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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 2015-16 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 FY15-16 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 principal and teacher professional learning and resources to implement the Next Generation Science Standards	June 15, 2015 to June 14, 2016	S. D. Bechtel, Jr. Foundation	$499,970.00

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: $499,970.00

RECOMMENDATION:
Approval and support by the Board of Education of District applicant submitting a grant proposal for OUSD schools for fiscal year 2015-2016 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 FY 2015 - 2016

Title of Grant: Implementing NGSS in the Oakland Unified School District	**Funding Cycle Dates:** June 15, 2015 to June 14, 2016
Grant's Fiscal Agent: Oakland Unified School District	**Grant Amount for Full Funding Cycle:** $499,970.00
Funding Agency: S. D. Bechtel, Jr. Foundation	**Grant Focus:** Professional Learning 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 align teaching and learning to the 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 15-16.
Are services being supported by an OUSD funded grant or by a contractor paid through an OUSD contract or MOU?	Yes, the district indirect will be covered by the grant. BaySci at the Lawrence Hall of Science will also be a contracted partnered with funding from grant.
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 4551 Steele Street, Portable J Oakland, CA, 94619 510-336-7613, caleb.cheung@ousd.k12.ca.us

Applicant Obtained Approval Signatures:

Entity	Name/s	Signature/s	Date
Principal	Caleb Cheung		1/20/15
Department Head	Lisa Spielman		1/20/15

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
2015-16

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.

OUSD

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OAKLAND UNIFIED
SCHOOL DISTRICT

January 10, 2015

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, 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 content standards. 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 $499,970 for the 2015-16 school year to continue the third phase of our NGSS implementation plan. Previous funding by the foundation supported the awareness and initiation phases. This funding will also allow us to complete the development and implementation of a number of key NGSS projects. These include our NGSS Video Project, an NGSS aligned middle school curriculum, the elementary Science Instructional Reflection and Assessment (SIRA), and our comprehensive Teacher Leadership Program. Each of these projects will be implemented in grades K-8 at all schools.

Additionally, District leadership and partners 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.

In the coming year, it will be especially important to explicitly address issues of equity. Failure to do so will lead to the replication of the historical achievement gap. If we believe that all students will benefit from NGSS, then it is our obligation as educators to provide the appropriate resources and experiences that will enable all students to achieve at their highest potential. The focus on equity also means that we will have a secondary focus on leadership. The work of our school administrators and teacher leaders is to have a vision and remove barriers to improve student achievement.

1000 Broadway, Suite 300, Oakland, CA 94607 510.879-8200 ph | 510.879.3687 fx
www.ousd.k12.ca.us

To provide the best thinking on NGSS implementation to our team, we plan to continue to partner with local and national experts in the field including WestEd, BaySci, Lawrence Hall of Science, the Exploratorium and Stanford University. We will ask them to help us refine our plan, evaluate our work, design and deliver professional development, and refine curriculum aligned to both the Next Generation Science Standards and the Common Core State Standards.

Together, we have become leaders in creating successful NGSS implementation for California. As a result, we will continue to share our work with other districts and partner organizations. To date, this process has provided important feedback that has strengthened 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 almost 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

Devin Dillon
Chief Academic Officer

EXECUTIVE SUMMARY

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 closing the academic [illegible] providing each child with excellent [illegible]

Over the past nine 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. In order to implement a systemwide plan for NGSS, OUSD will continue to develop [illegible] elementary, and middle school programs built over the past few years.

The overall [illegible] the 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 2015-16 will continue three goals from the previous year:

- Develop and complete instructional tools, curriculum, and resources for all K-8 teachers and classrooms aligned to the NGSS.
- Foster teacher expertise in content, skills, and practices along a continuum aligned to the NGSS.

- 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:

Curriculum & Assessment
Teacher Professional Learning
[illegible] Leadership
[illegible]
[illegible] & Community Outreach
External Collaborations
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 $499,970 to support [illegible] Department's implementation of NGSS in grades K-8 during the 2015-16 school year. The funding will support 1,400 elementary teachers at 54 schools and 70 middle school teachers at 15 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 [illegible],

Over the past [illegible] 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 with a team of fifteen specialists, coordinators, and administrative staff. The Department also supports health, garden, and physical education in the District.

The elementary program includes a science board policy with a minimum number of required science instruction 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.

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 lead to the development of elementary SIRA curriculum guides and a completely new NGSS aligned middle school curriculum. Oakland is now one of the first districts in California to begin fully implementing the standards.

PROJECT DESCRIPTION

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.

