Maine Through Year Assessment
Spring 2023 Technical Report Appendices

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The Maine Through Year Assessment

Assessment Administration Training
for Spring 2023

March 16th and 21st, 2023

Welcome

- Krista Averill, Maine DOE Assessment Coordinator
- Tara Davis, NWEA Program Manager
- Mindy Stobbe, NWEA Program Manager
- Fred Valenzuela, NWEA Sr. Program Manager
- Alex Luisi, NWEA Sr. Delivery Consultant

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Sections Covered

- Maine Through Year Assessment Overview
- Technology Readiness
- Assessment Management in Acacia™
- Accessibility
- Not-Tested Codes
- Preparing and Monitoring the Assessment
- Regional and Out-of-State Programs
- Proctor / Student Experience
- Operational Reports
- Data & Reporting
- Preparation, Resources, and Tips
- Communication and Partner Support
- Questions and Answers

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Maine Through Year Assessment Overview

Subjects, Grades, and Delivery

- Mathematics and Reading
  - Mathematics (3-8 and 2nd year of High School)
  - Reading (3-8 and 2nd year of High School)

- Spring Test Window
  - May 1 – 26, 2023

- Mode of Delivery
  - Online
  - Paper & Large Print (Print on Demand)
  - Braille (Order)

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Testing Time and Scheduling Recommendations

Grade Level	Content Area	Approximate Number of Questions	Estimated Time
3 – 8	Mathematics	52	60 minutes
3 – 8	Reading	48	60 minutes
2nd year of High School	Mathematics	52	60 minutes
2nd year of High School	Reading	47	60 minutes

All students in the same grade, given the same assessment, will receive the same number of assessment items

- SAUs / Schools have flexibility in scheduling the assessment
  - Recommendations:
    - Assessments not given on a Monday
    - Two assessments not given on the same day

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Testing Time and Scheduling Recommendations

- Estimated assessment time does not include:
  - Test ticket distribution
  - Launching the secure browser
  - Student log in
- Students' assessment can be paused by logging out
- Students' will automatically be logged out of the assessment after 15 minutes of inactivity

Note: *No Proctor action required for the student to resume the assessment, students must log back in using the information on the test ticket*

Student Tutorial

- An interactive video for the Maine Through Year Assessment is available for students to learn how to use the online assessment platform. During this tutorial, the student will be shown the following:
  - How to use the online tools
  - How to navigate through the assessment
  - How to respond to different items types
  - Tips for taking the assessment

Resource and Link: Maine Through Year Student Tutorial

Item Type Sampler

- An item type sampler or practice assessment will provide students an opportunity to practice each item type and gain familiarity with the platform
- Includes all item types and tools for each grade and subject
- Accessible by the NWEA assessment portal, the Maine DOE webpage or a link in the secure browser
- Paper item type samplers are also provided as PDFs for schools to download and print (including answer keys)
- This is also a great way to ensure that devices meet all the system requirements before the actual day of the assessment.

Resource and Link: [Maine Online Item Type Sampler]

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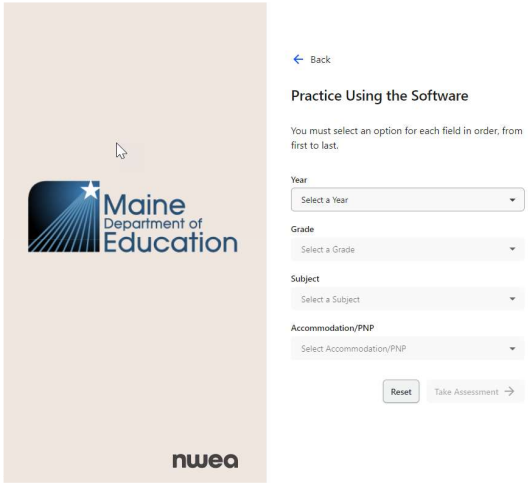
Item Type Sampler



Resource and Link: [Maine Online Item Type Sampler]

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Technology Readiness

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State Solutions Secure Testing Browser

+ System Requirements
  - New Secure Testing Browser or App is REQUIRED for all devices
  - NWEA State Solutions Secure Browser

    https://securebrowser.state.nwea.org

Note: *This is a different Secure Testing Browser then what was used for MAP Growth*

Device and Application
MAC Secure Testing Browser
Windows Secure Testing Browser
Chromebook App
iPad App

State Solutions Secure Browser

MAP Growth Secure Browser

Resource and Link: [NWEA State Solutions System and Technology Guide]

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Tips for Installing the State Secure Browser

- Partner Code: ME
- Multiple Device Management Installation available
- Secure Browser can be downloaded from the new platforms Management System or via NWEA provided link
- Reminder: Turn off auto updates on student devices during the administration window

Note: *The State Solutions Secure Testing Browser is different from what was used for MAP Growth. The MAP Growth STB does not need to be uninstalled before installing the State Solutions STB.*

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Supported Devices

- NWEA State Solutions Secure Browser

Device	Supported OS Versions
Windows PC	Windows 10, Windows 11
Mac OS	10.15, 11, 12, 13 (Mac OS 10.14 is no longer supported by Apple or NWEA but it has not been disabled from working)
Chromebook	Release Channel Only – Current Version + previous 5 versions
iPads	iOS 14, 15, 16* (iOS 13 no longer supported)

* iOS 16 is not yet listed in the resources below but is supported

Resources and Links:
NWEA State Solutions System and Technology Guide and
NWEA State Solutions System Requirements Guide

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Minimum System Requirements

Minimum System Requirements for Proctors, Teachers and Staff

System functionality and screens may display, operate, or appear differently in different web browsers and operating systems. The application is optimally viewed using a 1280 x 1024 screen resolution. The system is supported on the following web browsers.

Web Browser	Requirements
Mozilla® Firefox®	Latest version
Microsoft Edge®	Latest version
Safari®	Latest version
Google Chrome™	Latest version
Safari on iPad	Latest version

NOTE: Internet Explorer® is not supported.

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Technology Readiness

+ NWEA State Solutions System and Technology Guide
  - IT Readiness
  - Network and System Requirements
  - State Solutions Secure Browser Installations
  - Allowed Lists
+ Online Readiness Check
  - Upon launching the Secure Browser
  - Additional site available for checks

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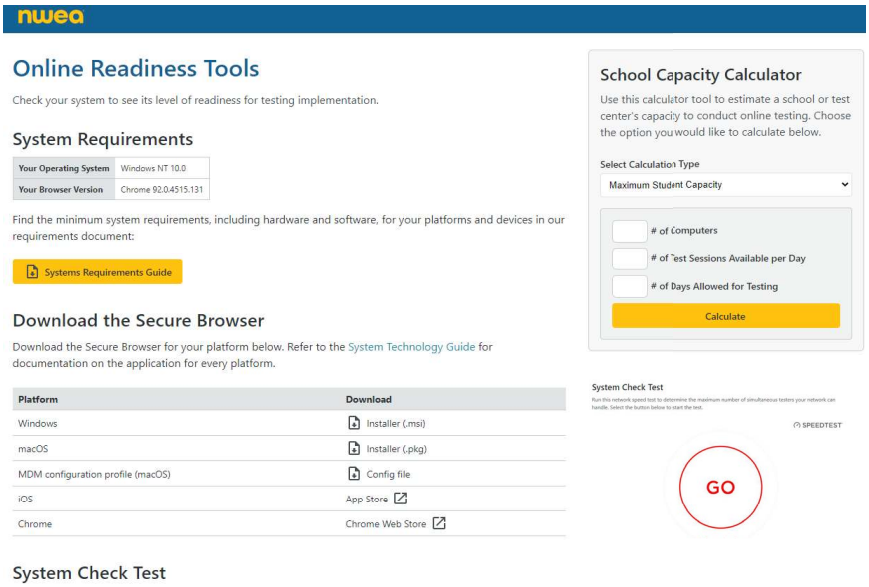
Online Readiness Checker



Resource and Link: [Online Readiness Checker]

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System Maintenance & Releases

Comprehensive Assessment Platform (CAP) will be unavailable

+ Friday, March 17 at 8:00pm EST through Saturday, March 18 at 1:00pm EST
+ Friday, April 14 at 8:00pm EST through Saturday, April 15 at 1:00pm EST
+ Friday, June 23 at 8:00pm EST through Saturday, June 24 at 1:00pm EST
  - Reminder: Turn off auto updates on student devices during the Assessment Administration Window

Resource and Link: [Platform and Software Maintenance Windows]

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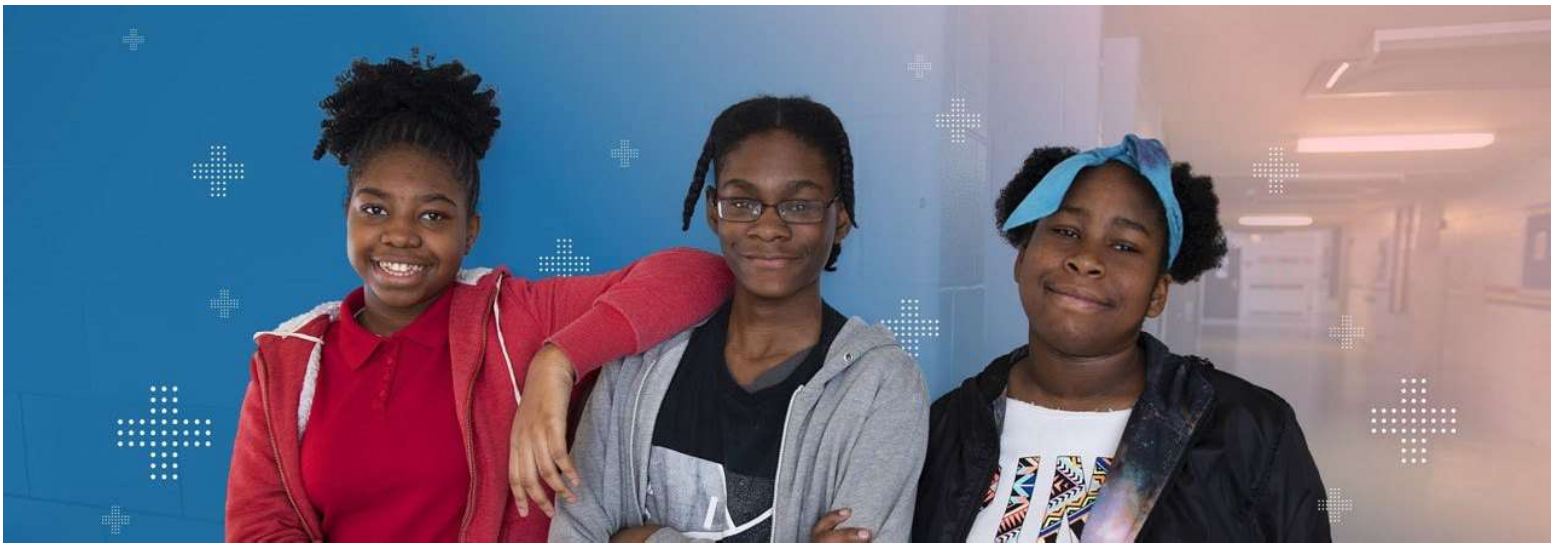
Assessment Management in Acacia™



Maine Through Year Assessment Security

- District/School Assessment Coordinators, Assessment Administrators and Proctors must be trained prior to the assessment administration
  - Training materials are provided by Maine DOE and NWEA
- Maine DOE requires that all Assessment Coordinators and Proctors review the information in the Maine Assessment Security Handbook
  - Required to complete and sign the MEA Assessment Security and Data Privacy Agreement

Resource and Link: The Maine Assessment Security Handbook

Acacia™ Components

- Acacia™ Manage
  - The management system allows administrators and teachers to smoothly manage the entire assessment process including managing students, online test assignments, monitor test status, analyze data reports, and much more – all in one place!
- Acacia™ Assess
  - The online test delivery platform that delivers assessments to students
- Acacia™ Reports
  - The online reporting suite (ORS) provides a dynamic, *real-time, easy-to-use reporting for assessments
  - ** Real-time reports will be available starting in Fall 23*

