Using SAM Central With The Math Inventory

For use with The Math Inventory version 2.5 or later, SAM Central, and Student Achievement Manager version 2.5 or later

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SAM Central and *The Math Inventory*

*The Math Inventory* is an adaptive assessment that measures math achievement and growth from Kindergarten to Algebra II, based on the Quantile® Framework. *The Math Inventory* has a bank of over 5,000 test items across five strands of mathematics (number and operations, geometry, measurement, algebra, and data analysis and probability) as defined by the National Council of Teachers of Mathematics.

### SAM Central and SAM

SAM Central is the teaching management system for *The Math Inventory*.

Users upgrading from earlier versions of *The Math Inventory* will recognize Student Achievement Manager (SAM) functions in SAM Central, along with many new, innovative features that will provide teachers with tools and resources needed for effective teaching and successful implementation.

Like SAM, SAM Central allows teachers to enroll students in programs, customize program settings, schedule and run reports, and access educational and professional development resources (administrators still use SAM for these functions, described on page 23).

SAM Central also presents student data in visual, tabular, and dynamic ways to provide a detailed status of student performance and usage that is updated in real time.

SAM remains the underlying system that stores and controls all user information and is accessible through SAM Central as well as the Educator Access screen.
The Software Media Accelerator

The Software Media Accelerator (SMA) is a separate server-based program that speeds up media processing over the server-workstation connection.

Using the SMA with The Math Inventory is strongly recommended.

The SMA is installed on a separate district server and provides a more direct link to The Math Inventory media, thus giving students and teachers faster media access, even in low-bandwidth environments.

District or school administrators should install the SMA prior to implementing MATH 180. See the HMH SAM Suite System Requirements & Technical Overview for version 2.5, available at The Math Inventory Product Support website (page 49) for SMA Server requirements. Note that SMA requirements for MATH 180 media are different from other SAM Suite programs.
Logging In to SAM Central

Teachers and administrators in districts that use locally installed SAM Servers log in to SAM Central from their respective Educator Access screens.

Districts with *The Math Inventory* installed on their SAM Servers see a SAM icon and a SAM Central icon on the Educator Access screen. Click the SAM Central icon to log in to SAM Central.

Log in with a SAM username and password. Once logged in, teachers go directly to their SAM Central Home screen (*page 8*).

Administrators will see an Educator Access screen with a SAM icon and a Dashboard icon. Click the Dashboard icon to view the Leadership Dashboard (for more information, see the *Next Generation Dashboard Guide* at the *Math Inventory Product Support* website (*page 49*).
Teachers in districts where the SAM Servers are hosted at a data center can open the SAM Central Login screen using the URL link from the Hosting Activation email. The SAM Central Login screen appears.

Use the username and password on the teacher profile in SAM (provided by the school or district administrator) to log in to SAM Central. Teachers go directly to their SAM Central Home screen (page 8).

**Administrator Login**

Administrators will see the SAM Central Access screen with the SAM icon and icons for other district programs.
SAM Central Home Screen

The SAM Central Home screen provides a snapshot of student progress and performance in *The Math Inventory* as well as an overview of the class’s Quantile growth and program usage. This screen contains each *Math Inventory* class in a Class Widget. It also contains other functions for class and program management.

Class Widget

Each Class Widget contains the following sections:

- **Data Snapshots**: Data Snapshots provide an overview of student performance and usage. *Math Inventory* data is updated in real time. Click the dots to scroll through the snapshots.

- **News Feed**: The News Feed lists class and student milestones. Click the student links and More Info links to view detailed information.

- **Manage Class**: Click the Manage Class button to open a pull-down menu of *Math Inventory* Program Settings (page 16).

- **Class Analytics**: Click the Class Analytics link to open the Class screen (page 11) and view *The Math Inventory* class and student reports.

Click the class name in the top bar to expand or collapse the Class Widget.
Gateway

Clicking the **Gateway** link at the top of the Home screen opens a pull-down menu. This menu contains links to SAM, the Product Support site, and any other sites or services that the teacher is entitled to. Click an icon to open that program in a separate browser window (users in districts with locally installed SAM Servers go to the Login screen for that program and log in using their SAM usernames and passwords).

Teacher Profile

Clicking the teacher’s name in the Welcome line of the Home screen opens the My Profile screen, which shows the teacher’s profile information.