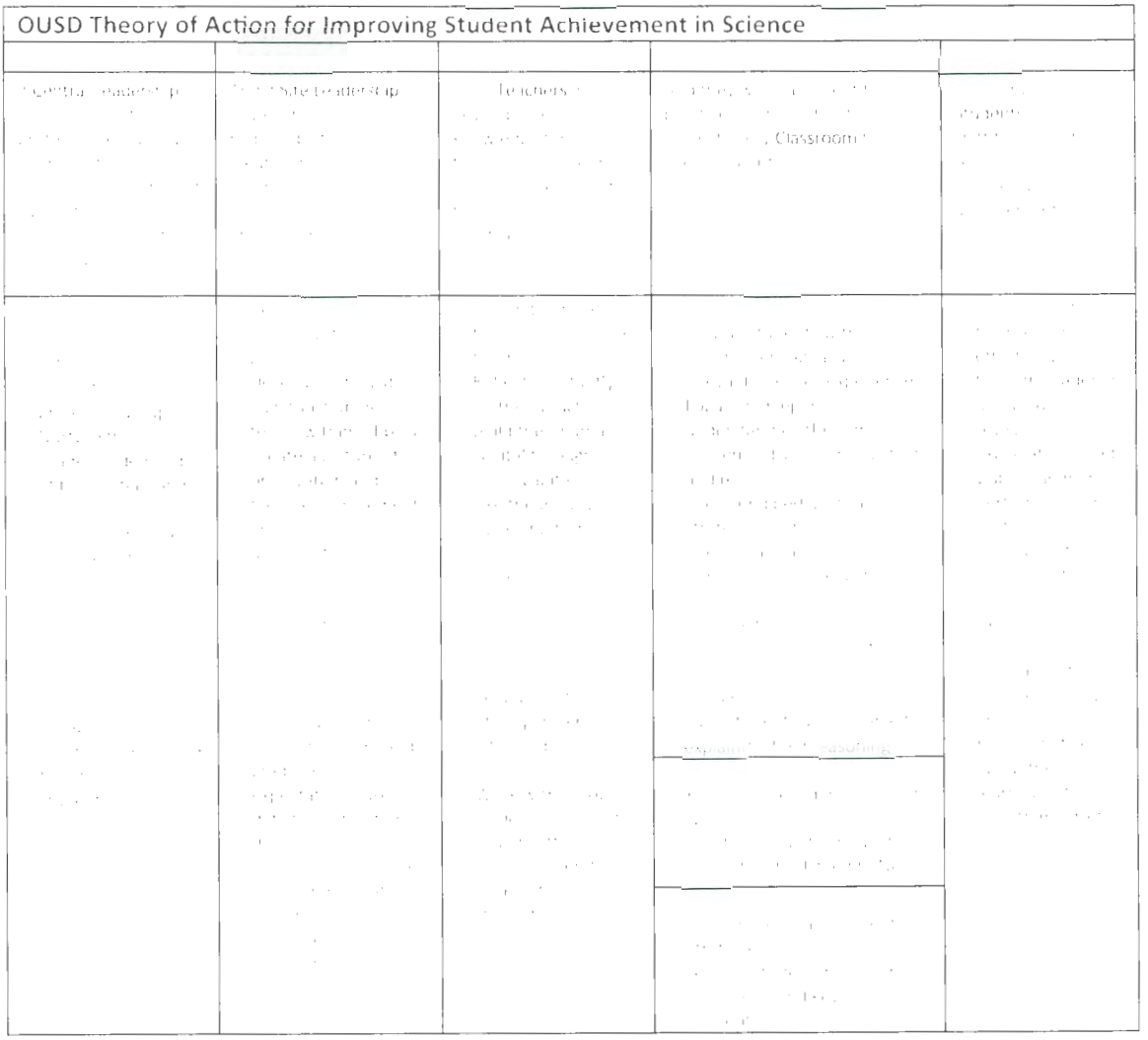
2015-16 will be the third year of a five year implementation timeline for elementary and middle schools. This plan is focused on building a successful and NGSS aligned science program across the district. See Appendix A and B for details. Note that these plans are currently being revised with the support of the [illegible] implementation initiative.

Much of the work is dictated by the CDE's timeline for NGSS implementation listed below. It necessitates a slightly delayed plan for the science work in Oakland as it might be counterproductive to develop a complete curriculum at all grades or assessments before knowing future available resources.

- NGSS is adopted
  State NGSS Framework Committee is formed
  NGSS framework and implementation plan is completed
  NGSS Assessments are developed
  [illegible] adoption initiated and assessments implemented

[illegible] for science: 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 concise description of this Theory of Action is provided in the following table.

PROJECT DESCRIPTION



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 2015-16 will continue three goals from the previous year:

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

[illegible] for teacher expertise in content, skills and practices along a continuum aligned to the NGSS

[illegible] to build system 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:

- Curriculum & Assessment
- Teacher Professional Learning
- Teacher Leadership
- Principal Leadership
- Family & Community Outreach
- External Collaborations
- 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 are seeking funding from the S.D. Bechtel, Jr. Foundation for a grant in the amount of $499,970 to support the OUSD Science Department's implementation of NGSS in grades K-8 during the 2015-16 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 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 developed 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 2015-16 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 [illegible] 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 Writing Task (SWT)

In 2012, the Science Department and the English Language Arts Department collaborated to design the Science Writing Task (SWT), a process writing assessment based on science content found in the 3rd, 4th, and 5th grade FOSS kits. They assess the ability of students to evaluate a scenario and articulate a written opinion. Each task involves multiple science related variables. Students have to choose the best solution for the situation by writing in a well-structured opinion essay. It was developed in response to the need for deeper content writing in connection to the CCSS English Language Arts (ELA) standards and NGSS's argumentation practices.

[illegible] With the adoption of the new district writing [illegible] SWTs are no longer mandatory. However, some teachers and school sites still use them

as a part of their student assessments. In 2015-16, the Science Department will make them available solo-ally on their website.

Science Instructional Reflection and Assessment (SIRA)

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 2013-15, six SIRAs were created for the 3rd and 4th grade 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 2014-15 school year, SIRAs were implemented district-wide and very well received by teachers. Additional SIRAs for 5th grade will be developed and piloted in the 2015-16 school year.

Middle School

NGSS Curriculum Project

OUSD is implementing the CDE approved, integrated NGSS sequence for middle school. The previous California Science Standards have separated earth, life, and physical science content standards correspondingly into grades six, seven, and eight. NGSS integrates these 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 currently writing and piloting a new NGSS curriculum for all three grades. This yearlong curriculum development process started in the summer of 2014 with small teams of experienced teachers and the Middle School Specialists. Development is continuing during this school year and the first draft should be completed by June 2015. 45 teachers are [illegible] this effort.

