



New Algebra Readiness Tests

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CSU
California State University

UC
University of California

CAPP
California Academic Partnership Program

Two New Algebra Readiness Tests Released

AR45A10

This summer, the MDTP Workgroup completed its revision of its newest Algebra Readiness test, the AR45A10. The AR45A10 assesses important concepts and skills needed for success in a first course in algebra. The AR45A10 is currently available for ordering by California secondary math teachers at <http://mdtp.ucsd.edu> or through your regional MDTP sites. Should you wish to review a copy of this test, please request one from your local MDTP site director.

The AR45A10 updates the existing AR45A00, which was released in the fall of 2000 shortly after California adopted content standards for mathematics. The new AR45A10 reflects changes in curricular emphasis, placing more emphasis on tabular and graphical items in probability and data analysis. The topic areas have been renamed slightly to better reflect the curricular emphasis. Some of the old topic areas from the AR45A00 (INTG, FRAC, DECM, EXPS, and DAPR) have been kept. While other topic areas (EQTN, GMMS, and GRPH) have been consolidated into new topic areas of LTEQ (Literals & Equations) and GMCG (Geometric Measurement & Coordinate Geometry) on the AR45A10. Compared to the AR45A00, the AR45A10 test has 31 new items and two revised items.

MDTP's policy has been to maintain two active versions at the Algebra Readiness level. For the past 10 years, the two active versions have been the AR50/90 and the AR45A00 tests. The new AR45A10 test will replace the older AR50/90 test, so that the current two active versions of the AR will become the AR45A00 and the AR45A10 tests.

AR50A10

Some teachers and schools have preferred a 50-item test, and others have wanted two different versions of the AR test for pre- and post-testing. Approximately 20% of all Algebra Readiness tests scored last year were AR50/90 tests. If you use the AR50/90 test, your regional MDTP site will continue to score your tests. However, MDTP has stopped printing that test, so local MDTP site inventories of the AR50/90 may be limited in the Spring. Understanding the need for a 50-item AR test, MDTP has developed a new AR50A10 test that adds five more algebra items to the AR45A00 test. The new AR50A10 test will only be made available initially online through Daskala.

A word of caution: If you order the new AR45A10 test, it is NOT possible to score two AR versions in the same class set. Teachers need to be careful to administer only one form in each class.

MDTP wants to publicly thank all the teachers who helped us in field-testing various test forms from 2007-2010. In the development of every MDTP test, field-testing provides data that are critical in creating high quality, reliable, and valid tests.

Algebra Readiness Test forms

Booklets & Online Via Daskala

AR45A00

AR45A10 (replaces AR50/90)

AR50/90 (for one year)

Online Via Daskala Only

AR50A10

Introduction

I have had the good fortune to serve as a member of the MDTP Workgroup from 1980 through this spring, to be on the MDTP administrative team since 1985, and to be its director in recent years. The new MDTP Director asked me to write a final article for this Fall Newsletter. I hope to use this opportunity to share some of my thoughts about the purposes of MDTP, the ways in which MDTP attempts to help all of us move toward those goals, and how the structure of MDTP and its support from many others has enabled us to come as far as we have and look forward to continuing to help California teachers provide their students with increasingly better opportunities to learn mathematics.

Purpose

Everyone associated with MDTP—teachers who use its materials and services, site directors and their staffs who work directly with teachers, workgroup members who develop tests and other materials, and supporting administrators in both California university systems and the California Academic Partnership Program (CAPP)—is dedicated to making quality mathematics education available to all California students. We share the conviction that learning mathematics is valuable for all students. Mathematics provides tools and experiences that help its practitioners think clearly, understand abstraction, and reason logically. These ways of understanding the world help us make informed decisions about our own lives, participate fully and thoughtfully in our own communities, and further our own education in whatever direction we choose.

Learning is based on a person's current knowledge, understanding, experience, and interest. This principle makes clear the importance of understanding a student's current mathematical background and disposition in order to help that student acquire more mathematical ways of thinking. During the past decade formative assessment has become much more popular in American education. In its simplest terms, formative assessment (in mathematics) has three components: asking students to answer questions that will provide teachers with clear indications of the students' conceptual understandings and procedural skills; analyzing students' responses to understand their current knowledge; and, finally, developing ways to address their needs and advance their mathematical knowledge. The "D" in MDTP, for "Diagnostic", indicates MDTP's commitment to supporting formative assessment from its inception.

Tests, Results Reports, and Written Response Materials

MDTP's test questions are carefully constructed to reveal students' understandings and skills. In particular, great

care is given to providing distractors that could result from common misunderstandings, computational errors, or inappropriate conceptions of mathematics. For example, many students will fail to complete a multi-step problem, probably because they believe that the overarching goal of mathematics is to obtain an answer as quickly as possible, without taking the time to think about whether the answer they find makes sense or even answers the question that was asked. MDTP's distractors are not intended to trick students but rather to help teachers see how common some of those mistakes are so that the teachers might explore them further with students to better understand what lead students to them and then find effective ways to address them.

