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By	

OAKLAND UNIFIED SCHOOL DISTRICT

Community Schools, Thriving Students

OAKLAND UNIFIED SCHOOL DISTRICT
Office of the Board of Education

To: Board of Education

From: Antwan Wilson, Superintendent

Subject: **District Submitting Grant Proposal**

ACTION REQUESTED:
Approval and support by the Board of Education of District applicant submitting grant proposal for OUSD schools for fiscal years 2016-17 to accept same, if granted, in whole or in part, pursuant to the terms and conditions thereof and to submit amendments thereto, for the grant year, if any.

BACKGROUND:
Grant proposal for OUSD schools for the FY16-17 fiscal year was submitted for funding as indicated in the chart below. The Grant Face Sheet and grant proposal packets are attached.

File I.D #	Backup Document Included	Type	Recipient	Grant's Purpose	Time Period	Funding Source	Grant Amount
	Yes	Grant Proposal	Oakland Unified School District Teaching and Learning Science Department	Funds for K-8 professional learning, curriuclum, and resources to implement the Next Generation Science Standards	June 13, 2016 to June 16 2017	S. D. Bechtel, Jr. Foundation	$450,000.00

DISCUSSION:
The district created a Grant Face sheet process to:

- Review proposed grant projects at OUSD sites and assess their contribution to sustained student achievement
- Identify OUSD resources required for program success

OUSD received a Grant Face Sheet and a completed grant application for the program listed in the chart by the school.

FISCAL IMPACT:
The total amount of grants will be provided to OUSD schools from the funders.

- Grants valued at: $450,000

RECOMMENDATION:
Approval and support by the Board of Education of District applicant submitting a grant proposal for OUSD schools for fiscal year 2016-2017 to accept same, if granted, in whole or in part, pursuant to the terms and conditions thereof and to submit amendments thereto, for the grant year, if any.

ATTACHMENTS: Grant Face Sheet, Proposal and Budget

OUSD Grants Management Face Sheet

Title of Grant: Implementing NGSS in the Oakland Unified School District	**Funding Cycle Dates:** June 13, 2016 to June 16, 2017
Grant's Fiscal Agent: Oakland Unified School District	**Grant Amount for Full Funding Cycle:** $450,000
Funding Agency: S.D. Bechtel Jr. Foundation	**Grant Focus:** Professional Learning, Curriculum, and Leadership for K-8 Science
List all School(s) or Department(s) to be Served: All middle and elementary schools	

Information Needed	School or Department Response
How will this grant contribute to sustained student achievement or academic standards?	As a result of this grant, all OUSD's elementary school teachers and middle school science teachers will be better prepared and resourced to teach science aligned to Next Generation Science Standards (NGSS). Principals will be prepared to become strong instructional leaders for science at their sites.
How will this grant be evaluated for impact upon student achievement?	Principal and teacher surveys, evaluations, and planning documents; student assessments and observations; tools and resources developed.
Does the grant require any resources from the school(s) or district? If so, describe.	Yes, existing staffing and funding for science for 16-17
Are services being supported by an OUSD funded grant or by a contractor paid through an OUSD contract or MOU?	No
Will the proposed program take students out of the classroom for any portion of the school day?	No
Who is the contact managing and assuring grant compliance?	Caleb Cheung 1000 Broadway Suite 600 Oakland, CA, 94607 510-879-3694, caleb.cheung@ousd.org

Applicant Obtained Approval Signatures:

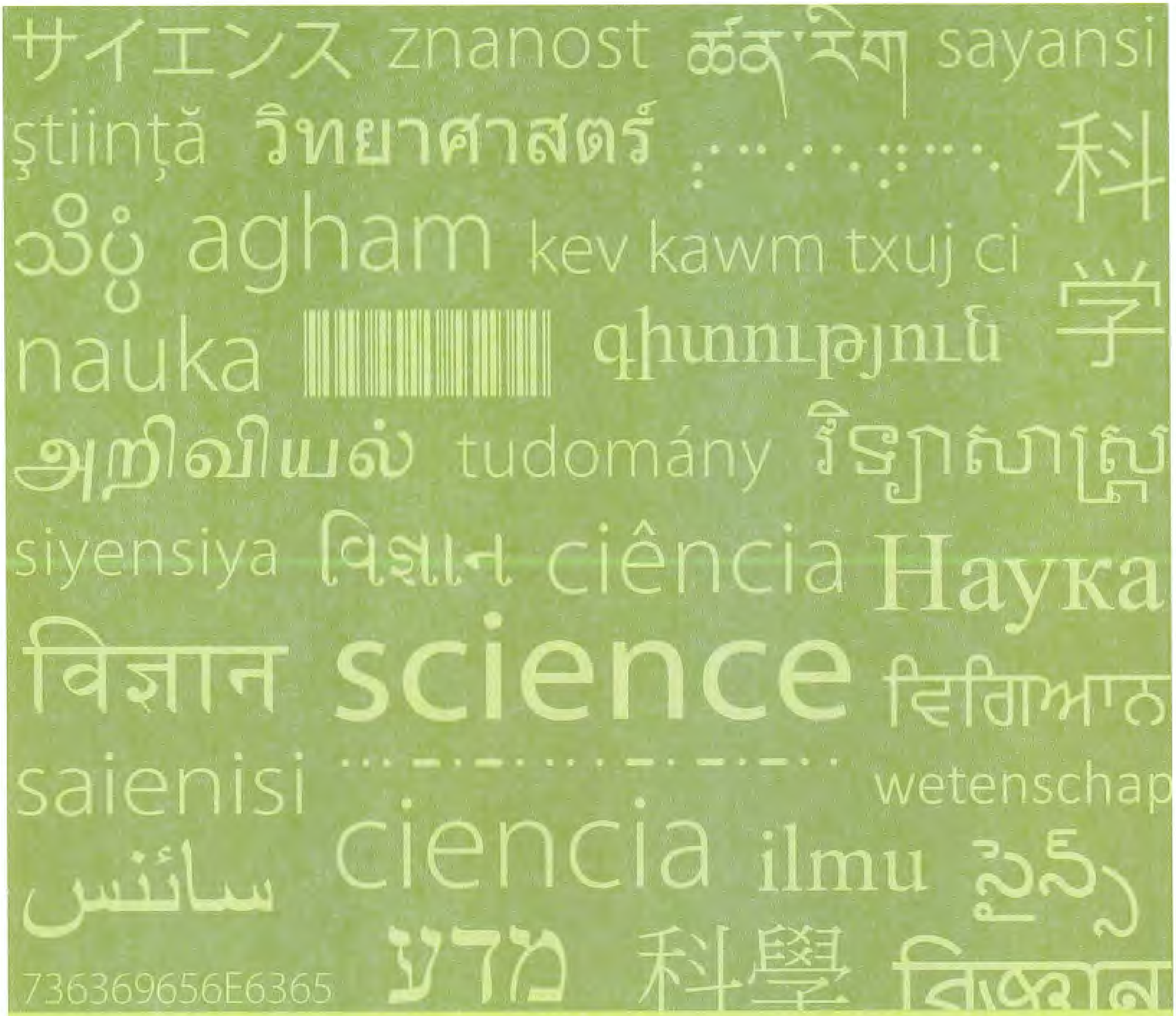
Entity	Name/s	Signature/s	Date
Science Manager	Caleb Cheung		2/5/2016
Department Head	David Chambliss		2/5/2016

Grant Office Obtained Approval Signatures:

Entity	Name/s	Signature/s	Date
Fiscal Officer	Vernon Hal		
Superintendent	Antwan Wilson		

James Harris
President, Board of Education

Antwan Wilson
Secretary, Board of Education



Implementing NGSS

In the Oakland Unified School District

A Grant Application to the
S. D. Bechtel, Jr. Foundation

2016-17

The Oakland Unified School District is extremely grateful for
the opportunity to partner with the S. D. Bechtel, Jr. Foundation
to implement NGSS in Oakland and beyond.

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SCHOOL DISTRICT
Community Schools, Thriving Students

January 15, 2016

Susan Harvey, Program Director
S.D. Bechtel, Jr. Foundation
P.O. Box 193809
San Francisco, CA 94119-3809

Dear Ms. Harvey,

Oakland Unified School District (OUSD) is grateful for the S.D. Bechtel, Jr. Foundation's continued commitment to high quality science education for all students. We thank you for your ongoing support and funding the implementation of the Next Generation Science Standards (NGSS) in Oakland, which has impacted tens of thousands of students and teachers.

Our mission is to build a Full Service Community District focused on high academic achievement while serving the whole child, eliminating inequity, and providing each child with excellent teachers, every day. A strong, high quality science program is an integral part of realizing this mission. In addition, our vision is that all OUSD students will find joy in their academic experience while graduating with the skills to ensure they are caring, competent, fully-informed, critical thinkers who are prepared for college, career, and community success. Science is subject that provides daily experiences to make this vision a reality.

The goal of this grant proposal, *Implementing NGSS in the Oakland Unified School District*, is to actualize NGSS throughout the district. Students will continue to develop science practices and acquire an even deeper understanding of the performance expectations. Teachers will increase their science content knowledge and use more curriculum tools to inform their professional practices. Principals and teacher leaders will create the culture, conditions, and competencies necessary at each school site for all students to succeed. And district leaders will provide quality professional learning opportunities and accountability systems to support the full implementation of the new standards.

We are requesting $450,000 for the 2016-17 school year to continue creating tools and experiences to fully implement NGSS in Oakland as outlined in this proposal. This funding will allow us to complete the development and implementation of a number of key NGSS projects. These include completing our NGSS aligned middle school curriculum, the new K-2 elementary Science Instructional Reflection and Assessment (SIRA), NGSS professional development, and our comprehensive Teacher Leadership Program. We are committed to staffing levels needed so that each of the components in the proposal can be completed and implemented in grades K-8 at all schools.

Additionally, District leadership, partners, and other grants will support multiple summer institutes and yearlong professional learning opportunities for teachers and teacher leaders. We will also continue supporting our principals' professional learning and increase site leaders' capacity to design, plan, implement, monitor, and evaluate their science programs.

We will also continue to share our work with other districts and partner organizations. To date, over 40 districts have benefited directly from our work. This process in turn has provided important feedback that further strengthens OUSD implementation and allowed us to contribute toward the state wide conversation related to NGSS.

Our Science Department has been a shining star in OUSD for a decade and I am confident in the department's ability to continue down the path of excellence. Thank you for your unwavering support of our work and we look forward to building a district where every student thrives!

Sincerely,

Antwan Wilson
Superintendent

Dr. Devin Dillon
Chief Academic Officer

Executive Summary

Oakland Unified School District (OUSD) serves the children, youth, and families of the City of Oakland, California. Founded in 1865, OUSD operates 86 regular public schools that serve over 37,000 students. Students of color comprise 86% of the student population with 38% Latinos and 30% African Americans. 71% of OUSD students are eligible for free and reduced lunch, and approximately 25% of students live in public housing. Nearly one third of the students are English Language Learners, 76% of whom are native Spanish speakers. Our mission is to build a Full Service Community District focused on high academic achievement while serving the whole child, eliminating inequity, and providing each child with excellent teachers, every day.

