have been entrusted with preparing these young children to succeed in a future that we cannot begin to wrap our minds around. Spend a morning with a classroom full of children and you will quickly learn that these are extraordinary little people. They possess an incredible capacity for innovation and creativity. Many have not yet learned to shy away from the unknown. Rather, they explore, stretch, reach and discover. Fear of failure does not inhibit these amazing little learners.

At Holland Christian, we offer our learners a myriad of opportunities that push the boundaries of the traditional model of learning. Makers Week is one such example. Our students were given the opportunity to select projects based on Science, Technology, Engineering, Art and Mathematics that intrigued them most. Class lists were developed not based on age, but rather based on common interest. Our teachers have prepared projects they themselves find exciting. During Makers Week our school was buzzing with innovative learning. Children were engaged in projects such as designing electrical burglar alarms, constructing skyscrapers to withstand wind from carpet blowers and manufactured earthquakes. Children were working in teams and exploring concepts such as gravity vs. inertia while designing roller coasters for marbles. They built tall towers with an intentionally limited supply of resources. Many created a Claymation movie using their iPads. We have found that failure is one component of this process, but it is not the end. After one idea does not produce the intended results, teams of children regroup, support and encourage one another and develop new, more refined ideas until success is realized.

By balancing our standards-based goals with learning experiences that use each child's God-given gift of creativity, we believe we are offering the very best. They will be fully prepared and equip to walk the path that lies before them with confidence and the deep desire to live in our world as a life-long learner.

South Side Christian Elementary School is excited and honored to be part of the Maker Movement that is changing the landscape of our children's educational experience. Thank you for supporting this critical new phase in schools throughout our great land. South Side commits to continuing our Makers Week event at school in the 2015-2016 school year!

Sincerely,

Miska L. Rynsburger
Principal at South Side Christian Elementary School
mrzynsburger@hollandchristian.org
616-820-3535



Iowa City Community School District

Educational Services Center

Stephen F. Murley Superintendent of Schools

1725 North Dodge Street • Iowa City, IA 52245 • (319) 688-1000 • Fax (319) 688-1009 • www.iowacityschools.org

June 8, 2015

Dear President Obama:

It is with great pride I am writing to express the Iowa City Community School District's commitment to the Maker Movement. In our district of over 13,000 students we have the mission of preparing students for a dynamic global community. To insure this happens, we create opportunities for our students to be engaged with learning experiences that transform the traditional classroom.

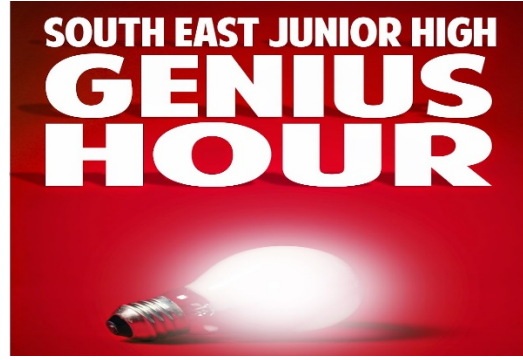
The Iowa City Community School District has a long-standing partnership with Project Lead the Way (PLTW), which is the nation's leader in providing a high quality viable STEM curriculum. Students at City High School and West High School have the ability to participate in classes such as Digital Electronics and Aerospace Engineering. The two high schools and three junior high schools (South East, Northwest and North Central) all have STEM clubs that participate in Robotics competitions throughout the year. The Northwest team won the Technology Student Association Teams National Competition this past year and is traveling there again this summer!

Tomorrow's Technologies Learned Today

Iowa PLTW
PROJECT LEAD THE WAY

West High School
Welcome to the Innovation Zone!

Our junior high schools have developed “maker spaces” where students come to discover, explore, create and innovate. South East implemented a Genius Hour during homeroom this school year where students used a design thinking protocol from the University Of Iowa College Of Business to develop solutions to a problem of their choosing.



The Iowa City Community School District also looks for many ways to engage their students in community events to develop real world connections that develop 21st century skills like critical thinking and problem solving in out-of-school settings. The District partners with Kirkwood Community College Workplace Learning Connections and the University of Iowa to support these efforts. Junior high school students attend a STEM institute in the fall that introduces them to STEM related careers. High school students will soon be able to take courses at the Kirkwood Regional Center at the University of Iowa, a joint effort of the university, the community college and area school districts. One of these courses is the STEM Innovator course which encourages students to make a product that “customers” would be interested in buying. Below you see a picture of students that created a hoola hoop microscope used to study biodiversity in Iowa.



Finally, I would like to thank you and your administration for the support that has been provided to districts that promote innovation and creativity in our schools. This commitment to excellence and improvement speaks volumes to Superintendents across the country. Mr. President, we are proud to represent Digital Promise and the League of Innovative Schools and the American Association of School Administrators Digital Consortium here in Iowa. The Iowa City Community School District will continue to look for ways to offer our students the very best educational experience and continue our digital transformation.

Sincerely,

A handwritten signature in black ink, which appears to read "Stephen F. Murley".

Stephen F. Murley
Superintendent of Schools



Charles F. Mahoney, III
Executive Director

Fayette-Greene-Washington

Intermediate Unit 1

One Intermediate Unit Drive
Coal Center, PA 15423-9642

Telephone: 724-938-3241 Fax: 724-938-6665

www.iu1.org

May 29, 2015

Dear President Obama,

Intermediate Unit One (IU1) is excited and proud to support the growing Maker Movement in the U.S. and globally. The Maker Movement has provided IU1 an opportunity to obtain a flagship K-12 Fabrication Laboratory (Fab Lab), promoting innovation and design through a fabrication space for learners of all ages in our region. A Fab Lab is a small-scale digital workshop equipped with computer-controlled tools, such as 3D printers, laser-cutters, routing machines, 3D scanners, 3D milling machines, and programming tools. In a Fab Lab, if you can dream it, you can make it. Funded by a generous grant from the Chevron Corporation to the Fab Foundation and support from the Claude Worthington Benedum Foundation, the IU1 Fab Lab will be located at the Intermediate Unit One Colonial Campus, an alternative and special education school, to serve our entire three-county service area and beyond, as well as provide support for community entrepreneurship. Additionally, IU1 is receiving a Mobile Fab Lab to reach out to students in the tri-state area, including the 56,000 students in the IU1 region, bringing the maker movement into local schools and classrooms.

The first of the 29 Intermediate Units in PA, IU1 was established in 1971 to serve the schools in Fayette, Greene, and Washington Counties. The IU1 service area covers a wide geographic area of small school districts with high free and reduced lunch rates. In this rural corner of southwestern PA, we serve 25 school districts, 5 comprehensive technical schools, and 4 alternative school programs. Today, IU1 offers 143 services and programs including technology services, STEM programs, special education services, as well as serving as the liaison between the Pennsylvania Department of Education and our 25 school districts.

For more than 15 years, IU1 has been developing successful STEM programs through the IU1 Center for STEM Education. The Center was created with major grants and has supported programming such as robotics, math education, summer camps for students, and inquiry-based science. As STEM education has evolved to STEAM, Innovation & Design, and the Maker Movement, IU1 remains committed to providing our service area with current and high-tech opportunities to stimulate innovation and build the local workforce capacity. Strengthening the abilities of students, educators, and community members to innovate, design, and create is critical to the region's well-being.

IU1 is excited to be connecting our small rural communities to the national maker movement and the international Fab Lab network. Our goal is to encourage innovation and design, enabling students, teachers, and community members to gain the skills and knowledge necessary to succeed in the high-tech careers of the global economy. Because the IU1 Fab Lab will be stationed in an alternative and special education school, we have a unique opportunity to target groups of students that are typically underrepresented in the Maker Movement. This site also hosts adult education classes, providing adult students with access to the Fab Lab while they are gaining their high school diploma or GED. For these students who have struggled to succeed in a traditional classroom, the maker movement affords them access to high-level and rigorous learning experiences that build upon their strengths.