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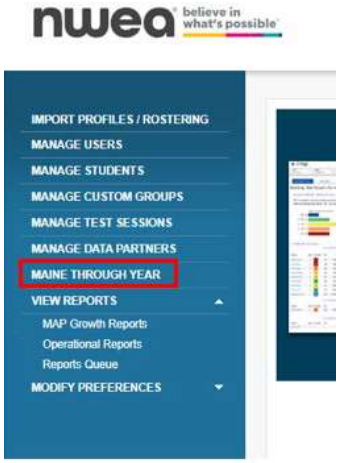
Accessing Acacia - Single Sign On

- Single Sign On (SSO) connects your access from MAP Growth (aka MARC) to Acacia Manage
  - One less username and password to remember
  - User roles will be managed through MARC
  - Same user roles in MARC and Acacia, permissions may vary slightly
  - *Having a missing or incorrect School State Code will error out and prohibit you from accessing Acacia*
  - After logging into MARC, users will see the 'Maine Through Year' link (which will become available on 4/3)



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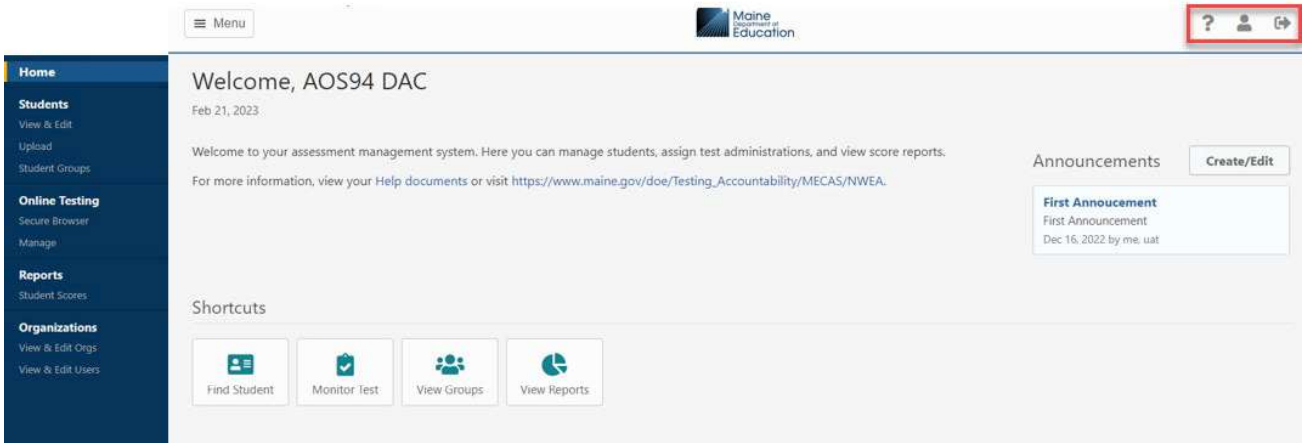
Acacia Home Screen



- Help ?
- Profile
- Logout

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Maine Through Year Assessment Tasks

- Import Student Roster will be done by the Maine DOE in Acacia
- Import Student Roster will be done by the SAUs in MAP Growth
- Import Student Registrations will be done by SAUs
- Update / Add additional Student information such as Accommodations and NTC's
- Print Test Tickets
- Monitor Student Progress
- Data Clean Up
- Access Reports

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Roles for Acacia Setup

	Manage Users (in MAP Growth)	Roster Students (in MAP Growth)	Register Students	Manage Students (in MAP Growth)	Manage Sessions / Accommodations / NTC's	Manage Online Assessment Dashboard
District Assessment Coordinator	X	X	X	X	X	X
Data Administrator	X	X		X	X	
Proctor						X
School Assessment Coordinator			X	X	X	X

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Roles for Testing Students

	District Assessment Coordinator	School Assessment Coordinator	Proctor
Assign Accommodations	X	X	
Assign Not-Tested Codes	X	X	
Create Optional Student Groups (in MAP Growth as Classes)	X		
View Manage Online Testing Dashboard	X	X	X
Print Test Tickets	X	X	X
Proctor Registered Assessments			X

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MAP Growth School State Codes

- School State Codes are an important part of the SSO connection between MAP Growth and Acacia
- Having a missing or incorrect code will error out and prohibit you from accessing Acacia
- School State Codes need to align with the School State Codes in the Infrastructure Data for 2022/2023 SY located on the Maine DOE website
  - Maine School State Codes 2022/2023 SY

    Note: *Leading zeroes should not be included in the School State Code (School Org ID)*
- School State Codes should be reviewed before and during each assessment window
  - Users that can make these changes will have a role of System Administrator or District Assessment Coordinator (DAC)
  - This can be done in MARC under Modify Preferences > Modify District > Edit Name and School State Code under Schools Sections

MAP Growth School State Codes

- Rostering with Clever
  - If Clever is being used, confirm that Clever is sharing the **State_ID** field with NWEA; this can be located under the school you will be sharing
  - The State_ID field maps to the School State Code in NWEA
  - In Infinite Campus the field shared with Clever is sch_number

Acacia Rostering

- Maine DOE will be responsible for rostering students in Acacia
- Students will be rostered to their "Reporting School," which is the school they attend and at which they receive their instruction
- Maine DOE and Synergy are the source of truth for which students are rostered
- Maine DOE will upload a roster file prior to each assessment window and will upload daily delta/roster files for any changes made in Synergy from the prior day

Rostering for MAP Growth Reports

- Exciting news! MAP Growth reports will be available in MARC **for RIT scores** from the Maine Through Year Assessment
- For these reports to be available, student rostering will need to be done in both MAP Growth and Acacia
  - Maine DOE will roster for the Maine Through Year Assessment
  - SAUs will need to roster in MAP Growth *before May 26, 2023,* to have RIT data from the Maine Through Year Assessment in MAP Growth reports
    - This process is the same process you have done in previous assessment administrations
  - Student ID must be the same in both platforms – this is the connector for MAP reporting

Maine MAP Growth Rostering

- SAUs will continue to use the NEO export to roster in MAP Growth as they have for previous administrations
- Should any edits need to be made to student demographics, these changes must be changed first within Synergy directly for Synergy to remain the source of truth
- Once the change has been made in Synergy, information will be updated the next business day in Acacia via the daily/delta roster file

End of Spring 23 Sync Schedule

- A sync will be done at the end of the Spring 23 assessment window to ensure the Maine DOE will have the opportunity to upload the final Spring roster into Acacia
- Spring 23 SAU Cleanup Dates
  - 5/30/23 – 6/02/23
- Spring 23 NWEA Cleanup Dates
  - 06/05/23 – 06/06/23
- Spring 23 Maine DOE Cleanup Dates and Import Final Spring Roster
  - 06/07/23 – 06/09/23

Registration

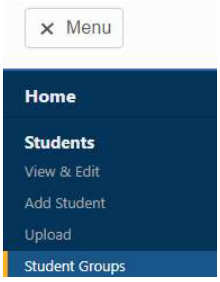
- Test registrations are created automatically when students are rostered
- Any needed edits to registrations will be done by SAUs
  - This will be an upload into Acacia via the registration report
- Student accommodations, supports and NTCs can be done via the registration report
  - These can also be done manually in Acacia
- Students will have a line for each subject in the registration report
- Registration Report template will be in the Acacia Help Center

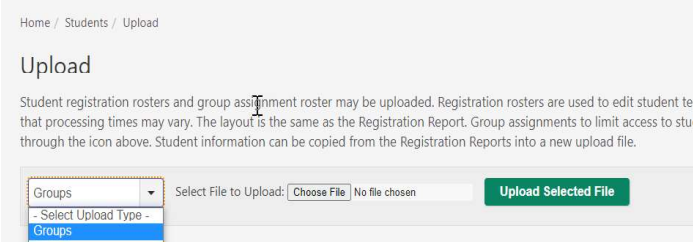
Student Groups – Testing and Reporting

- Benefits of using Student Groups
  - Students can be **grouped by grade** by their **teacher (with a group name)**, or **grouped by assigned test administered (with a group name)**
  - Test tickets can be printed by grade by these assigned groups
  - Students can only be **grouped by grade** level for **manage online testing** and **printing test tickets**
  - A student does **not** need to be in the same **testing** and **reporting** group

Student Groups

- Located under Students section in the Menu
  - Visibility based on user role permissions
- Select Student Groups to create, view & edit to create a Student Group manually
- Select Upload in the Menu to create and upload Student Groups in bulk





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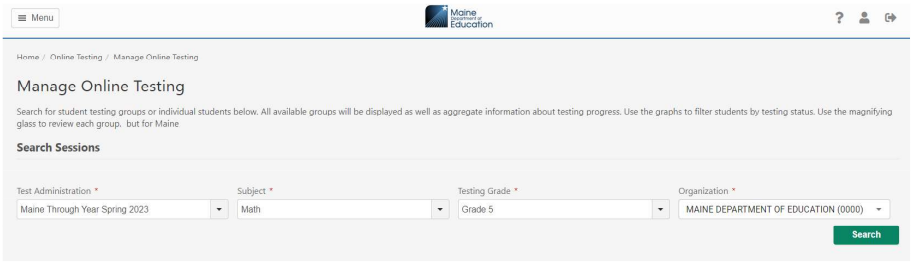
Student Groups

- View Student Groups in Manage Online Testing



- Under Actions column, View All Students, you will see a column for Group

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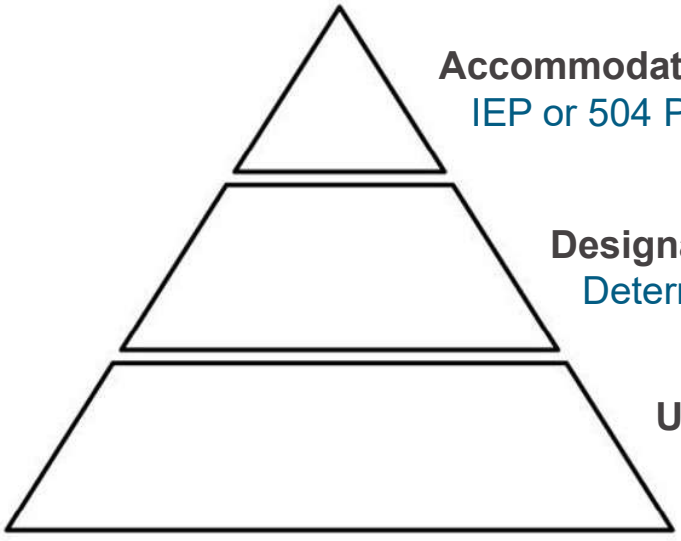
Accessibility

Universal Tools, Designated Supports, and Accommodations

Accessibility Features



Accommodations
IEP or 504 Plan ONLY

Designated Supports
Determined on an Individual Basis

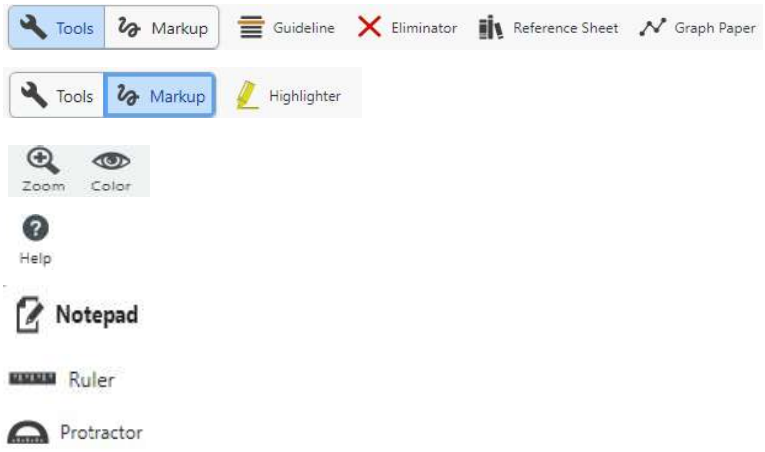
Universal Tools
All Students

Types of Accessibility Features

- **Non-embedded**: Features provided locally that do not change the assessment within the platform
- **Embedded**: Impacts delivery of the assessment within the platform

Universal Tools

- Non-embedded: Scratch Paper
- Embedded Universal Tools:
  - Calculator (Math only and with specific items)
  - Color Contrast
  - Graph Paper (Math only)
  - Guideline
  - Help Videos
  - Highlighter
  - Keyboard Navigation
  - Notepad
  - Protractor (Math only and with specific items)
  - Reference Sheet (Math only)
  - Ruler (Math only and with specific items)
  - Zoom



Calculator

- A calculator will not be needed for Grades 3-5 in Math
- Grades 6-8 and HS will have a basic, scientific, and/or graphing calculator
  - The calculator will only be displayed in the toolbar for items where a calculator may be used.
- Paper-Based Forms for Grades 6-8 and HS in Math: A calculator will only be allowed on the first part of the assessment.