Over the past ten years, OUSD has nurtured a districtwide science program to prepare students for their future. The elementary program includes a science board policy with a minimum number of required science instructional minutes, a system for providing FOSS curriculum materials to every classroom three times a year, districtwide assessments, a wide range of professional learning opportunities for teachers, support for teacher leadership at every school, a professional learning series for principals, Science Focus Schools that are focused on deep science implementation, and award-winning citywide science events. A similar set of work is also taking place at the middle and high school levels. This work is supported by a dedicated central district office that includes the Superintendent, the Chief Academic Officer, and Network Superintendents who share the commitment of the Science Department.

Thanks to the support of the S. D. Bechtel, Jr. Foundation and many other partners and funders, Oakland has emerged as one of the top district Science Departments in California. Oakland is also leading the implementation of the Next Generation Science Standards (NGSS) in the state. Tools are being actively developed, and teachers and principals are engaged to utilize the standards to transform science learning in every classroom. Impact has also extended beyond Oakland through presentations at conferences and other events. The OUSD NGSS Symposium in November 2015 attracted close to 200 district leaders from 37 districts, 5 county offices of education, and 6 partner organizations.

The overall objective of this grant is to create a framework for NGSS implementation in Oakland that emphasizes equity and leadership development which can be used across the state. The overall work in 2016-17 will continue three goals from the previous year:

Goal 1 - Develop and complete instructional tools, curriculum, and resources for all K-8 teachers and classrooms aligned to the NGSS.

Goal 2 - Foster teacher expertise in content, skills, and practices along a continuum aligned to the NGSS.

EXECUTIVE SUMMARY

Goal 3 - Continue to build science instructional leadership for teacher leaders, principals, and district administration.

The three goals are embedded in seven major areas of work outlined in this proposal:

1. Curriculum & Assessment
2. Teacher Professional Learning
3. Teacher Leadership
4. Principal Leadership
5. Family & Community Outreach
6. External Collaborations
7. Impact beyond Oakland

Many of the tools and resources developed will also be disseminated at the local, state, and national level through presentations at conferences, hosting local district teams, leadership in state level NGSS activities, and hosting resources on the department's website.

We seek funding from the S.D. Bechtel, Jr. Foundation for a grant in the amount of $450,000 to support the OUSD Science Department's implementation of NGSS in grades K-8 during the 2016-17 school year. The funding directly supports 900 elementary teachers at 54 schools and 70 middle school teachers at 16 schools; and in turn, serve over 27,000 students.

PROJECT DESCRIPTION

Project Description

Oakland Unified School District (OUSD) serves the children, youth, and families of the City of Oakland, California. Founded in 1865, OUSD operates 86 regular public schools that serve over 37,000 students. Students of color comprise 86% of the student population with 38% Latinos and 30% African Americans. 71% of OUSD students are eligible for free and reduced lunch, and approximately 25% of students live in public housing. Nearly one third of the students are English Language Learners, 76% of whom are native Spanish speakers. Our mission is to build a Full Service Community District focused on high academic achievement while serving the whole child, eliminating inequity, and providing each child with excellent teachers, every day.

Over the past nine years, OUSD has nurtured a districtwide science program to better prepare students for college and a career. What started as a science materials resource center has evolved into a districtwide system of support and innovation for science education. Thanks to the on-going support from the S. D. Bechtel, Jr. Foundation and many other partners and funders, Oakland has emerged as one of the top district Science Departments in California.

The elementary program includes a science board policy with a minimum number of required science instructional minutes, a system for providing FOSS curriculum materials to every classroom three times a year, districtwide assessments, a wide range of professional learning opportunities for teachers, support for teacher leadership at every school, a professional learning series for principals, and award-winning citywide science events. A similar set of work is also taking place at the middle and high school levels. This work is supported by a dedicated central district office that includes the Superintendent, the Chief Academic Officer, and Network Superintendents who share the commitment of the Science Department.

With the introduction of the Next Generation Science Standards (NGSS) in California, Oakland is leading the charge and addressing the implementation challenges. For the past three years, the Science Department has actively prepared teachers and principals to engage and utilize the standards to transform science learning in every classroom. Preparation began with a focus on science and engineering practices in many of our professional learning settings. Over time, this has led to the development of elementary SIRA curriculum guides and the new NGSS aligned middle school curriculum. Oakland is one of the first districts in California to begin fully implementing the standards.

This proposal will build upon the work in prior years that focuses on supporting and building the tools and resources for implementing the new standards at all grade levels. It will follow the implementation plan developed with the support of the WestEd NGSS Early Implementation Initiative. See Appendix A and B for details. Note that these plans are currently being revised

PROJECT DESCRIPTION

On a broader scale, the theory of action for improving student achievement in science centers on five key areas: central district leaders, school site leadership, teachers, the classroom, and students. It is our belief that if central leadership provides quality professional learning, appropriate resources, and accountability that supports the implementation of innovative practices in science, and if site leadership shares that responsibility and creates the culture, conditions, and competencies necessary at each school site, then teachers will develop science knowledge for teaching and use the inquiry cycle to shift their professional practices, and implement those practices in the instructional core in every classroom for every student; and in turn, students will shift their practices, resulting in increased achievement. A detailed description of this Theory of Action is provided in the following table.

PROJECT DESCRIPTION

OUSD Theory of Action for Improving Student Achievement in Science				
Central Leaders	Site Leaders	Teachers	Classrooms	Students
If **Central Leadership** provides quality professional learning, appropriate resources, and accountability that supports the implementation of innovative practices in science,	And if **Site Leadership**[1] shares that responsibility and creates the culture, conditions, and competencies necessary at each school site,	Then **Teachers** will develop science knowledge for teaching and use the Inquiry Cycle to shift their professional practices,	And they will implement those practices in the Instructional Core of every **Classroom** for every student,	And in turn, **Students** will also shift their practices resulting in increased achievement.
• Develop and manage a vision with clear goals • Promote professional capital • Nurture the academic demand of the content and curriculum, and understand grade level expectations • Employs evidence-informed decision making • Allocate resources strategically • Model the collaborative practices envisioned for sites and students	• Develop and manage a vision with clear goals • Develop and build high functioning teams within schools • Create a culture of observation and feedback, implement an evaluation cycle, use effective coaching strategies, and engage courageous conversations in service of student achievement • Build strong curriculum and content, understand grade level expectations, use data for instructional decisions • Gather, compile, use, and communicate evidence and data competently as a lever for change	• Understand deeply the science they are teaching • Reflect constantly on their practice • Build their human capital through social capital • Use the Inquiry Cycle and formative assessment evidence in collaboration with each other to plan and adjust instruction • Keep parents and other partners informed and engaged • Work with school leaders to support change efforts • Connect everything back to their students	Instruction • Provide students with common engaging and relevant sciences experiences • Focus on deeper understanding through academic discussions, writing, and reading • Use sound pedagogical strategies (e.g., hands-on, science talk, and scaffolds) • Connect science and literacy to accelerate language learning for ELs. • Teach, model, and reinforce socio-emotional competencies • Hold students accountable for explaining their reasoning Curriculum • Focus on the 3 dimensions of NGSS • Create new units or adapt current units aligned to NGSS Assessment • Use formative assessment strategies • Analyze student work and engage around key science concepts	• Communicate their reasoning effectively through academic discussions, revised explanations, and viable arguments • Perform well on performance tasks and other assessments that require explanation and reasoning • Build a positive science identity and be metacognitive about their learning with a growth mindset

[1] Principals, Assistant Principals, Site-based Teacher Leaders and Coaches

The overall objective of this grant is to create a framework for NGSS implementation in Oakland that emphasizes equity and leadership development which can be used across the state. The overall work in 2016-17 will continue three goals from the previous year:

Goal 1 - Develop and complete instructional tools, curriculum, and resources for all K-8 teachers and classrooms aligned to the NGSS.

Goal 2 - Foster teacher expertise in content, skills and practices along a continuum aligned to the NGSS.

Goal 3 - Continue to build science instructional leadership for teacher leaders, principals, and district administration.

PROJECT DESCRIPTION

The three goals are embedded in seven major areas of work, which are further outlined in this proposal and include the following:

1. Curriculum & Assessment
2. Teacher Professional Learning
3. Teacher Leadership
4. Principal Leadership
5. Family & Community Outreach
6. External Collaborations
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Many of the tools and resources developed will also be disseminated at the local, state, and national level through presentations at conferences, hosting local district teams, leadership in state level NGSS activities, and hosting resources on the department's website.

We seek funding from the S.D. Bechtel, Jr. Foundation for a grant in the amount of $450,000 to support the OUSD Science Department's implementation of NGSS in grades K-8 during the 2016-17 school year. The funding directly supports 900 elementary teachers at 54 schools and 70 middle school teachers at 16 schools; and in turn, serve over 27,000 students.

PROJECT DESCRIPTION

CURRICULUM & ASSESSMENT

Curriculum and assessment is the foundational focus of the Science Department. Access to these materials are the underpinning of an equitable system for science education. Given the recent adoptions of both the Common Core State Standards (CCSS) and NGSS, new tools and structures must be implemented to provide strong and accessible resources to support teachers during this time of transition. The subsections below summarize prior achievements and outline existing and new goals for improvement in the elementary and middle grades over the 2016-17 school year.

Elementary

FOSS Curriculum

The FOSS curriculum serves as the District's foundation for elementary science teaching. Since its adoption in 2007, a system for maintenance, delivery, rotation, and refurbishment has been supported by the district and partially funded by the S. D. Bechtel Jr. Foundation. The District is committed to funding the future implementation costs of the FOSS curriculum. While NGSS covers a different sequence of standards than the current FOSS kits, OUSD will continue to use the curriculum for two more years until the CDE provides new guidelines for curriculum adoption. In the meantime, the projects below will help bridge the current FOSS curriculum with NGSS.

Science Instructional Minutes

OUSD will continue to mandate the minimum instructional minutes in the Board Policy passed in May 2010. This includes 60 minutes (K-2) and 90 minutes (3-5) per week. These expectations are now a part of each schools master schedule and a component of school plans completed every spring. Many schools are exceeding these minimal minutes in order to more fully teach the FOSS curriculum and cover the standards. Having explicit time for science instruction is even more important with the transition to NGSS.

Science Instructional Reflection and Assessment (SIRA) - Bechtel Grant Funded

The SIRA is an instructional resource that helps focus and deepen the teaching of the FOSS science modules. It is anchored by clear learning goals, encourages frequent formative assessment, and leads to a single summative assessment for each FOSS modules. The SIRA begins with a conceptual framework that tightly outlines the most important concepts, science practices, and crosscutting concepts that are addressed in a particular FOSS module. A lesson-by-lesson instructional roadmap outlines connected focus questions, key concepts, and learning objectives. Suggestions for assessing each objective through writing or discussion prompts are offered, including optional scaffolds and expected student responses. The instructional plan culminates in a written assessment which is designed from a pool of existing FOSS assessment items as well as ones that are developed internally. The assessment covers core disciplinary ideas as well as crosscutting concepts and practices from NGSS with a focus on higher-order thinking skills and evidence-based reasoning as emphasized in the Common Core State Standards.

During 2013-16, nine SIRAs were created for the grades 3-5 FOSS kits. Development was completed by the Elementary Science Team with input from teacher leaders and BaySci. Piloting was completed by volunteers and teachers in the Science Focus Schools. During the 2015-16 school year, 3rd and 4th grade SIRAs were implemented districtwide. Survey and anecdotal data indicate that the SIRA has been very well received by teachers. Additional SIRAs for 5th grade will be piloted and finalized during the 2015-16 school year and implemented districtwide in 16-17.