Our IU1 Innovation and Design website (<http://www.iu1.org/blogs/id>) highlights the diverse and creative programming in our local districts and encourages collaboration amongst educators and districts in developing

innovative, forward-thinking approaches to the Maker Movement. Our STEM Center website (<http://www.iu1.org/about/departments/cpd/stem-center>) fosters a dynamic partnership between local school districts, institutions of higher education, and the foundation community. We continue to provide best practices in K–12 STEM and maker programs.

This fall, we will be holding our Fab Lab grand opening and our first Fab Lab Professional Development Institute. We welcome you to visit our new Fab Lab to share in the excitement of this new initiative as local teachers, students, and community members share what they have made.

IU1 has made a strong commitment to engage our service region in the maker movement. We have enacted a strategic plan and local funding streams to support our ongoing reforms in this movement, including STEM programming and Fab Lab resources. We join with others in supporting our students and community as the White House prepares to celebrate a Week of Making this year. We are committed to continue our efforts described in this letter and to:

- Invest in the creation of and staffing for a dedicated makerspace for use by teachers, students, and the wider community in the IU1 Fab Lab;
- Identify a champion and lead educator in each district who supports the integration of “making” into the curriculum;
- Continue offering extensive professional development opportunities, including summer content institutes, evening sessions, and Saturday sessions provided by our Fab Lab coaches and attended by local teachers, students, entrepreneurs, and community members;
- Provide follow-up support for teachers in our districts to integrate making into the current curriculum;
- Implement strategies to engage all learners in making, and diversify the pool of future innovators;
- Develop strategies to allow older students and adult community members to engage in peer mentoring for younger makers; and
- Engage parents, community members, institutes of higher education, companies, foundations, and after-school programs to support these efforts and to create a vibrant maker culture.

Thank you for your leadership, as well as for empowering many others to lead in the maker movement at the state and local levels. We look forward to working with you and your administration to make this initiative a huge success, including our Fab Labs, and supporting our students to become our nation’s future makers.

Sincerely,

A handwritten signature in black ink that reads "Donald W. Martin". The signature is written in a cursive style with a large, stylized initial 'D'.

Donald W. Martin
Assistant Executive Director
Intermediate Unit One

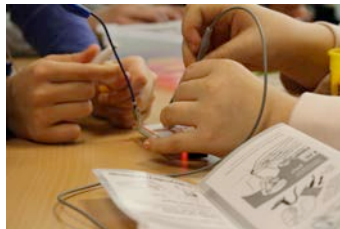


Dear President Obama,

In your senatorial hometown of Chicago, there is a very small, very important sign hanging in the Tinkering Lab of the Chicago Children's Museum. This has been the catalyst for Maker Education in the Kettle Moraine School District.



Retooling education through human-centered design thinking has opened doors for our students as well as our educators. Kettle Moraine is dedicated to learning without boundaries and the Maker Movement is not only parallel to our vision, but also intersects it at all learning levels. Over the last year, Kettle Moraine has begun to implement Makerspaces at each of its sites. As is common across the country, our makerspaces have found their start in our library media centers. It is here where natural curiosity and the freedom to fail have taken root.



However, we have only just begun. We are committed to intrinsic curiosity, design-thinking, collaboration, and problem-solving through failure and success. To show our commitment, the Kettle Moraine School District will:

- Continue to develop dedicated makerspaces in each of its schools
- Develop a task force including community stakeholders in order to leverage the expertise of parents and businesses in support of makerspaces, as well as STEM education
- Communicate the changing landscape of library media and makerspaces with our state agencies in the hopes to update the outdated funding regulations
- Professionally develop teachers to encourage not only a maker mentality, but to celebrate student innovation and ingenuity

Respectfully,

Dr. Patricia Deklotz



KISKI AREA UPPER ELEMENTARY

Joshua J. Weaver, Principal

May 28, 2015

Dear Mr. President:

I am extremely happy to announce that the Kiski Area Upper Elementary (KAUE) School will be opening a makerspace when our doors open in August 2015. KAUE is one of six Pittsburgh area schools to recently receive a *Kickstarting Making* grant through a partnership with The Children's Museum of Pittsburgh and Kickstarter. This new partnership will create an avenue for KAUE students and staff to learn more about making, interact with community partners, and raise necessary funds to create learning experiences for the next generation of innovators.

In October 2014, Kiski Area Upper Elementary became a "Pathway Partner" school as part of the Carnegie Science Center's (CSC) STEM Education Pathway program. The program serves as a roadmap for Pittsburgh area schools seeking to strengthen their STEM education programs. Our Pathway Team completed a self-assessment rubric created by the CSC and we identified three priority areas and created a plan to improve our: student participation, community partnerships, and family engagement. KAUE is repurposing a classroom to build a makerspace that will be utilized by students and staff to improve the level of student participation in learning. Our cross-curricular STEM focused curriculum was developed to provide hands-on labs and experiences for our students. Developing an innovative makerspace program will address our need to consistently have students at all academic levels involved in active research and inquiry-based, hands-on exploration. A makerspace opens up grand opportunities for the 600 students and 40 staff members to design, build, tinker, troubleshoot, and repair any and all parts of a lab or project.

The Maker Movement supports the Kiski Area School District's mission to provide quality educational experiences, preparing students to be responsible, productive, accountable and successful citizens ready to pursue further educational and career opportunities. Our partnerships with Children's Museum of Pittsburgh, Kickstarter, and the Carnegie Science Center present us with unprecedented opportunities to transform the lives of students, staff, families, and our community. KAUE is committed to integrating making into our curriculum, and we would be grateful, humbled, and inspired to connect our efforts with the White House.

Most Respectfully,

A handwritten signature in dark ink, appearing to read 'J. Weaver', written over a horizontal line.

Joshua J. Weaver
Principal

4350 Route 66, Apollo, PA 15613

Phone: 724-727-3421 Fax: 724-727-2861 www.kiskiarea.com



May 29, 2015

Dear President Obama,

In Lincoln Public Schools we believe that creativity, critical thinking, and collaboration are paramount to the success of our students. We strive to combine rigorous expectations with learning opportunities that engage and challenge our students to be innovators, problem solvers, and independent thinkers. The introduction of Makerspaces lights the way for this work. By prioritizing the time and resources to developing dedicated Makerspaces in our school libraries, we believe we are opening the doors to powerful learning spaces that will entice students to explore, invent, design, and create in ways that will stretch their imagination and connect their learning to real-world applications.

Our school libraries serve as the heart of our Makerspace initiative. Our libraries have long been the center of information, critical thinking, and inquiry-based learning. Makerspaces are a natural extension of our libraries as they provide students with the resources to experiment, explore, create and produce information in ways that are hands-on and meaningful. While the nature and physical spaces of libraries evolve in our new digital environment, our libraries are alive with learning.



Our Makerspace movement has begun by planting the seeds of inspiration. The Department of Library Media Services developed simple makerspace kits that travel from library to library, providing access to a wide variety of experiential maker opportunities at no expense to the library programs. Schools are able to witness and experience the creative learning that results when students are allowed to explore, invent, bounce ideas off one another, build something together, and fail only to try again. Our expectation is that library programs will devote space, resources, and staffing to

expand their own permanent Makerspaces, tailored to support curriculum connections, student interests, and college and career readiness skills.

