

# Bridging Curriculum and Technology:

How San Francisco Unified School District and Nearpod are Changing the Way Students Learn Math with the Support of the Salesforce.com Foundation

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## Executive Summary

In 2014, Nearpod partnered with San Francisco Unified School District (SFUSD) and the Salesforce.com Foundation to maximize the impact of the district's technology investments and collaborate with math content specialists to create and share over 100 Common Core aligned math lessons for middle school students.

During pilot tests, SFUSD middle school teachers who incorporated Nearpod into their classroom instruction experienced and identified several benefits, including the abilities to:

- Deliver instruction that is aligned with content standards directly to students
- Provide engaging and interactive experiences
- Vary the delivery method of instruction
- Diagnose student learning needs
- Tailor the learning experience to meet individual student needs

Use of the Nearpod application and content is scaling within SFUSD. District teachers are implementing Nearpod-enabled math lessons, as well submitting and sharing self-created works with colleagues within a private online library. Since September 2014, there have been more than 800 lessons taught with Nearpod in SFUSD's middle schools.



SFUSD middle school students use Nearpod to access math lessons created in collaboration with the district's Math team.



Students can follow along with a teacher's live presentation or navigate a lesson at their own pace.

## Organizations with impact



SFUSD serves over 57,000 students in 129 schools every year. The district's mission is "to provide each student with an equal opportunity to succeed by promoting intellectual growth, creativity, self-discipline, cultural and linguistic sensitivity, democratic responsibility, economic competence, and physical and mental health so that students can achieve their maximum potential."<sup>1</sup> SFUSD uses a Core Curriculum aligned with the Common Core State Standards in English Language Arts and Mathematics to prepare and graduate students with the skills and knowledge to be college and career ready in the 21st Century.

The Salesforce.com Foundation is a global leader in corporate philanthropy. Their approach leverages company product, equity, and time to make a difference in communities around the world, and calls on other entrepreneurs to do the same. Since the Foundation's inception in 1999, employees have committed more than 500,000 hours of their time to volunteer and pro bono projects, more than 20,000 organizations in 110 countries are using donated and discounted Salesforce licenses and more than \$50 million in grants have been awarded.



Nearpod is an award-winning platform for sharing educational content, assessing and reporting student understanding in real-time, and facilitating student creativity and personalized learning. Nearpod enables teachers to deliver content to students' tablets, smartphones, and computing devices in and outside of the classroom.

<sup>1</sup> San Francisco Unified School District, "Our Mission, Vision, and Goals," [www.sfusd.edu](http://www.sfusd.edu), (March 1, 2015).

## Nearpod partners with SFUSD and the Salesforce.com Foundation

In Fall 2013, the Salesforce.com Foundation donated \$2.7 million and thousands of volunteer hours to San Francisco Unified School District (SFUSD) to support high quality and innovative instruction in the district's middle schools.<sup>2</sup> SFUSD and San Francisco Mayor Ed Lee have identified the middle grades as an important transition period in students' education pipeline.<sup>3</sup> "We have started with the middle schools because that is where we see a need in our diverse community. We want to ensure that they are engaged and are ready to perform well in high school," says Michele Dawson, Supervisor of Educational Technology for SFUSD.

More than half of the Salesforce.com award went to technology and technology infrastructure, including the introduction of 1,500 iPads equipped with applications and digital content, for select middle school math and science classrooms.

Technology integration efforts that truly improve student outcomes require more than devices, however; many education technology initiatives fail by investing only in hardware and software, and not in the broader supports necessary to revolutionize learning. With this in mind, Nearpod was selected and awarded a grant to help maximize the impact of the SFUSD and

*It's imperative that we start using the tools that leverage 21st century skills (creativity, communication, collaboration, and critical thinking). These skills prepare our students to join the workforce in this great city. In the San Francisco Bay Area, we are the epicenter of technology in the world. We need to prepare our students to enter that world.*

Michelle Dawson, SFUSD Supervisor of Educational Technology

Salesforce.com Foundation technology investments and contribute to student mastery of 21st century content in mathematics. Nearpod's charge was to develop digital education resources to be used on school iPads and provide teacher training on their use.

The collaboration between SFUSD, the Salesforce.com Foundation, and Nearpod serves SFUSD's District Student Achievement Goal to "create learning environments in all SFUSD schools that foster highly engaged and joyful learners and that support every student reaching his or her potential."<sup>4</sup>

<sup>2</sup> Bob Butler, "San Francisco Middle Schools Receive \$2.7M Donation From Salesforce CEO," CBS SF Bay Area, <http://sanfrancisco.cbslocal.com/2013/10/07/san-francisco-middle-schools-receive-2-7m-donation-from-salesforce-ceo/> (October 7, 2013).