Enter or change information on the profile, then click **Save** to save any changes. To close the screen without saving changes, click **Cancel** or the X icon at the top of the screen.
Add Class

Click the **Add Class** button under the Class Widget to add a class.

Enter a name for the class in the Class Name field. Choose the teacher(s) for the class by clicking the pull-down menus and clicking a teacher name.

Select which grades are in the class by clicking the appropriate checkboxes.

Select which programs are being used in the classroom by clicking the appropriate checkboxes.

Click **Save** to save any changes. To close the screen without saving changes, click **Cancel** or the “x” icon at the top of the screen.

**Log Out**

Click **Log Out** to log out of SAM Central.
Class Screen

Clicking a link or button on the Class Widget opens the Class screen.

The Class screen consists of a navigation pane on the left side of the screen and an analytics display area on the right. The navigation pane has three areas:

- **Data Snapshots**: Provides an interactive overview of student performance and usage (page 12) as well as links to Class and Student Analytics (page 44).
- **Professional Learning**: Links to curriculum and teacher tools and downloadable resources (page 14).
- **Manage Class**: Allows teachers to set and change *The Math Inventory* Program Settings (page 16).
Data Snapshots

Data Snapshots give an overview of student performance and usage. Click the dots at the bottom of each graph to scroll through the different Data Snapshots.

Click the different areas of the visuals to see detailed student information. Click a student’s name to open the Student Analytics (page 46) for that student.

There are three different Math Inventory Data Snapshots:

Test Status: Test Status shows how many students have completed the Math Inventory Assessment, how many students have incomplete tests, and how many have not yet started it. Scroll over the data to view a list of students under each category.
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Current Performance Level: Current Performance Level displays students’ performance on the Math Inventory Assessment in graphic form. Click a portion of the graph to view detailed information.

Quantile Growth: Quantile Growth shows in graph form the change in students’ performance on the Math Inventory Assessment over time. Click the bars in the graph to view detailed information.

Class and Student Analytics

The Data Snapshots area in the Navigation Bar also contains links to Class Analytics and Student Analytics. Click these links to see the class and student data organized into Math Inventory reports (page 33).
Professional Learning

The Professional Learning menu links to *Math Inventory* resources.

Explore the Math Skills Database

Click **Explore the Math Skills Database** to connect to the Math Skills Database, which recommends instructional resources aligned to each Quantile Skill and Concept. Click the URL to open the database in a separate browser window.

Downloadables

Click the **Downloadables** link to open the Downloadables Search screen. The Downloadables search function searches the SAM resources for all the programs on the SAM Server. The screen contains two tabs—Search and Browse—which offer two ways to search for downloadable resources.

To perform a quick keyword search, enter the keyword in the field at left and click **Search**. The search results appear at the bottom of the screen. Click the resource link to open that resource in a separate browser window.
To perform an advanced search, use the pull-down menus on the right of the search screen (asterisks (*) designate required fields) to filter the search by program and resource type. Click Search when the filters are set. The search results appear at the bottom of the screen.

To use the Browse tab, select the program from the Program pull-down menu. A list of all available resources appears, broken down by Resource Name. Click the resource link to open the resource in a separate browser window.

**Manage Class**

The Manage Class menu contains links for setting *Math Inventory* Program Settings *(page 16)* for students or the entire class.
Program Settings

Program settings allow teachers to enroll students in *The Math Inventory* and customize the *Math Inventory* student experience for their classes and individual students.

Class and student program settings may be set using the Manage Class menu in SAM Central. Class and student program settings, as well as school and district settings, may also be set in SAM.

Program Settings in SAM Central

Teachers may set *Math Inventory* Program Settings in SAM Central by using the Manage Class menu.

Access the Manage Class menu by clicking the Manage Class button on the Class Widget on the SAM Central Home screen.

The Manage Class menu may also be accessed from the navigation pane of the Class screen (page 11).
Class Profile

Click Class Profile to open the Class Profile screen.

To assign or change a class name, enter the new name in the Class Name field.

To assign teachers to classes, use the pull-down menus in the Teachers field and select the teacher’s name by clicking it.

To assign grades to the class, use the checkboxes in the Grades section to select the class’s grades.

To assign programs to the class, use the checkboxes in the Manage Applications section to select the programs used in the class.

Required fields are marked with an asterisk (*).