PROJECT DESCRIPTION

The lessons incorporate protocols and activities to guide students in the three districtwide foci: academic discussion, close reading of complex text, and evidence-based writing. Whenever possible, lessons have both a hands-on and minds on focus. They also include both scientific inquiry and engineering problem-solving, along with additional support from partner organizations.

The curriculum will be revised and updated by the Middle School Curriculum Development Team in the summer of 2015 and implemented districtwide in the 2015-16 school year. The units will be presented during the NGSS Middle School Summer Institute in August and supported during the monthly second Wednesday District Science Professional Learning sessions. Additional content focused sessions will also be provided to support the science content expertise of our teachers.

All curriculum and print materials will be 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

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) Middle School Site-Based PL (15 hours)
Some/Most Teachers	Elementary NGSS Summer Institute (5 days) Buy Back Day PL Sessions (2 days)	Middle School NGSS Summer Institute (5 days)
Selected Teachers	NGSS Video Project (5-7 hours) Science Resource Teacher Work Group (20 hours, described under Teacher Leadership)	
Optional	Science Fair and Family Science Workshops (2 hours each)	

Elementary Site Based Professional Learning

In 2015-16, each elementary school is expected to host at least three science professional learning sessions for their entire staff. This goal builds on similar expectations from the past three 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, instructional rounds, and walk-throughs by principals. Other teacher leaders from current or past science projects (CAL:BLAST, PRACTISE, BAYSCI Leadership, BASP) will also be encouraged to assist.

PROJECT DESCRIPTION

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 three 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 (1.5 hours) on most days.

This series builds upon the presentations in previous 4 years. In 2014-15, the content of these sessions include the new OUSD curriculum, NGSS three dimensional learning, and protocols and tools for implementing the standards. There was a dramatic increase in the number of teachers attending each session in 2014-15 due to interest in the new standards and curriculum. We expect the level of interest and commitment from teachers and administrators to increase next year.

Middle School Site-Based Professional Learning

In addition to attending the Secondary Districtwide Science Professional Learning sessions, each school site is expected to devote an additional Wednesday afternoon each month for their science department to engage in collaborative inquiry. The purpose of this time is for improving individual teaching and aligning practices and expectations across the department. Topics include:

- Teambuilding
- [illegible]
- Identifying and [illegible] strategies to improve student learning
- Refining an investigable question and designing a plan
- Implementing the strategy across the grades and collecting student work
- Analyzing student work and/or gathering observation data
- Revising the strategy or protocol for iterative cycles
- Documenting the work and lessons learned

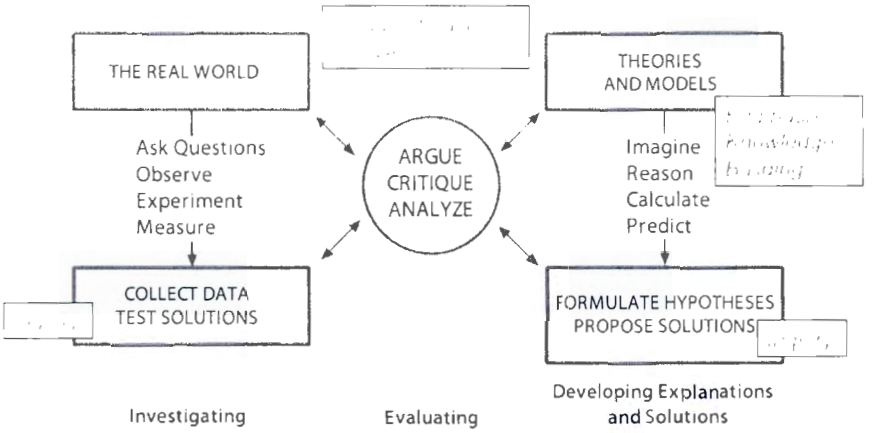
These sessions are planned and facilitated by the Science Teacher Leaders at each site, and are supported by the district monthly teacher leader sessions described in the next section of the proposal

PROJECT DESCRIPTION

NGSS Summer Institutes

Elementary NGSS Summer Institute

The main theme of the NGSS Elementary Summer Institute is three dimensional learning; incorporating physical science core ideas, crosscutting concepts, and science and engineering practices to build explanations of phenomena. The practice of argumentation from evidence will be a key element in developing explanations and models, as described in the following figure adapted from NGSS.



The institute will also focus on the language demands of the science and engineering practices, and using science to create the context for language use and development. Classroom academic discourse will continue to be a central component, including the use of norms and protocols to provide equitable access to all students and create the social emotional context to build science understanding. SIRA and the FOSS curriculum will serve as the foundation for the institute.

Much of the content will be drawn from previous summer institutes and professional learning sessions [illegible] Language Structures. The Institute will be a mixture of large group and grade levels [illegible] teachers of different backgrounds. Team planning time will be [illegible] integrate the content into their instruction. Details of the Academy will be planned with BayScI, university partners, teacher leaders, and the elementary team in March 2015.

The week long institute takes place June 2015. Elementary schools will be invited to send teams of 3-5 teachers to participate. Up to 60 participating teachers from 12-15 school sites will serve as a group of master science teachers at each of the participating schools. They are expected to build the school's science capacity and contribute to science implementation and sustainability by working with colleagues during the school year. Principals will be asked to support their teachers to meet these goals.