MDTP has always strived to provide complete test result reports to teachers in as timely and accessible a form as possible. These reports were carefully and collaboratively developed, partly in response to requests from teachers, to facilitate diagnostic analyses of class test results. MDTP has always respected the many demands on teachers' time and tried to provide reports and supporting materials that would provide fast and easy access to indications of student understandings and skills. Over the past couple of years, MDTP has been very fortunate to have been able to cooperate with Daskala in providing enhanced online reports that make more information available more quickly both in terms of the time between testing and report availability and—probably more importantly—in terms of the time a teacher needs to spend mining the data to analyze students' strengths and weaknesses.

To further probe student understanding, and because every member of the Workgroup recognizes the importance of communication in developing solid mathematical understanding, MDTP develops written response materials to supplement its diagnostic tests. Teachers can use these items and their rubrics directly in response to needs revealed by their students' performance on MDTP tests; teachers can also use them as models to develop their own written response items and rubrics.

Consulting Services, Site Conferences

While MDTP does not develop pedagogical tools or curricula, MDTP site directors and workgroup members are available to consult with schools and districts to facilitate development and selection of approaches and materials to address student weaknesses revealed by test results. I am convinced that teachers of the students working together usually will find the most effective responses to students' needs. The teachers best understand their students' needs, the particular strengths of their colleagues, and the resources available to their schools. MDTP site conferences

MDTP: A PERSONAL PERSPECTIVE

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and presentations at statewide conferences provide opportunities for teachers to see broader perspectives and to share ideas and reactions with other teachers based on their common experiences with MDTP tests.

Process

Just as teachers learn from each other and better support their students through collaboration, so too do test developers. The high quality of MDTP's tests and other materials has only been possible because of the sustained commitment of its workgroup, which has included since its founding mathematics faculty from K-12, the California Community Colleges, and both California university systems along with an ETS expert in mathematics test construction and science faculty from CSU and UC. Each test question is developed through an extensive process that includes review—often debate—further review, field testing to develop statistics concerning not only the difficulty of the question but also how each distractor functions, and then further review and revision if necessary. Similarly, each test as a whole is developed collaboratively using the combined understandings of the members of the workgroup about what constitutes critical understanding and skill for students about to enter a particular mathematics course. The test specifications are further reviewed in the context of the current California Mathematics Standards to make sure the tests are consistent with them and have addressed all the issues the workgroup considers critical.

Similarly, while each MDTP Regional Site operates in the context of its local region and campus, the regular meetings of site directors allow development of effective strategies for reaching out to teachers and schools in ways that will effectively help them support mathematics learning. These site director meetings help inform the workgroup to establish and execute policy as needed.

MDTP could not have existed and done the work it has without the continuing support of the California State University's Chancellor's Office, the University of California's Office of the President, and the California Academic Partnership Program. All of them have provided not only necessary financial support to MDTP but also very good advice and perspective that have helped me immeasurably as the Director of MDTP. Beyond that, they have all provided the freedom for MDTP to exercise its best judgment. That freedom, combined with the overall good decisions that MDTP has made, has allowed MDTP to provide the materials and services familiar to most readers of this Newsletter.

People

In closing, I want to acknowledge some of the many people who have made MDTP an effective organization for over thirty years. Space limitations prohibit a complete list. As

I tried to indicate, the collaborative efforts of good people with relevant knowledge and commitment to a common cause has been the key to whatever success MDTP has had. I deeply appreciate the help of everyone who has been a member of the Workgroup, served as an MDTP Site Director or on the staff of a site or MDTP administrative office, supported MDTP by participating in field tests or presenting at MDTP conferences or helping colleagues make good use of MDTP materials, or given either public or quiet advice to some of us about MDTP.

Even mentioning some of the key players is very challenging since I have to leave out many others who played essential roles. With that caution and for the sake of "the record", let me recall very briefly some of the people who played the most noteworthy roles in MDTP's first three decades. Phil Curtis had the vision to create MDTP with the sense of purpose that has guided it to this day; he also had the skills to lead the workgroup for some 25 years with wisdom and grace. Gerald Marley was the co-chair of MDTP for its first 21 years and provided effective liaison with CSU and other organizations in addition to maintaining high quality test production oversight. Chan Jones, our ETS consultant for 32 years, helped all of us understand how to write tests and items and provided guidance that went far beyond the technicalities of test creation and production. Wally Etterbeek's contributions to MDTP are detailed elsewhere in this Newsletter—beyond that he provided wise counsel to me on almost every aspect of MDTP. Donna Ames has worked for MDTP for 24 years, first as a budget analyst, then acquiring the expertise needed to provide all administrative support to the project; Donna's commitment to MDTP is all encompassing. John Sarli became the MDTP workgroup's second chair and has done an outstanding job leading it with good judgment and good humor. Bruce Arnold first served MDTP as its San Diego Site Director and then agreed to serve as its co-director last year before assuming the directorship this year; his commitment to MDTP, his knowledge of mathematics education in California, his effective work with teachers and teacher leaders, and his uniformly good judgment give me confidence that the administrative leadership of MDTP is strong and will allow MDTP to continue its tradition of excellence.