Click Save to save selections and close the Class Profile screen, or close the screen by clicking a different choice in the Manage Class menu to exit without saving changes.
Roster & Enrollment

Click the Roster & Enrollment link on the Manage Class menu to open the Roster & Enrollment screen.

Students that have been added to the class appear on the roster. To enroll them in The Math Inventory, click the checkbox next to the student’s name. To enroll the entire class, click the checkbox at the top of the Math Inventory column.

To search for a student, click Find Student to open the Find Student screen. Fill in one or more of the fields, and click Search (click Clear to clear all fields).

To add the student to the class roster, click the checkbox next to that student’s name and then click Add.
Student Profiles (page 20) may also be created in SAM Central.

To create a Student Profile in SAM Central, click **Create Student** from the Roster & Enrollment screen to open the Create Student screen.

![Create Student Screen](image)

Fill in the fields (required fields are marked with an asterisk (*)). Be sure to enter a SAM username and password for the student. Demographic information will be recorded in SAM and reflected in *The Math Inventory* and other reports.

Click **Save** to save selections and close the screen, or click **Cancel** to close the screen without saving changes.
Student Profiles

To view and edit an existing Student Profile for a student in the class, click **Student Profiles** from the Manage Class menu.

![Student Profiles](image)

Use the top pull-down menu to select a student in the class.

Enter or change information on the profile, then click **Save** to save any changes.

Usernames & Passwords

![Usernames & Passwords](image)

Click **Usernames & Passwords** to view a list of SAM usernames and passwords for all students in the class.
Class Settings

Use SAM Central to apply Math Inventory Program Settings to the class. Click Class Settings from the Manage Class menu to open the Class Settings screen.

Use the top pull-down menu to select which program the settings will apply to. Choose Math Inventory from the pull-down menu. Classes that have only The Math Inventory selected in their Class Profiles (page 17) will not see this section.

To change the settings for all students in the class, click the All Students checkbox in the Select Cohort section. To change settings for particular students, click the checkboxes next to their names.
To change the minimum time between settings, click the pull-down menu and choose one of the options. Click Custom to enter a different time span, then enter the number of days desired in the corresponding field. The default setting is No Minimum.

To set the estimated math level for students, click the pull-down menu and choose one of the options. The default setting is Undetermined.

To set practice test options, click the pull-down menu and choose whether students will see practice questions on their first assessment or every assessment. The default setting is First Test Only.

To allow students with an incomplete test to begin a new test at next login, click the checkbox next to Discard Last Incomplete Test. The default setting is unchecked.

To allow students to see their Quantile measures after taking The Math Inventory Assessment, click the checkbox next to Show Student Quantile After Test Completion. The default setting is checked.

When finished, click Save to save all Program Settings.

**Student Digital Portfolio**

The Student Digital Portfolio works with MATH 180 and other programs. To open the Student Digital Portfolio, click Student Digital Portfolio from the Manage Class menu. The Student Digital Portfolio does not contain any Math Inventory functions.
Math Inventory Program Settings in SAM

Administrator-only settings for The Math Inventory may only be accessed through SAM.

The Math Inventory Grading Tool may also be accessed through SAM by teachers and administrators.

Enrolling Students in Math Inventory With SAM

If students have profiles in SAM, teachers and administrators may use SAM to enroll students in The Math Inventory. To add students to SAM and create student profiles, see Enrolling and Managing Students Using Student Achievement Manager at the Math Inventory Product Support website (page 49).

Confirm that students are enrolled in The Math Inventory by clicking My Classes at the top of the SmartBar to access the class’s Profile screen. Locate the number of students who are enrolled in each program in the Usage Summary table.
To enroll students in *The Math Inventory* through SAM:

1. Click the **Manage Student Enrollment** link from the class’s, teacher’s, or student’s Profile screen.

2. Use the checkboxes to enroll students in programs, or use the checkboxes at the top of the chart to enroll every student in the list at the same time. Use the horizontal scroll bar to scroll through the program choices.

3. Click **Save & Return** to save changes and return to the Profile screen. Click **Save** to save changes and remain on the Enrollment screen. Click **Cancel** to cancel the changes, or click **Cancel & Return** to return to the Profile screen without saving changes.