Designated Supports

- Increase accessibility without altering the construct of any assessment item
- Determined on an individual basis by an educational team
- An educational team is two or more education professionals with knowledge of a student's performance.
- Designated supports must be consistent with the student's normal routine during classroom instruction.

Non-Embedded Designated Supports

Non-Embedded Designated Supports will be indicated in the Registration File

- Individual / Separate Setting
- Small Group Setting
- Alternate Aids / Support
- Bilingual Word Glossary for Multilingual Learners
- Mathematical Supports (for Math Assessment Only)

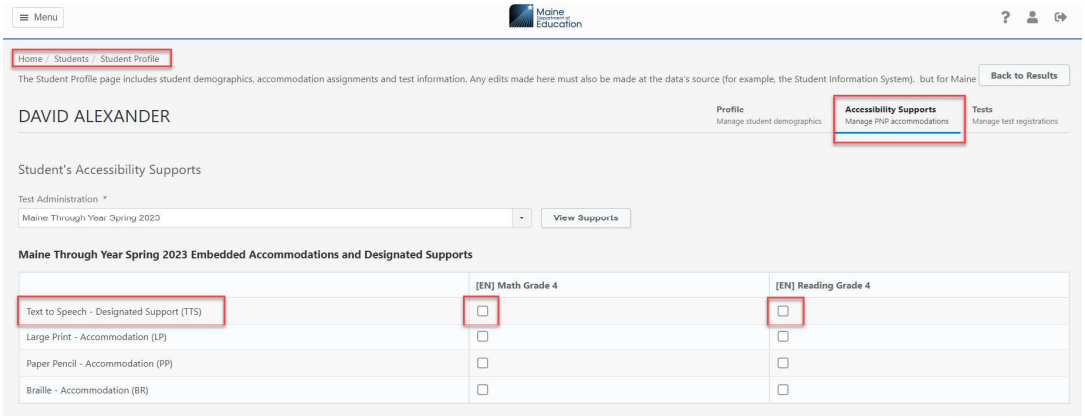
Embedded Designated Support: Text to Speech (TTS)

- Available in English
- Guidance for Text to Speech is in the Accessibility Guide
- Need for this designated support will be indicated on the student's test registration profile
- All text will be read aloud in Math
- Passages will not be read in Reading

Resource and Link: Maine Through Year Accessibility Guide

Embedded Designated Support: Text to Speech (TTS)

- Assigning Text to Speech Manually
- Under Student's profile, select Accessibility Supports and the subject for TTS, be sure to Save changes at the bottom



Accommodations

- Accommodations are changes in procedures or materials that are used to increase equitable access during the assessment for students with documentation of the need on an Individualized Education Plan (IEP) or 504 Plan

Non-Embedded Accommodations

Non-Embedded Accommodations will be indicated in the Registration File

- Read Aloud / Human Reader
- American Sign Language
- Scribe
- Calculator (for entire Math assessment)
- Read Aloud / Human Reader for Reading Passages (for Reading Assessment only)

Embedded Accommodations

Embedded Accommodations will be indicated in the Registration File

- Paper-Based
- Large Print
- Braille

Paper and Large Print

- Paper and Large Print with an IEP or 504 Plan that requires assessments to be paper-based and not administered online
- **Spring Material Order Window: 4/3 – 5/12**
- Paper and Large Print assessments are print-on-demand
- After Paper and Large Print forms are complete, the proctor (or scribe) must transcribe the student's responses into the online assessment delivery system exactly as student has responded

Note: *Paper and Large Print forms are not adaptive*

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Paper and Large Print

- For Paper and Large Print accommodations, a login to the Secure FTP site will be provided to the DAC to download and print the paper forms locally
- As Paper and Large Print forms will be entered into the online assessment delivery system by the proctor (or scribe), all materials should be securely stored and then securely destroyed locally once transcribed and no longer needed.
- *Materials need to be destroyed by May 29, 2023.*

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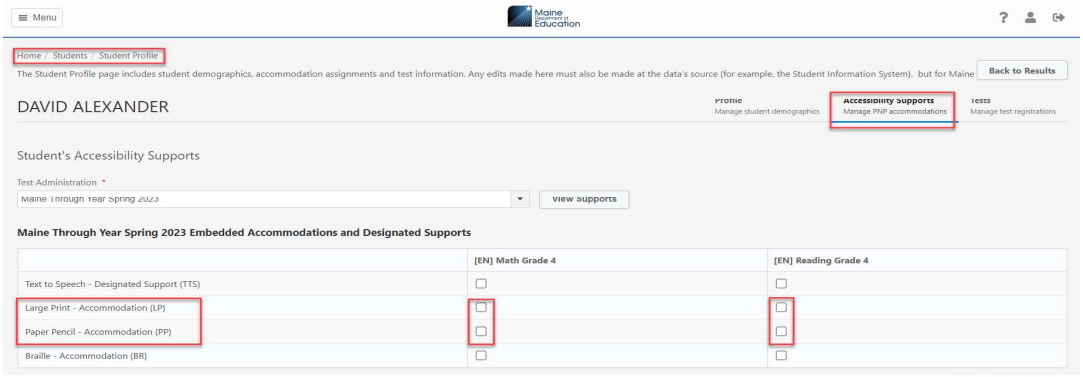
Paper and Large Print

- Paper and Large Print can be assigned manually like other Accommodations in the Student's profile
- Under Student's profile, select Accessibility Supports and the subject for Paper or Large Print, be sure to Save changes at the bottom



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Braille

- **Spring Order Material Window: 4/3 – 5/12**
- Once braille materials have been ordered they will be shipped to the school
- Braille booklets are available as indicated by a student's IEP/504 Plan. Students who require braille will receive a paper-based contracted braille assessment.
- All the student's responses are entered by the assessment administrator or proctor directly into the online assessment delivery platform. Once the student's responses have been entered into the platform, the braille forms are destroyed on-site.
- *Materials need to be destroyed by May 29, 2023*

***Note:** Braille forms are not adaptive*

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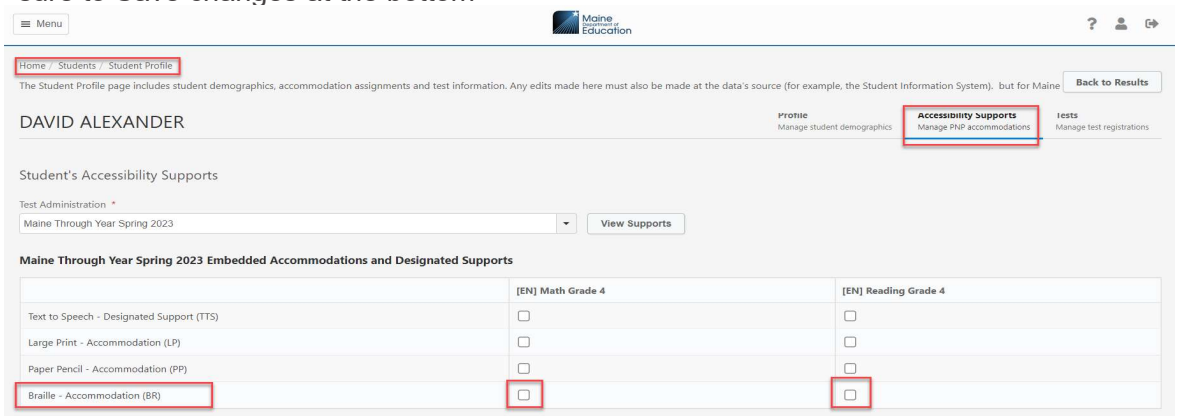
Braille

- Braille can be assigned manually like other Accommodations in the Student's profile
- Under Student's profile, select Accessibility Supports and the subject for Braille, be sure to Save changes at the bottom



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Not-Tested Codes

Not-Tested Codes (NTCs)

- Not-Tested Codes (NTCs) are reasons explaining why a student did not take an assessment

Code	Description	Explanation of Use
INV	Invalid (requires Maine DOE approval)	Student's assessment was invalidated, such as due to a security breach.
PAR	Parent Refusal	Students were not assessed because of a written request from a parent or guardian. *Note: Students who are eligible for assessment, but do not participate, count as non-participants in Maine's accountability system.*
STR	Student Refusal	Students were not assessed due to student refusal to participate. *Note: Students who are eligible for assessment, but do not participate, count as non-participants in Maine's accountability system.*
EMW	Emergency Medical Waiver (requires Maine DOE approval)	The student was not assessed because of an approved emergency medical waiver.
RMV	Removal	Student left the state before the assessment window; student is a full-time home-schooled student; or there are duplicate student records.

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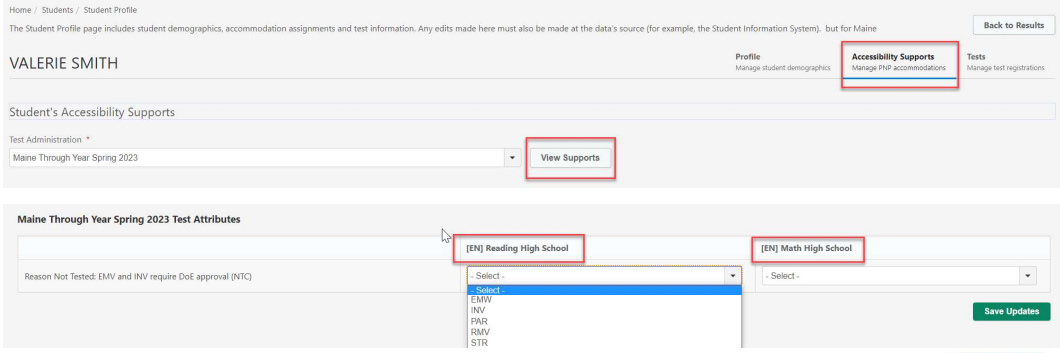
Adding NTCs

- A NTC can be added by going to the student's profile and selecting the Accessibility Supports tab. Select the Test Administration and click the View Supports button. Scroll down the page and you will see a Test Attributes section, where you can select the NTC needed for either Reading, Math, or both.
- NTCs can also be uploaded in bulk with the registration file.
- Be sure to save your updates!