To all the MDTP community—named and unnamed—my heartfelt thanks for your dedication to the mathematical education of all California students and best wishes for many more years of progress toward that goal.

CAHSEE PREPARATORY DIAGNOSTIC TEST

Last spring, MDTP was approached by the CAPP Advisory Board to consider writing a new kind of test to help teachers prepare students for the CAHSEE (California High School Exit Examination). The CAHSEE is a high-stakes test for both students (affecting graduation from high school) and schools (API component). Currently many schools are either remediating students who have failed the CAHSEE or preparing students to be successful when taking the CAHSEE for the first time in the spring of their sophomore year or both. To help teachers prepare these students to be successful on the CAHSEE, most teachers rely on reviewing the CAHSEE standards and practicing with released CAHSEE items or other “test prep” materials.

The CAPP Advisory Board suggested that MDTP could address a significant deficiency in the preparation of these students by developing a diagnostic test that could help teachers diagnose their students’ misunderstandings of critical prerequisite concepts. After consulting with the UC Office of the President and the CSU Chancellor’s Office and receiving their support to go forward, MDTP asked its workgroup to evaluate the possibility of constructing such a test.

The workgroup began working this summer on developing a CAHSEE diagnostic test. They surveyed the anticipated audience for this test. Generally there are two groups of students that should be targeted: those who have failed the CAHSEE (juniors and seniors) and students preparing to take the CAHSEE for the first time (sophomores).

These two groups of students are enrolled in a wide variety of courses. Many juniors and seniors (but also some sophomores) are enrolled in dedicated CAHSEE preparatory courses that focus solely on getting students ready to pass the CAHSEE. These prep courses may last only a few weeks or take an entire semester or more. Most sophomores are enrolled in a math course not specifically focused on preparing them for the CAHSEE but rather based on their previous mathematics course work and performance. They are frequently enrolled in Geometry or Algebra II courses. Even though they are enrolled in regular mathematics courses, many schools ask their teachers to additionally prepare them for the census administration of the CAHSEE in the spring.

The workgroup quickly realized that a CAHSEE diagnostic test would be much different from other MDTP tests. Nearly all MDTP tests measure students’ readiness for a particular mathematics course. A CAHSEE diagnostic test would be different since “readiness” for a CAHSEE prep course doesn’t make sense. The CAHSEE diagnostic test would not be another form of “test prep” where students would practice on items similar to the actual test nor would it predict students’ performances on the CAHSEE. Rather the

CAHSEE diagnostic test would serve solely to inform math teachers formatively about their students’ misunderstandings to help them better teach their students the concepts and skills that are tested on the CAHSEE. Understanding this focus, the workgroup found central conceptual ideas (e.g., number sense) underlying the CAHSEE and constructed test items to assess these foundational concepts.

The hope is to fast-track the development of the CAHSEE Preparatory Diagnostic (CP) test for release in fall of 2012. The workgroup developed a preliminary test version that will be field-tested this fall. The field test results will be analyzed next summer, and the workgroup will prepare another test version to field test in 2011-2012. If everything goes well with the field tests, MDTP hopes to release a CP test in the fall of 2012. To support math teachers in using this new test, the workgroup will also be developing supporting written-response items that teachers will be able to use to enrich their curriculum through the use of student written work for diagnostic assessment. Additionally, the workgroup will provide professional development for district and county instructional leaders so that teachers can make the best use of the CP test and associated written-response items.

Regional site Director’s are in the process of contacting local teachers to assist MDTP in field-testing the CP test. If you are teaching a CAHSEE prep course or any 10th grade math course and are interested in helping us with the field test, please contact your MDTP site director soon. We greatly appreciate the cooperation of teachers who administer field tests for us.

Datawise Update

Datawise MEASURES is a web-based data management system, offering easy-to-use tools that access powerful views of assessment data. Datawise and MDTP have reached an agreement that allows districts that subscribe to Datawise to score MDTP tests and view MDTP test results reports through the Datawise MEASURES system. If your district already is a Datawise subscriber, you may request the MDTP answer keys from Datawise. MDTP test booklets must still be used and may be ordered through MDTP sites. You can then use MEASURES to administer MDTP tests. MEASURES reports will be immediately available, and after the data for each class is sent to MDTP, diagnostic reports will be mailed to teachers.

For more information on Datawise, go to:
[http:// www.datawise-ed.com](http://www.datawise-ed.com).

ONLINE MDTP TESTING (DASKALA) UPDATE

In addition to its long-established service providing test booklets and printed test result reports at no cost to California teachers, MDTP began offering its tests last year in a new format: online. Teachers, schools, and districts can now administer most MDTP tests online and immediately view student, class, and school results through the Daskala software platform. Teachers throughout the state have warmly received the new online tests with more than 23,000 tests administered from January through July.

The online test delivery and reporting system is easy to use. The online reporting screens include all of the information in MDTP's printed reports in formats that are based on those reports. It is now easy to re-sort the data presented in many ways and drill down to access information not available in MDTP's printed reports. These electronic reports facilitate individual and collaborative analysis of diagnostic test results to identify students' strengths and weaknesses. Electronic reporting both reduces the time to get test results back to teachers and schools and reduces the time teachers and administrators need to review the diagnostic reports.