Enroll additional students in *The Math Inventory* by double-clicking another class or group in the SmartBar.
Administrator Settings

To adjust *Math Inventory* administrator settings from the Profile screen:

1. Double-click the district, school, class, group, or student’s name on the SmartBar to open the corresponding Profile screen.

2. Click the **Settings** link next to the *Math Inventory* icon in the Programs menu to access the *Math Inventory* Settings screen.

Click the Settings tab to change test settings for students, classes, or groups. Click the boxes to check or uncheck the items, or use the pull-down menus to make selections. Most of these settings are accessible through the Class Settings screen in SAM Central (*page* 21).

**Teacher Tip**

Remember that some settings might make sense for a whole class, but others are for just one student. Use the SmartBar to adjust settings for a whole class or individual students.
Using SAM Central With The Math Inventory

Turn Off Calculator: Choose this option to turn off the calculator for all students in the school or district.

Turn Off Formulas: Choose this option to turn off the formulas for all students in the school or district. Without referring to formulas when appropriate, students may find that problems are harder than expected, which may affect the student score.

When finished making selections, click Save & Return to go back to the Profile screen or click Save to remain on the Settings tab. Use the SmartBar to change the settings for another class, group, or student. To undo changes, click Cancel. To leave the Settings tab without saving changes, click Cancel & Return. Click Restore Defaults to return to the default settings.

Advanced Settings

Access the advanced settings by clicking the Advanced Settings tab from the Program Settings screen. The Advanced Settings screen allows district administrators to set the names and Quantile measure ranges of Math Inventory Performance Levels for their districts. Only district administrators may set these levels; however, any SAM user may view the levels. The Performance Levels allow teachers to determine where student performance falls when matched against the range of measures on the Quantile Framework.
There are four default Performance Levels:

- **Advanced**: Students scoring in this range exhibit superior performance when tested on grade-level-appropriate skills and concepts and may be considered above grade level in mathematics.

- **Proficient**: Students scoring in this range exhibit appropriate performance when tested on grade-level skills and concepts and may be considered on grade level in mathematics.

- **Basic**: Students scoring in this range exhibit minimally competent performance when tested on grade-level-appropriate skills and concepts and may be considered below grade level in mathematics.

- **Below Basic**: Students scoring in this range exhibit less-than-minimally-competent performance when tested on grade-level-appropriate skills and concepts and may be considered significantly below grade level in mathematics.

To change the Performance Levels:

1. Use the Number of Performance Levels pull-down menu to select the desired number of Performance Levels. The default setting is 4. The table shows the number of levels selected.

2. Enter a name for each Performance Level at the top of each column.

3. Enter an upper-limit Quantile measure for each Performance Level for each grade. SAM automatically fills in the lower Quantile measure for the next range. The table must be filled in completely for SAM to save the new Performance Level settings.

4. Use the Select “Proficient” Level pull-down menu to select the Proficient Performance Level.

5. Click **Save & Return** when finished to save changes and go back to the school’s or district’s Profile screen. Click **Save** to save changes and remain on the Advanced Settings window. To undo changes, click **Cancel**. To leave the Settings tab without saving changes, click **Cancel & Return**.

The new Performance Levels are used in all related reports. Click **Restore Defaults** to return to the default Performance Level settings.

To print the Performance Levels:

1. Access the Advanced Settings screen from the Program Settings screen.

2. Click the **Print** button. A chart displaying the Performance Levels for the school or district will open in a web browser.
The Grading Tool

The Math Inventory Grading Tool allows teachers to track and score students’ progress on Math Inventory tests.

To access the Math Inventory Grading Tool:

1. Double-click a student in the SmartBar to open the student’s Profile screen.
2. Click the Grading Tools link next to the Math Inventory icon in the Programs menu to open the Grading Tool. The Grading Tool is only accessible from a student Profile screen.

Viewing Math Inventory Tests

The Grading Tool screen shows all Math Inventory tests the student has taken to date.
Removing Tests

Scored Tests may be removed from SAM at the student level of the SmartBar. Only administrators may remove a student’s Scored Tests. To remove a test, click the **Remove** link to the right of the test score. (This link is not visible on teacher login.)

At the confirmation window, click **Yes** to remove the test or click **No** to return to the Grading Tool. Tests that are removed from the Grading Tool are also removed from reports and no longer appear in SAM.