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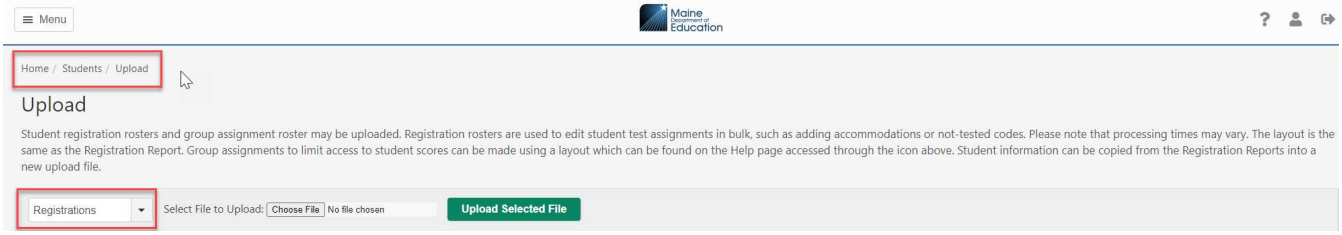
Adding NTCs

- NTCs can also be uploaded in bulk with the registration file
- This can be found by going to the Menu and selecting Upload under the Students section



- In the Registration file the three letter NTC code would be populated in column AH

34	AH	Reason Not Tested Code

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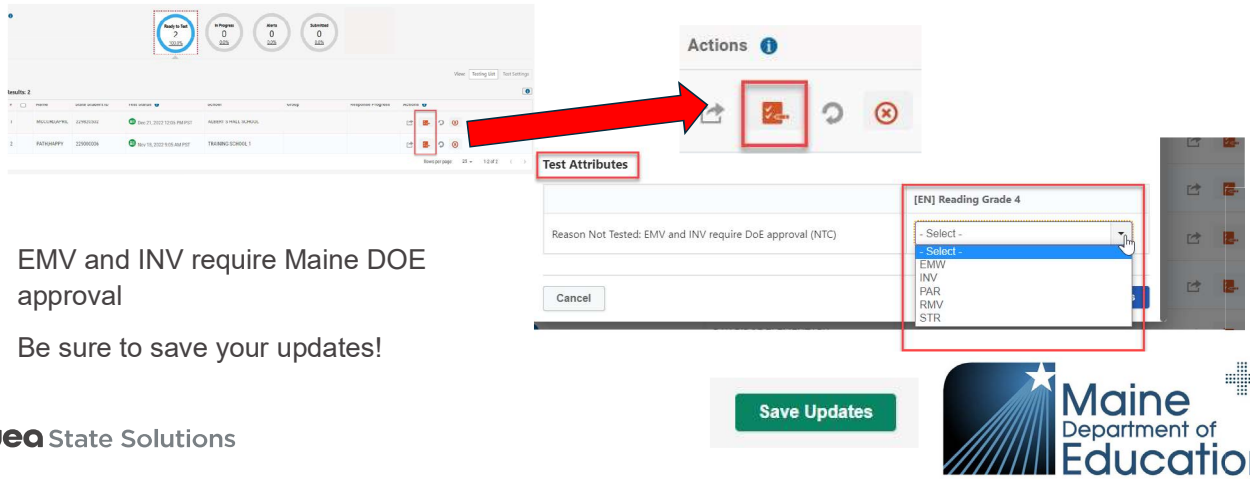
Adding NTCs

- NTCs can also be added in Manage Online Testing. Once you select the Test Administration, Subject, Testing Grade, and Organization, you can view the list of students under either the Testing List or Testing Settings tab.
- To add or update an NTC, select the Test Attributes button under the Action Column and a window will pop up to add not only NTCs but also Designated Supports and Accommodations.



- EMV and INV require Maine DOE approval
- Be sure to save your updates!

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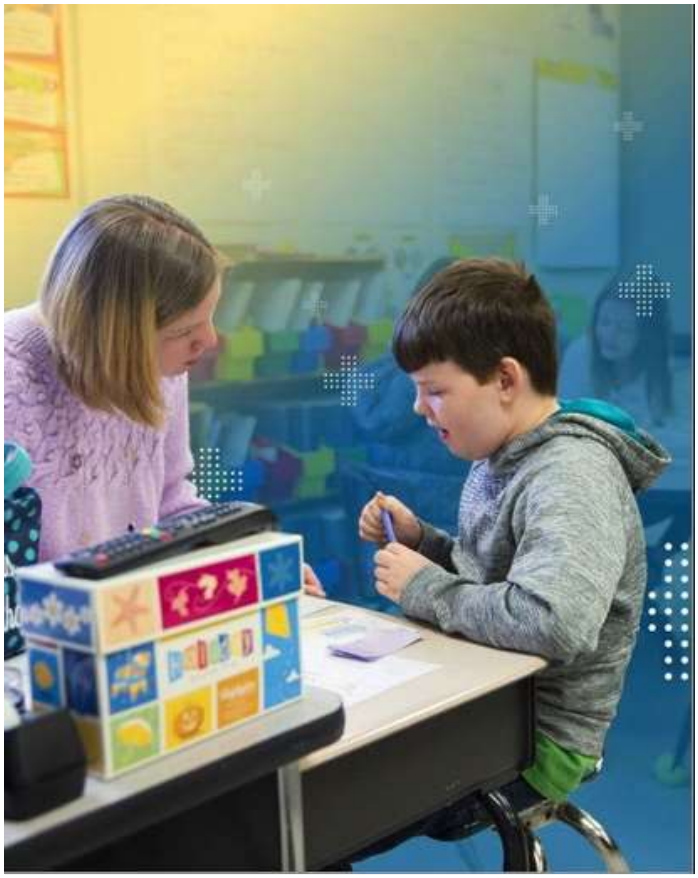
Preparing for and Monitoring the Assessment



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Print Student Test Tickets

- Available in two formats:
  - PDF Format (one per page)
  - PDF Format (four per page)
  - CSV Export (for bulk printing, can export 100 students)
- Ability to print in two ways
  - Manage Online Testing page
  - Individual Student Profile, Test Registrations tab
- Proctors can print on demand!
- There is a roster in a PDF format that shows the list of test tickets that have been printed
- Students don't have to be in a test group to access a test ticket

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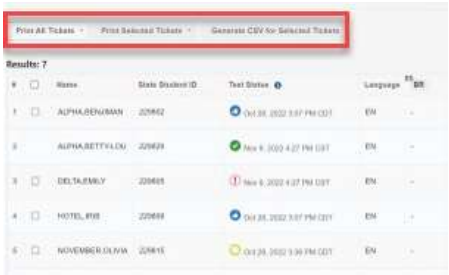
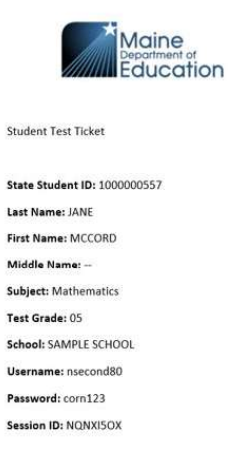
Student Test Tickets

+ Online Testing > Manage
+ Multiple student test tickets can be printed at once or printed individually





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Maine Department of Education

Testing Progress

+ Testing progress can be viewed at the group, SAU or school level
  – Ease of use to allow proctors to more efficiently monitor students
+ Testing Status Report can help understand where your students are in the assessment as a file export

  Note: *NTCs will not update the student's testing status*

+ The page will retain your filter selections when you refresh the page

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Maine Department of Education

Test Resets and Maine DOE Policy

- Any assessment that needs to be reset must be approved by the Maine DOE.
  - *A reset is when a student will receive a new test ticket and upon logging into the assessment will start at the beginning*
- Below are some situations in which a student's assessment may be reset:
  - Student began or completed assessment for the **wrong grade level**
  - Student began or completed assessment **without the proper accommodations** per the IEP or 504 plan
  - Student began or completed assessment **with an accommodation not documented** in IEP or 504 plan

Adding TTS as a Designated Support After Starting the Assessment

- What if a student has started their assessment and needs to have TTS added after the fact but does not need a full reset?
  - TTS can be added without Maine DOE approval either before or during the assessment.
  - The Proctor should ask the student to log out of their assessment while they contact the DAC or SAC to go into the student's profile and add TTS. Once TTS has been added, the student can log back in and they will have TTS for the remainder of the assessment.

Note: *If TTS is assigned after the student has started the assessment, TTS will not work for some questions during the remainder of the assessment. (If the student has completed 5 or fewer questions, a reset can be requested.)*

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Maine Department of Education

Reset Process Flow Chart

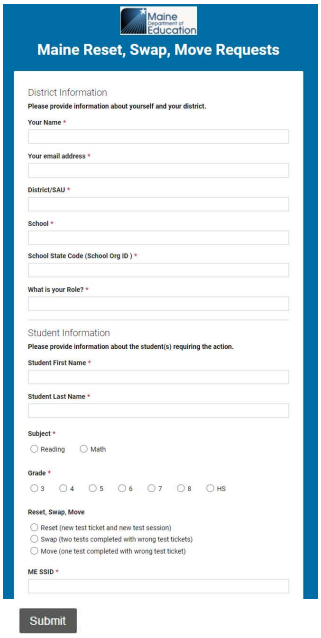
- Refer to the Process Flow Chart (coming soon!) to see if a student can have their assessment reset
- If the student can have a reset done, you will submit a form (coming soon!) to kick off the approval process

Test Moves and Swaps

- Any assessment move or swap must be approved by the Maine DOE
- Below are situations in which a student's assessment may be **moved or swapped**
  - Student logs in with the wrong test ticket. If the second student will not be completing the assessment, a **move** request will be needed.
  - IF the second student intends to take the assessment, they should take the assessment using the incorrect test tickets. Once both students have completed their assessments, then a **swap** request will be needed.

Form for Resets, Moves, and Swaps

- Assessments that need a reset, move, or swap can be done by submitting a request form (preferred method) or by contacting NWEA Partner Support, who would then obtain approval from the Maine DOE



Maine Reset, Swap, Move Requests

District Information

Please provide information about yourself and your district.

Your Name *

Your email address *

District/SAU *

School *

School State Code (School Org ID) *

What is your Role? *

Student Information

Please provide information about the student(s) requiring the action.

Student First Name *

Student Last Name *

Subject *

Reading Math

Grade *

3 4 5 6 7 8 HS

Reset, Swap, Move

Reset (new test ticket and new test session)

Swap (two tests completed with wrong test tickets)

Move (one test completed with wrong test ticket)

ME SSID *

Submit

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Maine Department of Education

SAU Transfer Process in Acacia

- Student Mobility
  - Students who move out of a school must be exited from Synergy on the last date of attendance. This must occur regardless of whether a request for records has been received from another school.
  - Students who move into a school must be enrolled in Synergy by the new attending school immediately (after being exited from the previous school)
  - Maine DOE will upload a daily roster/delta file directly to Acacia
  - It is the responsibility of the new school to ensure that students have the opportunity to finish incomplete portions of the assessment
    - The new school will need to contact the old school to get the students test ticket information. This information should be provided to the new school in a secure manner.
  - If the student has not yet started an assessment, the new school will need to confirm that the Testing School field in the registration file has also been updated to reflect the new attending school, which can also be done manually in the management system

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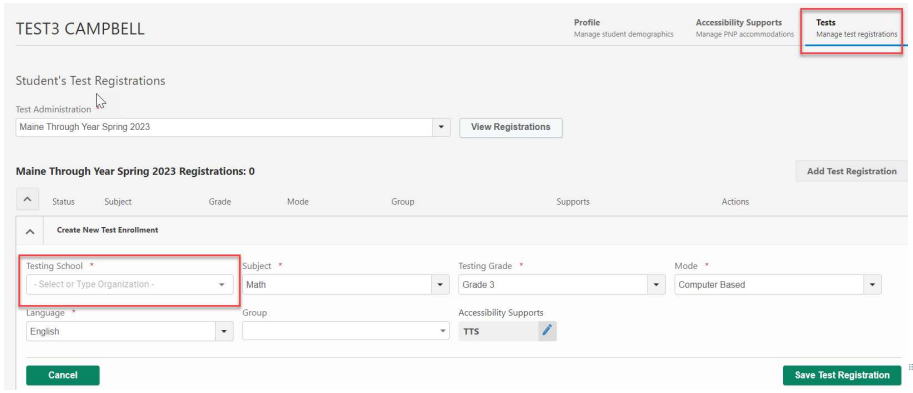
Testing School

- The Reporting School field will populate the Testing School
  - *Reminder*: Reporting School is the school the student attends and at which they receive instruction
- The Testing School can be changed should the student be taking the assessment at a location other than the Reporting School
  - Student reports will go to the Reporting School
- Testing School is located by going to the Student Profile > Tests tab > Testing School



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Maine Department of Education

SAU Transfer Process in MAP Growth

- Student Mobility
  - The transfer will also need to be done in MAP Growth
    - The old SAU would remove current term from Students profile in MAP Growth
    - The new SAU would roster the student as normal within MAP Growth
  - In order to maintain historical data, SAUs can refer to this process and submit form:
    - How to move students between districts
  - If you use Clever, if you stop sharing the student as part of your regular Clever sync for that term, this will automatically unenroll them and you won't need to manually do it within the system.