Makerspaces give new life to our common beliefs that:

- Inquiry provides a framework for learning
 - Learning has a social context
 - Equitable access is a key component for education
 - Multiple literacies, including digital, visual, textual, and technological, have joined information literacy as crucial skills for this century
 - School libraries are essential to the development of learning skills
- (Standards for the 21st Century Learner, American Association of School Libraries)

We thank you for your continued interest and support in the advancement of Makerspaces in our schools. We work very hard to reach each and every student in our district, and we are driven by the belief that students who are given opportunities to develop creativity, ingenuity, and critical thinking skills will be more motivated and engaged learners. Most importantly, those students will be better prepared to be the thinkers, makers, and innovators as they graduate from our schools and take on the future.



Sincerely,

A handwritten signature in black ink, appearing to read "Steve Joel".

Dr. Steve Joel
Superintendent
Lincoln Public Schools
Lincoln, Nebraska

Dear President Obama,

As a non-profit organization dedicated to creating more opportunities for all young people to develop confidence, creativity, and interest in learning through making, Maker Education Initiative (Maker Ed) is thrilled to share this letter of commitment to support maker education.

Maker Ed strongly believes that making has the potential to transform the way youth learn, and to create a profound impact on their lives. We work with educators and communities across the nation to support and empower them to facilitate meaningful making and learning experiences. We have three programs: (1) Maker Corps, which meets the demand for human capacity in youth serving organizations eager to embed making into their programs; (2) Maker VISTA, which propagates maker education in vulnerable communities affected by poverty; and (3) Young Makers, which brings together a community of young people, ages 8-18, with mentors to create youth-chosen, open-ended projects. In collaboration with Indiana University's Creativity Labs, Maker Ed also oversees the Open Portfolio Project, a research initiative that aims to develop a common set of practices for portfolio creation, sharing and assessment. All of this work is strengthened and supported by Maker Ed's professional development workshops and events, a Directory of maker programs nationwide, and an online Resource Library, which is the primary location for curated content related to maker education.

Through these programs and projects, Maker Ed plays a national leadership role in both broadening access to and deepening the impact of meaningful making and learning experiences for youth. With this foundation of work in place, we are uniquely poised to multiply the transformative potential of maker education on a national scale.

We heard your call to action for "every company, every college, every community, every citizen [to] join us as we lift up makers and builders and doers across the country" and we responded. In partnership with Digital Promise and AASA, The Schools Superintendents Association, Maker Ed launched a campaign to gather support for making from school leaders. Nearly 60 school administrators serving approximately 500,000 students committed to taking steps to expand making in schools and districts across America.

As a way to strengthen the efforts of educators and administrators in schools, districts and other learning communities across the nation, Maker Ed is committed to taking the following steps:

- Creating resources that will enable schools to create and sustain makerspaces, including the release of a new edition of the Makerspace Playbook and the launch of a new category, Spaces and Places, on our Resource Library.
- Building a set of modular professional development offerings, both online and in person, for educators to both develop their skills to integrate making into

their current settings and prepare them to train others in their local communities.

- Furthering the research efforts underway surrounding the assessment of student work through our continued work on the Open Portfolio Project and various partnerships with research and evaluation centers nationwide.
- Extending and deepening our community of practice around making and education to support educators beyond their professional development experiences and continue the cross-pollination of ideas.
- Expanding our Young Makers program nationwide as a model to fulfill capstone projects or provide deeper engagement in learning in an afterschool setting.

Thank you for your leadership. We look forward to working with you and your Administration to make this initiative a transformative one for the youth in our country as we work together to fulfill Maker Ed's vision: Every Child a Maker.

Sincerely,



Warren (Trey) Lathe III
Executive Director
Maker Education Initiative (Maker Ed)



2700 Poplar Street • P.O. Box 687 • North Little Rock, Arkansas 72115-0687
(501) 771-8000 www.nlrzd.org

Dear President Obama,

All children are born makers. They look at the world with a sense of wonder. They tinker and discover. They take things apart to question how they work. They build amazing things using any materials within reach. And they solve problems-for someone in their community or halfway around the world. Inherently curious and creative, children are naturally drawn to making as a way to explore the world around them.

As leaders in education, we are excited about the growing Maker Movement and are already seeing success in the way our students learn. We have experienced great success with this open-ended process of creating and making that includes a wide spectrum of activities-from building furniture and set to growing a community garden, from robotics to coding, and so much more. Making involves utilizing the design process, learning to use tools and materials, as well as documenting projects and sharing them with others. These experiences challenge young people to combine critical thinking, imagination, and persistence to solve complex problems – with the ultimate goal of helping students find their passion and themselves as producers, not just consumers of the world around them.

By focusing on personalized, interdisciplinary learning experiences that are student-centered, making can motivate and inspire young people to develop a deep and lifelong passion for learning. We not only believe this approach improves their academic performance, but also prepares students with core skills for careers in any field – particularly in science, technology, engineering, design, advanced manufacturing and entrepreneurship. While making is not a new concept at North Little Rock School District, with a growing community of supportive educators, leaders and families, we now have an unprecedented opportunity to move this idea forward faster in classrooms and schools across the country.

Last year, you hosted the first White House Make Faire and challenged “every company, every college, every community, and every citizen to join us as we lift up makers and builders and doers across the country”. We couldn’t agree more.

In the North Little Rock School District, we have already begun our “Build a Maker Initiative”. In order to assist students in finding their passion and becoming makers of not only tomorrow, but today. We must ensure all of our children have access to these opportunities throughout the country. We need an “all hands on deck” effort from school leaders, teachers, parents, skilled volunteers, companies and more – to broaden participation in making, tinkering and inventing.

“World Class Schools for World Class Students”

An Equal Opportunity Employer

As school administrators – superintendents, district and building leaders, principals and others – we want to do our part to make the most of these opportunities. As the White House prepares to celebrate a Week of Making this year, we are committed to continuing and expanding our efforts by taking some of the following steps:

- Invest in the creation of maker space in each of our buildings for use by teachers, students and the wider community;
- Identify a champion or lead educator at each school that supports all teachers with the integration of making into the curriculum;
- Offer professional development opportunities and follow-up support for teachers in our schools or districts to integrate making into the current curriculum;
- Empower students to do capstone maker projects and showcase the process of their work through activities like School Maker Faires and shared portfolios;
- Develop and implement strategies to engage all learners in making and diversify the pool of future innovators;
- Develop strategies to allow older students to engage in peer mentoring for younger makers; and
- Engage parents, community members, companies, foundations and after-school programs to support these efforts and to create a vibrant maker eco system.

Thank you for your leadership. We look forward to working with you and your Administration in order to continue to make this initiative a huge success.

Signed,

A handwritten signature in dark ink, appearing to read "Beth Stewart", with a long horizontal flourish extending to the right.

Dr. Beth Stewart
Deputy Superintendent
North Little Rock School District

Dear President Obama,

All children are born makers. They look at the world with a sense of wonder. They tinker and discover. They take things apart to question how they work. They build amazing things using any materials within reach. And they solve problems – for someone in their community or halfway around the world. Inherently curious and creative, children are naturally drawn to making as a way to explore the world around them.

As leaders in education, we are excited about the growing Maker Movement and its potential to transform the way our students learn. An open-ended process of creating, making includes a wide spectrum of activities – from building furniture to growing a community garden, from upcycling to coding, and so much more. Making involves utilizing the design process, learning to use tools and materials, as well as documenting projects and sharing them with others. These experiences challenge young people to combine critical thinking, imagination, and persistence to solve complex problems – with the ultimate goal of students seeing themselves as producers, not just consumers of the world around them.