To exit the Grading Tool, click **Cancel & Return** to return to the student’s Profile screen.
Running Reports in SAM

To run a report in SAM, click the Reports tab or the Reports icon on the SAM home screen to open the Report Index.

The Report Index lists the available reports for a SmartBar selection. Filter the list by clicking the Show pull-down menu and choosing one of the options:

- **All Reports**: Shows the complete list of reports available
- **Multi-Classroom Reports**: Shows reports that include data collected across several classrooms or schools
- **Classroom Reports**: Shows reports for students in one or more classes
- **Student Reports**: Shows reports for individual students
To run a report, click the button next to the report in the Report Index, then choose a time period from the Time Period menu. Click **Run Report**.

The Student Test Printout (page 42) will open in a separate browser window after clicking the link as directed in the onscreen instructions.

To print the Student Test Printout report, click **Print** at the top of the PDF browser window.

Click **Using This Report** on the top of any report for suggestions on how to apply each report to class or student goals.

Click **Related Reports** to view a list of related reports that recommended for exploring data further.
To save a report in SAM, click the **Save a Copy (PDF)** link in the upper right corner of the Reports screen. This saves the report in PDF format to the SAM Server with the appropriate profile information included.

To access the saved report, click the **View Saved Reports** link in the upper right corner of the main display. The system will display a list of saved reports for that selection in the SmartBar. Click the report link to open the report as a PDF in a separate browser window. Click **Delete** to delete the report from the SAM Server.
**Math Inventory Reports**

**Accessing Reports**

Access *Math Inventory* student and class reports using the **Class Analytics** and **Student Analytics** links on the Data Widget on the Class screen *(page 11)* and the Report Scheduler *(page 34)*.

Click the **Class Analytics** link to open the menu and see the links for the class reports:

- Current Quantile
- Quantile Growth

Click the **Student Analytics** link to open the menu and see the links for the student reports.

Click the report links or student links to open a report on the Class screen.

To use the Report Scheduler *(page 34)*, click **Run a Report**.
Scheduling Reports

To schedule class or student reports, use the Report Scheduler.

Open the Report Scheduler by clicking **Run a Report** in the Data Snapshots Widget. Use the pull-down menus to set the report parameters.

Click **Level** to choose which level to run the report.

Choosing **Student** opens a second pull-down menu with the student roster. Click the student’s name from the menu to schedule the report for that student.

Choose the program for the report from the **Program** menu. Classes that have only *The Math Inventory* selected in their Class Profiles (page 17) will only see this choice.

Choose the report from the **Report** menu. After selecting the report to run, a small description appears below the menu.
Click the Time Period pull-down menu to select the time period the report should cover.

To schedule when the report should run, click the button next to either Now to run it immediately or Select a Date to schedule it for a future date or time.

Click the calendar icon to select the date to schedule the report.

When the parameters are set, click Run Report to either run or schedule the report. Click the Ready or Scheduled tab to view the report listing. Click the report link to view the report as a PDF in a separate browser window. To delete the listing, click the trash can icon.
Math Inventory SAM Reports

The Report Scheduler schedules and runs Math Inventory reports using SAM.

Growth Report

Report Type: Growth

Purpose: This report shows student Quantile measure growth between two Scored Tests in a selected time period.

Follow-Up: Provide opportunities to challenge students who show significant math progress. Plan appropriate levels of intervention and support for students who are making inadequate progress.
**Growth Summary Report**

**Report Type:** Progress Monitoring (administrators only)

**Purpose:** This report measures school or class Quantile growth across a district or school.

**Follow-Up:** Identify schools, or individual grades or classes within a school, that are not showing adequate growth over time, and provide extra help to optimize performance in the software.

**SmartBar Selection:** District, School

**NOTE:** This report may only be run using SAM. See Running Reports in SAM (page 30) for more information.
Incomplete Test Report

**Report Type:** Management

**Purpose:** This report shows students who did not complete the Scored Test on their latest attempts. It includes students’ Quantile measures from previous tests (if applicable) and the dates of the incomplete tests.

**Follow-Up:** Plan each student’s next test administration, and investigate why the student did not complete the Scored Test.
Instructional Planning Report

Report Type: Instructional Planning

Purpose: This report provides instructional recommendations for students at each Math Inventory performance level. The report includes instructional recommendations and a focus on high-priority skills and concepts (and corresponding state standards) based on each student’s Quantile measure and selected as focal points for accelerating student achievement.