Additionally, K-2 grade SIRA Elements will be developed over the summer of 2016 with teams of teacher leaders. The term "Elements" refer to a scaled down version of the guides and the support for K-1 will be provided at a different level for curriculum transition to NGSS. All SIRA resources will eventually be made available on our website for other districts.

Middle School

NGSS Curriculum Project - Bechtel Grant Funded

OUSD is implementing the CDE approved, integrated NGSS sequence for middle school. The previous California Science Standards separated earth, life, and physical science content standards into grades six, seven, and eight, respectively. NGSS integrates all three science content areas in each of the three grades. This presents a few challenges for implementation as no curriculum currently exists that represents these new standards. It is very difficult for teachers to modify or develop curriculum that truly integrates these traditionally separate science disciplines. Also, most science teachers only have a background in biology, chemistry, physics, or earth science. With the integrated approach, teachers will need content knowledge in all of these disciplines to be successful. To address these challenges, the Science Department is continuing to write and pilot a new NGSS curriculum for all three grades.

The curriculum development process started in the summer of 2014 with small teams of experienced teachers and the Middle School Specialists. Although the curriculum is still technically in the piloting phase for the 15-16 school year, it is being implemented in 75% of our middle school classrooms. Development will continue in the summer of 2016 with teams of teacher leaders. A final version of the curriculum will be finalized and completed during the 2016-17 school year.

The curriculum is composed of approximately 6 units per grade level. Each unit follows an interdisciplinary essential question. Within each unit, a summative assessment experience and approximately 5 formative learning tasks are designed to be relevant to the students, aligned to the three dimensions of NGSS, and incorporate literacy development. Additional attention is given to social-emotional development, aspects of classroom culture, and inquiry skills. Background science content for teachers will be in incorporated into the curriculum and addressed during the various professional development opportunities when the curriculum is presented (summer institute, monthly PD, Buy Back Day).

PROJECT DESCRIPTION

All curriculum and print materials are formatted and made available electronically on the Science Department website. While every attempt will be made to design high quality investigations that require inexpensive and readily available materials, some essential equipment and materials will be purchased, organized, and centrally distributed. Funding for materials is crucial especially for high need school sites.

PROJECT DESCRIPTION

TEACHER PROFESSIONAL LEARNING

Professional learning (PL) not only provides opportunity for teachers to develop their teaching skills, but also establishes communities that are focused on improving their work together. Teachers in Oakland vary tremendously in terms of years of experience. Many are isolated at school sites and have few if any colleagues who teach the same grade or course. The professional culture and resources available at schools also differ significantly. These variables create barriers to equitable implementation of NGSS.

The table below represents the various PL opportunities provided to different groups of teachers. Some learning opportunities are provided to all teachers while others are more intensive or offer specialized experiences based on differentiated needs.

Participants	Elementary	Middle School
All Teachers	• Elementary Site Based PL (5-9 hours)	• Secondary Districtwide Science PL (15 hours) • Buy Back Day PL Sessions (2 days)
Some/Most Teachers	• Buy Back Day PL Sessions (2 days)	• Middle School NGSS Summer Institute (5 days)
Selected Teachers	• Science Resource Teacher Work Group (20 hours, described under Teacher Leadership) • NGSS Practice Progression Project (20 hours) • Environmental Science NGSS Connections (20 hours)	
Optional	• Science Fair and Family Science Workshops (2 hours each)	

Elementary Site Based Professional Learning

In 2016-17, the district Science Department will continue to offer each elementary school at least three science professional learning sessions for their entire staff. This goal builds on similar expectations from the past four years. Most sessions take place during staff professional development times on Wednesday afternoons for 90 minutes each.

The expectation is that the Lead Science Teacher will be primarily leading these sessions using a package of materials developed by the Elementary Science Team. Elementary Specialists are available to lead/co-lead at least one session per site or offer planning support. The sessions will be based on the needs of the school based on their Instructional Leadership Team's input and walk-throughs by principals. Other teacher leaders from current or past science projects will also be encouraged to assist.

Most sessions weave in the practices from NGSS and components of CCSS, which creates a more coherent transition to all the new standards. Explicit connections will be made between science instruction and access to CCSS-ELA. Currently, twenty-seven sessions have been developed with

supporting materials, covering various topics such as science notebooking, literacy in science, science fair and inquiry, and assessment. See Appendix C for detailed descriptions of each session.

Secondary Districtwide Science Professional Learning

For the past four years, OUSD has scheduled districtwide, monthly professional learning time for secondary science and other content areas. Taking place on shortened Wednesdays, they allow most teachers to participate during their contractual hours for 1.5 hours in the afternoon, with an additional paid extended session (1 hours) on most days.

This series builds upon the presentations in previous 4 years. In 2015-16, the content of these sessions include the OUSD NGSS curriculum, NGSS three dimensional learning, and protocols and tools for implementing the standards. There continues to be a high rate of attendance due to interest in the new standards and curriculum. We expect the level of interest and commitment from teachers and administrators to continue next year.

Buy Back Day Professional Learning Sessions

Buy Back Days (BBD) take place three times a year as a part of every teachers' work calendar. Historically, these days have been at the discretion of school sites, but in the last four years, the district has provided centralized PL events based on content areas. With the increase need to support CCSS and NGSS, almost all schools now attend the centralized Buy Back Day PL events. In 2016-17, the Science Department will provide professional learning during the October and January Buy Back Days for all middle school teachers. Elementary schools will also have the opportunity to participate in a K-5 session, but attendance is based on their school's priorities.

Much of the content will be based on the SIRA and middles school NGSS curriculum, and build from the site-based or districtwide PD sessions.

Middle School NGSS Summer Institute - Bechtel Grant Funded

This five-day institute during August 2015 will focus on NGSS instruction and the implementation of the newly revised OUSD NGSS Curriculum. Morning workshops will address general pedagogical topics related to NGSS and the new curriculum, including:

- Equitable science pedagogy, especially for newcomers and other student subgroups identified by the district
- Academic literacy, focusing on the intersection between the NGSS and CCSS and disciplinary literacy skills
- Cross cutting concepts as a lens for viewing science
- Science and engineering practices interconnections mimicking real world science
- Formative and summative performance assessment
- Establishing a classroom culture for inquiry

During the afternoon sessions, participants will explore grade-level specific curriculum. They will provide feedback on current units and backwards design lessons to complement the existing learning task. An essential goal of the institute will be to develop communities of teachers who will work with one another across sites during the year to further improve the materials and share resources.

Elementary Science Resource Teacher Work Group - Bechtel Grant Funded

The goal of the Science Resource Teacher Work Group is to support the ~20 science prep teachers, STIP subs, and Site-Based Specialists who are responsible for teaching or supporting science instruction at their school. For 2016-17, the support will include:

- Two full days of professional development in the first two weeks of school: one full day on classroom organization, management, and logistics; one full day on long-term planning. Note: elementary preps start the 3rd week of school, so teachers would not have to secure a sub.
- Two additional days of full-day release at the start of the second and third trimesters for planning instruction for the new FOSS units.
- Monthly meetings focused on managing multiple classes of students, making connections with other classroom teachers for extending science instruction, and leadership moves. Participants will also share successes and challenges through consultancies. Meetings rotate between different teachers' classrooms in order to share classroom organization and management strategies.

NGSS Practice Progression Project - Bechtel Grant Funded

The NGSS Practice Progression Project will focus on deepening our understanding of the NGSS Science and Engineering Practices (SEP). The goal is to create tools and a map of the practices as they develop over grades K-8. A group of 15 K-8 teacher leaders will convene monthly to review and develop grade span expectations. The work will include review of student work and current research. The goal is to produce conceptual flows for focal SEPs that can be used for curriculum development and teacher PL. Findings and tools will be presented to teachers internal to the district and in other public forums, such as CSTA/NSTA conferences.

Environmental Science NGSS Connections - Bechtel Grant Funded

Environmental Science NGSS Connections will work with a team of 12 teachers to develop a set of environmental science lessons and accompanying reference tools that are linked to the FOSS units and NGSS. The lessons can be carried out in typical Oakland school garden settings with minimum additional materials and preparation. These lessons will serve as an introduction to garden and environment based science and as the basis for a complete outdoor "NGSS Garden Guidebook" for targeted FOSS modules and grade levels.

The Connections project will also provide school assistance with developing/preparing the infrastructure of the school garden, getting needed supplies and materials, planning & facilitating logistics related to gardening or outdoor instruction, and helping teachers decide on a lesson sequence to use appropriate to grade, instructional goals, and time of year.

Science Fair and Family Science Workshops

The Science Department will continue to offer workshops for K-8 teacher leaders and coordinators to help implement science fairs and family science events at school sites. The workshops will also connect to the new Engineering Extravaganza Family Science Night program. It will be made available to all elementary schools in 2016-16. Additional details are in the subsequent Family & Community Outreach section.

TEACHER LEADERSHIP

Teacher Leadership has played an important role in the work of the Science Department over the last nine years. Initially, elementary teacher leaders (Lead Science Teachers) started as an operational role eight years ago for the purpose of FOSS curriculum implementation. The middle school teacher leaders served as mentors in the TeamScience program and presented professional learning sessions at district events.

In the last five years, the roles have evolved into a stronger leadership role that includes working with teachers, managing science resources, planning with principals, and leading on-site professional learning. Teacher Leaders are appointed by Principals and regularly meet with them to establish school priorities and practices. They are also expected to serve on the school's Instructional Leadership Team.

In 2014, OUSD became a part of the WestEd NGSS Early Implementation Initiative. Some of the teacher leadership activities are now merged with the Initiative's events. Further details about the Initiative are in the External Collaborations section. Specific teacher leadership activities are described in detail below.

Summer Leadership Institute

The OUSD annual Summer Leadership Institute will merge with the WestEd NGSS Initiative's Teacher Leader Institute. The combined five-day session will bring together science teacher leaders from each K-8 school in July 2016 to focus on NGSS content, leadership development, facilitation skills, and planning for school site science professional learning.

Monthly Teacher Leader Collaborative

Monthly Teacher Leader Collaborative meetings take place during the school year and build on the themes of the Summer Leadership Institute. The goal is to establish communities of leaders for collaboration and learning for NGSS implementation. Over the course of the year, a total of 20 hours will provide follow up training, planning, and collaboration time.

For Elementary Teacher Leaders (Lead Science Teachers), there will be an emphasis on greater leadership responsibilities as members of their schools' Instructional Leadership Team (ILT) and leading schoolwide professional learning sessions. Materials and training for the different sessions will be provided during the monthly meetings.

Middle School Teacher Leaders have a slightly different role as they lead the science department at their school, have stronger science expertise, and work more closely with a smaller group of science teachers. They also have more regular opportunities to share leadership with their science colleagues. Therefore, the focus of their leadership development centers on a deeper understanding of NGSS instruction, distributive leadership skills, and facilitating collaborative teacher inquiry sessions.

The monthly meetings will be highly interactive and provide opportunities for problem-solving in Critical Friends groups. These sessions also provide ongoing feedback about districtwide needs that inform district level PL and resource development.

Lesson Study

As a part of the WestEd NGSS Initiative, all Teacher Leaders will continue to participate in two two-day cycles of lesson study each school year. Leaders will work in small groups to co-design and co-deliver a lesson. They then debrief the design based on student learning. The goal is to provide a deeper experience with NGSS lessons in the classroom. In Oakland, this will be in the context of SIRA and the Middle School NGSS Curriculum. Substitutes will be funded by the WestEd Initiative.

