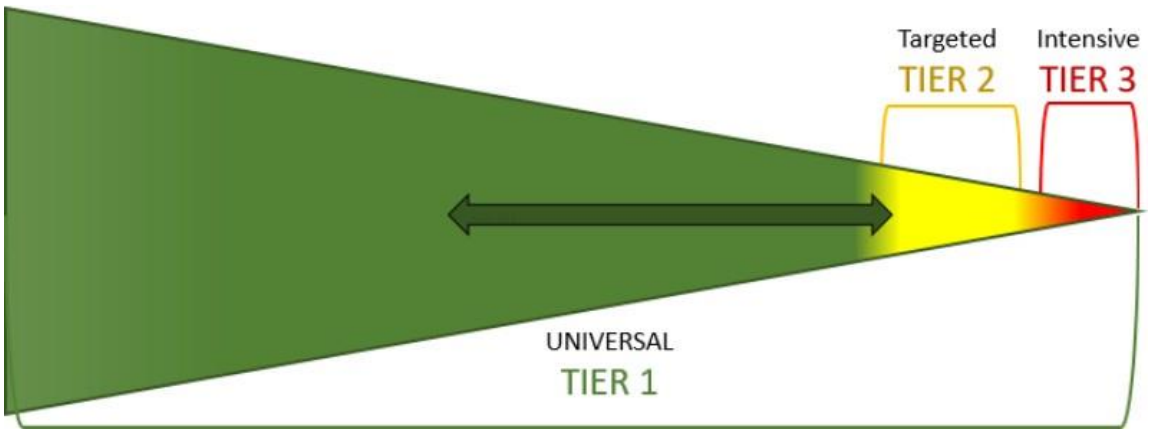
UTAH'S MULTI-TIERED SYSTEM OF SUPPORTS FOR MATHEMATICS

UMTSS



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INTRODUCTION

A school's fundamental purpose is student learning. As such, some students may need extended time and support to learn critical skills and knowledge at high levels. Other students may need enrichment. A Multi-Tiered System of Support (MTSS) is a framework focused on three instructional tiers (Universal, Targeted, and Intensive) engineered to meet student needs using a systematic approach. The Utah Multi-Tiered System of Support (UMTSS) is designed to address student learning in mathematics encompassing these critical components: High-quality Instruction, Team-based Problem Solving, and Data-based Decision Making. The body of this document provides explanation of these critical components along with suggestions for implementation. Additional resources and information is available in the appendices, located on the Utah State Board of Education Mathematics website at https://www.schools.utah.gov/curr/mathematics or https://mathforallstudents.com

FOUNDATION

Equity, along with proactive school and classroom climate are foundational components to the successful implementation of UMTSS. Without this foundation, implementation of UMTSS will likely not achieve the desired outcomes.

Equity demands that every student be given an equal opportunity to succeed. This requires educators to address the strengths and needs of each student. Embracing this approach includes an understanding that personal or social circumstances such as gender, disability, ethnic origin, race, immigration status, native language, or family background, are not obstacles to achieving educational potential (Asia Society, 2017). Coordinated efforts are required to support each student in mastering focused grade-level standards and developing a deep understanding of mathematical concepts and techniques. Equitable schools are most effectively promoted through a supportive climate characterized by high expectations for all students.

A proactive school and classroom climate supported by UMTSS creates an environment where students, teachers, parents, and administrators feel safe, welcome, and able to succeed. This climate "includes norms, values and expectations that support people feeling socially, emotionally and physically safe. People are engaged and respected. Students, families and educators work together to develop, live and contribute to a shared school vision" (National School Climate Center, 2007, p. 5). School and classroom structures should be in place to support students in taking academic risks, valuing their mistakes as a vital part of their learning process, and identifying as mathematically capable. Engaging and relevant curriculum supports a collaborative culture so that intended outcomes are coherent and achieved. In a classroom, structures are in place that promote high expectations for all students. Supportive leadership as well as parent and community involvement are an integral part of establishing and maintaining a positive school climate.