Follow-Up: Use instructional recommendations to plan appropriate support for students at each level.
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Parent Letter

Report Type: School-to-Home

Purpose: Parent Reports introduce The Math Inventory to parents or caregivers, summarize the results of the student's first testing session, and offer several useful suggestions for how parents may help and encourage their child to build fundamental math skills at home.

Follow-Up: Send the report to the parent or caregiver or contact parents personally to review the contents of the report.

NOTE: The Parent Report is also available in Spanish.
Progress to College & Career Readiness Report

Report Type: Growth

Purpose: This report shows student progress toward grade-level proficiency and College & Career Readiness, and provides related instructional recommendations strategically chosen from a range of skills and concepts that correspond most closely with a students' Quantile measure or with the median student Quantile measure.

Follow-Up: Share this report with students to help them track their progress toward end-of-year goals. Use instructional recommendations to plan appropriate support.

NOTE: This report may only be run using SAM. See Running Reports in SAM (page 30) for more information.
Student Test Printout

Report Type: Instructional Planning

Purpose: This report details the items administered to a student on the most recent Math Inventory test completed in the selected time period.

Follow-Up: Review the items with the student, helping the student to understand any errors made. Look for items that may have been answered too quickly, and encourage the student to work through each problem carefully.

Level: Student

NOTE: This report may only be run using SAM. See Running Reports in SAM (page 30) for more information.
Test Activity Report

Report Type: Management (administrators only)

Purpose: This report provides data on how each school in a district is using *The Math Inventory*.

Follow-Up: Contact principals or other administrators in schools where student use is not meeting district plans or expectations.
Class Analytics

Class Analytics reports display sortable data at the class level. Click the Class Analytics link to open links to the two Class Analytics reports.

Current Quantile

**Purpose:** Current Quantile displays student data from The Math Inventory Screener, performance and usage from the last test, and normative data. Use this report to monitor student performance and usage in the software.

**Follow-Up:** Provide targeted fact support and practice to students in Grade 2 and higher who have not yet demonstrated fluency with basic addition and multiplication facts, and to kindergarten and Grade 1 students who have not yet demonstrated fluency in counting and quantity comparisons. Monitor performance and provide instructional support to students who are in below grade-level performance bands. Schedule short conferences with students who spend over 15 minutes on the screener to determine effort level, test-taking strategies, and distractions that may have occurred during the assessment, then re-administer the assessment if necessary.

**Related Data:** Scroll through the Data Snapshots at the top of the report by clicking the right arrow. Click More Info to see detailed actionable information.

To view data for all students, click All in the Show buttons, or click Selected to view a selected group.

Click the top of each column to sort data. Click a student’s name to see the Student Analytics report for that student.
Quantile Growth

**Purpose:** Quantile Growth displays the changes in students’ Quantile measures and performance from their first *Math Inventory* Assessments to their latest.

**Follow-Up:** View the portion of students who moved from one performance level to another. Celebrate progress as students move to higher performance bands. Provide targeted intervention and support to students who move to lower performance levels or who do not exhibit growth.

**Related Data:** Click More Info to see an analysis of the data and actionable information. Click the top of each column to sort data. Click a student's name to see the Student Analytics report for that student.
Student Analytics

Student Analytics provides a sortable data report measuring student progress through the software. Click a student's name on the Student Analytics menu to open the report.

**Purpose:** Displays the student's Screener results, performance, and usage in the software, assessment results, overall mastery and growth, and *Math Inventory* Quantile measures.

**Follow-Up:** Monitor students' trajectories toward important benchmark Quantile measures, including algebra and college and career readiness.

View the Recommendations tab for a personalized list of math concepts and skills to further support student growth.

**Related Data:** To select a different student, use the pull-down menu at the top of the report or click the student's link in the Data Snapshots Widget.
Student Analytics—Test History Tab

The Test History tab shows student performance in *The Math Inventory* over a period of time as interactive data. Click the Details link to view detailed information about each of the student’s prior test results.

To view student data against benchmarks, click the checkboxes next to the benchmarks at the top of the graph to have each benchmark appear in the graph.

Click any Quantile measure link on the right side of the graph to view the corresponding CCSS standard.