PROJECT DESCRIPTION

Applications for schools will be available March 2015. Priority will be given to schools that have not been in past schoolwide science professional development projects. The goal is to eventually provide all 54 school sites with a deep professional learning and the necessary support to improve their science program.

Additional follow up PL will be provided on Buy Back Days and through onsite coaching visits during the school year. A subset of teacher will participate in the NGSS Video Project described in subsequent sections.

Middle School NGSS Summer Institute

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 [illegible] curriculum in Spanish:

- Academic literacy (close reading, academic discussion, writing from evidence)
- Science and engineering practices (particularly developing models and explanations)
- Science notebooking
- Formative and summative performance assessment
- Establishing a classroom culture for inquiry

Afternoon sessions will be in grade-level teams working backwards from formative and summative assessments to model and understand student outcomes. Teachers will become familiar with the content of first semester units, as well as how to access all of the digital curriculum resources available to them. 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.

All middle school science teachers will be invited to attend and up to 50 will be accepted. A subset of teacher will participate in the NGSS Video Project described in subsequent sections.

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 three years, the district [illegible] centralized PL events based on our target areas. With the increased need to support CCSS and [illegible] school sites to attend the centralized Buy Back Day PL events. In 2015-16, the Science Department will provide professional learning on the October and January Buy Back Days for K-8 teachers.

The elementary teachers who attended the NGSS Summer Institute will be primary participants in the elementary BBD session. They will be building and applying their learning from the summer. Science Resource Teachers and other interested teachers will also be invited to participate for a total of 100+

teachers each day. After a general session, there will be breakout sessions that focus on pedagogical topics of interest, such as academic discussions, science notebooks, language development in science, reading complex text, claims and evidence, or argumentation across subject areas. Student work and videos from participating teachers will be incorporated. Teachers will also have time to plan and incorporate SIRA with their instruction.

Middle school science teachers will similarly build upon the NGSS Summer Institute, Second Wednesday PL and Site based PL. Most science teachers are expected to attend.

Coaching Support

Science Department Specialists will provide onsite-coaching support in a limited capacity to the following three groups:

- Support the E ementary NGSS Summer Institute participants with onsite coach ng visits during the school year
- Work with K 8 teachers who are participat ng in the NGSS Video Project to plan, film, and edit teacher and student interactions representing best practices.
- Provide technical assistance to schools that previously have received intensive support for science teaching over the past few years, and support their leaders. Depending on the needs of the school, this could include meeting with the Lead Science Teachers and principal, attending ILT meetings, or supporting teachers and principals during instructional rounds and walk-throughs

NGSS Video Project

Implement ng NGSS requires substant al changes in classroom practices in the absence of strong models and exemplars. Bec use the standards are new, there are few accessible examples of an NGSS aligned lesson for teachers to reference or learn from. Videos can serve as an important professional development tool for changing teacher practice. In a professional learning setting, a video clip can capture the richness, challenges, and complexities of good teaching in a short amount of time. At this time, there is a lack of high quality science teaching videos that support professional learning related to NGSS. Therefore, the goal of the NGSS Video Project is to create a high quality video library of classroom instruction that models NGSS practices and tools for the purposes of professional learn ng.

Over the past two years, the OUSD Science Department has successfully produced nine NGSS focused [illegible] formal media production protocol has been developed to plan, film, and edit footage to create high quality content, audio, and video. In addition, the Science Department has established a partnership with KDOL, the district's television studio, who is able to provide interns who film and edit the videos. The planning and filming process also provides professional learning opportunities for the participating teachers. Before filming, they receive coaching on the lesson by one

of our specialists, including pre and post filming sessions to provide planning assistance and feedback. Teachers are asked to reflect on their teaching and plan their lessons in detail.

Currently all the videos are focused on student writing, academic discussions, and student reasoning. These represent the District's current priorities and allow for a common focus with CCSS ELA and Mathematics. This grant will support the production of twenty additional videos demonstrating a range of NGSS components, K-8 grade levels, with diverse student and school representation. With all the equipment already available, the major expenses are intern hours and stipends for teacher participation. An estimated 20-30 hours per video will be required. Once completed, we plan to share the videos and accompanying professional learning documents at no cost on our district website.

Elementary Science Resource Teacher Work Group

The Science Resource Teacher Work Group will continue to meet monthly as a professional learning community. The goal 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. The meetings focus on managing multiple classes of students, making connections with other classroom teachers for extending science instruction, and coaching and adult learning strategies. Participants will also share successes and challenges through consultancies. Meetings rotate between different teachers' classrooms in order to share classroom organization and management strategies.

Additionally, there is a new district plan to provide a Site-Based Specialist to every school in 2015-16. 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. Schools who choose to have a science Site-Based Specialist will also participate in this Work Group.

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 developed and piloted in 2014-15. It will be made available to all elementary schools in 2015-16. Additional details are in the subsequent Family, Youth, Community Outreach section.

PROJECT DESCRIPTION

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 four 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 [illegible] Teacher Leaders are appointed by Principals and regularly meet with them to establish school [illegible] and, where applicable, are also expected to serve on the school's Instructional Leadership Team.

The district Science Department collaborates with the ELA and Mathematics Departments to support a common teacher leadership model across all three content areas. Specialists and Coordinators in each Department meet monthly to plan and coordinate the work that takes place during the Summer Leadership Institutes and Monthly Collaborative Meetings.

In 2014, OUSD became a part of the WestEd NGSS Early Implementation Initiative. During the 2015-16 school year, existing teacher leadership activities will be merged with the Initiative's events. Further details about the Initiative are in the External Collaborations section. Specific teacher leadership [illegible] are described in detail below.