MDTP held 10 focus groups throughout the state last year to receive feedback from teachers about the new online format. The teachers participating in these focus groups provided MDTP and Daskala valuable feedback about the online testing environment. For example, we learned that students tended to be more engaged when taking MDTP tests online. However, teachers also reported several difficulties, such as the need to ensure that the computer lab was properly set up before testing began. As a result of this feedback and other teacher comments, MDTP has worked closely with Daskala to address both technical and procedural issues to simplify the test administration process and improve the reliability of the testing environment. Both MDTP and Daskala are committed to implementing further improvements this year and in the future to reduce the workload on the teacher when scheduling students for online testing. For more information about the focus groups, read "Daskala Reactions" in the Spring 2010 newsletter (download at <http://mdtp.ucsd.edu/MaterialsandServices.shtml#Newsletters>.)

Nearly all teachers who have experienced the online reporting of MDTP tests using Daskala have been impressed. The online presentation of MDTP's reports provides versatility both in the information provided and the ways to access that information. Daskala also provides some features not found in MDTP's printed results such as the average amount of time students looked at each question and "tags" for each incorrect answer choice that suggest possible errors made by or misunderstandings held by students. This added power has facilitated the diagnostic use of test results not only by teachers working individually but also

by teachers collaborating together to help address the mathematical needs of their students. Please read the article on pages 8 and 9, "One Middle School's Use of MDTP Online and Daskala", by Ann Trescott of St. Michael's School in Poway.

MDTP will host workshops at CMC conferences and site user conferences to inform users about the capabilities of the online testing and reporting through Daskala. MDTP site Directors are looking forward to working with teachers to help them make effective use of this new tool. For more information about online testing using Daskala, please visit the MDTP web site <http://mdtp.ucsd.edu/daskala.shtml>. The cover article in the Fall 2009 newsletter provides more information about Daskala testing and is online at <http://mdtp.ucsd.edu/materialsandsevice.shtml#newsletters>.

Edusoft Update

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subscribers may continue using Edusoft to score some MDTP tests (generally those released before 2008). To access the answer sheets, click on the "Benchmark Exams" tab, then on the "Assessments" button. The folder named "Mathematics Diagnostic Testing Project" is where answer sheets for MDTP tests are located. If the desired test is not found, then you may have a second "Mathematics Diagnostic Testing Project" folder. Please search that folder for your test. If you are not able to find them in either location, call the Edusoft help desk at 1-800-323-9540, select option 4, and ask the support representative to refresh the list for your district. Once the MDTP test answer sheets are scanned using Edusoft's grading software, you will be able to view the results online. As stated earlier, Edusoft will send the item response file to MDTP so MDTP can score, print, and send the tests results to teachers. To score newer MDTP tests (e.g., MR45A08 and AR45A10), you will need to use the green MDTP Scantron forms along with brown Class Information cover sheets and return those to a MDTP regional office for scoring. Once the MDTP answer sheets are scored, you may request that MDTP provide the data generated in a comma-separated text file that can be used to upload/import the data into Edusoft or other systems such as those used for student assessment and grade books.

MDTP REGIONAL SITE INFORMATION

<p>Berkeley Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Sonoma, and Stanislaus counties.</p>	<p>UC Berkeley Director: Emiliano Gomez (510) 642-0752 Asst.: Jacqueline Bonds (510) 642-0846 Fax: (510) 642-8204 mdtp@math.berkeley.edu</p>
<p>Chico Butte, Colusa, Del Norte, Glenn, Humboldt, Lake, Lassen, Mendocino, Modoc, Nevada, Plumas, Shasta, Sierra, Siskiyou, Tehama, Trinity, and Yuba counties.</p>	<p>CSU Chico Director: Ben Levitt (530) 898-5489 (530) 898-4103 Fax: (530) 898-3097 mdtp@csuchico.edu</p>
<p>Davis Alpine, Amador, Calaveras, El Dorado, Placer, Sacramento, San Joaquin, Solano, Sutter, and Yolo counties.</p>	<p>UC Davis Director: Phil Knox (530) 752-2021 Asst.: Trish Ramos (530) 754-9504 Fax: (530) 753-8420 plramos@ucdavis.edu</p>
<p>Fresno Fresno, Inyo, Kern, Kings, Madera, Mariposa, Merced, Mono, southern San Benito, Tulare, and Tuolumne counties.</p>	<p>CSU Fresno Director: Maria Nogin (559) 278-4908 Asst.: Devonna Butler (559) 278-2992 Fax: (559) 278-2872 mnogin@csufresno.edu</p>
<p>Fullerton Orange county, and parts of Los Angeles and Riverside counties.</p>	<p>CSU Fullerton Director: David Pagni (657) 278-2671 Asst.: Crista Jansson (657) 278-2691 Fax : (657) 278-3972 mdtp@fullerton.edu</p>
<p>Los Angeles Los Angeles and Ventura counties except for schools near Fullerton.</p>	<p>UC Los Angeles Director: Mary Sirody (310) 825-9477 Fax: (310) 825-8914 mdtp@ucla.edu Shipping & Scoring Annex: Office Manager: Jana Hoover (310) 825-2495 Fax: (310) 206-7261</p>
<p>San Bernardino Inyo, Mono, and San Bernardino counties and part of Riverside county.</p>	<p>CSU San Bernardino Director: John Sarli (909) 537-5374 Asst.: Leanne Richardson (909) 537-7670 Fax : (909) 537-7119 mdtp@csusb.edu</p>
<p>San Diego Imperial and San Diego counties and part of Riverside county.</p>	<p>UC San Diego Director: Bruce Arnold (858) 534-3298 Asst.: Monnie Barker (858) 534-3373 Fax : (858) 534-1011 mdtpsandiego@ucsd.edu</p>
<p>San Luis Obispo San Luis Obispo, Santa Barbara, and southern Monterey counties.</p>	<p>Cal Poly San Luis Obispo Director: Steve Agronsky (805) 756-1683 Asst.: Dale Wilbur (805) 756-2445 Fax: (805) 756-6537 dwilbur@calpoly.edu</p>
<p>Santa Cruz Northern Monterey, northern San Benito, Santa Clara, and Santa Cruz counties.</p>	<p>UC Santa Cruz Director: Bruce Cooperstein (831) 459-2150 Central Coast Coord. Ed Migliore (831) 459-1240 Asst.: Dana Mathers (831) 459-2400 Fax: (831) 459-3260 dmathers@ucsc.edu</p>