HIGH-QUALITY INSTRUCTION

High-quality instruction in the UMTSS model is vital to support each student in demonstrating proficiency of grade-level Utah Core Standards in Mathematics and is based on the principle that students engage in meaningful learning of mathematics. To accomplish this, teachers effectively implement both mathematics content and practice standards. Teachers create learning environments that value each learner and use a variety of effective Mathematics Teaching Practices as articulated in NCTM's *Principles to Actions* (2014) to prepare students for college and career, including:

- implementing mathematical tasks with a focus on clear goals;
- promoting student discussion of mathematical concepts and eliciting student thinking; and
- balancing conceptual and procedural understanding

Each student has a right to quality instruction with appropriate opportunities and supports empowering him or her to recognize mathematics as both valuable and applicable. Utilizing a tiered framework allows educators to address students' strengths and areas of concern through intervention and enrichment opportunities that account for a student's unique cultural and linguistic contributions, thus providing equitable learning for each student.

High-Quality Instruction within Multi-Tiered System of Support

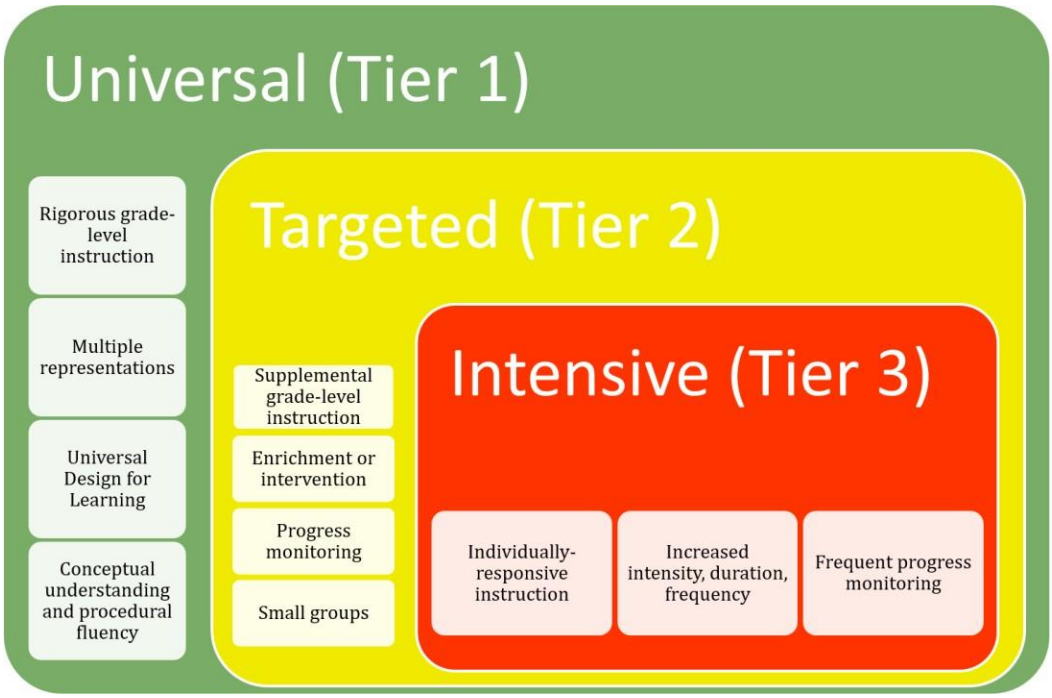
Every student receives Universal (Tier 1) instruction from a state-qualified teacher. Quality Tier 1 instruction provides a safe learning environment and increases equitable access to rigorous academic learning for each student. Any student, regardless of other services received, may also need and receive Tier 2 or Tier 3 instruction. Students with Disabilities (SWD) must receive Tier 1 instruction, Specially Designed Instruction (SDI) as identified by the IEP and may additionally receive Tier 2 or Tier 3 instruction as determined by individual student need. Tier names refer to instructional strategies or intensity of services, not the students receiving instruction, location of services, or the service providers.