Summer Leadership Institute

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

We hope the schedule will allow us to continue a common timeslot for the three Science, ELA and Mathematics Teacher Leaders from the same school to plan and identify site priorities for the year. [illegible] school leadership teams participate for a part of this time. This collaboration has helped form the [illegible] of the district Instructional Leadership Team (ILT) in previous years.

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. 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. As described previously, each Lead Science Teacher (LST) is expected to lead or co-lead at least three professional learning sessions with their entire staff. Materials and training for the different sessions will be provided during the monthly meetings. Because most elementary teachers teach all subjects, it is very important to coordinate the work across different content areas. To this end, there will be two joint sessions a year with ELA and Mathematics Teacher Leaders.

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 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.

Community Resources for Science

Membership to Community Resources for Science (CRS) provides additional resources for K-8 Teacher Leaders to support their schools. CRS offers hands-on activities in the classroom, but more importantly connects teachers with a network of scientists, museums, and external professional development programs in order to bring more science support to students. Over the past few years, CRS has been a partner in bringing the larger scientific community into OUSD classrooms

Principal Professional Learning

For the past four 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 No Child Left Behind and the 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.

[illegible] the district Science Department will continue to work with district [illegible] to provide an intensive focus of formal science professional learning to all elementary [illegible] 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 on the NGSS Collaborative Leadership Team.

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, classroom observations using protocols and tools developed by the Science Department, and instructional rounds. 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.

PROJECT DESCRIPTION

Family Science Events

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 2013-14, over 40 schools hosted science fairs and at least 23 schools hosted family science nights.

In addition to workshops described in the Teacher Professional Learning section earlier, 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. The Science Department hopes to dramatically increase the number of family science events district wide and elevate the quality of such events to reflect current science topics and NGSS sophistication.

A longer term vision for high quality family science engagement includes:

- Encourage high quality family science events at all schools
- Design additional family science events with student achievement in mind, such as incorporating strategic parent education modules to support science learning
- Create information pathways to connect the wealth of science-based resources in the Bay Area to the families and communities of Oakland
- Increase the role of families in the science curriculum and community science

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 2014, 43 schools (41 elementary, 2 middle schools) submitted 252 projects. The evening celebration has been attended by over 850 teachers, students, and family members and featured activities from 12 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 work has evolved over time supporting teachers to help students create projects that connect to the district curriculum in their classrooms and NGSS practices.

Dinner with a Scientist

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.

PROJECT DESCRIPTION

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.

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 thirteen 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 field test NGSS tools, processes, and assessment item prototypes for quality improvement and refinement. 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 and allow time for in depth lesson studies. 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 will be able to 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.

BaySci

BaySci is designed to strengthen inquiry-based science instruction in the Bay Area through a concerted effort to support networks of local school districts, district leadership, schools, and teachers with the capacity to deliver science. The goal of the OUSD – BaySci partnership is to further district and teacher based science education reform in Oakland through district-level planning and technical assistance focused on leadership and capacity-building around elementary science education. A key feature of BaySci is that it addresses the specific individual needs expressed by the district by taking strategic advantage of top-level district and school site leaders' participation for the purpose of

prioritizing high quality science instruction within the district and building leadership capacity at various ranks in the district administration.

The current partnership includes technical assistance on professional learning activities and supporting systemic science implementation. For 2015-16, BaySci will continue in a similar role. The scope of work includes:

Provide technical assistance for the Elementary Team including NGSS transitional strategies, assessments, English Language Learners, and literacy integration.
Assist in the design and delivery of the Summer Institute.
Support the development and analysis of the SIRA.

Exploratorium

The Exploratorium is one the premiere science museums in the world with an extensive Teacher Institute that supports educators with classroom versions of their exhibits and a large collection of science activities this year. During 2014, OUSD and the Exploratorium began to collaborate on the OUSD Middle School NGSS Curriculum. While curricular connection was not as helpful as originally hoped, a common interest in equity and leadership in science education emerged. On-going conversations will take place in 2015 to seek out opportunities to partner in this effort.

The Practicum Academy to Improve Science Education (PRACTISE)

The PRACTISE project is a 3 year research study that provides intensive summer and school year professional development to support teachers in their ability to facilitate student discourse. The focus is on improving students' use of evidence-based explanations and argumentation skills in the science classroom. The project also supports FOSS instruction, the District's Science Writing Task, and the newly adopted California English Language Development Standards. The goal of the project is to gain a better understanding of the efficacy of a variety of professional development models to help 3-5th grade teachers improve their practice around student argumentation.

Funded by a DRK-12 National Science Foundation grant, professional development providers from the Lawrence Hall of Science and researchers from the Stanford Graduate School of Education are collaborating with the OUSD Science Department to research the efficacy various models of professional development. The project began the summer of 2013 with 45 Oakland elementary teachers from 19 schools. 2015-16 will be the third and final year of the project.

PROJECT DESCRIPTION

OUSD Science Website

Starting the summer of 2015, the OUSD Science website (http://science.ousd.k12.ca.us) will be redesigned to publically host products and tools related to NGSS implementation. Currently, all our work is primarily available internally to OUSD teachers and leaders. The goal is to share our work with a broader audience of educators as resources are finalized over the course of next year. This includes SIRA, SWT, Middle School NGSS Curriculum, NGSS Video Project, and general NGSS resources.