AVAILABLE MDTP DIAGNOSTIC TESTS

Test Name	Description	Calculator Prohibited	Calculator Optional*	Calculator Required
PR Prealgebra Readiness	Assesses some concepts needed for success in a course immediately preceding a first-year algebra course and subsequent success in that first-year algebra course. This test is often given near the beginning of a course immediately preceding a first-year algebra course. Spanish version available.	PR40A04 0814004		
AR Algebra Readiness	Assesses some concepts needed for success in a first course in algebra. Calculator prohibited and calculator required versions available. 45 question and 50 question versions available. Spanish versions available. The AR50/90 test form will remain available until out of stock or Fall 2011, whichever comes first. The AR50A10 test is a computer delivered form only available online via Daskala.	AR45A00 0714500 AR45A10 0714510 AR50/90 0715090 AR50A10		AR50X92 0775092
EA Elementary Algebra Diagnostic	Assesses some concepts needed for success in a second course in algebra. Appropriate when the second course follows immediately after a first-year algebra course and students have not studied a year of geometry. Spanish versions available.		EA50A90 0315090	<i>Scientific</i> EA45X91 0374591
GR Geometry Readiness	Assesses some concepts needed for success in geometry after completing Algebra I or II. Includes some informal geometry students should have encountered prior to and during algebra. Spanish versions available. [GR45A93 available while in stock.]		GR45A93 0414593 GR45A06 0414506	GR45X94 0474594
SR Second Year Algebra Readiness	Assesses some concepts needed from first-year algebra and geometry for success in intermediate algebra following a course in geometry. Spanish versions available. [SR45A93 available while in stock.]		SR45A93 0314593 SR45A06 0314506	<i>Scientific</i> SR45X94 0374594
IS Integrated Second Year Readiness	Assesses some concepts needed for success in the second year of an integrated mathematics curriculum. This test was based on the common content of two of the integrated curricula in use in California.		IS45A00 0414500	
IT Integrated Third Year Readiness	Assesses some concepts needed for success in the third year of an integrated mathematics curriculum. This test was based on the common content of two of the integrated curricula in use in California.		IT45A00 0314500	
MR Mathematical Analysis Readiness	Assesses some concepts needed for success in a course following two algebra courses and a geometry course. This course is often called trigonometry, precalculus, or mathematical analysis. [MR45A92 available while in stock.]		MR45A92 0214592 MR45A08 0214508	<i>Scientific</i> MR45X94 0274594
CR Calculus Readiness	Assesses some concepts needed for success in a first calculus course. 40 question and 55 question versions available, with suggested times of approximately 60 and 90 minutes respectively.		CR40A97 0114097 CR55A97 0115597	<i>Scientific</i> CR40X96 0174096 CR55X96 0175596
BC Beginning Calculus Readiness	Assesses some concepts and facility with graphing calculators needed for success in a first calculus course requiring graphing calculators. Some questions require the use of a graphing calculator.			<i>Graphing</i> BC30X97 0173097

*Calculators are not recommended on GR45A06, SR45A06, and MR45A08.

MDTP's Written Response Materials CD is available upon request and supplements most of MDTP's tests.

ONE MIDDLE SCHOOL'S USE OF ONLINE MDTP AND DASKALA

Come May of each school year it is always the same daunting task: next year's math placement for students. The following questions swirl around in my head:

What are the mathematical needs of the students in our middle school?

How can I assess a student's readiness for the next level of math?

What resources do I need/have to meet those needs?

How will I convey to the parents that what we know as educators really does meet their child's math needs?