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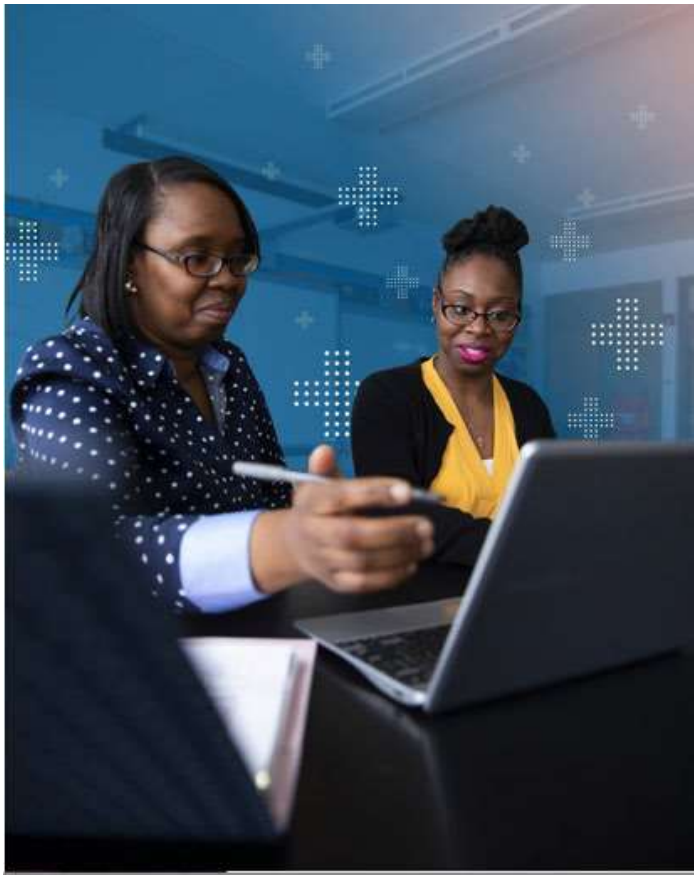
Maine Department of Education

Regional and Out-of-State Programs

Rostering for Students at Regional and OOS Programs

- Students will be rostered to their attending school. This is known as the “Reporting School”
- All student reports will be provided to the attending school
- This will allow educators and staff at the program location to administer the assessment and have access to student assessment results to inform instruction
- The attending school will share student testing status and/or performance information with the responsible SAU
- NWEA is currently ***exploring*** possibilities for reporting student testing information to both the attending and responsible school/SAU for future administrations

Proctor and Student Experience



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Student Experience - Login

+ Step 1: Student launches Secure Browser
+ Step 2: From Test Ticket, student enters username, password, and Session ID
+ Step 3: Student verifies text on screen is accurate while Proctor monitors
+ Step 4: Proctor gives verbal approval to begin assessment

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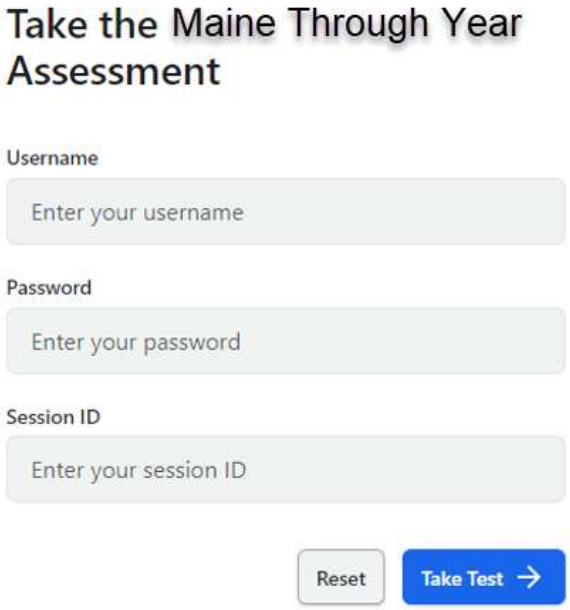
Student Experience – Login



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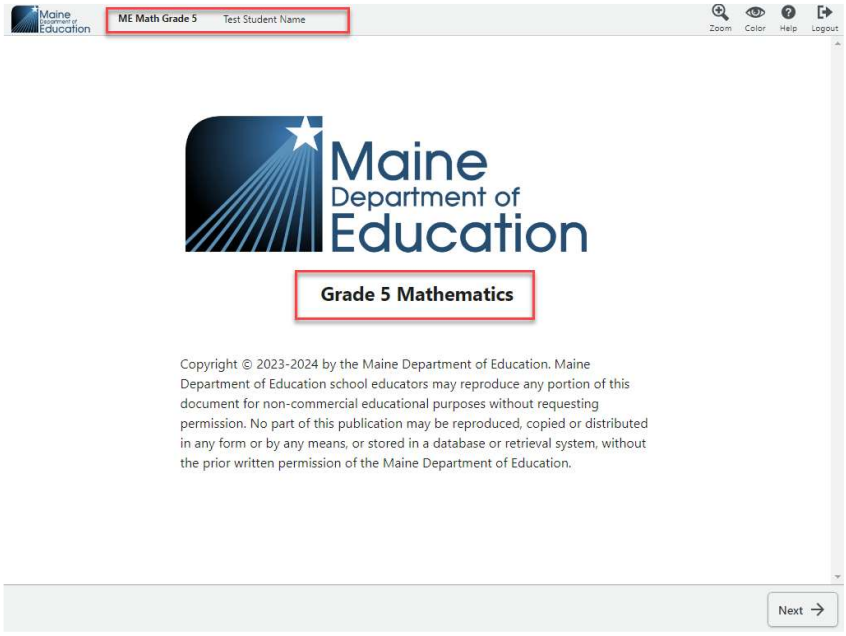
Student Experience – Summary Screen



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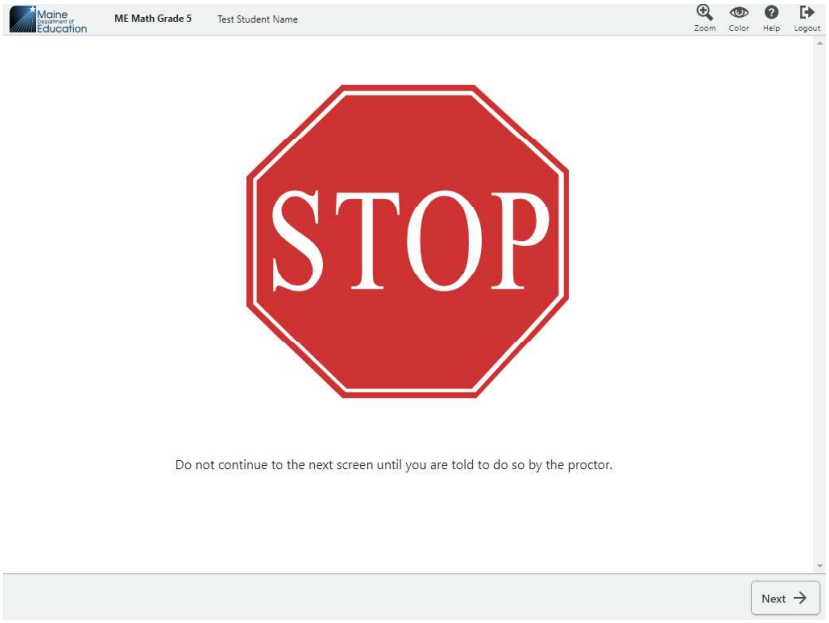
Student Experience – Proctor Screen



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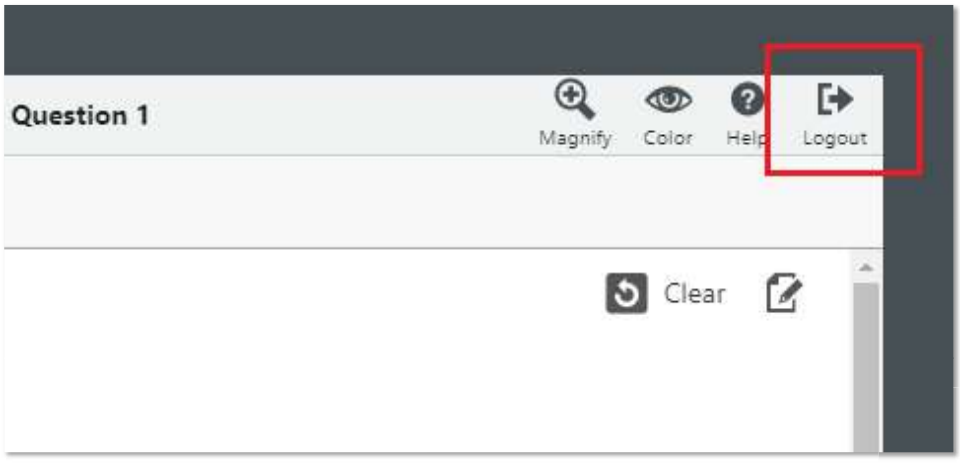
Student Experience - Logout

- If a student needs to step away, they can logout of the assessment
- Once they log back in, they will pick up where they left off and all questions previously answered will be saved



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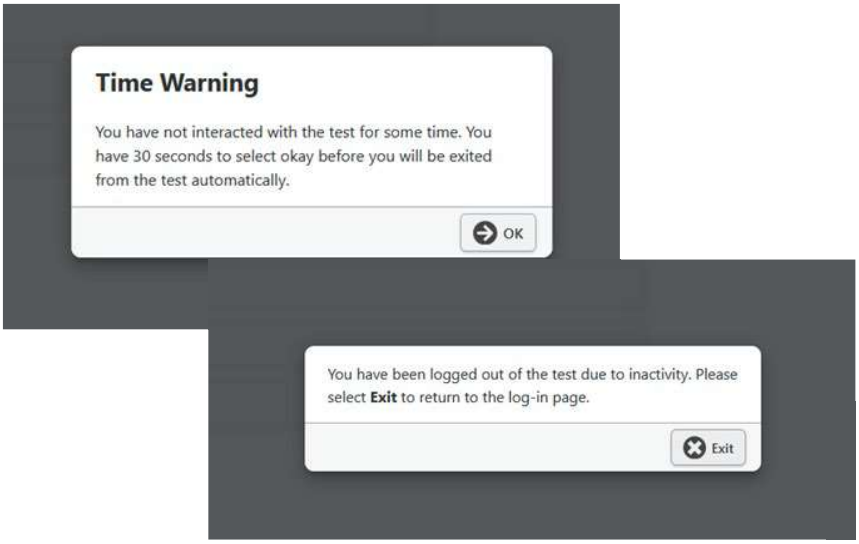
Student Experience - Inactivity

- Message appears when student has been idle for 14.5 minutes
- If student doesn't click within the screen, then they will get the time out message
- Once they receive this message, clicking exit is their only option



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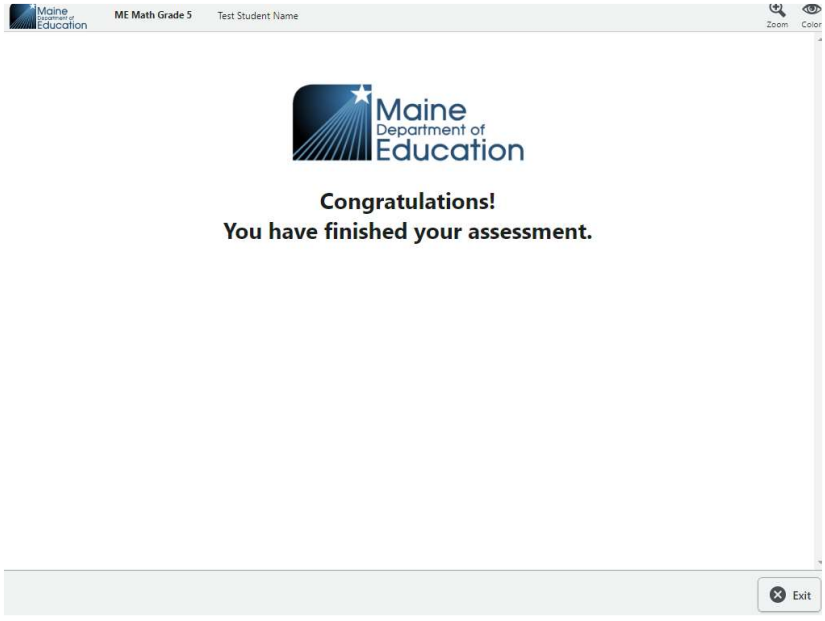
Student Experience – End of Assessment



Note: *RIT score will no longer populate on the screen as it did for MAP Growth*

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Maine Department of Education

Proctor Experience - Testing Progress

+ Ease of use to allow proctors to more efficiently monitor students
+ Testing Status Report can help understand where your students are in testing