Regional NGSS Events

As the OUSD Science Department continues to host Oakland Science Partner Meetings in 2015-16, the focus will shift towards guiding other organizations to integrate NGSS with their programs. Over the past two years, a number of organizations have asked us to speak or present workshops to their staff so they can better incorporate NGSS into their existing science programs. These include the Oakland Zoo, Chabot Space and Science Center, and the Oakland Museum. With over 70 informal science organizations, university departments, and corporate partners in our network, we hope this will bring more aligned and higher quality learning opportunities for our students within the broader science education community.

OUSD will also host at least one NGSS Mini-Conference for other district teams to attend and learn more about our programs and tools. 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. This year, we had [illegible] districts express interest in visiting our department. With limited capacity [illegible] event will allow up to 50 participants to learn about our programs at one time. The event will tentatively have large group and small group breakout sessions by topic or program over the course of a Saturday.

CSTA/NSTA Conference Presentation

The entire Science Department plans to attend and present at the California Science Teacher Association's Annual Conference in Sacramento, October 2 - 4, 2015, and the National Science Teacher Association's National Conference on Nashville, March 31–April 3, 2016. 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 a total of 10+ proposals, representing different aspects of our work with an emphasis on NGSS.

When the team attended the National Science Teacher Association's Area Conference in 2014, ten workshop sessions were accepted and presented to over 730 teachers and administrators. We hope to have an even larger impact in the 2015-16 school year.

PROJECT DESCRIPTION

State Level NGSS Support

[redacted] 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 and serving on the NGSS Curriculum Framework and Evaluation Criteria Committee.

Outcomes, Evaluation, & Sustainability

During the 2015-16 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
- 120 minutes of science instructional minutes met in all classrooms
- Science Instructional Reflection and Assessment (SIRA) completed and administered districtwide in grades 3-5th
- 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
- [illegible] participate in the Elementary Summer Institute
- [illegible] middle school science teachers attend each monthly, Districtwide Science Professional Learning Session
- 80% of middle schools hold monthly Site-Based Professional Learning
- 50 teachers participate in the Middle School Summer Institute
- 56 (80%) of middle school science teachers and 100 elementary school teachers attend each Buy Back Day PL Sessions
- 20 new videos completed for the NGSS Video Project

Teacher Leadership

- Teacher leaders are selected by principals at every elementary and middle school
- At least 50% 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

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-8 schools organize Family Science Nights
- 45% 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 Regional NGSS Mini-Conference successfully executed with at least 50 participants each

Changes in K-8 Teacher Pedagogical Practices

80% of teachers use science notebooks in conjunction with the FOSS curriculum or Middle School NGSS Curriculum

90% of teachers actively support English Learners with language scaffolds

80% of teachers incorporate academic discussions into each lesson

OUTCOMES, EVALUATION, & SUSTAINABILITY

We will use the following methods to evaluate our work:

Curriculum & Assessment

SIRA – survey of teacher use and feedback

Middle School NGSS Curriculum – NRC rubric, 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

Level and/or frequency of use of CRS resources

Teacher Leader fall and spring narrative reflections and self-evaluations

Principal reflection, planning, and self-assessment documents from the start and end of the school year

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

Completion of contracted work

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

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 eight years. Through strategic planning, sustainability has been a key consideration throughout the work. For example, we have focused on capacity building for school principals as well as 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 2015-2016, 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.

Staffing & Project Budget

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. 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 2015-16, 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 - Mathematics and English Language Arts Departments. One of the goals is to have a specialist from each of these three core subject areas act as a liaison to each of the Regional Networks (three elementary, one middle school).

Note that the Science Department Specialists are different from the new Site-Based Specialist positions that will be placed in every school during the 2015-16 school year. 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.

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

- Elementary Team
  - Elementary Coordinator, Claudio Vargas
  - 3 Elementary Specialists
  - SMART Center Clerk
- Middle School Team
  - Secondary Coordinator, Phil Getty
  - 2 Middle School Specialists
- Science Manager, Caleb Cheung
- Administrative Assistant

OUSD is committing to fund all staffing positions with the exception of the second Middle School Science Specialists.

STAFFING & PROJECT BUDGET

For the 2015-16 school year, June 15, 2015 – June 14, 2016, the OUSD Science Department is requesting a total of $499,970 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.

- Summer NGSS Institutes
- SIRA Development and Pilot
- Middle School Curriculum Development Team
- NGSS Video Project
- Regional NGSS Mini-Conference (Food, Materials)
- District Science Fair
- Dinner with a Scientist
- CSTA & NSTA Conference Presentation
- BayScI Program Support
- One Middle School Science Specialist

Additional funding for the programs outlined in this proposal include commitments from OUSD and the WestEd NGSS Early Implementation Initiative. The full budget is listed on the following pages.