PROJECT DESCRIPTION

PRINCIPAL LEADERSHIP

Principal Professional Learning

For the past five years, the district Science Department has supported principal professional learning sessions for science education. Principals play a key role in the amount of science taught, especially in elementary schools. With an emphasis on ELA and Mathematics, most elementary schools have significantly reduced or eliminated science instruction over the last fourteen years. The focus on principal leadership has significantly helped to overcome these challenges in Oakland.

For the 2016-17 school year, the district Science Department will continue to work with district leadership to provide science professional learning to elementary and middle school principals. The goal is to help principals to become strong instructional leaders and support their teachers to transition to NGSS. Sessions will be developed in partnership with the Network Superintendents and principals.

Additional learning opportunities will be in the form of individual support meetings with Science Department staff and Science Teacher Leaders, site visits with Network Superintendents and Science Specialists, and classroom observations using protocols and tools developed by the Science Department. The goal is for principals to assess the quality of instruction taking place in their science classrooms and apply the content presented at the principal PL sessions to improve science teaching.

FAMILY & COMMUNITY OUTREACH

Engineering Extravaganza Family Science Night –Bechtel Grant Funded

Over the past few years, science fairs and family science nights at K-8 schools have increased in popularity due to support offered by the Science Department. In 2014-15, 38 schools hosted science fairs and at least 21 schools hosted family science events.

To ease school site development and management of an event, the Science Department developed a pre-packaged, kit-based Engineering Extravaganza Family Science Events in 2014. This easy-to-use event is organized in boxes, containing everything that is needed to setup a local event. Maintained by the Science Department at the SMART Center, schools are able to reserve and borrow the kits to create an instant event. The eleven stations are based on existing FOSS activities. Seventeen schools will be using the kits this year with five additional sites on the waiting list.

An additional set of kits will be created in the summer of 2016 so we can double the capacity of sites using the kits.

K-12 District Science Fair

The K-12 District Science Fair takes place every year in May and has grown to become a large citywide celebration of science at the Chabot Space & Science Center. In 2015, 38 schools submitted 258 projects. The evening celebration has been attended by over 850 teachers, students, and family members and featured activities from 5 partner organizations along with Chabot's exhibits and planetarium shows. The Science Department continues to improve the workshops, documents, and tools to support school sites to plan better site-based events. Much of the resources have evolved over time, supporting teachers to help students create projects that connect to the existing curriculum in their classrooms and NGSS practices.

Dinner with a Scientist – Partially Bechtel Grant Funded

Four award winning Dinner with a Scientist events take place every year around May at the Oakland Zoo. Together, they bring together 700 local scientists, teachers, and students for an evening of food, science conversations, and activities. These events serve to highlight and celebrate the larger work of science in Oakland.

Together the Science Fair and Dinner events further broaden the science experiences of teachers and students, and increase the presence of science across the city of Oakland. They also provide a way for families and the larger scientific community to participate in the science education of students in Oakland.

EXTERNAL COLLABORATIONS

WestEd NGSS Early Implementation Initiative

In 2014, OUSD was one of eight districts selected for the WestEd NGSS Early Implementation Initiative. The Initiative is a four year fast-start demonstration project developed by the K-12 Alliance with close collaborative input from the leadership of the California Department of Education, the State Board of Education, and Achieve to build district leadership capacity to implement NGSS district-wide.

The Initiative supports an Oakland Core Leadership Team comprised of eighteen K-8 teachers, principals, and Science Department staff. The team receives leadership training and professional development in content and pedagogy to meet the shifts required by NGSS. The team is also charged with creating and implementing a districtwide NGSS plan and participate in an NGSS Collaborative Network as a cross-district learning community for sharing best practices and addressing problems of practice. This collaborative will pilot test NGSS tools, processes, and assessment item prototypes for quality implementation. Additional funding supports Teacher Leaders from each school who will engage in professional learning to develop expertise in content and pedagogy, and conduct lesson study sessions.

Participation in the Initiative allows the OUSD Science Department to build and expand on the existing NGSS work. Many of the current projects are directly in line with the expectations for the partner districts. For example, the teacher leader work during the Summer Institute will build on the existing teacher leader model in Oakland. The curriculum work with SIRA and the Middle School Curriculum Project will be informed by the tools at Achieve and sample lessons during the leadership institutes.

The Oakland Core Leadership Team will have multiple opportunities to interact and collaborate with other districts in the Initiative. The hope is that the Leadership Team can share the Oakland experiences, tools, and resource from the past few years with other participating districts, as well as inform the contents of the Initiative. This includes many of the components described previously in this proposal.

BOLTS Initiative: Building Oakland Leadership for the Teaching of Science

BOLTS Initiative: *Building Oakland Leadership for the Teaching of Science* is a California Mathematics and Science Partnership (CaMSP) grant secured in April 2015 from the California Department of Education. The funding dovetails with the WestEd Initiative and provides funding for additional teachers to participate. Additionally, it funds monthly teacher leader meetings, yearend activities, and a full time project director to supervise the overall NGSS Initiative. Partners include the UC Berkeley College of Letters and Science, UC Berkeley Graduate School of Education, WestEd, and the Exploratorium.

IMPACT BEYOND OAKLAND

OUSD Science Website

The OUSD Science website (http://science.ousd.k12.ca.us) will continue to publically host tools and resources related to NGSS implementation. The goal is to share our work with a broader audience of educators as resources are finalized over the course of the year. This includes SIRA, Middle School NGSS Curriculum, and other NGSS resources.

OUSD NGSS Symposium - Bechtel Grant Funded

OUSD will continue to host at least one NGSS Symposium for other district teams to attend and learn more about available tools and resources. This event is in direct response to increased interest from districts around the state who have attend our conference presentations, webinars, or visited our website. The OUSD NGSS Symposium in November 2015 attracted close to 200 district leaders from 37 districts, 5 county offices of education, and 6 partner organizations. The event will have large group and small group breakout sessions by topic or program over a full day event.

CSTA/NSTA Conference Presentation - Bechtel Grant Funded

The entire Science Department plans to attend and present at the California Science Teacher Association's (CSTA) Annual Conference in Sacramento, October 21-23, 2016, and the National Science Teacher Association's (NSTA) National Conference on Los Angeles, March 30–April 2, 2017. Attendance will be the premier opportunity to not only learn from colleague from around the country, but also present the science work in Oakland to a broader audience. Each member of the Science Department will submit at least one conference presentation proposal. For the CSTA conference in October 2015, 18 workshops were presented to over 1700 educators, representing different aspects of our work with an emphasis on NGSS. We hope to have an equal amount of impact in the 2016-17 school year.

State Level NGSS Support

The OUSD Science Department is working with the California Department of Education to support NGSS implementation efforts. Currently, this includes participating in the WestEd NGSS Early Implementation Initiative, presenting at regional NGSS Awareness Symposia events, reviewing the California NGSS Curriculum Framework, and participating in the California NGSS Coalition.

Outcomes, Evaluation, & Sustainability

OUTCOMES

During the 2016-17 school year, we plan to achieve the following outcomes (organized by the major areas of work):

Curriculum & Assessment

- FOSS curriculum distributed and used in all elementary classrooms
- Maintain minimum science instructional minutes in all classrooms
- Science Instructional Reflection and Assessment (SIRA) completed and administered districtwide in grades 3-5th
- SIRA Elements completed for grades K-2 and piloted districtwide. Full implementation will take place in 2017-18.
- Middle School NGSS Curriculum completed and implemented districtwide

Teacher Professional Learning

- 80% of elementary school sites complete at least three Site-Based Professional Learning sessions
- 80% of middle school science teachers attend each monthly Districtwide Science Professional Learning session
- 56 (80%) of middle school science teachers attend each Buy Back Day PL Sessions
- 50 teachers participate in the Middle School Summer Institute
- NGSS Practice Progression Project completed and resources made available publically
- Environmental Science NGSS Connections completed and resources made available publically

Teacher Leadership

- Teacher leaders are selected by principals at every elementary and middle school
- At least 80% of K-8 school sites participate in the Summer Leadership Institute
- At least 85% of K-8 school sites participate at each Monthly Teacher Leader Collaborative
- At least 80% of K-8 school sites participate in Lesson Study

Principal Leadership

- 95% of K-8 principals participate in each Principal Professional Learning Sessions

Family & Community Outreach

- 70% of K-8 schools organize site based Science Fairs and participate in the District Science Fair
- 60% of K-5 schools organize Family Science Nights
- 95% of K-8 schools participate in the Dinner with a Scientist events

OUTCOMES, EVALUATION, & SUSTAINABILITY

Impact Beyond Oakland

- Science Department website updated with NGSS resources and tools
- 100% of the District Science Department submits presentation proposals and attend the CSTA and NSTA Conferences
- Oakland Science Partners Meetings and OUSD NGSS Symposium successfully executed with at least 50 and 150 participants.

OUTCOMES, EVALUATION, & SUSTAINABILITY

EVALUATION

We will use the following methods to evaluate our work:

Curriculum & Assessment

- SIRA – survey of teacher use, participation, and feedback
- Middle School NGSS Curriculum – feedback from teachers

Teacher Professional Learning

- Attendance numbers and evaluations
- Annual districtwide teacher survey covering quantity and quality of science instruction as it aligns to NGSS, and use of various pedagogical practices

Teacher & Principal Leadership

- Meeting attendance and evaluations at Summer Institute and Monthly Collaborative Meetings
- Number of professional learning sessions presented by LSTs at each site
- Teacher Leader reflections and self-evaluations
- Principal reflection, planning, and self-assessment documents

Family & Community Outreach

- Number of school site science fairs and family science events
- Feedback on the Engineering Extravaganza Family Science Night kit
- Number of participants at the district Science Fair and Dinner with a Scientist events
- Feedback from teachers from attending workshops and participating in the events

External Collaborations & Impact Beyond Oakland

- Participation numbers and feedback from all conference workshops and events
- Number of visits and materials downloaded from the website
- Number of inquiries from other districts for materials or presentations

Staffing

- Achievement of work plan objectives
- Specialist narratives including progress at sites, summary of observation data, and pilot implementation data, process, numbers

OUTCOMES, EVALUATION, & SUSTAINABILITY

SUSTAINABILITY

With the support of the District, partner organizations, and the S. D. Bechtel, Jr. Foundation, the OUSD Science Department has been incrementally growing and improving science education for more than nine years. Through strategic planning, sustainability has been a key consideration throughout the work and focused on NGSS capacity building and learning opportunities for principals and teacher leaders at individual school sites. We have also designed tools such as videos and assessments that have high initial investment, but can be sustained with less staff after full implementation. In 2016-2017, we will be able to realize and finalize some of our most recent projects. Once finalized, we believe that the tools and resources themselves will provide ongoing support for many years without the need for a significant amount of revision or additional development.

Additionally, participation in the WestEd NGSS Early Implementation Initiative will allow us to support Teacher Leadership, Lesson Study, and a district level science leadership team for two additional years. These opportunities will not only nurture and monitor the overall vision and direction of science in the district, but also offer on-going feedback on the various projects described in this proposal.

The staffing funded in this proposal is especially important as it increases our capacity in the 2016-17 school year to complete the middle school projects and provide overall administrative support for the team. Once the middle school curriculum is completed, the second middle school specialist will not be as crucial to on-going support. The administrative support will also be reduced after grant cycle as the reporting requirements and assistance needed for this and other grant funded work will begin to wind down.