By focusing on personalized, interdisciplinary learning experiences that are student-centered, making can motivate and inspire young people to develop a deep and lifelong engagement in, and love for, learning. We believe this approach not only improves their academic performance, but also prepares students with core skills for careers in any field – particularly in science, technology, engineering, design, advanced manufacturing, and entrepreneurship. While making is not a new concept in education, with a growing community of supportive educators, leaders, and families, we now have an unprecedented opportunity to move this idea forward in classrooms and schools across the country.

Last year, you hosted the first [White House Maker Faire](#) and challenged “every company, every college, every community, every citizen [to] join us as we lift up makers and builders and doers across the country.” We couldn’t agree more.

We must ensure that all of our children have access to these opportunities. We need an “all hands on deck” effort from school leaders, teachers, parents, skilled volunteers, companies, and more – to broaden participation in making, tinkering and inventing.

As school administrators - superintendents, heads of school, district leaders, principals, and others - we want to do our part to make the most of these opportunities. As the White House prepares to celebrate a Week of Making this year,

we are committed to get started or to continue our efforts by taking one or more of the following steps:

- Invest in the creation of and staffing for a dedicated makerspace for use by teachers, students, and the wider community;
- Identify a champion or lead educator at each school who supports all teachers with the integration of making into the curriculum;
- Offer professional development opportunities and follow-up support for teachers in our schools or districts to integrate making into the current curriculum;
- Empower students to do capstone maker projects and showcase the process of their work through activities like School Maker Faires and shared portfolios;
- Designate a “Maker in Residence” within the district or school to advocate for making, organize making activities, and provide support to teachers;
- Develop and implement strategies to engage all learners in making and diversify the pool of future innovators;
- Develop strategies to allow older students to engage in peer mentoring for younger makers; and
- Engage parents, community members, companies, foundations, and after-school programs to support these efforts and to create a vibrant maker ecosystem.

Thank you for your leadership. We look forward to working with you and your Administration to make this initiative a huge success.

Signed,

Tamara Sanders

Printed Name Tamara Sanders

Title Instructional Technology Specialist

Invest in the creation of and staffing for a dedicated makerspace for use by teachers, students, and the wider community:

The Phenix City Schools will do this by building a facility at Phenix City Intermediate School to house four STEM labs; at least one will be a dedicated makerspace. A certified teacher has already been hired to supervise the curriculum integration with plans to hire additional personnel Fall 2016. A makerspace at South Girard Junior High School will open Fall 2015.

Identify a champion or lead educator at each school who supports all teachers with the integration of making into the curriculum:

The Phenix City School System is seeking to hire personnel Fall 2015 for the South Girard makerspace. We will hire personnel Fall 2016 whose primary responsibility is to guide student makers and to facilitate the integration of making into the curriculum at Phenix City Intermediate School.

Offer professional development opportunities and follow-up support for teachers in our schools or districts to integrate making into the current curriculum:

When the new maker program is implemented in Fall 2016, teachers will be provided with professional development to increase both the knowledge of the maker curriculum and the integration into core subjects.

Empower students to do capstone maker projects and showcase the process of their work through activities like School Maker Faires and shared portfolios:

Phenix City Schools believes that showcases and competitions provide students avenues of authentic assessment. Therefore, events such as maker faires, portfolios and competitions will be incorporated into the maker curriculum.

Designate a "Maker in Residence" within the district or school to advocate for making, organize making activities, and provide support to teachers:

The Phenix City Schools will hire personnel in Fall 2015 and Fall 2016 whose primary responsibility is to guide student makers and to facilitate the integration of making into the curriculum. These teachers will be our "Makers in Residence."

Develop and implement strategies to engage all learners in making and diversify the pool of future innovators:

Phenix City Schools will plan the school day/year schedule so that all students in grades 6-8 will experience at least one unit of making in each school year.

Develop strategies to allow older students to engage in peer mentoring for younger makers:

Phenix City Schools Career Technical students will be available to peer mentor our younger makers. One of the possibilities for our younger students is that they may pursue career technical opportunities in their high school years.

Engage parents, community members, companies, foundations, and after-school programs to support these efforts and to create a vibrant maker ecosystem:

Phenix City Schools is actively seeking both financial and in-kind benefactors to assist with our STEM labs, including the makerspaces. Parents will be informed and invited to be active participants in after-school events.



Pleasant Valley School District

Instructional Technology Department

600 Temple Ave. Camarillo, CA 93010

Phone: (805) 445-8751

www.pvsd.k12.ca.us

Jay Greenlinger, E.d.D., Director

Dear President Obama,

All children are born makers. They look at the world with a sense of wonder. They tinker and discover. They take things apart to question how they work. They build amazing things using any materials within reach. And they solve problems – for someone in their community or halfway around the world. Inherently curious and creative, children are naturally drawn to making as a way to explore the world around them.

As leaders in education, we are excited about the growing Maker Movement and its potential to transform the way our students learn. An open-ended process of creating, making includes a wide spectrum of activities – from building furniture to growing a community garden, from upcycling to coding, and so much more. Making involves utilizing the design process, learning to use tools and materials, as well as documenting projects and sharing them with others. These experiences challenge young people to combine critical thinking, imagination, and persistence to solve complex problems – with the ultimate goal of students seeing themselves as producers, not just consumers of the world around them.

By focusing on personalized, interdisciplinary learning experiences that are student-centered, making can motivate and inspire young people to develop a deep and lifelong engagement in, and love for, learning. We believe this approach not only improves their academic performance, but also prepares students with core skills for careers in any field – particularly in science, technology, engineering, design, advanced manufacturing, and entrepreneurship. While making is not a new concept in education, with a growing community of supportive educators, leaders, and families, we now have an unprecedented opportunity to move this idea forward in classrooms and schools across the country.

Last year, you hosted the first White House Maker Faire and challenged “every company, every college, every community, every citizen [to] join us as we lift up makers and builders and doers across the country.” We couldn’t agree more.

We must ensure that all of our children have access to these opportunities. We need an “all hands on deck” effort from school leaders, teachers, parents, skilled volunteers, companies, and more – to broaden participation in making, tinkering and inventing.

As school administrators - superintendents, heads of school, district leaders, principals, and others - we want to do our part to make the most of these opportunities. As the White House prepares to celebrate a Week of Making this year, we are committed to get started or to continue our efforts by taking one or more of the following steps:

- Invest in the creation of and staffing for a dedicated makerspace for use by teachers, students, and the wider community;

- Identify a champion or lead educator at each school who supports all teachers with the integration of making into the curriculum;
- Offer professional development opportunities and follow-up support for teachers in our schools or districts to integrate making into the current curriculum;
- Empower students to do capstone maker projects and showcase the process of their work through activities like School Maker Faires and shared portfolios;
- Designate a “Maker in Residence” within the district or school to advocate for making, organize making activities, and provide support to teachers;
- Develop and implement strategies to engage all learners in making and diversify the pool of future innovators;
- Develop strategies to allow older students to engage in peer mentoring for younger makers; and
- Engage parents, community members, companies, foundations, and afterschool programs to support these efforts and to create a vibrant maker ecosystem.

Thank you for your leadership. We look forward to working with you and your Administration to make this initiative a huge success.

Best Regards,

Jay Greenlinger, Ed.D.
Director of Instructional Technology



South Fayette Township School District

3680 Old Oakdale Road • McDonald, PA 15057-2580
Phone 412-221-4542 • Fax 724-693-2883 • www.southfayette.org

Dr. Bille P. Rondinelli
Superintendent of Schools

Dr. Michael Loughead
Assistant Superintendent

Dear President Obama,

It is with great passion that I write this letter of commitment to support, encourage, and catalyze transformative learning opportunities through the Maker Movement. In this innovation-driven economy, it is critical that we build the capacities in our students to become the innovators of tomorrow.