STAFFING & PROJECT BUDGET

Funding Area	Days	Ppl	Rate	Hrs	Total	OUSD	Bechtel	WestEd Initiative
ES Summer NGSS Institute (5 days)								
Participant Stipends ($150/day, 18% benefits)	5	60	$ 177		$ 53,100		$ 53,100	
Teacher Presenters	5	2	$ 35	6	$ 2,100		$ 2,100	
University/Partner/Teacher Presenters	5	2	$ 100	3	$ 3,000		$ 3,000	
Materials		60	$ 100		$ 6,000		$ 6,000	
Food	5	65	$ 13		$ 4,225		$ 4,225	
Subtotal					*$ 68,425*		*$ 68,425*	
MS Summer NGSS Institute (5 days)								
Participant Stipends ($150/day, 18% benefits)	5	50	$ 177		$ 44,250		$ 44,250	
Teacher Presenters	5	2	$ 35	6	$ 2,100		$ 2,100	
University/Partner/Teacher Presenters	2	2	$ 100	3	$ 1,200		$ 1,200	
Materials		50	$ 100		$ 5,000		$ 5,000	
Food	5	54	$ 13		$ 3,510		$ 3,510	
Subtotal					*$ 56,060*		*$ 56,060*	
ES Summer Leadership Institute								
Participant Stipends ($150/day, 18% benefits)	5	54	$ 177		$ 47,790	$47,790		
Materials		54	$ 75		$ 4,050	$4,050		
Food	5	62	$ 13		$ 4,030	$4,030		
Subtotal					*$ 55,870*	*$ 55,870*		
MS Summer Leadership Institute								
Participant Stipends ($150/day, 18% benefits)	5	16	$ 177		$ 14,160	$14,160		
Materials		16	$ 75		$ 1,200	$1,200		
Food	5	19	$ 13		$ 1,235	$1,235		
Subtotal					*$ 16,595*	*$ 16,595*		
ES SIRA Development and Pilot								
Participant Stipends ($150/day, 18% benefits)	25	9	$ 177		$ 39,825		$ 39,825	
Materials		6	$ 100		$ 600		$ 600	
Food	10	9	$ 13		$ 1,170		$ 1,170	
School Year Meetings	5	9	$ 35	2	$ 3,150		$ 3,150	
Subtotal					*$ 44,745*		*$ 44,745*	
MS Curriculum Development Team								
Participant Stipends ($150/day, 18% benefits)	15	12	$ 177		$ 31,860		$ 31,860	
Materials		12	$ 100		$ 1,200		$ 1,200	
Food	5	12	$ 13		$ 780		$ 780	
School Year Meetings	5	12	$ 35	4	$ 8,400		$ 8,400	
Materials for Classrooms		70	$ 700		$ 49,000		$ 49,000	
Subtotal					*$ 91,240*		*$ 91,240*	

STAFFING & PROJECT BUDGET

Funding Area	Days	Ppl	Rate	Hrs	Total	OUSD	Bechtel	WestEd Initiative
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 Site-Based 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		
Science Resource Teacher Work Group	10	20	$ 35	2	$ 14,000	$ 14,000		
NGSS Video Project					$ 20,000		$ 20,000	
Engineering Extravaganza Family Science Night					$ 5,000	$ 5,000		
Family Science and Science Fair Workshops	2	40	$ 35	2	$ 2,800	$ 2,800		
Subtotal					*$ 277,550*	*$ 257,550*	*$ 20,000*	
ES & MS Teacher Leadership								
Teacher Leader Stipends (includes 18% benefits)		70	$ 2,000		$ 140,000			$ 140,000
Substitutes for Lesson Study Sessions	4	70	$ 150		$ 42,000			$ 42,000
Teacher Leader Materials		70	$ 50		$ 3,500	$ 3,500		
Community Resources for Science Membership		70	$ 30		$ 2,100	$ 2,100		
Subtotal					*$ 187,600*	*$ 5,600*		*$ 182,000*
FOSS Curriculum Implementation								
FOSS Kit Refurbishment Materials					$ 70,000	$ 70,000		
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	5	$ 6	8	$ 7,200	$ 7,200		
Subtotal					*$ 92,000*	*$ 92,000*		
Other								
WestEd NGSS Leadership Team (Stipends, Subs)		8	$ 5,500		$ 44,000			$44,000
Regional NGSS Mini-Conference (Food, Materials)		50	$ 40		$ 2,000		$ 2,000	
District Science Fair					$ 6,000		$ 6,000	
Dinner with a Scientist	3		$ 8,000		$ 24,000		$ 24,000	
CSTA & NSTA Conference Presentation	2	8	$ 1,200		$ 19,200		$ 19,200	
BaySci Program Support					$ 35,000		$ 35,000	
Subtotal					*$ 130,200*		*$ 86,200*	*$ 44,000*
Staffing (includes benefits)								
Elementary Science Specialists		3.0	$ 105,000		$ 315,000	$ 315,000		
Middle School Science Specialists		2.0	$ 105,000		$ 210,000	$ 105,000	$ 105,000	
Science Coordinators (Cotty, Vargas)		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	$ 80,000		$ 80,000	$ 80,000		
Subtotal					*$ 1,071,000*	*$ 966,000*	*$ 105,000*	
				Subtotal	*$ 2,091,285*	*$ 1,393,615*	*$ 471,670*	*$ 226,000*
						Indirect (6%)	*$ 28,300*	
						Total	*$ 499,970*	

Contact

Caleb Cheung, Science Manager
Science & Wellness Department
Oakland Unified School District

4[illegible] Street Oakland CA 94619
[illegible]
caleb.cheung@ousd.k12.ca.us
http://science.ousd.k12.ca.us

Appendix

Elementary NGSS Implementation Timeline
Middle School NGSS Implementation Timeline
Elementary School Site PL Sessions 2014-15