<sup>3</sup> City and County of San Francisco, Office of the Mayor, "Mayor's Middle School Leadership Initiative: A Force for the Future," [www.sfmayor.org/index.aspx?page=947](http://www.sfmayor.org/index.aspx?page=947), (March 1, 2015).

<sup>4</sup> San Francisco Unified School District, "SFUSD's 2013-15 Strategic Plan." [www.sfusd.edu](http://www.sfusd.edu), (March 1, 2015).

## SFUSD implements the Common Core State Standards for Mathematics; Nearpod adds the interactive component

At the time that the San Francisco Unified School District, Salesforce.com Foundation, and Nearpod partnership was formalized, SFUSD was in the process of developing its Math Core Curriculum Units - a multi-year effort of over 100 teachers in support of a district-wide implementation of the Common Core State Standards. The new Curriculum Units emphasize inquiry-based learning and classroom discourse, and include lessons building to four types of tasks:

1. Entry Tasks for gathering and helping students access their prior knowledge,
2. Apprentice Tasks for making sense of new concepts and skills,
3. Expert Tasks for applying learning to novel, real-world, creative, or complex contexts, and
4. Milestone Tasks for assessing students' understanding, including their ability to express and justify their thinking.

Nearpod worked closely with the SFUSD Math Team to identify learning objectives and activities that could be well served by the interactive features of the software. The two partners then collaborated to develop Nearpod-enabled lessons. Math Content Specialist Glenn Kenyon has over 25 years of teaching experience. He describes his initial impressions of Nearpod:

*“ We thought Nearpod was a good fit for many of our tasks, because it allows interactivity between the students, student groups, and the teacher. Many of the tasks benefitted from a more contextualized experience, so for example we could introduce a topic with a video, incorporate web pages, web resources, and games, and ask students to draw and share their work amongst each other. ”*

Glenn Kenyon, SFUSD Math Content Specialist

Kenyon and other Math Team members collaborated to create task-based prototype lessons in Nearpod. The lessons used a mixed media approach where some of the activities were completed exclusively within the iPads, and some included the use of pencil and paper (which was then captured and imported into Nearpod using the camera and the Draw It feature). The process of translating the existing Curriculum Unit tasks and lessons allowed the SFUSD Math Team to re-visit and analyze the strengths and weaknesses of each lesson plan from a pedagogical perspective. Reworking the lessons for the multimedia-rich and internet-connected Nearpod learning environment afforded the incorporation of additional contextual information including images, audio-visual input, and web resources.

## Learning with technology piques student engagement in pilot lessons



A teacher can use Nearpod to quickly send an example of student work to all users' devices in order to generate discussion or reinforce concepts.

Over the spring, Nearpod and the SFUSD Math Team brought the prototype lessons to three middle school math classrooms for pilot testing. *"The goal of the pilot tests was to validate our approach and ensure that the technology was going to support the Curriculum Units in an efficient way"* says educator and Head of Product at Nearpod, Sebastian Feldman.

One of the three pilot lessons was conducted at Dr. Martin Luther King, Jr. Middle School in teacher Tina Hu's 7th grade classroom. The Nearpod-enabled lesson involved re-teaching probability, a concept that had been introduced and taught without technology a month earlier. When the lesson was re-taught with Nearpod, *"students were very engaged with the topic,"* observed Kenyon. *"They were interested in learning about probability, and were particularly*

*fascinated that it came to them in a digital format."*

Students also indicated a preference for learning using technology. *"We did a vote for kids at the end of the lesson, and the kids said they'd rather do the Nearpod version than the pencil-and-paper version,"* says Hu. She observed that *"when I used Nearpod, I had students write their answers on their iPads, and showed those back to the whole class. Students were really excited for me to share their work so that all their classmates could see what they've been doing. There was more student ownership of their work."* The application also automatically saved those student artifacts for Hu to revisit for formative assessment or building student portfolios.

Nearpod's Feldman, who accompanied and observed the pilot lessons, explains, *"Real-time sharing is powerful for teachers and a very effective way to engage students in the learning process."*

*" This model is more aligned with how students are already interacting in the digital world - they are already sharing and connecting with others through their smartphones and iPads. It makes sense that they would relate to doing the same in the classroom. "*

Sebastian Feldman, Nearpod Head of Product

## Nearpod facilitates personalized teaching

Teachers in the three pilot classrooms appreciated the ability to collect results in real-time through Nearpod. This was an important differentiator from other technology solutions they had tried in the past. It gave teachers an immediate view of each learner's level of understanding, and enabled them to respond to that data by adjusting the pace and content of their instruction in real time. "I have instant feedback on student comprehension," says Hu. "For example, I can create a quiz on Nearpod, have all the kids take it, and can automatically see who got the correct answer and who didn't. I can target the students who are struggling and give them extra help."