Over the last six years, the South Fayette Township School District has transformed a traditional education system by embedding computational thinking and the engineering and design problem solving process into the existing K-12 curriculum. This effort speaks to our district's commitment to "Remake Learning" www.remakelarning.org through the vision of the Maker Movement. We have created maker spaces or prototype labs in each school building to address this transformational curriculum.

South Fayette considers computational thinking to be the new literacy, and from kindergarten on we teach students to think abstractly, recursively, algorithmically, and logically. We have embedded the practices and concepts of computer programming, electrical engineering and innovation from kindergarten through grade 7 by using block-based programming languages such as Scratch, App Inventor, and ModKit to make interactive games, stories, mobile apps and eTextile designs.

Students explore deeper learning in math and science through robotics using Lego and VEX IQ. Additionally, students explore electrical circuitry using Squishy Circuits, LittleBits and MaKey MaKey circuitry. Students transition from block-based to text-based experiences at grade 7 with greater secondary opportunities in high school through Java I, Java II, and AP Computer Science.

Examples of the innovative products created by our high school students include, but are not limited to: BusBudE - an app that alerts parents when and where their students enter and exit the school bus; MyEduDecks - students presented their pen based flashcards software application at Microsoft Research, Redmond, WA in April 2015, during the WIPTE and E2 Global Exchange Conference; Governor's STEM Competition First Place State Winner May 29, 2015 - students redesigned a walker to help patients with mobility issues; and, Python Outreach - students designed and taught a Python course for outreach to regional schools. To see how we have transformed education through innovation please click on this video: <http://tinyurl.com/nu2br6r>. To learn more about our vertically aligned K-12 curriculum and how we infuse STEAM and maker experiences through environmental literacy see: <http://www.steaminnovation.net/> and <http://www.environmentalsustainabilityk-4.com/>

The Grable Foundation has challenged the South Fayette School District to make innovation happen in the region through our STEAM Studio Model of Innovation by supporting the district's development of outreach services, which provide curriculum development, teacher training and classroom support to regional schools with an emphasis on underserved schools. This summer, through the South Fayette STEAM Innovation Summer Institute, we will provide outreach to 300 teachers from Western Pennsylvania and West Virginia and impact approximately 32,378 students. This unique and innovative approach to education, leverages the expertise and resources from one district to help another, enhances learning for all students, and has the potential to transform public education. More information is found at this link: <http://tinyurl.com/pjbs3l3>.

The information contained herein demonstrates our firm commitment to the maker movement in the South Fayette Township School District. We have taken bold actions that have catalyzed rapid expansion of these efforts. We would be grateful, humbled, and inspired to continue to connect our efforts with the White House. Please know that you have an open invitation to visit our district and talk with students and staff about how education can develop the innovators of tomorrow.

Sincerely,

Dr. Bille P. Rondinelli
Superintendent of Schools



From the Superintendent

As a result of the technology revolution, the world is becoming exponentially smaller in record time, resulting in a more culturally diverse and complex world in which we live. In 2014, both Texas and the U.S. look dependently upon the educational systems to prepare students who can compete globally for jobs and careers. As the need for higher educational attainment among constituents becomes imperative to future successes of this state and this nation, both public and higher educational systems are in the reinvention mode, as we learn how to work more collaboratively toward common student good in a P-20 model for education. At Roscoe Collegiate, we embrace these challenges, as we strive to sharpen not only our collaboration skills, but our creative problem solving ability, at the same time. As a National Rural Model for an Early College/ STEM Academy, we pride ourselves in preparing very culturally and socio-economically diverse students to handle the rigorous demands of earning the Associate Degree while in high school here at Roscoe Collegiate. As a STEM Academy, we are preparing to go the extra mile to bring students real world relevance so vital for a strong foundation in critical work shortage fields involving science, technology, engineering, and math (STEM). As an institution that adheres strongly to a research based lesson cycle, we require students to conduct their own investigations, draw their own insightful conclusions, and create their own persuasive analysis of many topics leading toward industry certification in high demand STEM fields related to the biomedical sciences and engineering.

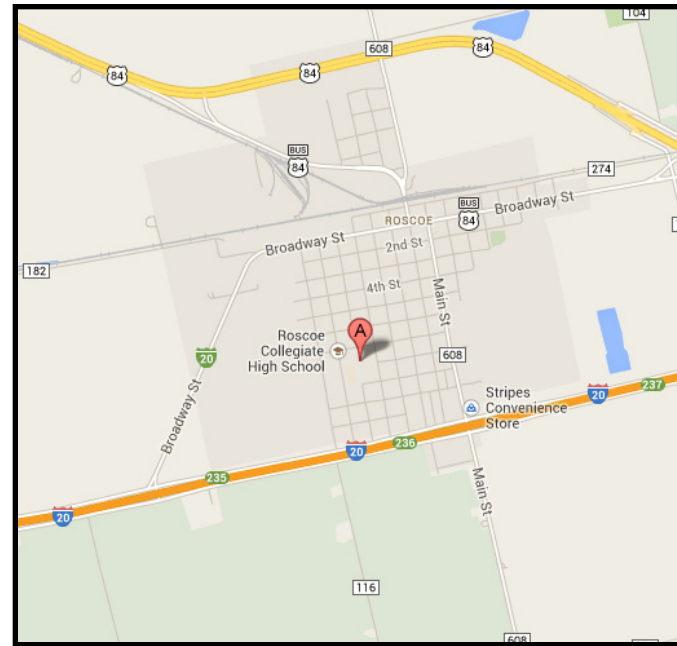
With much assistance from our higher education and system partners, Roscoe Collegiate is intent on developing a strong and successful model for collaborative rural education in Texas and the U.S., that can be replicated by many of the over 700 school districts classified as rural in Texas, who currently serve over 800,000 of Texas' 5,000,000 and growing student population. The goal of this model is to prove that when structured correctly, all students, regardless of cultural, demographic, or socio-economic background, can become truly college and career ready, with the Associate Degree and Industry Recognized Certification in hand, upon completion of high school.

Operating under the strict guidelines of a USDA SPECA agricultural grant, Roscoe Collegiate has also home to the first school-wide 4H program in Texas, with a goal of developing students prepared to help provide solutions for the Five Grand Challenges established by the nation's land grant universities of feeding our world, protecting our environment, improving our health, enriching our youth, and growing our economy.

Early successes of the model include steady increases in graduates completing the Associate prior to graduation from high school. In our first year as an Early College, 2010, we had our first Associate Degreed graduate. In 2011, 52% of the graduating class earned the Associate Degree, followed by 58% in 2012, 73% in 2013, and 89% in the Class of 2014, with a goal of reaching 90% and beyond by the year 2015. I am confident of the success of our system, our students, and our state, nation, and world.



Dr. Kim Alexander
Superintendent
Roscoe Collegiate ISD



Roscoe Collegiate ISD Early College STEM Academy

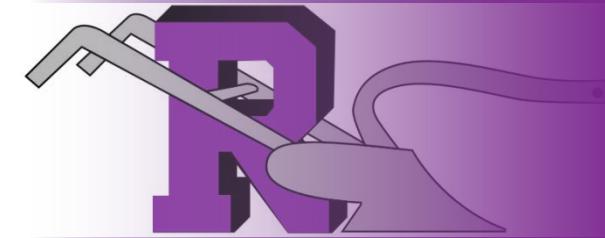
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Images:
Shelly Williams
Tamara Alexander
Andy Wilson

www.roscoe.esc14.net



Roscoe Collegiate Early College S.T.E.M Academy

A rural model for success



*"Without vision, the people will perish."
-Solomon*



ROSCOE COLLEGIATE INDEPENDENT SCHOOL DISTRICT

P.O. Box 579, Roscoe, Texas 79545 325/766-3629 FAX 325/766-3138

Dear President Obama,

www.roscoe.esc14.net

It is with great enthusiasm that I write this letter of support for transformed learning opportunities through the Maker Movement. As a national rural model for Early College/STEM Academy, Roscoe Collegiate ISD is intent on becoming a national leader in college and career readiness. The engineering pathway of our STEM Academy is currently in the process of designing a partnership between 3D Robotics/Drone EDU in Berkley, California to develop an Unmanned Aerial Vehicle (AVU) company, Collegiate Edu-Drone, right here on the campus of Roscoe Collegiate ISD. Each engineering student will have an opportunity to do a paid student apprenticeship in either the research and design, application and build, or business and marketing phase of their own drone company. This experience will provide real world relevance in many facets of engineering, leading to industry recognized certifications through AutoDesk and AutoCAD.