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	Teachers	Teacher Leaders	Administrators	New Tools/Resources
Year 1 2013-2014	Awareness	District, teacher leaders, principals and site PL align tightly to build a shared vision and identify needs for successful K-5 NGSS implementation for all students.	Make explicit connections between FOSS and CCSS Use science notebooks to support students' writing Implement Academic Discussions as a districtwide focus Support students' reading complex science textbooks Support science and language learning for ELs through science Attend school-site science PL	Collaborate with principal Collaborate with ELA and math counterparts to implement instructional shifts Participate in science-focused instructional rounds Coordinate and provide on-site PL sessions Participate in the development of SIRA Attend monthly LST meetings Attend Summer Leadership Institute	Be able to explain NGSS connection to CCSS Advocate for science content in CCSS-ELA instruction Develop and build high functioning leadership teams within schools Support teacher collaboration and leadership Participate in instructional rounds and walk-throughs Attend Principal Science PL	Science 5x8 Card Observation Protocol Summer PL and Leadership Institute School site PL Materials FOSS Curriculum SWT SIRA
Year 2 2014-2015	Initiation	District implements NGSS tools and assessments within the FOSS curriculum.	Use formative assessment collaboratively to plan and adjust instruction Attend district PL on SIRA Implement and analyze the SWT and the SIRA data in teams Focus on high impact NGSS Practices and Crosscutting concepts in FOSS Attend school-site science PL	Collaborate with ELA and math counterparts, ILT and administration to develop site goals, master schedule, and site PL Participates in instructional rounds and walk-throughs Facilitate peer observations using 5x8 card Participate in the SIRA development and pilot Facilitate 6 site-based PLs for all teachers Attend monthly LST meetings Attend Summer Leadership Institute	Collaborate with science, ELA and math TLs to articulate vision/goals for elementary science Create a culture of observation and feedback Facilitate peer observations and feedback using 5X8 card Support teacher collaboration and leadership Participate in instructional rounds and walk-throughs Attend Principal Science PL	SIRA Summer PL and Leadership Institute School site PL Materials
Year 3 – 5 2015-2018	Implementation	Implementation of a new NGSS aligned curriculum based on state timeline. District assessment data and teacher collaborations inform the direction of continued professional learning for teachers, teacher leaders, and administrators.	Implement district recommended NGSS curricula Continue to use NGSS aligned instructional practices Administer district assessments and analyze data as a site team Attend school-site and district science PL Plan and execute showcases of student learning for families and community	Collaborate with ELA and math counterparts, ILT and administration to revise and implement site goals, master schedule, and site PL Participates in science-focused instructional rounds and walk-throughs Facilitate peer observations using 5x8 card Facilitate site-based PL on NGSS implementation Attend monthly LST meetings Attend Summer Leadership Institute	Collaborate with science, ELA and math TLs to revise and implement vision/goals for elementary science Support teacher collaboration and leadership Participate in instructional rounds and walk-throughs Attend Principal Science PL	New Curriculum Materials Summer PL and Leadership Institute School site PL Materials

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Secondary 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	Teachers	Teacher Leaders	Administrators	New Tools/Resources
Year 1 2013-2014	Awareness	District, teacher leaders, principals and site PL align tightly to build a shared vision and identify needs for successful 6-12 NGSS implementation for all students.	Implement and share pilot lessons that teach, scaffold & assess NGSS Meet monthly on site to align instruction around a shared vision for all students Attend monthly district second Wed PL Establish content-specific communities of teachers	Collaborate with principal Collaborate with ELA and math counterparts to implement aligned protocols Facilitate monthly science PLC on site Facilitate peer observations Attend monthly district PL and teacher leader PL Attend Summer Leadership Institute Support hiring and induction	Able to explain NGSS, 5x8 card, CER (claims, evidence, and reasoning), and inquiry /engineering practices Can articulate vision and goals of science department Support teacher collaboration and leadership Collaborate to map site assets and needs Attend Principal Science PL	NGSS Implementation Rubric Science 5x8 Card Observation Protocol Teacher Leader Site Planning Documents CER Discourse Protocols Summer PL and Leadership Institute Pilot lessons All PL materials on website
Year 2 2014-2015	Initiation	District implements pilot NGSS curriculum and assessments.	Implement pilot curriculum units that teach, scaffold & assess NGSS Meet monthly on site to support effective collaboration Attend monthly district second Wed PL Maintain content-specific communities of teachers Plan and execute at least one showcase of student learning for families and community	Collaborate with ELA and math counterparts, ILT and administration to develop site goals, master schedule, and site PL Facilitate monthly department PLC aligned to department vision/goals Facilitate peer observations using 5X8 card Attend monthly district PL and teacher leader PL Attend Summer Leadership Institute Support hiring and induction	Uses 5x8 card as a tool to observe and provide feedback to teachers Support vision/goals of science department Support teacher collaboration and leadership Meet monthly with teacher leaders Elicit input from teacher leaders on school site PL, hiring, master schedule and site goals Attend Principal Science PL	Course scope and sequences Pilot curriculum units Science materials Technology to support NGSS Pilot district assessments Summer PL and Leadership Institute Initial data analysis
Year 3 – 5 2015-2018	Implementation	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.	Implement district recommended curricula that teach, scaffold & assess NGSS Administer district assessments and analyze data as a site team Meet monthly on site to support highly effective collaboration Attend monthly district second Wed PL Maintain content-specific communities of teachers Student learning reflects the science 5x8 card Plan and execute showcases of student learning for families and community	Collaborate with ELA and math counterparts, ILT and administration to revise and implement site goals, master schedule, and site PL Facilitate monthly department PLC aligned to department vision/goals and data Facilitate peer observations using 5x8 card Attend monthly district PL and teacher leader PL Attend Summer Leadership Institute Support the Science Department in building partnerships and acquiring resources Support hiring and induction	Use 5x8 card and site specific metrics to observe and provide feedback to teachers Support vision/goals of science department Support teacher collaboration and leadership 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 and fulfill UC a-g lab requirement Attend Principal Science PL	NGSS-based curricula Revised Linked Learning science curricula District assessments Summer PL and Leadership Institute

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OUSD

Elementary Science Site-Based Professional Learning Sessions
2014-15

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 Claudio Vargas, Elementary Science Coordinator, (claudio.vargas@ousd.k12.ca.us) 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.