Math teacher Shauna Poong also piloted Nearpod in her classroom at Marina Middle School. Sharing, displaying, and responding to student work quickly

and easily was a strong affordance of the technology for her teaching. She says,

*"I think it's fabulous. The best part of Nearpod is that it allows students to share their work with me. I can then share particular student examples with the whole class, and we can all discuss it. To me, it pushes the American math class more towards the Singapore model where the idea is that every kid should understand the thinking of every other kid. The application lets you do that very simply."*

Shauna Poong, SFUSD Math Teacher

When teachers incorporate these kinds of constructive classroom feedback into their instruction, students benefit. Helping students monitor their learning produces learning gains across all content areas, knowledge, skill types, and levels of education.<sup>5</sup>

Delivering a Nearpod lesson in its asynchronous mode gave teachers latitude over the pace of a lesson, while still ensuring that the overarching academic objectives are met. "This enables a differentiation model which is really vital to our multi-tiered intervention system," says Dawson. "Learners with different levels of background experience with a topic can work at their own speed to gain knowledge and master skills. They can actually go back and review."

The screenshot shows the Nearpod instructor dashboard. At the top, it says "Use a calculator to find the cube root of 50 correct to 2 decimal places" with a "SHARE" button. Below this is a circular progress indicator showing 100% completion. To the right is a table of student responses:

Estudiante	A	B	C
Thomas	•		
Brian			•
Larissa		•	
Margareth	•		
Christian		•	
Karina			•
Lee	•		
Mary	•		

At the bottom left, there is a legend for the response options: (A) Very Concerned, (B) Fairly Concerned, (C) Not Concerned, and (D) NO ANSWER.

The Nearpod instructor dashboard gives teachers real-time feedback about student responses and comprehension.

<sup>5</sup> Paul Black and Dylan Wiliam, "Assessment and Classroom Learning," *Assessment in Education*, 5, 1. (1998): 7-74.

## Nearpod overcomes classroom technology barriers

Compromising substance for the sake of technology-injected results is a common pitfall made by those leading education technology initiatives and student multimedia projects. Collaborating with the SFUSD content experts helped ensure that activities were designed and conducted to support learning goals. Kenyon found that Nearpod was particularly well-suited for leveraging the interactivity of the iPads while maintaining lesson focus and quality. He says,

*“I’ve been teaching for 27 years. There’s always been a technology component in education, but much of it was going to a computer lab and playing games or doing rote learning through drill practice. Students are engaged with and motivated by the iPad screen in ways that they are not with paper-and-pencil. The trick is to find a balance between the novelty and ‘glitz’ while still addressing the learning objectives. I think that Nearpod offers that because it is interactive while keeping the focus on the subject matter.”*

Glenn Kenyon, SFUSD Math Content Specialist

Using Nearpod also helped bridge the structure of the iPad as a single-user device and the SFUSD



Nearpod enables instructors to incorporate a variety of multimedia content and interactive activities in a lesson. Here, students watch an embedded video.

Math Team’s pedagogical goal to facilitate peer learning and collaboration by providing an avenue for creating and sharing group work. Kenyon and the Math Team encourage teachers to have student groups “create mini posters of their work on a problem. The students then can take a photo of that work and submit it through Nearpod. We’ve found that pattern to be very useful because it enables group interaction and still allows for the power of technology, while preventing an application or the iPad from taking over the class. It is technology in the service of math, instead of trying to do everything inside of technology.”

## Multiple devices; No waiting

The three pilot school classrooms were equipped with good internet connectivity and well-maintained and up-to-date devices to successfully implement the lessons. Teachers and students in the pilots were able to rapidly assimilate to the technology.

In computer lab settings, keeping students on the same task can be time-consuming, requiring an instructor to attend to individual devices one-by-one. Kenyon appreciated having greater and synchronous control over lesson content and pacing. He says,

“ One of the major challenges we’ve heard from teachers about other classroom technologies is that setup and troubleshooting takes up too much classroom time. This was the opposite: it was easy for the teachers to get the lesson up and running, and a seamless process for the students to get an iPad, sign into Nearpod, and begin participating.

