MDTP Assessment System:
MDTP assessments provide mathematics educators with diagnostic data by course, topic, and skill through the progression of students’ secondary mathematics learning. Published MDTP materials span mathematical content aligned to California’s state standards for mathematics from grades six through twelve. MDTP materials help mathematics educators to purposefully plan and intervene to prepare their students for success in college-level mathematics. The MDTP assessment system provides three instruments: course-level readiness tests, 9th grade placement tests, and written response assessments.

❖ MDTP readiness tests are designed to measure students' preparedness for the foundational topics of their current or subsequent course of study. The robust diagnostic data should be used as a formative assessment to help teachers understand students’ mathematical strengths and areas of unfinished learning to inform instruction and interventions; to evaluate course readiness; to measure program growth; and to identify content for professional learning. MDTP readiness results should be shared with students to help them identify specific areas where additional study or review is needed. MDTP readiness tests are diagnostic, not comprehensive, and they should not be used as a final exam.

❖ MDTP open-ended written response items are designed to provide opportunities for students to reason, think, and communicate effectively about mathematics. Each written response item is accompanied by a teacher-scoring rubric and problem essence statement. Student responses provide teachers with a detailed view of each student’s conceptual grasp of a topic aligned to MDTP readiness and placement tests.

❖ MDTP placement tests are designed to provide one reliable indication of the extent to which a student’s current mathematical proficiency matches the skills and knowledge needed for success in a ninth-grade math course. The diagnostic results should be used as one measure within a set of multiple measures to inform appropriate options for students’ mathematical engagement in coursework towards college preparedness. Placement test diagnostic feedback can also be used for program reflection and design. MDTP does not provide scaling of scores allowing schools to determine cut scores and counseling ranges appropriate to their needs. Statistical analyses of test performance and subsequent course performance is a prerequisite to valid uses of test results for placement purposes. These analyses should be undertaken yearly, and the evaluation of established placement protocols should continue for as long as MDTP tests are used as an instrument for articulation.

Examples of Effective and Appropriate Use of the MDTP Assessment System

<table>
<thead>
<tr>
<th>Start-of-Year Analysis: Begin a Formative Assessment Cycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using data from MDTP readiness tests - Teachers (or teaching teams) conduct analyses to determine student and class strengths, common misconceptions (errors), and weaknesses. These analyses can be conducted by examining MDTP topics, items, and/or item answer choices.</td>
</tr>
</tbody>
</table>

The Analysis Process:
- Identify: What are students’ current mathematical understandings, misconceptions, and gaps?
- Analyze: What concepts and skills are related to the identified understandings, misconceptions, and gaps?
- Synthesize: Set goals - What are the essential understandings that students need to attain for success?
- Address: Now What? – Create a plan to reach the goals.

<table>
<thead>
<tr>
<th>Mid-Year Analysis – Compare Growth: Begin the Next Formative Assessment Cycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Using data from MDTP readiness tests - Teachers (or teaching teams) conduct comparative analyses to determine growth from the results of the first formative assessment cycle.</td>
</tr>
</tbody>
</table>

The Analysis Process:
- Identify: Compare topic percents correct and percentages of students who met critical levels from the start-of-year data set to the mid-year data set.
- Analyze: Determine growth, paying particular attention to topics that were included in the goals set during the start-of-year analysis.
- Synthesize: Modify or set new goals based on analysis.
- Address: Now What? – Create a plan to reach the goals.

2. Using the new data sets (and the comparative analyses), teachers (or teaching teams) conduct analyses to determine student and class strengths, common misconceptions, and weaknesses.

The Analysis Process:
- Identify: What are students’ current mathematical understandings, misconceptions, and gaps?
- Analyze: What concepts and skills are related to the identified understandings, misconceptions, and gaps?
- Synthesize: Set goals - What are the essential understandings that students need to attain for success?
- Address: Now What? – Create a plan to reach the goals.
### End-of-Year Readiness Analysis –
**Topic Readiness for Next Course: Just-in-Time Intervention**

Using data from readiness or placement tests - Teachers (or teaching teams) conduct analyses to inform student next-course readiness by mathematical topic.

**The Analysis Process:**
- **Identify:** Topic(s) of interest - What are students' current mathematical understandings, misconceptions, and gaps around these topics?
- **Analyze:** What concepts and skills are related to the identified understandings, misconceptions, and gaps for these topics?
- **Synthesize:** Set goals - What are the essential understandings that students need to attain for success?
- **Address:** Now What? - Create a plan to reach the goals.

### End-of-Course Diagnostic Analysis –
**Teacher Topic Focus for Pedagogical Growth, Program Improvement & Informed Teacher Professional Learning**

Using data from readiness or placement tests - Teaching teams, teacher support personnel and administrators conduct analyses to determine program strengths and potential program areas of growth, set goals for program adjustments, and create plans to reach the goals. This process is conducted by examining aggregate sets of data from MDTP tests across a district or school. Near the end of each school year, end-of-course analyses should be conducted to determine effectiveness of adjustments that were made the previous year.

**The Analysis Process:**
- **Identify:** Areas of strength and growth by MDTP topic - What are students' current mathematical understandings?
- **Analyze:** What concepts and skills do students know, and in what areas is there evidence of growth?
- **Synthesize:** In the areas of identified need for growth, what is the mathematical content and pedagogical content knowledge needed to elicit growth? Set goals for growth in these areas.
- **Address:** Now What? - Create a plan to reach the goals.

### Written Response Items (WRI) Analysis–
**Information about Student Mathematical Communication and Problem-Solving Skills**

Teachers (or teaching teams) administer and analyze MDTP WRIs to understand student strengths and identified areas of growth in students’ mathematical communication and problem-solving skills. WRIs range in mathematical concepts from middle school topics to calculus.

**The Analysis Process:**
- A 4-point general rubric is provided for overarching expectations of MDTP WRIs.
- A 4-point specific rubric is provided for each WRI.
- An essence statement is provided for each WRI to understand nuances in student responses.

### MDTP Supports SB 359: California Mathematics Placement Act of 2015

Use MDTP placement tests aligned to California Common Core State Standards for Mathematics as one of the “multiple objective academic measures” for informing student high school coursework. Use MDTP readiness tests as “one placement checkpoint” in the first month of student coursework.

1. **Administer one of the MDTP placement tests before students are placed into their 9th grade (high school) mathematics classes.**
   - **The Analysis Process:**
     - **Identify:** Topic(s) of interest - What are students' current mathematical understandings?
     - **Analyze:** How do these identified understandings contribute to the district's/school's multiple measures used toward informing student readiness for coursework?

2. **Administer an MDTP readiness test within the first month of 9th grade (high school) coursework.**
   - **The Analysis Process:**
     - Follow the Start-of-Year Analysis: Begin a Formative Assessment Cycle analysis process.

**MDTP website:** [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-wri.ucsd.edu/register](http://mdtp-wri.ucsd.edu/register)