Universal (Tier 1). Tier 1 instruction is rigorous grade-level instruction focusing on cohesive Utah Core Standards in Mathematics. Teachers implement evidence-based instructional strategies, provide students opportunities to make sense of mathematics, use a variety of student grouping strategies (individual, small group, whole group) and allow enough time for students to respond to instruction. Conceptual understanding and procedural fluency build across mathematical tasks with the use of multiple representations. Each student is provided multiple opportunities to interact with content, demonstrate understanding, and show progress. Teachers implement Universal Design for Learning (UDL) and differentiation to meet the needs of each student.

Targeted (Tier 2). Some students may need supplemental instruction and support (enrichment or intervention) that is systematically aligned with focused grade-level core standards. Enrichment includes using instructional strategies that deepen and extend student understanding within and across concepts. Intervention includes using explicit instruction (teacher guidance to make concrete

connections between mathematical concepts) to connect student understandings already developed during Tier 1 instruction. Tier 2 instruction is typically provided in small groups and includes ongoing progress monitoring.

Intensive (Tier 3). A few students may need more intensive, individually responsive instruction than provided in Tier 2 instruction. Instruction has a focus on grade-level content, which may include targeted and identified pre-requisite skills needed to understand grade-level standards. Instruction may also focus on above-grade-level standards that are connected to grade-level content; however, emphasis should be placed on depth within the current grade-level standards before acceleration. Teachers providing intensive (Tier 3) instruction should have a deep understanding of mathematical learning progressions. Tier 3 instruction is frequent and ongoing, but not permanent, based on monitoring of student progress.



TEAM-BASED PROBLEM SOLVING

A purpose of Team-Based Problem Solving is to ensure high-quality mathematics learning is accessible and achievable for each student. Effective teams leverage the contributions of combined resources and the expertise of teach team member to foster organizational success and create equitable opportunities for each student.

As teams of educators establish shared responsibility for student success, they create a collaborative culture in which they employ teaming and meeting strategies. All teams incorporate effective strategies such as having an agenda, identifying roles and responsibilities for team members, identifying and following-up on well-defined action items, and using data at each step of the problem-solving process.

Various teams engage in problem solving including grade and content teams, student-support teams, school leadership teams and district leadership teams. Across each team, members bring a diversity of complementary talents, knowledge and experience to the problem-solving process. Communication between different levels of teams establishes feedback loops promoting alignment and shared understanding. This document focuses on grade and content level teams.

Grade-level/Content Teams

Grade-level and content teams establish shared responsibility for student learning in rigorous grade-level mathematics content instruction. These teams define what students will learn, identify various methods for how students may learn content, determine how student understanding will be assessed, and create intervention and enrichment plans to address levels of student learning. In elementary schools, these teams consist of grade-level teachers. In secondary schools, these teams may consist of all mathematics teachers, mathematics teachers teaching the same courses, or other groupings of teachers who share responsibility for the same groups of students. In both settings, special education teachers, instructional coaches, and members of school leadership team are regularly included.

Grade-level and content-area teams discuss and determine concepts to be taught in given periods of time to ensure adequate attention is given to critical areas in the Utah Core Standards. Teams meet on a regular basis to deepen understanding of Utah Core Standards in mathematics using resources such as core guides and curricular materials. Teams analyze details in Utah Core Standards to:

- determine concepts and skills students need to master, including to what degree those concepts and skills need to be mastered for standards, courses, and grade levels;
- identify a variety of strategies and representations;
- describe the background knowledge students should have experienced in previous courses or grade levels;
- understand how standards connect to other standards within the same course or grade level; and
- recognize how current standards prepare students to access content in future instruction.