Staffing & Project Budget

STAFFING

The Science Department functions under the Teaching and Learning Division in OUSD. A core group of Science Specialists (three elementary and one middle school specialists) work on district level projects and support a limited number of teachers at school sites based on the work described in this proposal. Two Science Coordinators supervise the specialists and manage the daily operations within each of their teams. In turn, all Science Department staff report to the Science Manager.

In the past, the S. D. Bechtel, Jr. Foundation has generously supported many of the Specialist and Coordinator positions. In 2016-17, funding for almost all of these positions will be sustained internally by OUSD. A similar team of Specialists will be funded for Teaching and Learning's Mathematics and English Language Arts Departments. One of the goals is to have a specialist from each of these three core subject areas provide support for each of the Regional Networks (three elementary, one middle school).

Note that the Science Department Specialists are different from the Site-Based Specialist positions that will be placed in schools. These fulltime Specialists will focus on mathematics, English language arts, or science, based on the priorities of the school. They support and coach individual teachers as well as provide professional development to staff within their content area.

For 2016-17, we are requesting funding for an additional middle school specialist and a part time office manager to support the work described in this proposal.

The complete list of K-8 Science Department staff are listed below.

- Elementary Team
  - Elementary Coordinator, Laura Prival
  - 3 Elementary Specialists
  - SMART Center Clerk
- Middle School Team
  - Secondary Coordinator, Thom Reinhardt
  - 2 Middle School Specialists
- Science Manager, Caleb Cheung
- Office Manager

OUSD intends to commit to fund all staffing positions with the exception of the second Middle School Science Specialists and Office Manager. Note that the final OUSD budget for 2016-17 has not been finalized and adjustments may be made.

STAFFING & PROJECT BUDGET

PROJECT BUDGET

For the 2016-17 school year, June 13, 2016 – June 16, 2017, the OUSD Science Department is requesting a total of $450,000 from the S. D. Bechtel, Jr. Foundation. While the funding is limited to the following items, they contribute to the overall work of creating a model for NGSS implementation in Oakland that can be shared across the state.

- Middle School Summer NGSS Institutes
- SIRA Elements Development and Pilot
- Middle School Curriculum Development Team
- NGSS Practice Progression Project
- Science Resource Teacher Work Group
- Environmental Science NGSS Connections
- Engineering Extravaganza Family Science Night
- OUSD NGSS Symposium
- Dinner with a Scientist
- CSTA & NSTA Conference Presentation
- One Middle School Science Specialist
- 0.5 Office Manager

Additional funding for the programs outlined in this proposal include commitments from OUSD, WestEd NGSS Early Implementation Initiative, and grant funding from the California Math Science Partnership grant (CaMSP) from the California Department of Education. The full budget is listed on the following pages.

Note that the listed budget includes an additional $5,069 in carry over from the 2014-15 grant cycle.

STAFFING & PROJECT BUDGET

Funding Area	Days	Ppl	Rate	Hrs	Total	OUSD	Bechtel	WestEd Initiative/ CaMSP Grant
MS Summer NGSS Institute (5 days)								
Participant Stipends ($150/day, 18% benefits)	5	50	$ 185		$ 46,250		$ 46,250	
Teacher Presenters	5	2	$ 35	6	$ 2,100		$ 2,100	
Materials		50	$ 100		$ 5,000		$ 5,000	
Food	5	55	$ 13		$ 3,575		$ 3,575	
Subtotal					*$ 56,925*	$ -	*$ 56,925*	$ -
ES SIRA K-2 Development and Pilot								
Participant Stipends ($150/day, 18% benefits)	20	12	$ 185		$ 44,400		$ 44,400	
Materials		12	$ 100		$ 1,200		$ 1,200	
Food	20	12	$ 5		$ 1,200		$ 1,200	
School Year Meetings	5	12	$ 35	2	$ 4,200		$ 4,200	
Subtotal					*$ 51,000*	$ -	*$ 51,000*	$ -
MS Curriculum Development Team								
Participant Stipends ($150/day, 18% benefits)	8	15	$ 185		$ 22,200		$ 22,200	
Materials		15	$ 100		$ 1,500		$ 1,500	
Food	8	15	$ 10		$ 1,200		$ 1,200	
School Year Meetings	5	20	$ 35	4	$ 14,000		$ 14,000	
Materials for Classrooms		70	$ 500		$ 35,000		$ 35,000	
Subtotal					*$ 73,900*	$ -	*$ 73,900*	$ -
Other Professional Development								
Principal PD Hours		70	$ 50	5	$ 17,500	$ 17,500		
Middle School Monthly Wed PD Teacher Hours	10	70	$ 25	1.5	$ 26,250	$ 26,250		
Middle School Buy Back Day Teacher Hours	2	70	$ 25	6	$ 21,000	$ 21,000		
Elementary Buy Back Day Teacher Hours	2	100	$ 25	6	$ 30,000	$ 30,000		
Elementary Site-Based PD Teacher Hours	54	17	$ 25	5	$ 114,750	$ 114,750		
NGSS Practice Progression Project K-8	5	15	$ 35	4	$ 10,500		$ 10,500	
Science Resource Teacher Work Group	10	20	$ 35	2	$ 14,000		$ 14,000	
Environmental Science NGSS Connections	5	12	$ 35	4	$ 8,400		$ 8,400	
Engineering Extravaganza Family Science Night					$ 5,000	$ 5,000		
Family Science and Science Fair Workshops	2	40	$ 35	2	$ 2,800	$ 2,800		
Subtotal					*$ 250,200*	*$ 217,300*	*$ 32,900*	$ -
ES & MS Teacher Leadership								
Teacher Leader Stipends (includes 18% benefits) includes Summer Institute		70	$ 2,000		$ 140,000			$ 140,000
Monthly Meetings	10	70	$ 35	2	$ 24,500			$ 24,500
Substitutes for Lesson Study Sessions	4	70	$ 150		$ 42,000			$ 42,000
Teacher Leader Materials		70	$ 50		$ 3,500	$ 3,500		
Subtotal					*$ 210,000*	*$ 3,500*	$ -	*$ 206,500*
FOSS Curriculum Implementation								
FOSS Kit Refurbishment Materials					$ 75,000	$ 75,000		
FOSS Rotation Support (short term staffing)	4	10	$ 15	8	$ 4,800	$ 4,800		
FOSS Live Materials					$ 10,000	$ 10,000		
Summer HS Student Interns (kit refurbishment)	30	7	$ 6	8	$ 10,080	$ 10,080		
Subtotal					*$ 99,880*	*$ 99,880*	$ -	$ -

STAFFING & PROJECT BUDGET

Funding Area	Days	Ppl	Rate	Hrs	Total	OUSD	Bechtel	WestEd Initiative/ CaMSP Grant
Other								
WestEd NGSS Leadership Team (Stipends, Subs)		8	$ 5,500		$ 44,000			$44,000
Engineering Extravaganza Family Science Night			$ 7,000		$ 7,000		$ 7,000	
OUSD NGSS Symposium (Food, Materials)		250	$ 44		$ 11,000		$ 11,000	
District Science Fair					$ 6,000	$ 6,000		
Dinner with a Scientist	3		$ 8,000		$ 24,000		$ 24,000	
CSTA & NSTA Conference Presentations	2	8	$ 1,255		$ 20,080		$ 20,080	
Subtotal					*$ 112,080*	*$ 6,000*	*$ 62,080*	*$ 44,000*
Staffing (includes benefits)								
Elementary Science Specialists		3.0	$ 110,000		$ 330,000	$ 330,000		
Middle School Science Specialists		2.0	$ 115,000		$ 230,000	$ 115,000	$ 115,000	
Science Coordinators (Reinhardt, Prival)		2.0	$ 130,000		$ 260,000	$ 260,000		
Science Manager (Cheung)		1.0	$ 135,000		$ 135,000	$ 135,000		
Stock Clerk (Logan)		1.0	$ 71,000		$ 71,000	$ 71,000		
Office Manager		1.0	$ 75,010		$ 75,010	$ 37,505	$ 37,505	
Subtotal					*$ 1,101,010*	*$ 948,505*	*$ 152,505*	*$ -*
				Subtotal	*$ 1,954,995*	*$ 1,275,185*	*$ 429,310*	*$ 250,500*
						Indirect (6%)	*$ 25,759*	
						Total	*$ 455,069*	

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Appendix

A. Elementary NGSS Implementation Timeline
B. Middle School NGSS Implementation Timeline
C. Elementary School Site PL Sessions 2015-16

OUSD Science

New Elementary NGSS Implementation Timeline

Science Vision Statement: All Oakland students will graduate science literate with the skills that they need to succeed in college, career and community.

		Overview/Policy	Program Element Matrix	Teachers	Teacher Leaders (LSTs)	Site Administrators (Principals, AP, TSA)	District Leadership (T&L and Network)	NGSS Leadership Team	Family & Community
2015-16	AWARENESS	Teacher leaders attend summer leadership training sessions and participate in lesson study process. CLT continues to implement NGSS into classrooms and provides professional development activities to TL for implementation of NGSS. Teachers begin NGSS PD through the work of the teacher leaders. Implementation of a new NGSS aligned curriculum (SIRA) in grades 3-4, based on district timeline. District assessment data and teacher collaborations inform the direction of continued implementation of a new NGSS aligned curriculum (SIRA) based on district timeline (i.e. expand to K-2). Provide information to parents and community on shifts of NGSS	Professional Learning (Inputs)	• Participate in 1 full Wednesday site-based PL on NGSS implementation • Attend centralized SIRA PD (grades 3-5) • Teachers collaboratively score and analyze SIRA Assessments (grades 3-4) and use data to inform future instruction	• Attend August Summer NGSS Leadership Institute (physical science - elementary integrated - middle grades) • Participate in 2 TLC lesson study cycles on NGSS • Attend monthly LST meetings	• Attend a centralized PL on NGSS implementation, including SIRA, LST lesson study, and language development through Science	• Attend a centralized PL on NGSS implementation, including SIRA, LST lesson study, and language development through Science • Analyze district SIRA assessment data (grades 3-4) and use data to plan for future PL and school support	• PL initiative with six Dual Language schools focused on language demands of NGSS • Facilitate lesson study, summer institutes, and monthly meetings for LSTs • Facilitate a centralized PL on NGSS implementation, including SIRA, LST lesson study, and language development through Science • Attend CSTA & NSTA conferences •	• Families learn that NGSS is being used in schools; CST is not aligned to NGSS; as a result, CST scores do not reflect learning happening in schools • OUSD has created the SIRA Assessment to monitor student learning (currently in 3-4, next year in 5th)
			Supporting Tools and Resources	• Continue to use FOSS with NGSS aligned pedagogy (academic discussion, claims & evidence, science notebooks) • Implement SIRA (grades 3-4) and pilot in 5th • Administer SIRA Assessment in grades 3-4 • Begin to use one FOS Skit in TK	• Hard copy of the NGSS Standards • PL slideshow, materials, and notes for site-based PL • PL materials (slideshow, handouts) for collaborative SIRA coding PL	• Provide teachers using SIRA assessments 1 hour of protected time for scoring and reflecting on SIRA assessments three times per year. • Provide LST with at least one full Wednesday PL session to facilitate NGSS PL with full staff	• Use Illuminate to collect and analyze SIRA assessment data (grades 3-4)	• Develop and pilot SIRA for 5th grade. • Begin to develop a district specific NGSS instructional toolkit • Begin to focus on new NGSS FOSS materials • Begin to develop SIRA for grades K-2 • Provide one FOSS kit to TK	• CST Memo from Science Department • SIRA Memo for Families • Engineering Extravaganza Family Science Night kit
			Evidence & Outcomes	• Provide students with accessible science learning experiences (e.g. hands-on science, language supports, SEL support) • Ensure all students have the opportunity to participate in Science Fair	• Provide resources for teachers and model equitable practices (e.g. language supports) • Input PLs, events, etc. on a shared document • Lead at least one site-based PL on NGSS • Facilitate site-based PL on NGSS implementation • Collaborate with ELA and math counterparts, ILT, and administration to revise and implement site goals, master schedule, and site PL • Collect feedback from teachers piloting and implementing SIRA • Plan and execute showcase of student learning for families and community (e.g. Science Fair, Engineering Extravaganza, Family Science Night)	• Ensure teachers provide science instruction in accordance with OUSD board policy (60 minutes/week in grades K-2, 90 minutes/week in grades 3-5) • Facilitate participation of Lead Science Teacher in NGSS PL and lesson study activities	• Ensure all school master calendars include science instruction in accordance with OUSD board policy (60 minutes/week in grades K-2, 90 minutes/week in grades 3-5) • Establish a district assessment calendar for SIRA (grades 3-4) • Ensure principals schedules at least one introduction to NGSS PL	• Ensure community memos, event materials, etc. are presents in multiple languages • Analyze district data (Spring Survey, SIRA) with an equity lens and plan support accordingly • Equity advocates • Combine district LST work with NGSS Early Implementation work (lesson study, materials management, ILT advocacy) • Utilize professional networks within OUSD and beyond to build awareness of NGSS shifts and OUSD implementation strategies • Present at CSTA in Sacramento • Organize NGSS Symposium in Oakland • Create tools for LSTs to share at sites to support analyzing and using SIRA data • Create tools for LSTs to use to implement an Introduction to NGSS PL at their sites	• Attend a showcase of student learning for families and community (e.g. Science Fair, Engineering Extravaganza, Family Science Night)