How do I help the math teachers to better meet the needs of their students?

The goal of the math program at our school is to meet the mathematical needs of each and every student.

We want students to grow in their math understandings and be able to apply those understandings not only to use in future math classes but in non-educational settings as well. Through the use of Daskala and MDTP we have been able to better meet the needs of the students at my school in two important ways: first, helping students and parents understand and get a clear picture of students' mathematical readiness; and second, helping teachers develop teaching strategies by analyzing students' readiness.

Math placement at our school is based on a number of factors. We look to the students' success in their previous math class, at their standardized test scores, at their MDTP score, and their current math teachers' recommendation. All of these factors are taken into account to help determine math readiness and placement for the next year. In June, the students' MDTP results and math placement for the next school year are sent home for the families to look at and analyze. Families can contact me to answer any placement questions they have or help them better understand their child's MDTP results.

Over the past five years in which we have been using MDTP we have done our best to help families understand the MDTP results and subsequent math placement. Often families will choose to have their child placed in a math class that is not recommended by our math department. Usually these classes are the most advanced or accelerated classes at our school. As a parent I understand parents' desire to push their children educationally. On the other hand, as an educator, I understand that a child will be most successful mathematically, in the long run, if they are placed in a class for which they are ready.

Through the use of Daskala these family meetings have taken on a different tone. While the students' results are projected up on the classroom whiteboard, we are looking at the data and having conversations in an atmosphere of collaboration centered on student achievement, math strengths and weaknesses, test taking strategies, possible math misconceptions, and test exhaustion to name a few. Daskala allows us to look at individual questions and the following factors for that question: how long the student took

to answer, did the student respond correctly, if not, what response did the student choose, what percentage of the class also chose the same response, what percent of the class answered correctly, and possible explanations for why that student might have chosen the wrong response. By analyzing the student's incorrect answers, the student can frequently enlighten us about what they were thinking mathematically when they tried to solve a problem. When students are able to articulate this detail, it gives parents a more realistic idea of their child's math readiness. Instead of a parent seeking higher levels of math immediately, the immediate goal becomes helping their child become ready for their next math course. This in turn can lead to a concrete plan on how the school and family can best meet the mathematical needs of the child.

Another important outcome of using Daskala with MDTP has been with the professional development for our teachers. It is important for our teachers to be able to have conversations about, not only the test results and how we are doing to educate our students, but also on what we might do better or differently to meet the needs of our students. Since Daskala takes the guesswork out of analyzing the test results, these two components are done with ease.

Before the teachers meet to look at school-wide test results, they analyze their own classes' results. When we meet as a math department, we rarely look at specific class results. Instead we look at topic results (strands). This serves two purposes. First, since our students are separated by readiness, there are classes that don't score as high as others. By not focusing on those classes and instead looking at the whole school, those teachers do not feel singled out in these meetings and are more open to discussing teaching strategies and pedagogical knowledge. Second, we want to brainstorm as a group on how we might teach specific concepts differently to get better student understandings of concepts.

We start by looking at the overall results, then focus in on the topic with the lowest average percent correct. Once that is identified, we can then draw our attention to specific items within that topic. At this point we can see the percentages of student answers for each item distractor. If an item distractor has a high percentage that is the incorrect

COMMON CORE STANDARDS

Even before the adoption of the Common Core Mathematics Standards by the State Board of Education, the MDTP Workgroup began reviewing the Common Core Mathematics Standards to determine the degree of alignment between current MDTP tests and the standards. The workgroup reviewed the MDTP tests from Prealgebra Readiness through Calculus Readiness to determine which standards were addressed by each MDTP test question.

Many questions addressed more than one standard; we found 358 correspondences for the 270 questions on our tests. One question addressed a Common Core Mathematics cluster but none of the standards within the cluster or elsewhere. There were six questions for which we could not find a suitable standard and two for which only part of the question addressed some standards but other essential parts did not appear to address any standard. Finally, there was one question that only addressed a standard for mathematical practice (“Construct viable arguments and critique the reasoning of others”), but we could not find a standard addressed by that question.

The workgroup also found some topics that weren’t addressed by the Common Core Mathematics Standards that were tested by a MDTP item and we thought were important enough to be included in California’s mathematics standards. We also found some gaps in the standards in the sense that knowledge is assumed at a later grade although we could not determine where it was introduced in an earlier grade.

The workgroup shared its findings with the state’s Academic Content Standards Commission while they were deliberating. Wally Etterbeek (a workgroup member) also testified before the Commission during public hearings in July.

With the adoption of the standards by the State Board of Education, MDTP will expand their initial review to include a holistic examination of the revised standards to determine if there are any standards that aren’t addressed by any MDTP tests and should be. MDTP’s goal is to ensure that our tests accurately reflect the prerequisite mathematical knowledge and skills necessary for success in secondary mathematics courses in the state.



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One Middle School’s Use of Online MDTP and Daskala

Continued from p.8

answer, we then focus on why our students might have that misunderstanding. Daskala already has possible explanations that are shown when you hover over that distractor. This is helpful as it gives a starting point for our discussions.