***Note:** NTCs will not update the student's testing status*

#	Group Name	Ready to Test	In-Progress	Alerts	Submitted	Voided	Actions
-	All Students	86	32	22	35	5	
1	O'Neil 5th Grade Reading	1	1	3	1	1	
2	Clark 5th Grade Reading	10	19	2	0	1	
3	Hensley 5th Grade Reading	11	5	5	9	0	
4	Powers 5th Grade Reading	2	2	1	23	0	

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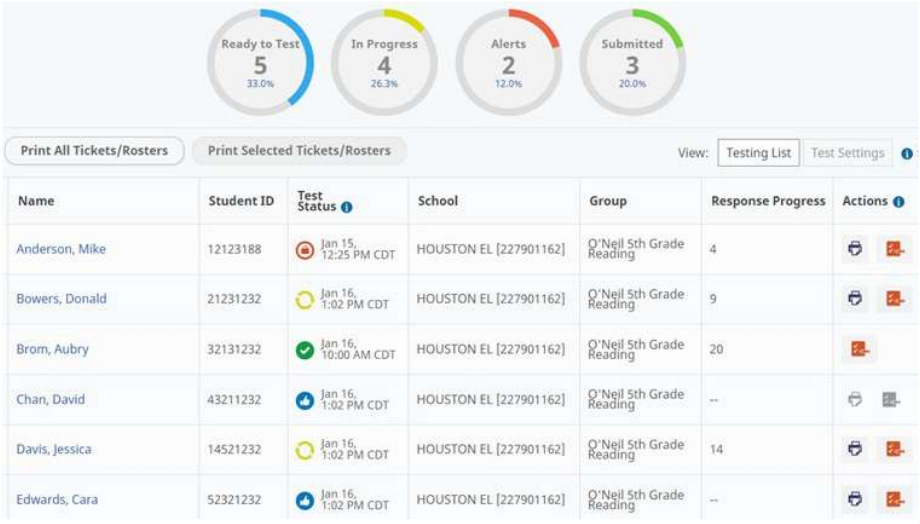
Proctor Experience - Testing Progress

+ Proctors will be able to monitor status from the test group, school, or can look up students individually



Name	Student ID	Test Status	School	Group	Response Progress	Actions
Anderson, Mike	12123188	Jan 15, 12:25 PM CDT	HOUSTON EL [227901162]	O'Neil 5th Grade Reading	4	
Bowers, Donald	21231232	Jan 16, 1:02 PM CDT	HOUSTON EL [227901162]	O'Neil 5th Grade Reading	9	
Brom, Aubry	32131232	Jan 16, 10:00 AM CDT	HOUSTON EL [227901162]	O'Neil 5th Grade Reading	20	
Chan, David	43211232	Jan 16, 1:02 PM CDT	HOUSTON EL [227901162]	O'Neil 5th Grade Reading	--	
Davis, Jessica	14521232	Jan 16, 1:02 PM CDT	HOUSTON EL [227901162]	O'Neil 5th Grade Reading	14	
Edwards, Cara	52321232	Jan 16, 1:02 PM CDT	HOUSTON EL [227901162]	O'Neil 5th Grade Reading	--	

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Proctor Experience - Testing Progress

- Icons and Descriptions for monitoring testing progress

Icon	Description
	The **Registered** icon indicates that the student is registered for a test, but the online test is not yet available.
	The **Enrollment Hold** icon indicates that the student's enrollment is not yet processed. Please contact the Support Center.
	The **Ready to Test** icon appears before the initial login to an available test or after a submitted test has been reopened. The student can log in using the information on the student test ticket.
	The **In Progress** icon indicates that the student is logged in and actively testing or has paused the test.
	The **Inactive** icon indicates that the student has logged out of the test or has been logged out due to inactivity. The student can log back in to the test using the information on the student test ticket.
	The **Completed** icon indicates that the student has submitted the test. The student will no longer be able to log in to the test.

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Reporting Issues

- Problem item reports
  - Should students experience an item that is potentially problematic, a problem item report can be submitted via the Maine Assessment Portal – coming soon!
  - Click Contact Maine Partner Support under Need Help? section
  - Choose the Email Us option
  - The following information will be needed:
    - Subject Name: *Maine Through Year Problem Item*
    - State Student ID
    - Grade and Subject
    - Session Name
    - Item Sequence or Question Number

Note: *Do not take photos or provide details around the content of the item*

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Operational Reports

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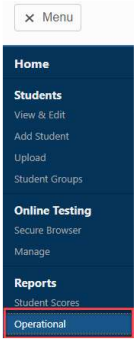
Operational Reports

- Operational Reports are designed to help DACs and SACs monitor the testing status and the status of materials
  - They do not include assessment results but do provide availability to data that you previously had to call Partner Support on!
- To access Operational Reports:
  1. In the main menu, select **Reports > Operational**
  2. Select **Organization** and **Report Type** from the drop-down lists
  3. Select Find
  4. Information about the report will appear below. Select the icon in the Download column to download the report



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Operational Reports

Operational Report	Description
Registration Report	Report details the students that were rostered to the administration
NTC Usage Report	Report details student assessments that have NTCs assigned
Summary Test Status Report	Report is a summarization of testing statuses
Testing Status Report	Report details the status of each student's assessment
Student Mobility Report	Report details students that have been transferred from one school and/or district to another
Material Orders Report	This report summarizes the quantity of assessments by school that were assigned a paper, large print, or braille accommodation
Organization Report	This report details the organizational hierarchy data in the system; source of data is the state org file

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Data and Reporting

Data and Reporting – What is Available

Report / File	Access	Description
Student Score Data File (SSDF)	State and SAU Level	• Will contain all valid test events for assessments completed within the administration by grade and subject • Will include Maine scale score, Maine scale score SEM, RIT SEM, RIT Achievement Percentile at course content and Instructional Area levels
Organization Report – By District	DACs and Admins	• Available on a rolling basis • Demographic filters • Averages for the SAU • List view and histogram view
Organization Report – By School	SACs and Admins	• Available on a rolling basis • Average for the school • Graphic views of student performance • List view and histogram view
Organization Report – By Group	Instructors and above	• Available on a rolling basis • Like class level view of MAP Growth reports • Will have averages for the group • Graphic views of student performance • Users will be able to create groups • List view and histogram view
Dynamic Student Report	Instructors and above	• Available on a rolling basis • Student performance data in an easy printable format focused on each content area separately • Item level information by standard, item type, and difficulty

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Organization Reports – SAU & School Level

What this report offers

+ Summary data by achievement level by group, school and district
+ Includes number of students tested and percentages by achievement levels
+ Individual student achievement data for students in a specific group

Questions it helps answer

+ How are our students doing overall?
+ How are we performing compared to Maine benchmarks?
+ Which is our lowest reporting category? Our highest?

When to use & what to consider

+ After testing, to see results
+ As part of instructional decision-making process
+ When you want to use data to inform student grouping
+ Displays data from a single session
+ Can be downloaded as pdf file
+ Columns can be sorted

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Dynamic Student Reports – Key Information

What this report offers

- Student-level data to support each student's progress
- Identifies which standards students were able to successfully answer questions relating to

Questions it helps answer

- Is this student on track?
- What are this student's relative strengths and suggested areas of focus?
- How can I leverage those relative strengths and suggested areas of focus to help this student?

When to use & what to consider

- Can be downloaded as a pdf file and printed

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Individual Student Reports (ISRs)

What this report offers

- Student-level data to support each student's progress

Questions it helps answer

- How is the student performing relative to grade-level expectations in reading and math?
- What are this student's relative strengths and suggested areas of focus?

When to use & what to consider

- Printed and distributed by SAUs/Schools after administration (for Spring 2023 this will be delayed)
- To provide to parents and families to provide student performance

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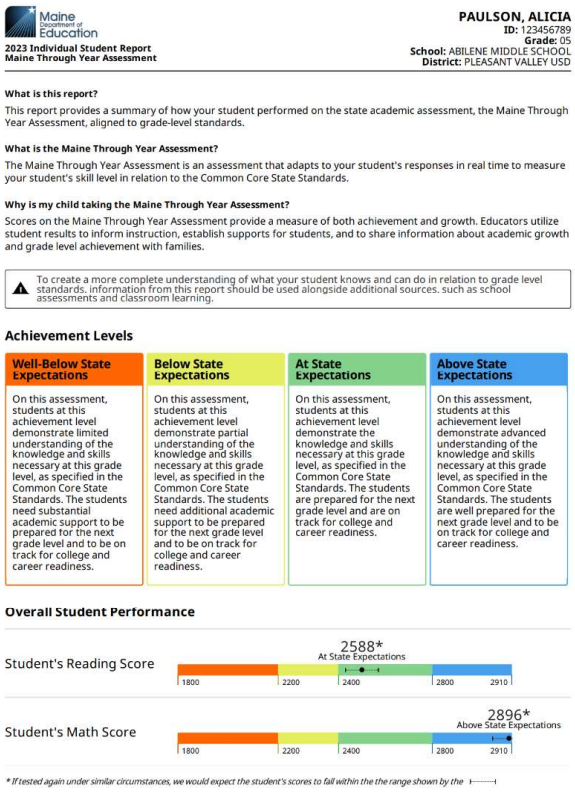
ISR



Maine Department of Education

2023 Individual Student Report
Maine Through Year Assessment

PAULSON, ALICIA
ID: 123456789
Grade: 05
School: ABILENE MIDDLE SCHOOL
District: PLEASANT VALLEY USD

What is this report?

This report provides a summary of how your student performed on the state academic assessment, the Maine Through Year Assessment, aligned to grade-level standards.

What is the Maine Through Year Assessment?

The Maine Through Year Assessment is an assessment that adapts to your student's responses in real time to measure your student's skill level in relation to the Common Core State Standards.

Why is my child taking the Maine Through Year Assessment?

Scores on the Maine Through Year Assessment provide a measure of both achievement and growth. Educators utilize student results to inform instruction, establish supports for students, and to share information about academic growth and grade level achievement with families.

⚠ To create a more complete understanding of what your student knows and can do in relation to grade level standards, information from this report should be used alongside additional sources, such as school assessments and classroom learning.

Achievement Levels

Well-Below State Expectations	Below State Expectations	At State Expectations	Above State Expectations
On this assessment, students at this achievement level demonstrate limited understanding of the knowledge and skills necessary at this grade level, as specified in the Common Core State Standards. The students need substantial academic support to be prepared for the next grade level and to be on track for college and career readiness.	On this assessment, students at this achievement level demonstrate partial understanding of the knowledge and skills necessary at this grade level, as specified in the Common Core State Standards. The students need additional academic support to be prepared for the next grade level and to be on track for college and career readiness.	On this assessment, students at this achievement level demonstrate the knowledge and skills necessary at this grade level, as specified in the Common Core State Standards. The students are prepared for the next grade level and are on track for college and career readiness.	On this assessment, students at this achievement level demonstrate advanced understanding of the knowledge and skills necessary at this grade level, as specified in the Common Core State Standards. The students are well prepared for the next grade level and to be on track for college and career readiness.