		Overview/Policy	Program Element Matrix	Teachers	Teacher Leaders (LSTs)	Site Administrators (Principals, AP, TSA)	District Leadership (T&L and Network)	NGSS Leadership Team	Family & Community
2016-17	TRANSITION	Teacher leaders attend summer leadership training sessions and participate in lesson study process. CLT continues to implement NGSS into classrooms and provides professional development activities to TL for implementation of NGSS. Teachers continue NGSS PD through the work of the teacher leaders. Implementation of a new NGSS aligned curriculum (SIRA) in grades 3-5. CLT and TL begin to develop NGSS aligned curriculum (SIRA) for grades K-2.	Professional Learning (Inputs)	• All new teachers attend a centralized introduction to FOSS PL • Participate in site-based cycle on science instruction • Teachers collaboratively score and analyze SIRA Assessments (grades 3-5) and use data to inform future instruction	• Attend July Summer NGSS Leadership Institute (earth science - elementary integrated - middle grades) • Participate in 2 TLC lesson study cycles on NGSS • Attend monthly LST meetings • Collaborate with ILT, administration, and NGSS CLT to plan and implement a minimum of one PL cycle on science instruction	• Conduct at least one instructional walk-through in Science a year • Collaborate with LST, ILT, and NGSS CLT to plan and implement a minimum of one RBPD cycle on science instruction • Participate in at least three centralized science PL	• Ensure site RBPD plans include a minimum of one PL cycle on science instruction • Analyze district SIRA assessment data (grades 3-4) and use data to plan for future PL and school support	• PL initiative with six Dual Language schools focused on language demands of NGSS (Project OLAS) • Facilitate lesson study, summer institutes, and monthly meetings for LSTs • Facilitate a centralized PL on NGSS implementation, including SIRA, LST lesson study, and language development through Science • Attend CSTA & NSTA conferences	• Families learn that NGSS is being used in schools; CST is not aligned to NGSS; as a result, CST scores do not reflect learning happening in schools • OUSD has created the SIRA Assessment to monitor student learning in grades 3-5
			Supporting Tools and Resources	• Continue to use FOSS with NGSS aligned pedagogy (academic discussion, claims & evidence, science notebooks) • Implement SIRA (grades 3-5) and pilot new K-2 SIRA tools • Administer SIRA Assessment in grades 3-5	• Hard copy of the NGSS Standards • PL slideshows, timelines, materials, and notes for site-based PL cycles	• Provide teachers using SIRA assessments 1 hour of protected time for scoring and reflecting on SIRA assessments three times per year. • Provide LST with at least one full Wednesday PL session to facilitate NGSS PL with full staff	• Revise district report cards to include NGSS Science & Engineering Practices • Use Illuminate to collect and analyze SIRA assessment data (grades 3-5) with a focus on equity (subgroup data)	• Finish developing a district specific NGSS instructional toolkit • Begin to develop SIRA for grades K-2	• Share information on NGSS Science & Engineering Practices through new report cards • SIRA Memo for Families • Engineering Extravaganza Family Science Night kit
			Evidence & Outcomes	• Provide students with accessible science learning experiences (e.g. hands-on science, language supports, SEL support) • Ensure all students have the opportunity to participate in Science Fair	• Provide resources for teachers and model equitable practices (e.g. language supports) • Input PLs, events, etc. on a shared document • Advocate for site-based PL time for NGSS • Facilitate site-based PL on NGSS Implementation • Collaborate with ELA and math counterparts, ILT, and administration to revise and implement site goals, master schedule, and site PL • Collect feedback from teachers piloting and implementing SIRA • Plan and execute showcase of student learning for families and community (e.g. Science Fair, Engineering Extravaganza, Family Science Night)	• Ensure teachers provide science instruction in accordance with OUSD board policy (60 minutes/week in grades K-2, 90 minutes/week in grades 3-5) • Facilitate participation of Lead Science Teacher in NGSS PL and lesson study activities	• Ensure all school master calendars include science instruction in accordance with OUSD board policy (60 minutes/week in grades K-2, 90 minutes/week in grades 3-5) • Ensure SIRA remains on the district assessment calendar (grades 3-5)	• Ensure community memos, event materials, etc. are presents in multiple languages • Analyze district data (Spring Survey, SIRA) with an equity lens and plan support accordingly • Combine district LST work with NGSS Early Implementation work (lesson study, materials management, ILT advocacy) • Utilize professional networks within OUSD and beyond to build awareness of NGSS shifts and OUSD implementation strategies • Create tools for LSTs to use to implement PL cycle	• Attend a showcase of student learning for families and community (e.g. Science Fair, Engineering Extravaganza, Family Science Night)

		Overview/Policy	Program Element Matrix	Teachers	Teacher Leaders (LSTs)	Site Administrators (Principals, AP, TSA)	District Leadership (T&L and Network)	NGSS Leadership Team	Family & Community
2017-18	IMPLEMENTATION	Teacher leaders attend summer leadership training sessions and participate in lesson study process. CLT continues to implement NGSS into classrooms and provides professional development activities to TL for implementation of NGSS. Teachers continue NGSS PD through the work of the teacher leaders. Implementation of a new NGSS aligned curriculum (SIRA) in grades 3-5. CLT and TL continue to develop NGSS aligned curriculum (SIRA) for grades K-2.	Professional Learning	• All new teachers attend a centralized introduction to FOSS PL • Participate in site-based cycle on science instruction • Teachers collaboratively score and analyze SIRA Assessments (grades 3-5) and use data to inform future instruction	• Attend Summer NGSS Leadership Institute (life science - elementary integrated - middle grades) • Participate in 2 TLC lesson study cycles on NGSS • Attend monthly LST meetings • Collaborate with ILT, administration, and NGSS CLT to plan and implement a minimum of one PL cycle on science instruction	• Conduct at least one instructional walk through in Science • Collaborate with LST, ILT, and NGSS CLT to plan and implement a minimum of one RBPD cycle on science instruction • Participate in a minimum of six Principal PLs on science content and pedagogy, led by the science department	• Ensure site RBPD plans include a minimum of one PL cycle on science instruction • Analyze district SIRA assessment data (grades 3-4) and use data to plan for future PL and school support	• PL initiative with six Dual Language schools focused on language demands of NGSS (Project OLAS) • Facilitate lesson study, summer institutes, and monthly meetings for LSTs • Facilitate a centralized PL on NGSS implementation, including SIRA, LST lesson study, and language development through Science • Attend CSTA & NSTA conferences	• Families learn that NGSS is being used in schools; CST is not aligned to NGSS; as a result, CST scores do not reflect learning happening in schools • OUSD has created the SIRA Assessment to monitor student learning in grades 3-5
			Supporting Tools and Resources	• Continue to use FOSS with NGSS aligned pedagogy (academic discussion, claims & evidence, science notebooks) • Implement SIRA (grades 3-5) and pilot K-2 SIRA tools • Administer SIRA Assessment in grades 3-5	• Hard copy of the NGSS Standards • PL slideshow, materials, and notes for site-based PL	• Provide teachers using SIRA assessments 1 hour of protected time for scoring and reflecting on SIRA assessments three times per year. • Provide LST with at least one full Wednesday PL session to facilitate NGSS PL with full staff	• Continue to use Illuminate to collect and analyze SIRA assessment data (grades 3-5) with a focus on equity (subgroup data)	• Distribute and utilize a district specific NGSS instructional toolkit to all principals and teachers • Begin to focus on new NGSS FOSS materials • Continue to develop SIRA for grades K-2	• Share information on NGSS Science & Engineering Practices through new report cards • SIRA Memo for Families • Engineering Extravaganza Family Science Night kit
			Evidence and Outcomes	• Provide students with accessible science learning experiences (e.g. hands-on science, language supports, SEL support) • Ensure all students have the opportunity to participate in Science Fair	• Provide resources for teachers and model equitable practices (e.g. language supports) • Input PLs, events, etc. on a shared document • Advocate for site-based PL time for NGSS • Facilitate site-based PL on NGSS Implementation • Collaborate with ELA and math counterparts, ILT, and administration to revise and implement site goals, master schedule, and site PL • Collect feedback from teachers piloting and implementing K-2 SIRA • Plan and execute showcase of student learning for families and community (e.g. Science Fair, Engineering Extravaganza, Family Science Night)	• Ensure teachers provide science instruction in accordance with OUSD board policy (60 minutes/week in grades K-2, 90 minutes/week in grades 3-5) • Facilitate participation of Lead Science Teacher in NGSS PL and lesson study activities	• Ensure all school master calendars include science instruction in accordance with OUSD board policy (60 minutes/week in grades K-2, 90 minutes/week in grades 3-5) • Ensure SIRA remains on the district assessment calendar (grades 3-5)	• Ensure community memos, event materials, etc. are presents in multiple languages • Analyze district data (Spring Survey, SIRA) with an equity lens and plan support accordingly • Combine district LST work with NGSS Early Implementation work (lesson study, materials management, ILT advocacy) • Utilize professional networks within OUSD and beyond to build awareness of NGSS shifts and OUSD implementation strategies	• Attend a showcase of student learning for families and community (e.g. Science Fair, Engineering Extravaganza, Family Science Night)

OUSD Science

New Middle School NGSS Implementation Timeline

Science Vision Statement: All Oakland students will graduate science literate with the skills that they need to succeed in college, career and community.