Click **More Info** to view detailed actionable information.
### Student Analytics—Recommendations Tab

The Recommendations tab displays recommended skills and concepts for instruction along with corresponding state standards. These instructional recommendations are high-priority skills and concepts based on the student’s Quantile measure and selected as focus points for accelerating student achievement.

#### Numbers & Operations
- Compare and order numbers less than 10,000.
- Represent fractions concretely and symbolically, including representing whole numbers.
- Locate points on a number line.
- Subtract 2- and 3-digit numbers with and without models for number and word problems regrouping.
- Compare fractions with the same numerator or denominator concretely and symbolically.

#### Algebraic Thinking, Patterns, and Proportional Reasoning
- Use the commutative and associative properties to add or multiply numerical expressions.
- Use multiplication facts through 144.
- Model multiplication in a variety of ways including grouping objects, repeated addition, skip counting, and area models.
- Use the identity property for addition and multiplication and the zero property.
- Write an addition or a subtraction sentence that represents a number.

#### Geometry, Measurement, and Data
- Tell time at the five-minute intervals.
- Estimate, measure, and compare capacity using appropriate tools and units in number.
- Estimate, measure, and compare length using appropriate tools and units in number.
- Recognize the 2-dimensional elements of 3-dimensional figures.
- Identify, draw, and name shapes such as quadrilaterals, trapezoids, parallelograms.

<table>
<thead>
<tr>
<th>SKILLS AND CONCEPTS</th>
<th>OSC</th>
<th>STATE STANDARDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compare and order numbers less than 10,000</td>
<td>OT.N.111</td>
<td>N.RN.1</td>
</tr>
<tr>
<td>Represent fractions concretely and symbolically, including representing whole numbers</td>
<td>OT.N.114</td>
<td>A.REI.1</td>
</tr>
<tr>
<td>Locate points on a number line</td>
<td>OT.N.97</td>
<td>N.RN.23</td>
</tr>
<tr>
<td>Subtract 2- and 3-digit numbers with and without models for number and word problems regrouping</td>
<td>OT.N.117</td>
<td>N.RN.22</td>
</tr>
<tr>
<td>Compare fractions with the same numerator or denominator concretely and symbolically</td>
<td>OT.N.538</td>
<td>N.RN.2</td>
</tr>
<tr>
<td>Use the commutative and associative properties to add or multiply numerical expressions</td>
<td>OT.A.141</td>
<td>A.REI.2</td>
</tr>
<tr>
<td>Use multiplication facts through 144</td>
<td>OT.A.121</td>
<td>A.REI.11</td>
</tr>
<tr>
<td>Model multiplication in a variety of ways including grouping objects, repeated addition, skip counting, and area models</td>
<td>OT.A.118</td>
<td>A.REI.42</td>
</tr>
<tr>
<td>Use the identity property for addition and multiplication and the zero property</td>
<td>OT.A.119</td>
<td>A.REI.55</td>
</tr>
<tr>
<td>Write an addition or a subtraction sentence that represents a number</td>
<td>OT.A.544</td>
<td>A.REI.22</td>
</tr>
<tr>
<td>Tell time at the five-minute intervals</td>
<td>OT.G.541</td>
<td>8.EE.7b</td>
</tr>
<tr>
<td>Estimate, measure, and compare capacity using appropriate tools and units in number</td>
<td>OT.G.650</td>
<td>7.EE.22</td>
</tr>
<tr>
<td>Estimate, measure, and compare length using appropriate tools and units in number</td>
<td>OT.G.649</td>
<td>8.EE.23</td>
</tr>
<tr>
<td>Recognize the 2-dimensional elements of 3-dimensional figures</td>
<td>OT.G.52</td>
<td>8.EE.16</td>
</tr>
<tr>
<td>Identify, draw, and name shapes such as quadrilaterals, trapezoids, parallelograms</td>
<td>OT.G.83</td>
<td>8.EE.43</td>
</tr>
</tbody>
</table>
Technical Support

For questions or other support needs, visit The Math Inventory Product Support website at hmhco.com/mi/productsupport.

At the site, users will find program documentation, manuals, and guides, as well as Frequently Asked Questions and live chat support.

For specific questions regarding The Math Inventory, contact customer service to speak to a Houghton Mifflin Harcourt technical support representative at 1-800-283-5974.

For specific questions about using SAM with The Math Inventory, click Help in the Quick Links along the top of any screen in SAM.