As a result of the technology revolution, the world is becoming exponentially smaller in record time, resulting in a more culturally diverse and complex world in which we live. In 2015, both Texas and the U.S. look dependently upon the educational systems to prepare students who can compete globally for jobs and careers. As the need for higher educational attainment among constituents becomes imperative to future successes of this state and this nation, both public and higher educational systems are in the reinvention mode, as we learn how to work more collaboratively toward common student good in a P-20 model for Education. At Roscoe Collegiate, we embrace these challenges, as we strive to sharpen not only our collaboration skills, but our creative problem solving ability, at the same time. As a National Rural Model for an Early College/STEM Academy, we pride ourselves in preparing very culturally and socio-economically diverse students to handle the rigorous demands of earning the Associate Degree while in high school here at Roscoe Collegiate. As a STEM Academy, we are preparing to go the extra mile to bring students real world relevance so vital for a strong foundation in critical work shortage fields involving science, technology, engineering, and math (STEM). As an institution that adheres strongly to a research based lesson cycle, we require students to conduct their own investigations, draw their own insightful conclusions, and create their own persuasive analysis of many topics leading toward industry certification in high demand STEM fields related to the biomedical sciences and engineering.

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Dr. Kim Alexander
Superintendent, Roscoe Collegiate ISD

June 5, 2015

Dear President Obama:

On behalf of the nearly 24,000 students served by Vancouver Public Schools in Vancouver, Washington, I am writing to convey our strong commitment to the Maker Movement. We have a long history and a proud tradition of providing transformative learning experiences that help students develop their critical thinking and creative problem-solving skills.

Historical

Discovery Middle School in Vancouver opened in 1995 and garnered several top architectural awards for design. Even in 1995, the district's vision for its facilities included maker spaces, which incorporated fabrication space, technology, resources and other tools for project-based learning. At Discovery, the space was called the toolbox. Discovery was one of nine schools included in a "Creative Solutions Group" at a Washington, D.C. school design symposium. Vancouver's Skyview High School also was noted at the event. The school design was so impressive it drew the attention, and a personal visit, by U.S. Secretary of Education Richard Riley in 1998.



Photo: U.S. Secretary of Education Richard Riley visits with a student in Discovery Middle School's toolbox, a maker space envisioned 20 years ago when the school was built.

(continued)

Project-based learning

Providing student choice for educational programs also has been a longtime standard in VPS. Nearly two-dozen programs of choice, such as medical arts; culinary; and science, technology, engineering and math (STEM); provide hands-on, relevant learning opportunities and develop problem-solving skills.

- Hudson’s Bay High School, ACES (Architecture, Construction and Environmental Services) — Hudson’s Bay High School recently clinched one of five top spots in the 2014-15 Samsung Solve for Tomorrow national contest. The Hudson’s Bay team, led by horticulture teacher Steve Lorenz and students Kassie Wielenback, Brittney Hauff and Cedric Hitzeman, is using mushroom mycelia to reclaim cardboard waste and produce mushrooms that can be used for growing kits, as food additives or for large-scale recycling.



Photo: Students use mushroom mycelia to reclaim cardboard waste and produce mushrooms.

- Vancouver iTech Preparatory (STEM) — Last fall, high school freshman from Vancouver iTech Preparatory participated in a two-day research trip in the blast zone of Mt. St. Helens, which erupted in 1980. “I wanted a unique opportunity that allowed students to experience what it is like to be a Mount St. Helens ecology researcher,” said teacher Tom Wolverton.

“We’re learning by doing things that are fun!”

- Miranda Dowler, Vancouver iTech Preparatory student

(continued)



Photo: Student teams practice using GPS units in their research of Mount St. Helens.

• Skyview High School — This 2,000-student high school is home to a science, math and technology program. Project Lead the Way pre-engineering courses and DigiPen video game programming courses emphasize problem-solving skills and design skills used by engineers and programmers. A robotics club offers students the opportunity to work with volunteers from companies such as Boeing to design and build robots for competition.



Photo: Robotics and pre-engineering are some of the courses at Skyview that develop creative and problem-solving skills.

(continued)

Facilities Symposium

VPS engages the community in envisioning and shaping the future. A recent symposium enlisted teachers, parents, community members and students to help district leaders craft a proposal to bring more Vancouver school facilities up to 21st century standards. Participants imagined what schools of the future should incorporate to serve not only students and staff, but also families and the community. A group of fifth-grade students also participated in the symposium.



Photo: Fifth-graders help plan schools of the future.

Mr. President, I applaud the efforts of your administration to help promote excellence and innovation in our nation's public schools through support of the Maker Movement. As a founding member of the Digital Promise League of Innovative Schools and the host of the league's spring 2015 meeting, Vancouver Public Schools continues to provide nationally recognized leadership in personalizing education and making it relevant to the 21st century globally connected world so that all of our graduates are future-ready.

Sincerely,

A handwritten signature in black ink that reads "Steven T. Webb". The signature is fluid and cursive.

Steven T. Webb, Ed.D.
Superintendent

Serving the Communities
of Vista, Oceanside,
Carlsbad
and
San Diego County

Website:
www.vistausd.org



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Board Members
Rich Alderson
Angela D. Chumka
Jim Gibson
Carol Weise Herrera
R. Elizabeth Jaka

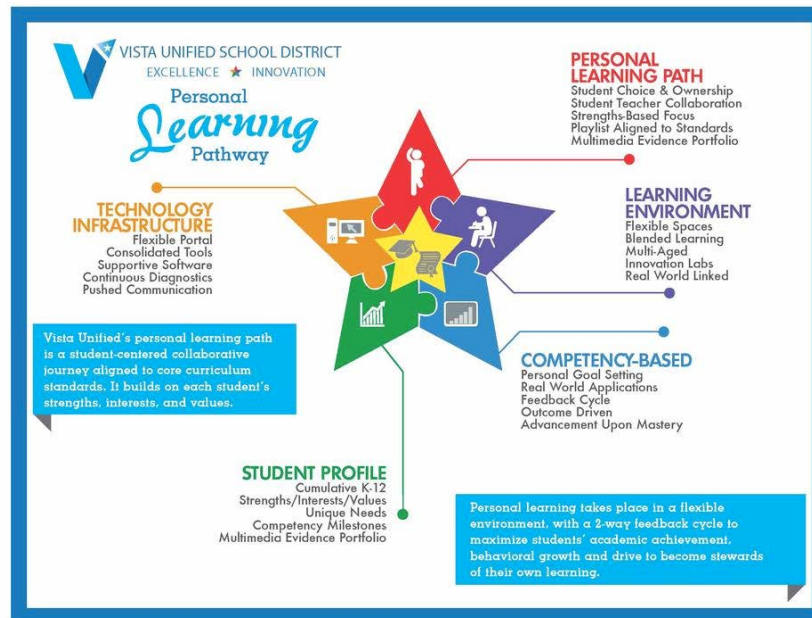
Superintendent
Dr. Devin Vodicka

May 15, 2015

Dear President Obama--

It is with great enthusiasm that I write this letter of commitment to the support, encourage, and catalyze transformative learning opportunities through the Maker Movement. This effort aligns perfectly with our vision for Vista Unified School District to become the model of educational excellence and innovation. In addition, the Maker Movement supports our mission is to inspire every student to persevere as a critical thinker who collaborates to solve real-world problems.