		Overview/Policy	Program Element matrix	Teachers	Teacher Leaders	Site Administrators	District Leadership	NGSS Leadership Team	Family & Community
Year 1 2015-16	AWARENESS	All science courses embed NGSS Practices, Concepts and Core Content. District assessment data and teacher collaborations inform the direction of continued professional learning for teachers, teacher leaders, and administrators. Community outreach intentional messaging to garner support for NGSS in the community.	Professional Learning (Inputs)	• Attend monthly district second Wed. PL and two Buy Back Days • orientation to district assessments • data analysis (2x/yr) • lead content sessions for peers • collaborate to design & revise curriculum to complement learning tasks • Meet monthly on site • plan and troubleshoot curriculum implementation • provide documentation of student work • Participate in curriculum induction summer institute (August)	**Site Teacher Leader** • Attend monthly district PL and teacher leader PL • Collaborate with ELA and math counterparts, ILT and administration to revise and implement site goals, master schedule, site PL, and development of site-based protocols (for academic discussion, close reading, etc) • Facilitate monthly department PLC aligned to department vision/goals and data • Facilitate peer observations, as determined by site • Create site needs assessment **Lesson Study Teachers** • Attend Summer Leadership Institute • Participation in 2 lesson study cycles (Fall and Spring)	• Meet monthly with teacher leaders for updates on NGSS early implementation • Attend Principal Science PL and be part of feedback loop informing NGSS implementation decisions	• Provide principal PL (second Wed. PL and Buy Back Days) to build capacity of site leaders to support teachers in NGSS shifts including: connections between TGDS, BTSA expectations, and NGSS aligned pedagogy. • Provide summer NGSS implementation institute to support building teacher capacity to align instruction with NGSS. • Lead assessment data analysis sessions • Facilitate Curriculum Writing Team	• Facilitating lesson study process for all middle school teacher leaders.	• Host input session for CA NGSS Framework, 12/16 • Symposium 11/3 • Build NGSS awareness through informational events and student work showcases (see below).
			Supporting Tools and Resources	• NGSS-based curricula, and feedback/revision process • NGSS-based assessments, and feedback/revision process • Library of supplemental resources • Planning tools/templates for student learning showcases	**Site Teacher Leader** • Digital library of supplemental resources • Science materials → infrastructure for budgeting at sites, develop list of baseline materials **Lesson Study Teachers** • Summer PL and Leadership Institute	• NGSS overview and primer on 3 dimensions • Observation tool (SXB card revision) informed by TGDS process • video library of exemplars TGDS/NGSS lens • Science materials → infrastructure for budgeting at sites, develop list of baseline materials	• Develop learning progressions for key Science and Engineering Practices • Develop and maintain resource website • Science materials → infrastructure for budgeting at sites, develop list of baseline materials • Develop a clear system for curriculum feedback and revision • Curriculum, unit, and lesson planning forms • Curriculum revision workflow and evaluation rubric • Summer PL and Leadership Institute • Data analysis forms	• Develop an overview document for parent and community education • Develop lesson study templates and tools • Monitor implementation of NGSS	• Resource database (Dinner with a Scientist collaborators, etc.) • Developing tools/templates, examples for NGSS orientation presentations • Fact packet about NGSS-aligned after-school curricula
			Evidence and Outcomes	• All teachers implement district curricula that teach, scaffold & access NGSS • Teach NGSS-based curriculum • Scaffold the NGSS curriculum implementation • Administer district assessments and analyze data during monthly district PL (2x/ year by grade) • Pilot curriculum units with summative performance tasks and supporting learning tasks aligned with the three dimensions of NGSS • Design and implement curriculum to complement learning tasks. • Content Knowledge PL • Sharing lesson design • Deepening content knowledge through activities • Plan and execute (1x/yr) showcases of student learning for families and community (could be engineering and science fair) • Collaborate in content-specific communities to lead content sessions during district monthly 2nd Wednesday PL	**Site Teacher Leader** • Maintain monthly documentation folder • Lead NGSS implementation • Support the Science Department in building partnerships and acquiring resources • Sites needs assessment and actions plans **Lesson Study Teachers** • Sharing learning on: (1) NGSS instructional best practices or lessons learned, and (2) the lesson study process, at Wednesday PD (2X a year)	• Use district assessment tools and site specific metrics to observe and provide feedback to teachers • Support and promote vision/goals of science department in alignment with NGSS (by allocating $ for materials and time for TLs and site PLs) • Support teacher collaboration and leadership with pilot NGSS curriculum. • Provide equal time and support to teacher PD on NGSS-aligned science curriculum, facilitated by teacher leader • Advocate equal emphasis on NGSS and CCSS in site leadership plans.	• Consistently communicate the priority of the NGSS transition to site leaders, district leaders, and other stakeholders with the same weight as the CCSS shift, as well as highlight areas of alignment and ways in which an NGSS aligned approach supports literacy • Develop formative assessment strategies and/or research • NGSS-based curricula including revision from teachers • Library of supplemental resources • Revised Linked Learning science curricula • District assessments	• Explore issues to increase equity of science education in OUSD starting with teacher leaders • Utilize professional networks within OUSD to build awareness of NGSS shifts in progress	• STL/Departments work with ILT/site leadership to integrate NGSS awareness within existing family engagement events (Back to school night, science fair, etc.) • STL/Departments plan and execute showcases of student learning for families and community • After-school Liaisons/ Coordinators: information about vetted NGSS-aligned curricula to be used in 21st Century funded after school programs, e.g. Techbridge, Engineering is Elementary, etc. • Dinner with a Scientist • All levels: Cultivate and document relationships (database) with partners/resources
			Other		**Site Teacher Leader** • Support hiring and induction, as determined by site	• Elicit input from teacher leaders on school site PL, hiring, master schedule and site goals			

		Overview/Policy	Program Element matrix	Teachers	Teacher Leaders	Site Administrators	District Leadership	NGSS Leadership Team	Family & Community
Year 2 2016-17	AWARENESS	Implement K-12 aligned NGSS curriculum and pedagogical practices with particular emphasis on data generation. Ensure the support for school sites, especially teachers and principals, is aligned with NGSS implementation plan. Community-wide promotion of NGSS implementation in OUSD. Sustainability plans for NGSS implementation is supported financially and structurally by site and central leadership. Complete official curriculum adoption process at the district and state level.	• Professional Learning	• Implement district curricula that teach, scaffold & access NGSS • Administer district assessments and analyze data as a site team (2x/yr •)Attend monthly district second Wed PL and two Buy Back Days • Collaborate in content specific communities to lead content sessions during district monthly 2nd Wednesday PL and two Buy Back Days • Plan and execute showcases of student learning for families and community (2x/yr) •	**Site Teacher Leader** • Meet monthly on site to support 6-8 alignment of content and strategies • Attend monthly district PL and teacher leader PL • Collaborate with ELA and math counterparts, ILT and administration to revise and implement site goals, master schedule, site PL, and development of site-based protocols (for academic discussion, close reading, etc) • Facilitate monthly department PLC aligned to department vision/goals and data • Facilitate peer observations, as determined by site • TDGS Alternate observer, as determined by site **Lesson Study Teachers** • Attend Summer Leadership Institute • Participation in 2 lesson study cycles (Fall and Spring) as apprentice facilitator	• Invited to the NGSS summer institute in July • Continually prioritize and support the implementation and • Use district assessment tools and site specific metrics to observe and provide feedback to teachers • Support and promote vision/goals of science department in alignment with NGSS (by allocating $ for materials and time for TLs and site PLs) • Support teacher collaboration and leadership with pilot NGSS curriculum. • Meet monthly with teacher leaders • Elicit input from teacher leaders on school site PL, hiring, master schedule and site goals • Ensure all science course offerings are NGSS focused • Attend Principal Science PL and be part of feedback loop informing NGSS implementation decisions	• Provide principal PL (monthly second Wed. PL and two Buy Back Days) to build capacity of site leaders to support teachers in NGSS shifts including: connections between TGDS, BTSA expectations, and NGSS aligned pedagogy. • Facilitate Curriculum Writing Team, with focus on data-driven instruction • Develop data collection systems for benchmark assessments • Provide summer NGSS implementation institute to build teacher capacity in 3D instruction and familiarity with district curricula • Monthly 2nd Wed PL focused on assessment calibration and scoring	• Support site-based lesson study led by teacher leaders • Promote "playlist" options for sequence of suggested professional learning for successful NGSS implementation • Revise lesson study templates and tools • Monitor implementation of NGSS	• STL/Departments work with ILT/site leadership to integrate NGSS awareness within existing family engagement events (Back to school night, science fair, etc.) • STL/Departments plan and execute showcases of student learning for families and community • After-school Liaisons/ Coordinators: information about vetted NGSS-aligned curricula to be used in 21st Century funded after school programs, e.g. Techbridge, Engineering is Elementary, etc. • Dinner with a Scientist • All levels: Cultivate and document relationships (database) with partners/resources
			• Supporting Tools and Resources	• NGSS-based curricula, and feedback/revision process • NGSS based assessments, and feedback/revision process • Library of supplemental resources • Planning tools/templates for student learning showcases	**Site Teacher Leader** • Summer PL and Leadership Institute • Digital library of supplemental resources • Science materials → infrastructure for budgeting at sites, develop list of baseline materials **Lesson Study Teachers** • Summer PL and Leadership Institute	• NGSS overview and primer on 3 dimensions • Observation tool (5X8 card revision) informed by TGDS process • video library of exemplars TGDS/NGSS lens • Science materials → infrastructure for budgeting at sites, develop list of baseline materials		• Support site-based lesson study led by Teacher Leaders • Leadership team designs and facilitates NGSS professional learning and curriculum implementation in colleboration with district leaders	
			Evidence and Outcomes		• Site Teacher Leader • Maintain monthly documentation folder • Lead NGSS implementation • Support the Science Department in building partnerships and acquiring resources • STL receive an additional prep period for NGSS site implementation	• Use district assessment tools and site specific metrics to observe and provide feedback to teachers • Support and promote vision/goals of science department in alignment with NGSS (by allocating $ for materials and time for TLs and site PLs) • Support teacher collaboration and leadership with pilot NGSS curriculum. • Provide equal time and support to teacher PD on NGSS-aligned science curriculum, facilitated by teacher leader • Advocate equal emphasis on NGSS and CCSS in site leadership plans.	• Consistently communicate the priority of the NGSS transition to site leaders, district leaders, and other stakeholders with the same weight as the CCSS shift, as well as highlight areas of alignment and ways in which an NGSS aligned approach supports literacy • Collect and analyze formative assessment data • NGSS-based curricula including revision from teachers • Library of supplemental resources • Revised Linked Learning science curricula • District assessments	• Explore issues to increase equity of science education in OUSD, starting with teacher leaders • Utilize professional networks within OUSD to build awareness of NGSS shifts in progress	• Engage community partners to support implementation • Build awareness of NGSS at school sites within existing family engagement events (Back to school night, science fair, etc.) • Plan and execute showcases of student learning for families and community • Leverage Dinner with a Scientist-type activities & pool resources for broad access? • Promote an NGSS aligned curriculum to be used in 21st Century funded after school programs currently using Techbridge.
			Other				• Build partnership with BTSA/Intern program to rebuild Team Science mentorship program		