Sebastian Feldman, Nearpod Head of Product

“There was an advantage to having many of our tasks placed inside a Nearpod presentation. You don’t have to worry about copies and sharing the work with the students because you can just automatically do that with your finger on the screen. Nearpod allows me to package together the experiences I want the students to have. I don’t get bogged down with trying to find the website on everyone’s computer screen - it’s all there inside the package.”



SFUSD's Math Core Curriculum Units encourage collaboration and peer learning.

## Scaling Up: SFUSD middle school teachers adopt Nearpod for teaching and learning

After the success of the three pilot tests, Nearpod and the SFUSD Math Team worked together to develop a content creation process for designing and producing 100 Nearpod-enabled math lessons. Nearpod designers built templates and translated materials written by the Math Team into Nearpod presentation format. "This setup was very effective because it freed the math content experts to focus on curriculum, lesson flow, and pedagogy without having to spend time addressing graphics and design issues" says Feldman.

The math lessons were posted and distributed to SFUSD teachers within a district-exclusive Nearpod library online. In the library, teachers can access and download this content for use in their own classrooms. They also have the ability to augment and modify those lessons, as well as to submit and publish their own works to the library in order to share with colleagues.

At the end of the summer, the Salesforce.com Foundation and SFUSD held a professional development "bootcamp" for 33 teachers from the 12 middle schools preparing to use iPads in their classroom during the 2014-15 academic year. Nearpod was presented as an SFUSD "signature application" during the bootcamp. Dawson describes the introduction to and adoption of Nearpod by the new class of iPad teachers:

*Nearpod was a very powerful app for the teachers because they could make the connection of going from a static presentation to an interactive presentation. They could transfer from PowerPoint to Nearpod and really create some engaging lessons that were interactive and within which they could have formative assessment, checks for understanding, and ways for students to collaborate in the presentation. During the school year, we followed up with 6 days of professional development in which teachers were able to dive deeper into the signature apps. Again, as we looked at the apps that were most used commonly by teachers, we found that Nearpod always rose to the top because of its ease of use, accessibility, and the ability to create an interactive and engaging classroom.*

Michelle Dawson, SFUSD Supervisor of Educational Technology

**Since September 2014, there have been more than 800 math lessons taught with Nearpod in SFUSD middle schools.** This year, the district will be extending its program to 20 schools and leading additional bootcamps for teachers around engaging students in learning activities that meet the content, skills, and digital demands of both the Common Core State Standards and their Core Curriculum in Math.

## Novel use cases: Nearpod for teacher training

After noting Nearpod's success with middle schoolers in math classrooms, SFUSD's district office realized that the application could also be used to more efficiently deliver teacher training, track compliance, and meet administrative requirements. Dawson shares how SFUSD delivered Nearpod lessons - this time to their teachers - at scale:

“ It has been a surprise. We've used Nearpod in our professional development training by setting self-paced presentations for teachers to go through so that they can get credit for their content areas. For example, we have the new Next Generation Science Standards coming out, so instead of having hundreds of teachers come to a meeting, we simply sent them a self-paced Nearpod, tracked their progression, and then gave them credit for finishing that course.”

Michelle Dawson, SFUSD Supervisor  
of Educational Technology



Students use Nearpod's Draw It tool to create and submit photographs, drawings, and written representations of their thinking.



Students enjoy capturing and adding images from their real world surroundings.

## Promising practices

For three years prior to the SFUSD, Salesforce.com Foundation, and Nearpod partnership, the school district had been preparing for the implementation of the Common Core Mathematics Standards through a collaborative undertaking of its own teachers. *“Instead of waiting for a textbook to come out and buy it, we chose as a district to gather teachers together at grade levels and create units of study around the Common Core State Standards,”* says Kenyon. Alongside programs to bring greater saturation of technology and cutting-edge connectivity to SFUSD middle schools, Nearpod helped bridge the ongoing Common Core content initiatives with these new digital efforts.

The Nearpod platform and the development of Common Core State Standards aligned content in mathematics helped maximize the impact of the district’s technology investments and contribute to student mastery by easily enabling teachers to:

- Deliver instruction that is aligned with content standards directly to students
- Provide engaging and interactive experiences
- Vary the delivery method of instruction
- Diagnose student learning needs
- Tailor the learning experience to meet individual student needs

In September 2014, the Salesforce.com Foundation donated an additional \$5 million dollar grant as well as 5,000 employee hours to expand access to technology and digitally-supported instruction within SFUSD’s middle schools in the 2014-15 academic year. As mobile learning expands throughout the district, Nearpod will continue to be a partner and important part of the equation.



Students become engaged participants as they interact with the presentations.



Students call on higher-order thinking skills when they become producers, rather than just consumers, of ideas and content.



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