We have already taken steps to encourage personalized, interdisciplinary learning experiences that are student-centered. This includes the development of our definition of personal learning that was co-developed in collaboration with students, families, industry partners, and staff. This model includes use of flexible learning spaces and "innovation labs" that promote tinkering, discovery, and real-world applications.

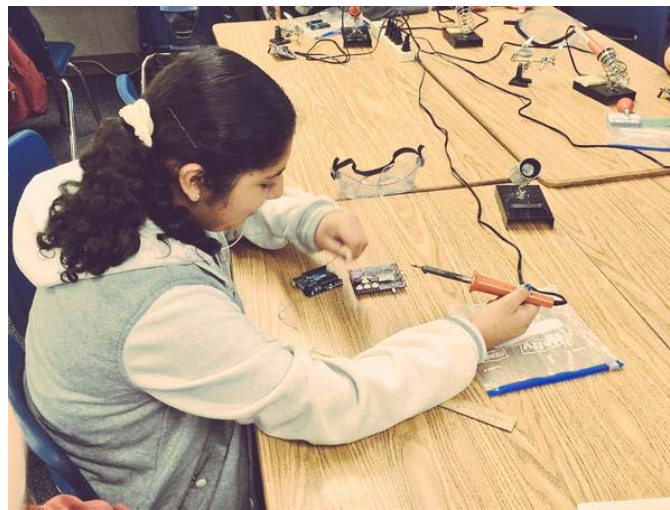


This visual representation of the Vista Unified Personal Learning Pathway aligns with the Maker Movement focus on creation and solving complex problems.

Additional personalized learning resources are available on our [district website](#).

As a result of our efforts to promote innovation and personal learning, one of our middle schools was transformed into the Vista Innovation and Design Academy ([VIDA](#)). Using design thinking to provide a framework for student learning, VIDA features two design studios--one that we call a “low resolution” lab and the other a “high resolution” lab. These studios are essentially Maker Spaces where students work independently and in teams to solve real-world problems. After just one year of operation, we have now hosted hundreds of visitors from multiple states and even international educators have toured our schools.

The success of our [VIDA design studios](#) has facilitated rapid expansion and we are now planning to open similar Maker Spaces at several elementary schools in the fall. [Families](#) are becoming more connected to their schools through these meaningful learning experiences. All teachers at VIDA participated in professional development opportunities in partnership with [Open Source Maker Labs](#) and additional trainings are planned for the future. The students at VIDA also participate in [cross-age mentoring](#) with a neighboring elementary school.



Soldering and coding are part of the “high resolution” design studio experience



A snapshot of the “low resolution” design studio on a day where we hosted a visiting team of educators from Colorado



Another snapshot of the “low resolution” design studio while hosting a visit from a Northern California superintendent

One of the contributors to the success of our early models has been a strong partnership with Qualcomm and participation in their Thinkabit Labs in San Diego. This provides an experience for middle school students at multiple schools to visit a Maker Space, explore career interests, and then work collaboratively with engineers to code and design their own products. We are presently in conversations about adding a Qualcomm-sponsored learning space in Vista to expand the program.



Middle School students work collaboratively with an engineer from Qualcomm in the Thinkabit Lab (San Diego)

Finally, we host an annual “[STEM Fest](#)” in collaboration with our partners to promote exposure to vital core skills for all students at every school in the district. Partners for the event include [University of California San Diego](#), California State University San Marcos, Scripps Institute for Oceanography, 3R Robotics, [Solutions Farms](#), and [Open Source Labs](#). Students present capstone projects at the STEM Fest that exhibit and make transparent

the process of their work. The success of the STEM Fest is indicative of the local appetite for meaningful learning experiences in our community.

The learning opportunities that I have briefly described in this letter are having a tremendous impact on our students and our community. Attendance rates are increasing, student discipline incidents are dramatically declining, and we are seeing student achievement data trend in a positive direction with accelerating speed. This is particularly important in our environment where about two-thirds of our students qualify for free/reduced meals and about one-quarter of our students are identified as English Learners. All students, but especially students that we overcoming language and economic barriers, can benefit from the deep learning that occurs through these real-world experiences. The convergence of partnerships with business and industry, institutions of higher education, and public school districts presents us with an unprecedented opportunity to transform the lives of individuals, families, and communities.

The success that we are experiencing by focusing on real-world problems has generated attention across the nation. This year Vista Unified School District was selected to join the [League of Innovative Schools](#), we have two sites participating in the [Digital Promise Schools](#) project with the Verizon Foundation, and we were one of four districts that showcased at [Digital Learning Day](#). Our leadership with technology initiatives led to my inclusion in the ConnectED Superintendent Summit at the White House this past fall after also being involved in the [Superintendent's Technical Working Group](#).

I hope that I have demonstrated our firm commitment to the maker movement in Vista Unified School District. We have taken bold action that has catalyzed rapid expansion of these efforts and we would be grateful, humbled, and inspired to connect our efforts with the White House.

Sincerely,

A handwritten signature in blue ink that reads "D. Vodicka". The signature is written in a cursive, slightly slanted style.

Devin Vodicka, EdD
Superintendent



WEST CONTRA COSTA UNIFIED SCHOOL DISTRICT
Science, Technology, Engineering, and Mathematics (STEM) Center
5625 Sutter Street, Buildings 15 and 16, Richmond, CA 94804

May 26, 2015

Dear President Obama,

We in the West Contra Costa Unified School District (WCCUSD) are excited and proud to support the growing Maker Movement in the U.S. and globally. In our district, the Maker Movement has provided us an opportunity to become the flagship K-12 Fab Lab situated in a school district. As you know, a Fab Lab (or Fabrication Laboratory) is a small-scale digital workshop equipped with computer-controlled tools, such as 3D printers, laser-cutters, routing machines, 3D scanners, 3D milling machines, and programming tools. In a Fab Lab, you can “make almost anything”, or in other words, create different types of projects and products. Funded by a Chevron grant to the Fab Foundation, which emerged from the Massachusetts Institute of Technology’s (MIT) Center for Bits & Atoms, our district is implementing a Fab Lab at Kennedy High School, one of our highest need urban high schools, to serve the entire district K-12, as well as provide support for community entrepreneurship.

Additionally, through grants and partnerships, our district is purchasing a Mobile Fab Lab, to reach all of our nearly 30,000 students at their local school site locations, and next year we are building a hybrid Fab Lab at Crespi Middle School, in order to more fully reach the northern end of our district. We are also establishing Science, Technology, Engineering, and Mathematics (STEM) Community Centers in all six of our comprehensive high school “families”, to provide a way to reach our teachers and families with Fab Lab activities, science kits, Family Science nights, after school tutoring, and other workshops and classes.

The reason why we have embarked on these new STEM initiatives is related to our prior work in mathematics reform. Without mathematics, no work in STEM is possible. While hands-on project-based learning is at the heart of many new STEM initiatives, no long-term success in STEM fields is possible without developing flexibility, intuition, and relational thinking in mathematics. We want our students to know and believe that becoming mathematicians, scientists, and engineers is not something that “other people” do. Our WCCUSD students are the next generation of STEM professionals.