		Overview/Policy	Program Element matrix	Teachers	Teacher Leaders	Site Administrators	District Leadership	NGSS Leadership Team	Family & Community
Year 3 2017-18	IMPLEMENTATION		Professional Learning	• Formative assessment strategies and/or research • Content knowledge building PL • NGSS instructional shifts • Support curricular work • NGSS and CCSS integration • Differentiating of tasks and notebooking	**Site Teacher Leader** • Meet monthly on site to support 6-8 alignment of content and strategies • Complete a site needs assessment focused around science learning and resources • Develop goals and an action plan based off of the site needs assessment • Attend monthly district PL and teacher leader PL • Collaborate with ELA and math counterparts, ILT and administration to revise and implement site goals, master schedule, site PL, and development of site-based protocols (for academic discussion, close reading, etc) **Lesson Study Teachers** • Meet monthly on site to support 6-8 alignment of content and strategies • Participate in lesson study (2x/yr)	• Continually prioritize and support the implementation within site meetings, science dept. meetings, and PDs • Use district assessment tools and site specific metrics to observe and provide feedback to teachers • invite to NGSS summer institute • Support and promote vision/goals of science department in alignment with NGSS (by allocating $ for materials and time for TLs and site PLs) • Support teacher leader collaboration and leadership with pilot of NGSS curriculum by releasing teacher for technical assist days • Elicit input from teacher leaders on school site PLs, hiring, master schedule and site goals • Ensure all science course offerings are NGSS aligned	• Present summative tasks as summative assessments for reporting and collection to the school board i.e Balance Report Card • Monthly 2nd Wed PL focused on assessment calibration and scoring • Design and facilitate ongoing support for all teachers, with special attention to the induction of new teachers	• Explore issues to increase equity of science education in OUSD starting with teacher leaders • Utilize professional networks within OUSD to build awareness of NGSS shifts in progress • Develop sequence of suggested professional learning for successful NGSS implementation • Facilitating lesson study process for all middle school teacher leaders. • Develop lesson study templates and tools • Monitor implementation of NGSS	• STL/Departments work with ILT/site leadership to integrate NGSS awareness within existing family engagement events (Back to school night, science fair, etc.) • STL/Departments plan and execute showcases of student learning for families and community • After-school Liaisons/ Coordinators: information about vetted NGSS-aligned curricula to be used in 21st Century funded after school programs, e.g. Techbridge, Engineering is Elementary, etc. • Dinner with a Scientist • All levels: Cultivate and document relationships (database) with partners/resources
			Supporting Tools and Resources	• Content Knowledge PL (Year 3 only) • Sharing lesson design • Deepening content knowledge through activities • New Teacher Induction (Science specific, guided by reflection on year prior, Aug/Jan) • Differentiated PL (Pilot Yr 1, Pilot Yr 2, other differentiation frames) • Introduction to NGSS • Reading Progressions for key practices • How to use rubrics in self/peer/teacher assessment for essential skills • Teacher Leaders facilitating PL • Site PL/ District PL alignment (stage1)	**Site Teacher Leader** • Training for coaching and mentoring/ use of previous tools from New Teacher Center • Site needs assessment template, including goals and action plan development tool **Lesson Study Teachers** • Revised 3D NGSS planning tool • Continued use of current lesson study tools and templates	• Money in the budget for materials needed to support hands-on learning and interactive notebooking • Resources for Close Reading Articles that are current in science	• Revised summative tasks • Data Collection and Analysis protocols • Systems for collecting and reporting data for assessments by sites	•	• Parent and staff support for inclusion in family engagement events
			Evidence and Outcomes		**Site Teacher Leader** • Support hiring and induction, as determined by site • Assist site with maintaining key curricular materials for the site year-to-year • Continued affordance of additional prep period for teacher leaders for NGSS site implementation	• Observe teachers through the informed lens of NGSS 3D learning • Attend the NGSS summer institute in July • Science supporting admin will attend monthly dept. meetings • Meet monthly with science teacher leader to assess immediate issues and needs • Attend Principal Science PL and be part of feedback loop informing NGSS implementation decisions	• Support development of summative performance tasks • Science specific new teacher support program modeled after Team Science from past years		• Engage parents and community partners to support implementation • Build awareness of NGSS at school sites within existing family engagement events (Back to school night, science fair, etc.) • Plan and execute showcases of student learning for families and community • Leverage Dinner with a Scientist-type activities & pool resources for broad access • Promote an NGSS aligned curriculum to be used in 21st Century funded after school programs currently using Techbridge.

OUSD Science

Elementary Science Site-Based Professional Learning Sessions 2015-16

Introductory	Science Notebooking	Literacy In Science
Introduction to FOSS*	Introduction to Science Notebooking*	The 'Writing in Science' Model, K-5
Fitting In FOSS: Science & Classroom Management*	Applied Notebooking with Grade-level FOSS	Developing Language through Science Instruction
Grade-level Concept Mapping for FOSS	Formative Assessment with Notebooks*	Oral Discourse & Argumentation in Science*
Facilitating Grade-level Planning Sessions*		Close Reading of Complex Texts in Science
Introduction to Next Generation Science Standards		Science & Literacy: Sorting & Planning with Common Core ELA Standards
		Interactive Word Walls in Science

Science Fair & Inquiry	Assessment In Science	NGSS: Explanation & Argumentation
Best Practices for OUSD Science Fair	Assessment in FOSS: An Overview of Resources	Claims, Evidence & Reasoning: A K-5 Overview*
Honing the Research Question	Looking at Student Work: Reflective Assessment Protocol*	Claims, Evidence & Reasoning: Applied Practice in FOSS, K-5*
Organizing Site-based Science Fairs (for Event Planners)	Formative Assessment: Understanding Student Ideas	Scaffolding Argumentation Across Grades & School Year*
	Formative Assessment: Next Step Strategies	Science Talk: Scaffolds, Teacher Moves, & Trouble-shooting*

Other
Connecting with FOSS, Connecting with Place
Planning Family Science Events (for Event Planners)

Please contact Laura Prival, Elementary Science Coordinator, (laura.prival@ousd.org) to discuss or schedule Professional Learning sessions.

*sessions to be presented by Lead Science Teachers

Description of Professional Learning Sessions

Introductory Series

1. **Introduction to FOSS**: Lays the foundation for schools that are just getting started with their science program. Built around a hands-on lesson, teachers are introduced to the basic elements of a science lesson and an overview of the FOSS curriculum.
2. **Fitting in FOSS: Science & Classroom Management**: Models and discusses teacher strategies for addressing instructional time issues, managing the 'moving parts' of FOSS materials, and handling student groups effectively during science instruction.
3. **Grade-level Concept Mapping for FOSS**: Grade level teams sift and sort through concepts from their specific module in the creation of a hierarchical map of ideas. They then step back and examine maps from all grades, making curricular connections K-5.
4. **Facilitating Grade-level Planning (for Lead Science Teachers)**: This session supports teachers newer to FOSS planning with tips and techniques for calendaring science investigations, readings and assessments for the trimester.
5. **Introduction to the Next Generation Science Standards**: Provides an overview of NGSS and engages teachers, hands-on, in the Practices and Cross-cutting Concepts.

Science Notebooking

1. **Introduction to Notebooking**: Through a hands-on lesson, this session models the structuring and use of the science notebooks, from accessing prior knowledge to final reflection. Exposes teachers to grade-level specific notebooking practices.
2. **Applied Notebooking with Grade-level FOSS**: Supports teachers practically by developing a 'notebooking lens' for their science lesson planning. With support and planning tools in hand, teachers apply the 5 components framework (from Introduction to Notebooking) to their next FOSS lesson.
3. **Formative Assessment with Notebooks**: models a 10-minute technique, the Reflective Assessment Protocol, that individual classroom teachers use to formatively assess student understanding or skills. Then we explore a variety of strategies for re-teaching, based on the formative data gathered.

Literacy In Science

1. **Writing in Science Model, K-5**: Using a hands-on lesson plus classroom videos, this session models a research-based writing approach for scaffolding student science writing.
2. **Developing Language through Science Instruction**: This session models strategies for activating prior knowledge and using oral discourse for language development as a precursor to writing for understanding. The session also presents a variety of scaffolds to provide EL students access to the science content.
3. **Oral Discourse & Argumentation in Science**: Models various levels of classroom discourse specific to science and examines a variety of scaffolds and teacher moves that help build a classroom culture of discourse/argumentation.
4. **Close Reading of Complex Texts in Science**: Models a multi-layered approach to reading short sections of complex text, a strategy highlighted in the Common Core ELA standards.
5. **Interactive Word Walls in Science**: Introduces a fresh approach to science word walls where visual scaffolds augment understanding and components are organized to display conceptual relationships. Teachers are supported in the design of their next word wall.

Science Fair

1. **Best Practices for OUSD Science Fair:** Provides an overview of OUSD's science fair categories, including sample questions, rubrics and past student work. Highlights best practices and troubleshoots challenge areas, such as pacing and question design.
2. **Honing the Research Question:** This session supports teachers in identifying appropriate investigable questions and "turning student questions" for science fair projects. Offers strategies along the inquiry spectrum to build student voice into the science fair project.
3. **Organizing Site-based Science Fairs (for Event Planners):** Outlines a multitude of considerations in backwards planning for site (and ultimately, District) science fairs. Emphasizes strategies for engaging students in the work, building school-wide excitement, designing a thoughtful evaluation system and mastering big event logistics.

Assessment In Science

1. **Assessment in FOSS: An Overview:** This session examines the FOSS assessment toolkit by grade band, highlighting formative and summative approaches to assessing students in both science content and practices.
2. **Looking at Student Work: Reflective Assessment Protocol:** Models a high-leverage formative assessment protocol that individual classroom teachers may use to determine if students "got" major concepts/skills or not. Explores strategies for re-teaching content in creative ways.
3. **Formative Assessment: Understanding Student Ideas:** Students bring to class many ideas about how the world works. This PD will explore how to tap into those ideas and how to track the development of students' understandings during a science class.
4. **Formative Assessment: Next Step Strategies:** Once you have gathered formative assessment data, the question is, "What do I do next?" This PD will explore how to easily and effectively adapt a lesson to address gaps in understanding in science. (This PD should follow either "Looking at Student Work: Reflective Assessment Protocol" or "Formative Assessment: Understanding Student Ideas.")

NGSS Practices: Explanation & Argumentation

1. **Scientific Explanations Overview/Claims, Evidence & Reasoning, K-5:** Introduces a model for framing the thinking, speaking and writing of claims, evidence, and reasoning (CER) across grade levels. Teachers will develop a lens for identifying claims & evidence opportunities in FOSS.
2. **Claims Evidence & Reasoning: Applied Practice in FOSS, K-5:** Following the Scientific Explanations Overview PD, this applied session supports teachers at and across grade-level to identify CER opportunities and practice and plan for this new way of thinking.
3. **Science Talk: Scaffolds, Teacher Moves & Troubleshooting:** Models the set-up, scaffolds and teacher moves critical to developing a successful classroom culture for argumentation. Uses peer support (Consultancy protocol) to support teachers struggling with this practice.
4. **Scaffolding Argumentation across Grades & School Year:** Examines end of grade level and end of elementary expectations (CCSS-ELA and NGSS) for explanation and argumentation. Uses classroom videos to dig into pacing and planning of teachers' gradual release of responsibility to students.

Other

1. **Connecting with FOSS, Connecting with Place:** Supports teachers in extending their grade-level FOSS to the outdoor classroom. Explores best practices in teaching outdoors, including safety, materials and student management, and project design.
2. **Planning Family Science Events (for Event Planners):** Introduces event planners to a menu of family science event options. Addresses event budgeting, backwards planning, site and equipment coordination, and programming details.