Overall Student Performance

Student's Reading Score — 2588* (At State Expectations)

Student's Math Score — 2896* (Above State Expectations)

1800 | 2200 | 2400 | 2800 | 2910

*If tested again under similar circumstances, we would expect the student's scores to fall within the the range shown by the

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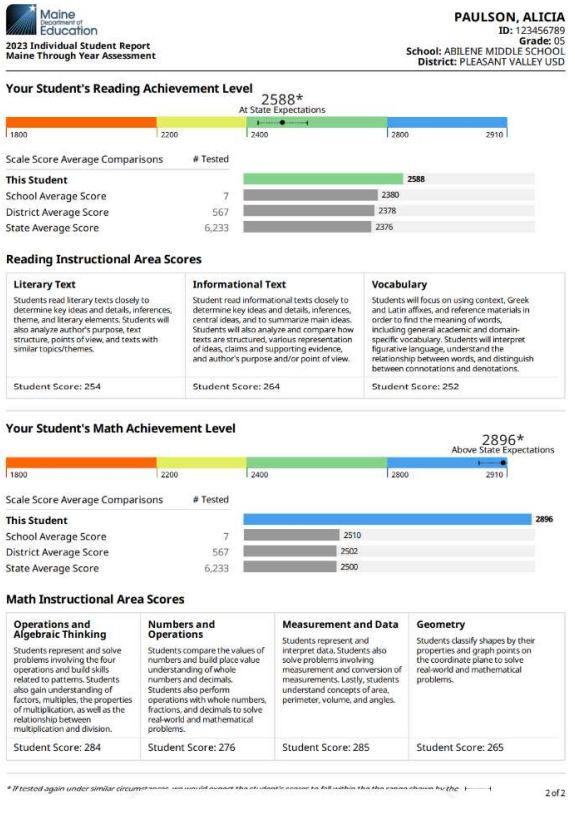
ISR



Maine Department of Education

2023 Individual Student Report
Maine Through Year Assessment

PAULSON, ALICIA
ID: 123456789
Grade: 05
School: ABILENE MIDDLE SCHOOL
District: PLEASANT VALLEY USD

Your Student's Reading Achievement Level

2588* (At State Expectations)

1800 | 2200 | 2400 | 2800 | 2910

Scale Score Average Comparisons	# Tested	
This Student		2588
School Average Score	7	2380
District Average Score	567	2378
State Average Score	6,233	2376

Reading Instructional Area Scores

Literary Text	Informational Text	Vocabulary
Students read literary texts closely to determine key ideas and details, inferences, theme, and literary elements. Students will also analyze author's purpose, text structure, points of view, and texts with similar topics/themes.	Student read informational texts closely to determine key ideas and details, inferences, central ideas, and to summarize main ideas. Students will also analyze and compare how texts are structured, various representation of ideas, claims and supporting evidence, and author's purpose and/or point of view.	Students will focus on using context, Greek and Latin affixes, and reference materials in order to find the meaning of words, including general academic and domain-specific vocabulary. Students will interpret figurative language, understand the relationship between words, and distinguish between connotations and denotations.
Student Score: 254	Student Score: 264	Student Score: 252

Your Student's Math Achievement Level

2896* (Above State Expectations)

1800 | 2200 | 2400 | 2800 | 2910

Scale Score Average Comparisons	# Tested	
This Student		2896
School Average Score	7	2510
District Average Score	567	2502
State Average Score	6,233	2500

Math Instructional Area Scores

Operations and Algebraic Thinking	Numbers and Operations	Measurement and Data	Geometry
Students represent and solve problems involving the four operations and build skills related to patterns. Students also gain understanding of factors, multiples, the properties of multiplication, as well as the relationship between multiplication and division.	Students compare the values of numbers and build place value understanding of whole numbers and decimals. Students also perform operations with whole numbers, fractions, and decimals to solve real-world and mathematical problems.	Students represent and interpret data. Students also solve problems involving measurement and conversion of measurements. Lastly, students understand concepts of area, perimeter, volume, and angles.	Students classify shapes by their properties and graph points on the coordinate plane to solve real-world and mathematical problems.
Student Score: 284	Student Score: 276	Student Score: 285	Student Score: 265

*If tested again under similar circumstances, we would expect the student's scores to fall within the the range shown by the

2 of 2

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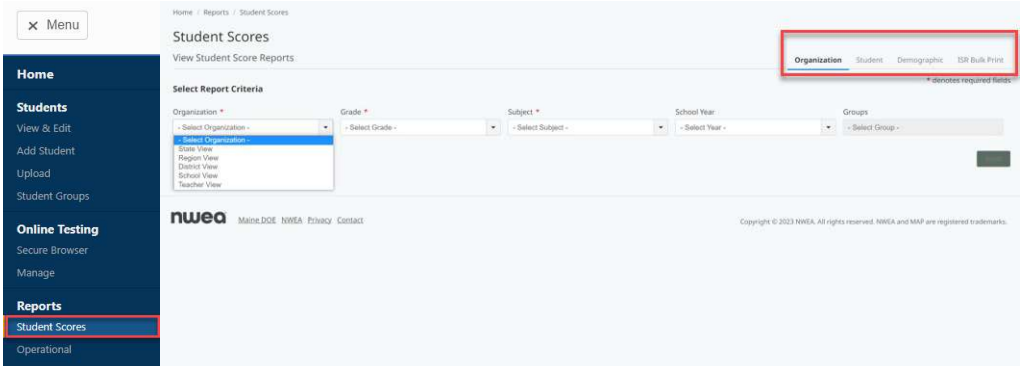
Accessing Reports

- To access reports, go the Student Scores under the Reports section in the menu
- The top right tabs will show you the categories you can select



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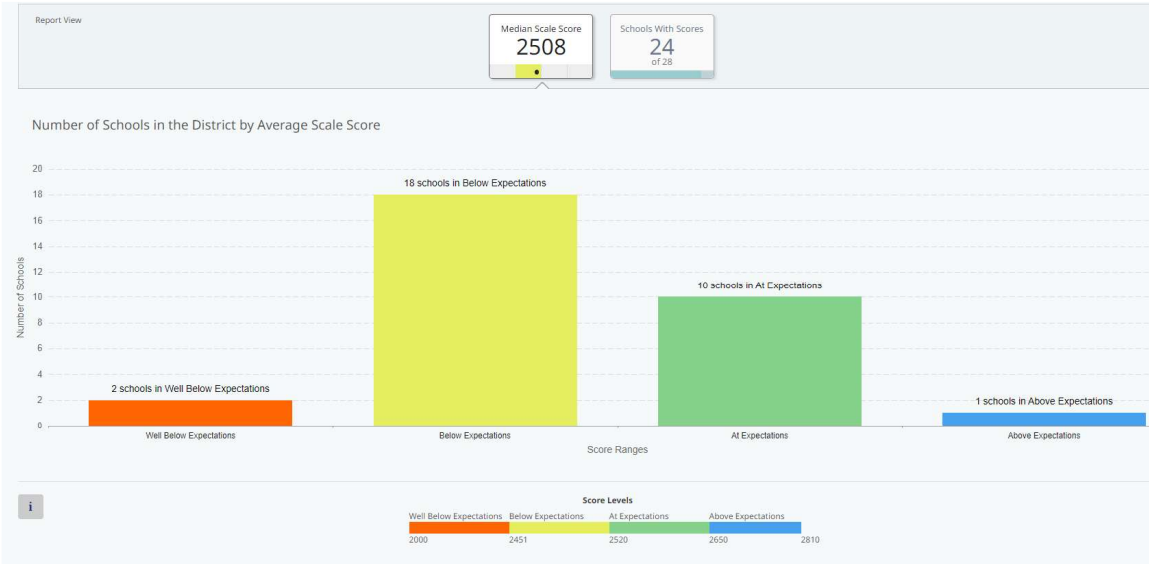
Reports at SAU Level



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Reports at School Level

Results: 20 Schools

#	School	Students Completed	Average Score	Score Levels
1	Anderson Middle	24 of 24	2477	18% 30% 32% 20%
2	Thomasville Middle	202 of 202	2478	16% 30% 34% 20%
3	Bethany East Middle	54 of 54	2480	20% 32% 30% 18%
4	Williams Middle	30 of 30	2480	18% 30% 32% 20%
5	Coli Lake Middle	14 of 14	2486	16% 30% 34% 20%
6	Davton Middle	41 of 41	2490	20% 32% 30% 18%
7	Doristi Middle	244 of 244	2496	18% 30% 32% 20%
8	Eastview Middle	182 of 182	2496	16% 30% 34% 20%
9	Everton Middle	168 of 168	2500	20% 32% 30% 18%
10	Harris Middle	24 of 24	2508	18% 30% 32% 20%

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Reports at School Level

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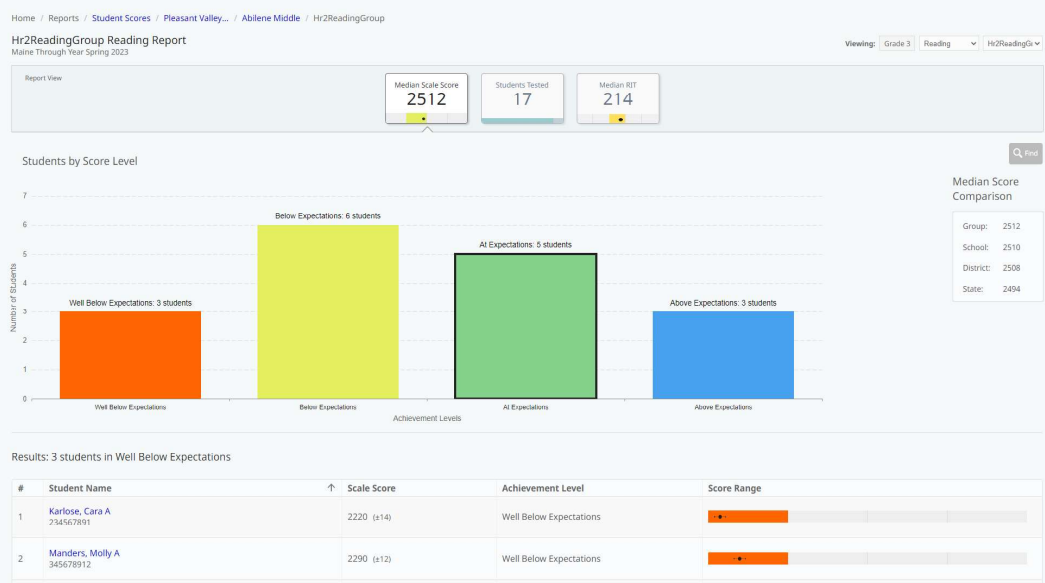
Reports at School / Group Level



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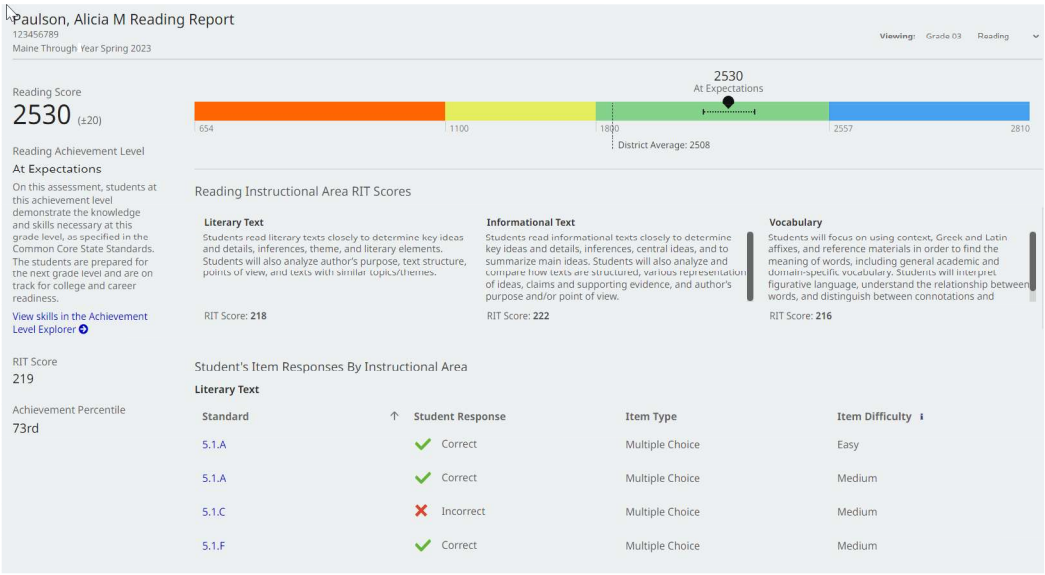
Reports at Student Level



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When Reports Become Available for Spring 2023

- **Operational Reports** are available throughout the assessment window
- Data and Reporting for Spring 2023 will be available mid August; this includes the MAP Growth Reports with RIT from the Through Year Assessment

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Preparation, Resources, and Tips

Spring 2023 Important Dates

- **April 3rd:** Management System Opens
  - Districts can begin to roster students in MAP Growth
  - Begin management activities in Acacia
    - Student registration upload by SAUs in Acacia
  - Paper, large print, and braille requests can begin

    Note: *May 12th is the last day to register students for braille and the recommended last day to register students for paper or large print*
- **May 1st – 26th:** Spring 2023 Assessment Window
- **May 19th:** Students enrolled after this date are not required to assess
- **June 2nd:** Last day to add NTCs and update supports/accommodations as needed

nwea State Solutions

Maine Department of Education

Preparation

- Review technical requirements for the Maine Through Year Assessment
- Download new NWEA State Solution Secure Browser

  Note: *This is different than the MAP Growth Secure Browser and the MAP Growth STB does not need to be uninstalled before installing the State Solutions STB*
- Review Maine DOE guidelines for accessibility and identify students in need of specific accommodations / supports
- Review Scheduling Guidance from Maine DOE
- Review Maine DOE Assessment Security Handbook

nwea State Solutions

Maine Department of Education

Resources

A Maine Assessment Portal on NWEA Connections will soon be available to access all resources in one location!

