MDTP Assessment System:

- **MDTP Assessments of Preparedness and Readiness Tests** help teachers understand their students’ procedural and conceptual knowledge of important topics along the progressions of mathematics. Preparedness and Readiness Tests provide robust diagnostic feedback to inform course-level instructional actions, program reflection, and design.
- **MDTP Written Response Items (WRI)** are open-ended learning experiences designed to help teachers understand their students’ mathematical problem-solving and communication skills. WRIs are aligned to topics found in MDTP Preparedness and Readiness Tests and 9th Grade Assessments.
- **MDTP 9th Grade Assessments** are designed to inform appropriate options for students’ mathematical engagement in coursework towards college preparedness. Diagnostic feedback from 9th Grade Assessments may also be used to inform program reflection and design.

**Purposeful Planning and Intervention in Middle School through College-level Mathematics**

MDTP assessment materials provide secondary math educators with information about students’ mathematical preparedness by course, topic, and skill throughout their secondary coursework and encompass foundations topics along the mathematical progression. MDTP materials that are used in effective and appropriate ways support efforts to purposefully plan and intervene to promote students’ readiness for college mathematics.

### Examples of Effective and Appropriate Uses of the MDTP Assessment System

#### Start-of-Year Enactment of a Formative Assessment Cycle

Using data from MDTP Preparedness or Readiness Tests - Teachers (or teaching teams) initiate a formative assessment cycle *(Identify, Analyze, Set Goals, and Enact)* to determine student and class strengths, common misconceptions, and potential content gaps by examining MDTP topics, items, and/or item answer choices.

- **Identify**: Identify students’ current mathematical understandings, misconceptions, and gaps in content knowledge.
- **Analyze**: Unpack the progressions of mathematics that students need to build the essential understandings needed for access to and mastery of the content.
- **Set Goals**: Set learning goals to intervene on misconceptions and build content knowledge in foundational topics.
- **Enact**: Adopt strategies and design learning experiences to support these learning goals.

#### Mid-Year Analysis to Compare Growth and Start a New Formative Assessment Cycle

Using data from MDTP Preparedness and Readiness Tests - Teachers (or teaching teams) conduct comparative analyses to determine growth from the results of the first formative assessment cycle.

- **Compare**: Compare the percent correct by topic and the percent of students who met critical levels from the start-of-year to mid-year and determine growth.
- **Identify**: Update students’ current mathematical understandings, misconceptions, and gaps in content knowledge.
- **Analyze**: Unpack the progressions of mathematics that students need to build the essential understandings needed for access to and mastery of the content.
- **Set Goals**: Set new learning goals to intervene on misconceptions and build content knowledge in foundational topics.
- **Enact**: Adjust strategies to address learning goals and design learning experiences to build understanding and promote retention.

#### End of Course to Inform Next Course Preparedness and Professional Learning

Using data from Preparedness or Readiness Tests or 9th Grade Assessments - Teachers (or teaching teams) conduct analyses to inform students’ next-course readiness by mathematical topic.

- **Identify**: Identify foundations topic(s) to inform successful promotion to the next course and determine students’ current mathematical understandings, misconceptions, and gaps around these topics. Identify topics of growth and topics where intervention is needed.
- **Analyze**: Unpack the progressions of mathematics that students need to build the essential understandings needed for access to and mastery of the content in these topics and to elicit growth.
- **Set Goals**: Set growth goals for identified topics for the following year.
- **Enact**: Create a plan to enact to reach these growth goals.

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Written Response Items (WRI) to Support Mathematical Reasoning

Teachers (or teaching teams) use and analyze MDTP WRIs to promote mathematical reasoning around foundational topics of mathematics and to understand students' strengths and identified areas of growth in students' ability to communicate and use problem-solving skills. WRIs range in mathematical concepts from middle school to calculus.

Suggested Types of Engagement

- **Introducing:** Use WRIs when students are first learning the content and are exploring their strategies and developing their skills sets.
- **Advancing:** Use WRIs when students have spent time in the content and are advancing their knowledge and are incorporating diverse and flexible skill sets.
- **Re-engaging:** Use WRIs when activating students’ prior knowledge to launch a new concept/skill or when a common misconception has been identified and needs intervention.

Strategies for Engagement

- **Introducing:** Students solve a problem independently. Monitor students’ progress and choose a few students to present their ways of thinking. Purposely align student presentations to lead into the upcoming lesson, anticipate errors, and deliver content in response to errors. Assess learning of new content, and provide feedback using the WRI specific rubric.
- **Advancing:** Students work collaboratively to solve the problem. Through discussion, justification, argument, and debate students agree on one solution and present/submit this one solution. Chart and name novel methods and class-validated methods. Assess student understanding, build on charted methods, and remedy errors or misconceptions.
- **Re-engaging:** Activate prior knowledge to assess their current understanding and design lessons to meet students where they are (anticipate and prepare for potential errors). Remedy identified misconceptions by completing only one WRI section and return every few days to distribute the learning over time. Chart students’ responses and keep charts visible for continued reference. Make connections to the current learning.

Supporting Student Mastery

- All WRIs follow a General Rubric that should be shared with students to communicate the overarching expectations for achieving mastery. Display the General Rubric before students solve a WRI and explain the students’ responses needed to obtain the highest score of 4.
- Each WRI is supported by a specific rubric that teachers (and students) should use to assess and communicate student mastery. Suggestions for using the specific rubric include: 1) Teachers score student work, return the specific rubric with student work, read each of the rubric components to students, and then allow students time to revise responses as needed and 2) allow students to score their own work using the specific rubric and give them time to revise responses as needed.

MDTP 9th Grade Assessments Support SB 359: California Mathematics Placement Act of 2015

Use MDTP 9th Grade Assessments aligned to California Common Core State Standards for Mathematics as one of “multiple objective academic measures” for informing options for students’ 9th grade coursework. Use MDTP Readiness Tests as “one placement checkpoint” in the first month of student coursework, as described in SB-359.

1. Use MDTP 9th Grade Assessments before students are assigned to 9th grade (high school) mathematics coursework.
2. Follow-up with the appropriate course-level MDTP Readiness Test within the first month of 9th grade (high school) coursework and use these data to begin a cycle of formative assessment (see Start-of-Year Enactment of Formative Assessment Cycle on page 1).

Visit the MDTP website at: [http://mdtp.ucsd.edu](http://mdtp.ucsd.edu)
Send inquiries to: [mdtp@ucsd.edu](mailto:mdtp@ucsd.edu)
Register for MDTP test materials at: [http://mdtp.ucsd.edu/k12-users/order-tests.html](http://mdtp.ucsd.edu/k12-users/order-tests.html)
Register for MDTP Written Response Items at: [http://mdtp.ucsd.edu](http://mdtp.ucsd.edu)

CSU/UC Mathematics Diagnostic Testing Project funded by:

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