As with the family meetings, these math department meetings have taken on a new, more collaborative tone. Teachers do not feel singled out but instead seek to meet the needs of all students by creatively working with other teachers to develop best teaching practice strategies. The use of Daskala has helped create this collaborative tone on two important fronts at our school: the families and the teachers.

Teachers are encouraged to submit articles to MDTP (mdtp@ucsd.edu) at any time for publishing in this newsletter.

Status of New CR Tests

The MDTP workgroup has continued the development of a new Calculus Readiness (CR) Test that began three years ago with work on updating the set of specifications. Last summer, a revised version of the CR test was developed and field-tested last year. It included several new trigonometry items addressing more trigonometry content; these items were developed in response to many requests from current CR users. This summer, we analyzed the results of the field test to determine how well the new questions work and to show us how to refine them. The workgroup prepared a new test form that will test several new trigonometry items and logarithmic items.

We anticipate another two years of field-testing will lead to the release of a revised CR test in the fall of 2012. As with all MDTP tests, the data collected from these field tests is necessary for us to create tests meeting our high quality standards.

Regional site directors are in the process of contacting local teachers to assist MDTP in field-testing the revised CR test. If you are teaching an AP Calculus course and are interested in helping us by administering the field test early this fall and providing some additional information later in the academic year, please contact your MDTP Site Director soon. We greatly appreciate the cooperation of teachers who administer field tests for us.

IN TRANSITION

New MDTP Director

Alfred Manaster retired as the MDTP Director and Workgroup Co-chair on 30 June 2010 after serving for 25 years as the Director and for 30 years as a Workgroup member. Please read the cover article to understand the impact that Alfred has had not only on the development of MDTP as a significant statewide project testing upward of 700,000 tests annually but more importantly on thousands of California secondary math teachers and through them on millions of students. Bruce Arnold assumed the position of MDTP Director on 1 July 2010. He has retained his position as the San Diego site director, a position he has held since 2003. He is also the Director for the Mathematics Testing and Placement Program at UCSD. Most recently, Bruce was a part-time lecturer in the UCSD Mathematics Department for six years and taught at Torrey Pines High School for nine years. He is also a retired Navy officer.

New MDTP Workgroup Co-chair

Upon Alfred Manaster's retirement, Bruce Cooperstein became co-chair of the MDTP workgroup. Bruce is a research mathematician at UC Santa Cruz. He has been a workgroup member since 1999 as well as MDTP site director at UC Santa Cruz. Throughout his career Bruce has been a leader in campus governance. He has been involved in promoting mathematics education at all levels, including being a California Mathematics Project director and being named a Pew Scholar by the Carnegie Foundation for the Advancement of Teaching.

New MDTP Statistician

Wally Etterbeek retired as the MDTP Statistician and Workgroup member on 30 June 2010 after serving for 33 years as a Workgroup member. Wally was one of the founding members of MDTP. His impact on MDTP has been great. Please read the article at the bottom of this page to learn more about his contributions. Wally is succeeded by Brian Jersky, a Workgroup member since 2002, Adjunct Professor at the University of California San Francisco, and Senior Lecturer at Macquarie University, Sydney Australia.

New Chico Site Director

Jack Ladwig retired as the Chico site director after serving in that capacity for over two decades. We wish him well! Ben Levitt has replaced Jack as the Chico site director. Ben is an Assistant Professor of Mathematics at CSU Chico. His research interests include number theory and research about undergraduate education. We welcome Ben to the MDTP family.

New Community College Workgroup Member

Viviana C. Castellón is the MDTP Workgroup's newest member. She comes to us from East Los Angeles College where she teaches math and serves as the Director of the Adelante—First Year Experience Program that provides students with the very best opportunities to succeed in transferring to a four-year university

New Administrative Assistant in Director's Office

Joe Shryock has joined the MDTP Director's Office in San Diego. He is working with Daskala and helping schools set up their students for online testing, in addition to many other duties. Joe is a recent graduate from Boston College and new to San Diego.

FOUNDING MDTP WORKGROUP MEMBER AND STATISTICIAN RETIRES

Wally Etterbeek retired from the MDTP workgroup at the end of this summer. Wally is the longest-serving MDTP member, having joined the workgroup when it was formed in 1978. He has actively participated in each of the workgroup's thirty-three summer conferences. He was the workgroup co-chair for four years (1998-2002). The expertise he brought to the group based on his experience teaching college mathematics, high school mathematics, and pre-service mathematics teachers informed and shaped the quality of MDTP's test questions, tests, and written-response items. Since 1981, Wally has been the MDTP statistician—his insights and persistence have given MDTP increasingly better access to field-test data that play a critical role in developing questions and tests of high quality. Wally also was the Site Director of MDTP's Sacramento State site for over 15 years. This listing of the positions Wally has held in MDTP barely begins to convey the scope of his contributions to this project. He has provided effective liaison with the CSU system and its ELM test, powerful articulation with secondary teachers, and insightful guidance to almost all aspects of MDTP through his persuasive and thoroughly thought-out arguments. The workgroup, and all who use MDTP materials, will continue to benefit from his contributions even when he is no longer an official workgroup member.