As teachers deepen understanding of Utah Core Standards, they establish clear goals (e.g. learning intentions, learning targets, and learning objectives) for courses or years, units, and lessons. Teams plan for instruction by selecting or designing mathematical tasks, including problems with intentional contexts and numbers to elicit student thinking. Teachers work through mathematical tasks using a variety of strategies and representations to anticipate student thinking and misconceptions prior to instruction. They also plan instructional strategies to accompany task implementation and informally assess student understanding.

Teams determine how they will assess student understanding. This includes developing systems to record student progress towards mastery of standards and creating common formative assessments. Students must have multiple opportunities over time to demonstrate conceptual understanding, procedural fluency, and application of Utah Core Standards. Teachers use common forms of assessments, such as essential trackers, to track progress and record student knowledge during tasks in Tier 1 math instruction. This ongoing formative assessment is used to inform students of their own learning and collaborate with parents to maximize student learning. Grade-level and content teams also create common formative assessments, which may include, but are not limited to, exit tickets, quizzes, unit exams, and performance assessments. These assessments are used to determine student understanding and to inform instruction.

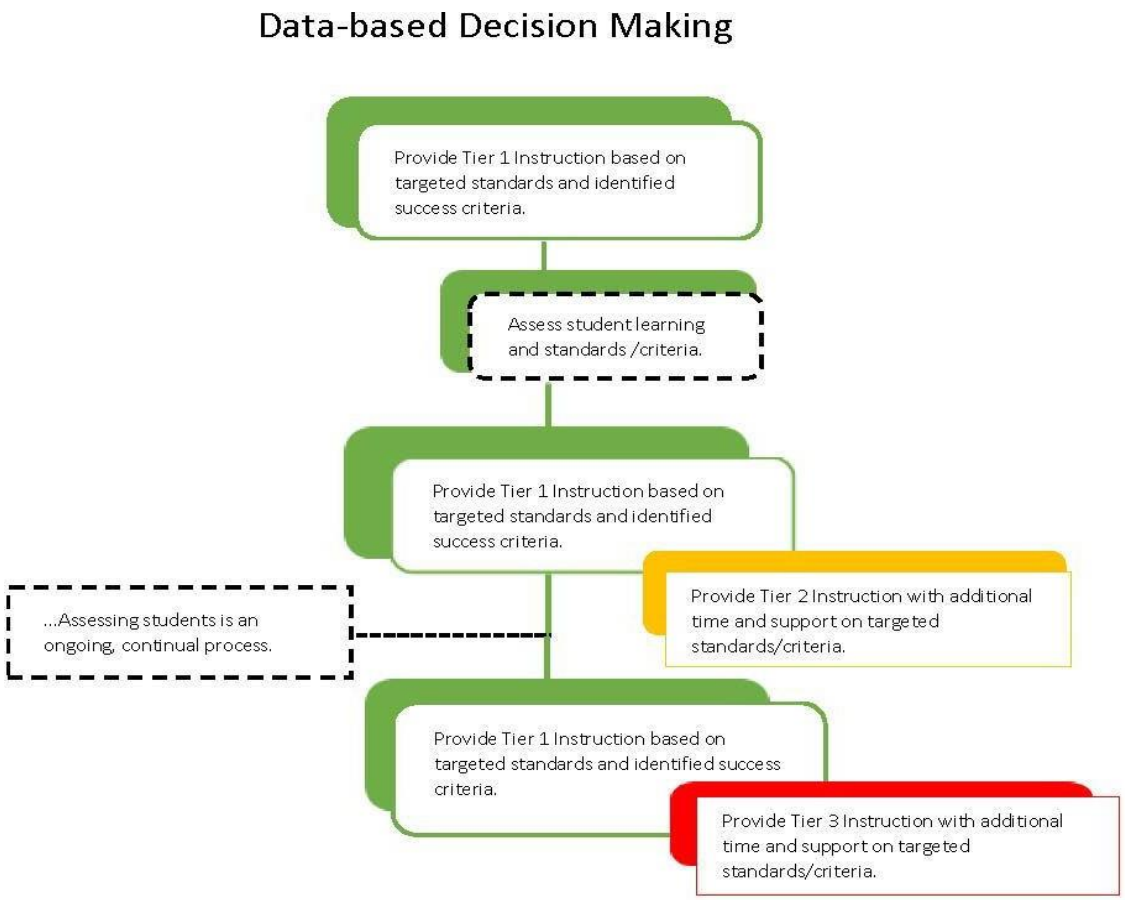
As teachers administer common formative assessments and gather data, they engage in the critical component of data-based decision making. Teams should involve students in the development of the problem-solving processes to select, implement, and evaluate Tier 2 instruction. Teachers use a similar process to select, implement, and evaluate individually responsive Tier 3 instruction and supports. At times, a Grade-level team or content team may need additional support via a school level Student Support Team. Many terms are used to refer to these teams, including, teacher assistance team, local case management teams, student services committee, etc. These teams review the effectiveness of the intervention or enrichment and adjust when current strategies are not effective.

