

Utah Spotlight: Inspiring Educators

September 2021

Middle School Mathematics Success for All!

This month we are spotlighting the mathematics experience at North and South Rich Elementary Schools and at Rich Middle School. Principal Kip Motta and Mathematics Department Head, Heidi Weston became aware that there was a significant dip in mathematics summative assessment proficiency for the transitional mathematics experience between the Elementary Schools and Rich Middle School. Collectively, Principal Motta, Ms. Weston, and the Rich School District Mathematics Teachers invested time and resources in enriching the mathematics experiences for students and they have seen amazing results. Specifically, 100% of Rich School District's 6th grade students who are mathematically proficient, maintain that proficiency throughout their entire Rich Middle School career!

Rich Middle School's first instinct to increase student's mathematical proficiency was to focus on instructional time and developing numeracy skills through traditional "math fact drills." However, all were surprised when this didn't translate to positive results in summative test performance. Methodically, Mr Motta, Heidi and the Mathematics Teachers began to make small changes that helped to shape a culture where all students experienced mathematical success.

To begin, the mathematics professionals decided to focus on flexibility with numbers and on developing multiple representations. "We started to realize that mathematics is rich and dynamic—it is much more than speed and accuracy with mathematics facts. Mathematics is a way of reasoning, thinking and problem solving," explained Principal Motta.

"Heterogeneous groups of students work when you have those parent-like teachers, the ones that can love the kids through the mathematics."
—Principal Motta

"I start off all of my classes teaching grade level content, with differentiation, and then I always go deeper from there...never back!" —Heidi Wesson



North and South Rich Elementary and Rich Middle School

Rich School District

Principal: Kip Motta



School Demographics

Total Enrollment: 505 students

- 31% of students with limited income
- 18% of students with a disability

Middle School Mathematics

Success for All!

Procedural fluency is a critical component of mathematics learning and is often over-simplified (and misunderstood) as speed and accuracy with mathematics facts. NCTM defines *procedural fluency* as “the ability to apply procedures accurately, efficiently, and flexibly; to transfer procedures to different problems and contexts; to build or modify procedures from other procedures; and to recognize when one strategy or procedure is more appropriate to apply than another” (NCTM, [Procedural Fluency Position Paper](#)).

With special attention on a more robust understanding of procedural fluency, Kip and Heidi began to find success when they focused their overall efforts in these three areas:

1. Asset-Framed Mathematics Teacher Mindsets
2. Data-Driven Decisions coupled with Intentional Interventions
3. Highly Trained Professionals

Asset-Framed Mathematics Teacher Mindsets

The Rich Middle School Mathematics department holds a zealous belief that all students can achieve mathematical success. In subscribing to this belief, they decided to group all middle school mathematics students heterogeneously—this means that classrooms are composed of diverse groups of students who are all actively contributing to the community funds of knowledge. To make this a success, the teachers

had to focus on differentiation, a concept intentionally built into all Rich Middle School mathematics experiences. Principal Motta explains, “Heterogeneous groups of students work when you have those parent-like teachers, the ones that can love the kids through the mathematics, which is the kind of mathematics teacher all students need.”

In each of Rich School District’s mathematics classrooms, the mathematics teacher purposefully starts each class with grade-level content. “I always go deeper, but never below,” explains Heidi Weston. The mathematics teachers intentionally take students deep into the grade-level standards in order to make new connections to prior learning. Instructional time is too precious to spend time reviewing, instead the teachers develop student’s depth of knowledge while using the grade-level standards.

Another aspect of asset-based mindsets that had made a difference in Rich Middle School are relationships. Relationships are both fostered and valued, and faculty members regularly look for ways to reward students, which also aligns with their standards-based learning commitment. The educators at Rich Middle separate academics from behavior (e.g., if a student turns in late work—it is accepted, and an academic grade is changed to reflect what was learned). “Late” is reflected on a student’s ‘citizenship grade,’ which emphasizes time management and behavior issues.

Rich Middle School expects students to master different assessments; however, students are given a choice in how they demonstrate academic competency. One student can choose to write about a mathematical solution while another could prefer “talking it out” with the teacher, while some students prefer to demonstrate competency in small groups. Overall, Rich School District mathematics teachers know that there are many ways for students to demonstrate mathematical competency and prefer to allow students a feeling of ownership over how to demonstrate competency.

Data-Driven Decisions coupled with Intentional Interventions

All Rich School District Mathematics Teachers know about and utilize a Multi-Tiered System of Supports (MTSS). Time for MTSS is built into the fabric of the school day throughout the year. Some examples of how this time is used:

- Classroom data is updated weekly, and the teacher contacts the home for any student who is below 70% proficiency.
- Students can be invited to interventions or self-elect to attend after school and get individualized support.
- Students always receive intervention from the highly-trained mathematics educator.

In addition to using classroom data to inform mathematical achievement, the educators at Rich Middle School use the RISE benchmarks and a student’s performance with cognitive depth to determine the mathematical progress needed in

order to personalize support. Students are intentionally given tasks with varying cognitive demand to build their depth of knowledge in tandem with the mathematics content.

Mathematics teachers at Rich Middle School regularly use skillfully crafted, embedded formative assessments. Teachers adjust instruction on the spot based on both formal and informal feedback from students engaged in the mathematics learning experience. Kip and Heidi explained that “...these teaching practices [embedded formative assessments] are high-leverage instructional methods used across all content areas and grade levels in Rich School District, even outside of the mathematics department.”

Highly Trained Professionals

Each mathematics teacher at Rich Middle has spent an extended amount of time immersed in understanding the Utah Mathematics Standards. The mathematics department pays special attention to the verbs in the standards as well as to the vertical progression of each major strand. The Rich School District Mathematics Teachers regularly use this information to determine the grade-level content that each student receives. All teachers are highly qualified with mathematics endorsements and use their experience to enhance each student’s learning experiences.

Next Steps

Even with such success the school plans to make additional adjustments to see even greater mathematical growth. Next year’s process will be adjusted through the following three key strategies:

- 1) **Enhanced Student Goal Setting and Monitoring.** The school will integrate student goal setting and monitoring between benchmark periods so that students know where they are, establish a goal for where they

want to go and monitor their effort and progress toward achieving their goals.

- 2) **Consistent Professional Learning Communities (PLCs).** Rich Middle School is looking forward to ensuring that all teachers meet and engage in productive and consistent PLCs.
- 3) **Advancing School Level Goal Setting.** The district aims to maintain the goal of 100% student proficiency in Math 5 and will maintain that proficiency for all students throughout their middle school years.