Our focus on mathematics has led to our district becoming the lead partner in the Mathematics Coaching Consortium (MCC), a multi-district partnership in the Bay Area to provide professional development and technical support for full time mathematics coaches in their local schools and districts. I founded MCC as an extension of my previous work on the mathematics faculty for 26 years at California State University East Bay, and on the leadership team for nine successful California Mathematics and Science Partnership grants, providing mathematics professional development and content coaching to over 8,000 teachers since 2000.

I am thrilled that we are establishing our large urban district as a strong positive presence statewide and nationally in mathematics and in all STEM fields, through our direct work with

teachers, students, parents, and the community. We have also established a huge web presence. On our mathematics website, at <http://www.wccusd.net/math>, you can click on the Lessons link on the left, to see a vast array of best practice lessons developed by our mathematics content coaches at all grade levels, integrating our state standards. You can click on other links on the left, e.g., Content Presentations, which help teachers as they learn to use multiple methods and approaches to the teaching and learning of mathematics. There are also Parent Guides, Study Guides, Curriculum Guides, and more. On our science website, at <http://www.wccusd.net/science>, you can see similar types of documents for science, fully referenced to the Next Generation Science Standards. Recently we have established our Fab Lab website, at <http://www.wccusd.net/fablab>, which provides our curriculum development model that starts with mathematics content, builds in science and/or engineering, and culminates with a Fab Lab project. The website also includes project files for some of the objects we have begun fabricating.

This summer, we are holding our first Fab Lab Professional Development Institute, from July 13-17. We welcome you to visit our new Fab Lab and hear from our teachers and other professionals and share in the excitement of this new initiative. Our grand opening for the community will be on September 29, where we will welcome our corporate and community partners in this venture. At the September 29 event we will also launch our local design contest to brand and decorate our Mobile Fab Lab.

Our district has made a strong commitment to follow through with these STEM initiatives. We have enacted a strategic plan and local funding streams to support our ongoing reforms in mathematics, science, STEM, and Fab Labs, including content coaching support and professional development for teachers from grades pre-K-12. We join with others in supporting our students and community as the White House prepares to celebrate a Week of Making this year. We are committed to continue our efforts described in this letter and to:

- Invest in the creation of and staffing for a dedicated makerspace for use by teachers, students, and the wider community, which in our district is the Fab Lab, Mobile Fab Lab, Hybrid Fab Lab, and all of our new STEM Community Centers, to reach our 30,000 students, 1,500 teachers and our WCCUSD parents and community;
- Identify a champion and lead educator at each school who supports all teachers with the integration of “making” into the curriculum, which in our district includes Technology Teacher Leaders, already in place at each school site, as well as our 16 mathematics and science content coaches, who support multiple sites and teachers throughout our district;
- Continue offering extensive professional development opportunities, including summer content institutes, after school “Pizza and Planning”, and Saturday sessions with 20 workshops K-12 provided by our coaches and attended by hundreds of our teachers, as well as follow-up support for teachers in our schools and partner districts to integrate making into the current curriculum;
- Empower students to do capstone maker projects and showcase the process of their work through activities like School Maker Faires, shared portfolios, and our district elementary and secondary science fairs, which this year included 19 winning entries at the regional level and three winning entries presented at the state science fair for the first time in our district’s history;

- Designate a “Maker in Residence” within the district to advocate for making, organize making activities, and provide support to teachers, which we do through our Fab Lab manager;
- Develop and implement strategies to engage all learners in making, and diversify the pool of future innovators;
- Develop strategies to allow older students to engage in peer mentoring for younger makers; and
- Engage parents, community members, companies, foundations, and after-school programs to support these efforts and to create a vibrant maker ecosystem, which we do through multiple district-corporate-community partnerships.

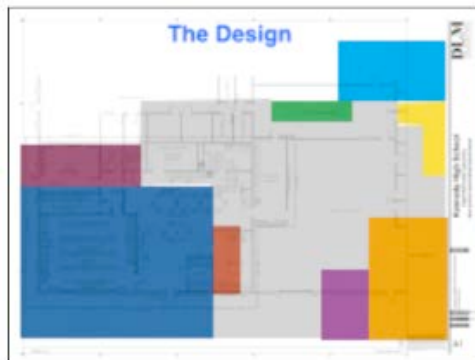
Thank you for your leadership, as well as for empowering many others to lead in this initiative at the state and local levels. We look forward to working with you and your administration to make this initiative a huge success, including our Fab Labs, and supporting our students to become mathematicians, scientists, engineers, and technologists.

Sincerely,



Philip Gonsalves, Senior Director of Educational Services
Curriculum and Instruction for Mathematics, Science, and STEM
Science, Technology, Engineering, and Mathematics (STEM) Center
West Contra Costa Unified School District

Fab Lab Richmond architectural design and construction progress this spring



Presentation to teachers on the Fab Labs and content connections in mathematics, science, and engineering



WCCUSD website examples



Binomial Cubed

"Doing the Mathematics" Model - "Seeing the Mathematics"

$$(a+b)^3 = (a+b)(a+b)(a+b)$$

$$= (a+b)(a^2 + ab + ab + b^2)$$

$$= (a+b)(a^2 + 2ab + b^2)$$

$$= a^3 + 3a^2b + 3ab^2 + b^3$$


WCCUSD Richmond Fab Lab Curriculum Model Example



Mathematics

Visual (example)	Operation	How to approach:
$\frac{8}{12}$	Simplify Numerator and denominator must be relatively prime, only common factor is 4	Prime Factor and find equivalent forms of one.
$\frac{3}{12} \cdot \frac{4}{21} = \frac{1}{3} \cdot \frac{2}{7}$	Multiplication	Do only one common factor. Multiply across, prime factor and find equivalent forms of one.
$\frac{-18}{28} \cdot \frac{36}{25} = \frac{-1}{10}$	Division	Divide across. Find Common Denominators. Multiply by the reciprocal.
$\frac{-11}{14} + \frac{6}{7}$	Addition	Find common denominators and add numerators, use the Bubble Method.
$\frac{3}{5} - \frac{11}{7}$	Subtraction	Find common denominators and subtract numerators, use the Bubble Method.
$\frac{10}{12} = \frac{5}{6}$	Proportion	Multiply by the LCM. Clear Fractions. Cross-Product.

Science and Engineering

There are two types of electric circuits: parallel and in-series. A parallel circuit is when devices are connected parallel to each other and the in-series circuit is when devices are connected in-series. The picture on the left shows two bulbs connected to a battery in series and the second shows the same lights connected in parallel. In series circuits the resistance to the flow of electricity is equal to the resistance created by wiring and all the lights and other devices connected to it.

When devices are connected in-series the formula for total resistance is as follows:

$$R_{total} = R1 + R2 + R3 + \dots$$

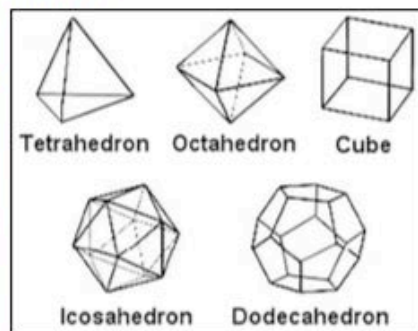
When devices are connected in-parallel the formula for total resistance is as follows:

$$\frac{1}{R_{total}} = \frac{1}{R1} + \frac{1}{R2} + \frac{1}{R3} + \dots$$

Culminating Fab Lab Project



Integration with 3-D printing



Polyhedron	Vertices	Edges	Faces
tetrahedron	4	6	4
octahedron	6	12	8
icosahedron	12	30	20
hexahedron (cube)	8	12	6
dodecahedron	20	30	12

Notice: The number of Vertices (V) minus the number of Edges (E) plus the number of Faces (F) always equals two. This observation is called Euler's formula:

$$V - E + F = 2$$