UPCOMING EVENTS

Each year, MDTP sites hold regional conferences to discuss current issues in mathematics education in California and effective uses of MDTP in the classroom. The conferences provide an opportunity for conversations among elementary, middle, and high school mathematics teachers and administrators as well as college and university mathematics faculty. MDTP also presents and hosts booths at some regional California Mathematics Council conferences, this year at both the Palm Springs and Asilomar conferences. Please consider attending some of these events!

5-6 November 2010: CMC-South (Palm Springs) Conf.

Session TBD. Bruce Arnold and John Sarli will present "Developing Formative Assessment Through Diagnostic Testing". MDTP will have a table in the Exhibitors' Hall.

For more information:

<http://www.cmc-math.org/PS>

Wednesday 17 November 2010 from 4 to 7:30 p.m.:

UC Davis Users' Conference

For more information and registration:

Contact Trish Ramos at the Davis site.

3-5 December 2010: CMC-North (Asilomar) Conference

MDTP will have a table in the Exhibitors' Hall.

For more information:

<http://www.cmc-math.org/ASIL>

March 2011 (date TBD):

UC Berkeley/UC Davis Math Teachers Workshop

For more information and registration:

Contact Trish Ramos at the Davis site or

Jacqueline Bonds at the Berkeley site.

Thursday 24 March 2011 from 3:30 to 7:00 p.m.:

UC San Diego Users' Conference

For more information and registration:

Contact Monnie Barker at the San Diego site.

Check MDTP's web page for updates to the above events, additional conferences and events.

<http://mdtp.ucsd.edu/NewsEvents.shtml>



Alfred Manaster
University of California, San Diego
MDTP Director
MDTP Co-chair
1980-2010

MDTP thanks
Alfred and Wally
for the many years of
leadership that they have
given to this project.



Wally Etterbeek
California State University, Sacramento
MDTP Statistician
Founding Member
1978-2010

EDUSOFT UPDATE

Edited by MDTP Director's Office
Bruce Arnold, MDTP Director
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<http://mdtp.ucsd.edu>

Last spring, Edusoft users noticed that they weren't receiving the printed MDTP tests results reports after testing and scoring students using Edusoft. Several teachers then contacted the MDTP Director's Office or their local MDTP site to report this issue and to request their reports. MDTP followed up on these complaints and discovered that MDTP hadn't received the data files for these schools from Edusoft and, therefore, weren't able to score these classes, print the tests results, and mail them to the teachers. MDTP contacted Riverside Publishing (parent company of Edusoft) to research the problem. Riverside Publishing discovered that schools and/or districts had copied the "Mathematics Diagnostic Testing Project" folder located under the "Benchmark Exams" tab then "Assessments", to a new location and/or had changed the name of the folder or folders within. These actions broke the link that automatically would send

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the data files to MDTP. The MDTP Director's Office was able to work with these schools and have them send their Item Response Report spreadsheets directly to UCSD for scoring, enabling MDTP to print and mail test results to the affected teachers.

Another issue soon surfaced when MDTP was contacted by other schools that hadn't received their printed MDTP tests results reports after testing *and hadn't* copied, moved, or re-labeled the MDTP folder. After extensive research by Riverside Publishing and MDTP, we learned that a programming error last spring had resulted in *no* Edusoft data files being sent automatically to MDTP.

Regrettably as a result of these errors, approximately 50,000 MDTP tests results were not sent to MDTP teachers last year (though many teachers received their tests results after contacting MDTP). MDTP Director's Office is truly sorry this occurred, since MDTP has prided itself on its support to its teachers for the past 30 years!

Edusoft has corrected the programming. MDTP tests scored using Edusoft answer sheets, printed from the "Mathematics Diagnostic Testing Project" folders with the correct name and in the correct location, are automatically sent to the MDTP Director's Office. MDTP is once again scoring, printing, and mailing tests results directly to teachers within 2-days of receiving the data files that have 5 or more students. Edusoft is also working with individual schools and districts to prevent teachers from copying or re-labeling MDTP folders.

MDTP tests are copyrighted materials and provided to schools with the understanding that students' answer sheets are to be scored by MDTP to ensure each teacher receives the diagnostic test results reports. Edusoft users must use the original MDTP folder to print Edusoft Answer Sheets or use MDTP Scantron forms and return the Scantron forms to a local MDTP site. If you experience *any* delays in receiving your printed MDTP tests results after scoring MDTP tests in Edusoft, please contact us at mdtp@ucsd.edu immediately and provide your name, school name, MDTP test code (e.g., AR45A00), and date scored so we can resolve the problem. You should download the Item Analysis Report/Item Response Report for your classes and attach the spreadsheet to your message. If you need assistance in downloading the data you can use the Edusoft Library's Benchmark section for guidance, contact Edusoft Help, or email mdtp@ucsd.edu and we will send detailed instructions. MDTP will research all requests and score, print, and mail MDTP tests results directly to the teacher.

As we discussed in the Fall 2009 MDTP Newsletter, MDTP is not able to add more MDTP tests to Edusoft. Edusoft

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