DATA-BASED DECISION MAKING

The purpose of data-based decision-making is to assess student progress towards learning core standards. Data collection and analysis occurs continuously and over time in all three tiers of instruction. Data informs potential adjustments needed in Tier 1 instruction and guides selection of supplemental material to be used in Tier 2 and Tier 3 instruction. Data sources primarily include formal and informal formative assessments of student thinking and understanding. These assessments determine entry into and exit from Tier 2 and Tier 3 interventions and enrichments. Throughout this process, decisions are made based on the learning goals and needs of the whole class, groups of students and individual students. Teachers must possess strong backgrounds in mathematical and pedagogical content knowledge to use data well. Data is used to determine increasingly intensive and effective interventions and enrichments.

Understanding and Using the Data

Students are provided multiple opportunities during Tier 1 instruction to learn and demonstrate understanding of grade-level content. Each Data-based Decision Making cycle aligns with a big idea that focuses on selected standards. Throughout the unit, a variety of aligned formative assessments are used to inform students and teachers of learning progress and needs. Student entry into and exit from intervention groups is fluid and flexible and based on student progress toward identified success criteria. Below is an example of the steps in Data-based Decision Making:



The above diagram models the importance of continual assessment and implementation of Tier 1 instruction for all students throughout a unit. Tier 2 and Tier 3 instruction are not provided instead of but are in addition to Tier 1 instruction. Students may receive more than one intervention at a time based on data and their individual needs. Students receive intervention as long as they are making progress and until they achieve the identified success criteria for the given unit. During data analysis educators also look for patterns that reveal inequities in subgroup participation and achievement.

Progress monitoring. The purpose of ongoing progress monitoring is to determine if the intervention is working and the student is making progress. Progress monitoring requires that teachers use valid, reliable tools sensitive to incremental change, including but not limited to mathematics computer programs that institute periodic assessments and grading software that automatically generates reports targeting information needed by the teacher. Depending on Local Education Agency structure, progress monitoring of students occurs at least every two to four weeks for students receiving Tier 2 instruction, and at least weekly for students receiving Tier 3 instruction.

OUTCOMES

The Utah Multi-Tiered System of Support will assist teachers in providing support for students in accomplishing their post-secondary goals of career and/or college. High quality instruction, team-based problem solving, and data-based decision making built on a foundation of equity along with proactive school and classroom climate are necessary to ensure the following outcomes emerge:

- Each student's success is not based on demographic characteristics.
- Every student accesses and masters grade-level standards.
- Each student develops a deep understanding of key mathematical concepts.
- Every student fulfills their educational goals including readiness for college and career.

RESOURCES

Additional resources and information for the Utah Multi-Tiered System of Support in Mathematics Framework is available online, located on the Utah State Board of Education Mathematics website at https://www.schools.utah.gov/curr/mathematics or https://mathforallstudents.com

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