CASE STUDY

Helping Students Succeed in High School Integrated Math

San Juan High School, San Juan U.S.D., California

At San Juan High School, all students take a three-year Integrated Math sequence—but many of them have not mastered the prerequisite skills at the middle school level to succeed with high school math. IXL Math gives students the opportunity to catch up on skills they may be missing and develop new skills with targeted, individualized practice and instruction. While students were learning remotely during the pandemic, IXL provided individualized practice and gave teachers visibility into student progress.

"IXL gives us the numerical evidence we need for differentiation and for IEPs. Instead of just saying a student is below grade level, we can see exactly where they are and what skills they need to work on. Instead of teachers trying to figure out what skills they need to practice, IXL does that for you."

Elizabeth (Liz) Julienne,
Math Department Chair

The Challenge: One Math Course, Many Student Skill Levels

San Juan HS serves a primarily high-need student population with a diverse range of backgrounds and languages. Their Integrated Math (IM) sequence combines Algebra 1, Geometry, and Algebra 2 in a spiraling three-year curriculum, offered in both standard and accelerated formats. While a few freshmen arrive with IM 1 already under their belts from middle school, the vast majority start their 9th-grade year in standard IM 1.

The school does not offer a remedial math course, so 9th graders are all immersed immediately in high school math—ready or not. Elizabeth (Liz) Julienne, the Math Department Chair for San Juan HS, says, "At the lower grades, students tend to get promoted from year to year whether or not they have demonstrated mastery of the skills. All of a sudden, when they come to high school, grades matter, and credits matter. Many of our students arrive with skills below grade level, but we have no other option than to put them in IM 1 with everyone else."

In Liz's classes, skill levels for incoming freshmen may range from 3rd grade to 10th grade. A significant number of her students require an Individualized Education Plan (IEP), speak languages other than English at home, or both. Without proper placement exams or much information from the middle schools, it was hard to determine who was ready to move forward, who was ready for more challenge, and who needed extra help. The learning disruptions in the spring of 2020 and throughout the 2020-21 school year due to COVID-19 only made the situation worse. Liz explains,

"In most classrooms, you may have a group behind, some ahead, and most in the middle. But right now, especially with COVID, it's as if every student is in a different place. We have to differentiate not by group, but individually. It seems impossible, really."

"I love that IXL has an unlimited span for math curriculum, so every student can work on their level. If students are struggling with a grade level skill, it suggests options for prior skills they should work on first. For students who may be struggling in the gen ed classroom, IXL is a safe place where they can come and get the practice they need."

Liz Julienne

Putting Data into Action for Differentiated Instruction

San Juan adopted IXL Math for students at the beginning of the 2020-21 school year, while students were still in a virtual instruction model. They had previously used other programs for math, but teachers felt that they needed more individualized practice problems and additional data for differentiated instruction.

Students started the year by taking the IXL Real-Time Diagnostic to get baseline data. Liz says, "One thing that really helps with IXL is the adaptive diagnostic. Traditional diagnostic tests just look at this year's standards and tell the teacher, 'this is what they don't know.' IXL goes backward to prior grades and says, 'this is what they do know,' so we can improve from there." She uses the diagnostic data to make instructional decisions at both the whole-class and individual level. She also finds the data valuable for IEP meetings and sharing with her co-teachers. She says, "Many students who come in at low levels just sort of hide in a classroom. They remain lost because they aren't participating. The IXL Diagnostic gives us insights we didn't have before, so we can see exactly what they need and why they are struggling."

Liz also appreciates the way IXL Math is aligned with both the California Common Core State Standards for math and with HMH Integrated Math textbook program. "IXL does it all for us," she says. "When we're working on a unit in our HMH program, I can search for skills in IXL by section and assign them for extra practice. I can also cross-reference to California state standards, which is important because we're required to use resources that are standards-based."

Supporting Students During Virtual and Hybrid Learning

Students at San Juan HS were on a virtual schedule for much of the 2020-21 year and started returning back to in-person classes in a hybrid model during the spring of 2021. During this time, Liz has mostly used IXL Math for skills practice. She likes the way the program automates differentiation. She can assign the same skill to all students, and they can complete as few or as many problems as they need to achieve mastery. As students' SmartScores (IXL's proprietary scoring system that measures how well a student understands a skill) go up, the problems become more complex, allowing students to gradually grow their skill mastery.

Liz does not use IXL as part of students' grades because she wants practice on IXL to feel like a safe space where they can make mistakes and focus on learning. But if a student does not perform well on a test, she may ask them to demonstrate mastery with the skills in IXL before they retake it.

IXL Math has been especially helpful during virtual and hybrid learning. Students can work independently and get instant feedback and intervention. Liz can monitor the time they've spent in the program and the progress they have made towards grade-level skills. She says, "Prior to IXL, we were supplementing our curriculum with printed worksheets and other resources. That would not have worked this year."

The district used IXL Math for an "intersession" remedial program during winter break for students who were falling behind. They also plan to use it for summer school. When students return to school in the fall of 2021— hopefully in an in-person model—data from IXL Math will be invaluable for documenting pandemic-related learning losses for individual students and groups and planning instruction for the year ahead.

Liz is excited to use IXL Math next year when students are back in the physical classroom. "I want students to take more ownership of their learning and monitor their own skill growth," she says. "It was difficult to do this in a virtual model because I couldn't always see what was happening on the other side of the screen. It will be great to be back together so we can celebrate their growth in person."

A Model for Success at San Juan High School

Here's how Liz Julienne is using IXL Math in her high school Integrated Math classes:

- Students take the diagnostic at the beginning of the year to get baseline data.
- Each week, she assigns skills in IXL aligned to the textbook they are using in class. Students work on practice problems at their own pace throughout the week.
- On Fridays, students take a separate assessment. IXL is not part of their grade, but students who want an opportunity to retake their formal assessment must first demonstrate mastery in IXL.
- Students who are struggling with a skill can go back and work on missing skills from prior grades to catch up.
- Liz uses IXL Analytics to monitor student progress, including time on task and skills mastery. She also uses the reports for IEP meetings and for planning with her co-teacher.