- Item Type Samplers (Online and Paper Form)
- Online Student Tutorial Video
- Proctor Guides
  - ME Through Year Assessment Administration Guide
  - ME Through Year Proctor User Guide
- ME Through Year Assessment Coordinator Guide
- ME Through Year User and Student Management Guide
- ME Through Year Accessibility Guide
- ME Through Year Assessment Checklist

Technology & Security Resources

- NWEA State Solutions System and Technology Guide
  - NWEA State Solutions System and Technology Guide
- Maine Assessment Security Handbook
  - The Maine Assessment Security Handbook

Suggestions for a Smooth Assessment Experience

- Enable audio on devices used for TTS and provide headphones
- Ensure all students have appropriate accessibility features assigned, as needed
- Validate School Proctor rights have been assigned
- Use the Manage Online Testing Dashboard to monitor testing progress through the assessment window
  - Reminder: refresh the dashboard to see updated information

Troubleshooting Tips

- In Acacia, the student's assessment is saved after every answer
- If a student runs into issues, the first step would be to log out, close app, and log back in
- Second step would be a full reboot

  Note: *Proctor action is not needed to log students back in*
- If the first two steps do not resolve issue, contact Partner Support at (855) 430-1777

Communication and Partner Support

nwea State Solutions

Maine DOE Policy Support

+ Policy Questions
  - Contact Krista Averill at the Maine DOE
  - Phone: (207) 215-6528
  - Email: krista.averill@maine.gov
+ Additional information and materials can also be found on the Maine DOE website:
  - https://www.maine.gov/doe/Testing_Accountability/MECAS/nwea

nwea State Solutions

Maine Department of Education

NWEA Partner Support

- Maine Through Year Assessment inquires or support
  - Contact NWEA Partner Support
  - Phone: (855) 430-1777
  - Days & Hours: Monday – Friday, 7:00am – 8:00pm EST
- Maine Assessment Portal on NWEA Connections
  - Coming soon!

nwea State Solutions

Maine Department of Education

Questions and Answers

FAQ document and slide deck will be shared out after training sessions

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Appendix B: Content Standard Coverage

Table B.1. Content Standard Coverage—Reading

Grade	Standard	Item Count	Student Count	Total Student	Percent
3	CCSS.ELA-Literacy.RL.3.1	92	11913	12091	98.5
	CCSS.ELA-Literacy.RI.3.1	89	11294	12091	93.4
	CCSS.ELA-Literacy.L.3.4.a	77	11667	12091	96.5
	CCSS.ELA-Literacy.RL.3.3	67	11832	12091	97.9
	CCSS.ELA-Literacy.RI.3.5	42	6996	12091	57.9
	CCSS.ELA-Literacy.RL.3.2	42	10381	12091	85.9
	CCSS.ELA-Literacy.RL.3.4	40	4982	12091	41.2
	CCSS.ELA-Literacy.RI.3.2	39	9032	12091	74.7
	CCSS.ELA-Literacy.RI.3.6	38	10475	12091	86.6
	CCSS.ELA-Literacy.RI.3.3	32	8480	12091	70.1
	CCSS.ELA-Literacy.RL.3.6	31	11378	12091	94.1
	CCSS.ELA-Literacy.RI.3.8	29	8801	12091	72.8
	CCSS.ELA-Literacy.RI.3.7	23	8086	12091	66.9
	CCSS.ELA-Literacy.RL.3.5	21	11028	12091	91.2
	CCSS.ELA-Literacy.RI.3.9	17	4340	12091	35.9
	CCSS.ELA-Literacy.L.3.4.b	13	6152	12091	50.9
	CCSS.ELA-Literacy.RI.3.4	12	7786	12091	64.4
	CCSS.ELA-Literacy.L.3.6	11	7240	12091	59.9
	CCSS.ELA-Literacy.RL.3.9	8	7141	12091	59.1
	CCSS.ELA-Literacy.L.3.4.c	5	2260	12091	18.7
	CCSS.ELA-Literacy.L.3.4.d	5	5765	12091	47.7
	CCSS.ELA-Literacy.RL.3.7	4	4003	12091	33.1
4	CCSS.ELA-Literacy.RL.4.3	80	11946	12060	99.1
	CCSS.ELA-Literacy.RL.4.1	79	11944	12060	99.0
	CCSS.ELA-Literacy.RI.4.2	55	11841	12060	98.2
	CCSS.ELA-Literacy.L.4.4.a	52	7585	12060	62.9
	CCSS.ELA-Literacy.RL.4.2	52	11855	12060	98.3
	CCSS.ELA-Literacy.RI.4.1	49	11623	12060	96.4
	CCSS.ELA-Literacy.L.4.5.c	38	8511	12060	70.6
	CCSS.ELA-Literacy.RI.4.5	33	10958	12060	90.9
	CCSS.ELA-Literacy.L.4.5.a	31	5802	12060	48.1
	CCSS.ELA-Literacy.RI.4.7	28	5514	12060	45.7
	CCSS.ELA-Literacy.RI.4.3	25	8310	12060	68.9
	CCSS.ELA-Literacy.L.4.4.b	22	7339	12060	60.9
	CCSS.ELA-Literacy.RL.4.4	20	7921	12060	65.7
	CCSS.ELA-Literacy.RI.4.4	18	5524	12060	45.8
	CCSS.ELA-Literacy.L.4.6	15	9018	12060	74.8
	CCSS.ELA-Literacy.RL.4.6	13	8206	12060	68.0
	CCSS.ELA-Literacy.RI.4.8	12	5762	12060	47.8

Grade	Standard	Item Count	Student Count	Total Student	Percent
	CCSS.ELA-Literacy.RI.4.9	12	12053	12060	99.9
	CCSS.ELA-Literacy.L.4.5.b	11	1400	12060	11.6
	CCSS.ELA-Literacy.RL.4.5	9	7798	12060	64.7
	CCSS.ELA-Literacy.RL.4.7	4	522	12060	4.3
	CCSS.ELA-Literacy.L.4.4.c	3	789	12060	6.5
	CCSS.ELA-Literacy.RI.4.6	2	886	12060	7.3
5	CCSS.ELA-Literacy.RI.5.1	62	10399	11853	87.7
	CCSS.ELA-Literacy.L.5.4.a	60	10997	11853	92.8
	CCSS.ELA-Literacy.RL.5.2	47	11711	11853	98.8
	CCSS.ELA-Literacy.RL.5.3	45	11642	11853	98.2
	CCSS.ELA-Literacy.RL.5.1	45	11136	11853	94.0
	CCSS.ELA-Literacy.RI.5.2	38	10257	11853	86.5
	CCSS.ELA-Literacy.RI.5.3	34	9381	11853	79.1
	CCSS.ELA-Literacy.L.5.5.a	26	10075	11853	85.0
	CCSS.ELA-Literacy.RL.5.4	23	7618	11853	64.3
	CCSS.ELA-Literacy.RI.5.5	21	8432	11853	71.1
	CCSS.ELA-Literacy.RL.5.6	17	7075	11853	59.7
	CCSS.ELA-Literacy.RI.5.6	15	7900	11853	66.6
	CCSS.ELA-Literacy.RI.5.7	14	2632	11853	22.2
	CCSS.ELA-Literacy.RL.5.9	13	10241	11853	86.4
	CCSS.ELA-Literacy.RL.5.5	12	10907	11853	92.0
	CCSS.ELA-Literacy.RI.5.4	12	3567	11853	30.1
	CCSS.ELA-Literacy.RI.5.8	12	4907	11853	41.4
	CCSS.ELA-Literacy.L.5.5.b	11	2040	11853	17.2
	CCSS.ELA-Literacy.L.5.5.c	8	7334	11853	61.9
	CCSS.ELA-Literacy.RL.5.7	7	1869	11853	15.8
	CCSS.ELA-Literacy.L.5.6	6	2991	11853	25.2
	CCSS.ELA-Literacy.L.5.4.b	6	1466	11853	12.4
	CCSS.ELA-Literacy.RI.5.9	5	647	11853	5.5
	CCSS.ELA-Literacy.L.5.4.c	3	959	11853	8.1
6	CCSS.ELA-Literacy.RL.6.3	88	12016	12041	99.8
	CCSS.ELA-Literacy.RI.6.1	86	11503	12041	95.5
	CCSS.ELA-Literacy.RL.6.1	73	11990	12041	99.6
	CCSS.ELA-Literacy.L.6.4.a	71	9861	12041	81.9
	CCSS.ELA-Literacy.RI.6.6	45	11101	12041	92.2
	CCSS.ELA-Literacy.RL.6.2	43	7883	12041	65.5
	CCSS.ELA-Literacy.RI.6.2	39	10610	12041	88.1
	CCSS.ELA-Literacy.RI.6.5	39	10762	12041	89.4
	CCSS.ELA-Literacy.RL.6.5	37	9064	12041	75.3
	CCSS.ELA-Literacy.RI.6.3	34	10520	12041	87.4
	CCSS.ELA-Literacy.RL.6.4	33	8924	12041	74.1
	CCSS.ELA-Literacy.RI.6.7	30	4888	12041	40.6
	CCSS.ELA-Literacy.RL.6.6	29	8574	12041	71.2

Grade	Standard	Item Count	Student Count	Total Student	Percent
	CCSS.ELA-Literacy.L.6.4.b	24	8718	12041	72.4
	CCSS.ELA-Literacy.L.6.5.a	23	6131	12041	50.9
	CCSS.ELA-Literacy.RI.6.4	15	4921	12041	40.9
	CCSS.ELA-Literacy.RL.6.9	13	5121	12041	42.5
	CCSS.ELA-Literacy.L.6.6	12	4852	12041	40.3
	CCSS.ELA-Literacy.RI.6.8	11	5949	12041	49.4
	CCSS.ELA-Literacy.L.6.5.b	10	4329	12041	36.0
	CCSS.ELA-Literacy.L.6.5.c	8	1975	12041	16.4
	CCSS.ELA-Literacy.RI.6.9	4	1810	12041	15.0
	CCSS.ELA-Literacy.L.6.4.c	4	1576	12041	13.1
	CCSS.ELA-Literacy.L.6.4.d	3	383	12041	3.2
	CCSS.ELA-Literacy.RL.7.3	71	11723	12188	96.2
	CCSS.ELA-Literacy.RI.7.1	64	11186	12188	91.8
	CCSS.ELA-Literacy.RI.7.5	56	11084	12188	90.9
	CCSS.ELA-Literacy.RI.7.2	56	11331	12188	93.0
	CCSS.ELA-Literacy.RL.7.4	53	10463	12188	85.8
	CCSS.ELA-Literacy.RI.7.4	51	10985	12188	90.1
	CCSS.ELA-Literacy.RL.7.1	50	9573	12188	78.5
	CCSS.ELA-Literacy.RL.7.2	41	10218	12188	83.8
	CCSS.ELA-Literacy.RI.7.3	39	8896	12188	73.0
	CCSS.ELA-Literacy.RI.7.6	37	11344	12188	93.1
	CCSS.ELA-Literacy.RL.7.6	31	9574	12188	78.6
7	CCSS.ELA-Literacy.L.7.5.a	25	5362	12188	44.0
	CCSS.ELA-Literacy.L.7.4.b	21	5250	12188	43.1
	CCSS.ELA-Literacy.L.7.4.a	18	7731	12188	63.4
	CCSS.ELA-Literacy.RL.7.5	12	8382	12188	68.8
	CCSS.ELA-Literacy.RL.7.9	12	6451	12188	52.9
	CCSS.ELA-Literacy.RI.7.8	10	4679	12188	38.4
	CCSS.ELA-Literacy.RI.7.9	8	5969	12188	49.0
	CCSS.ELA-Literacy.L.7.6	8	2724	12188	22.3
	CCSS.ELA-Literacy.L.7.4.c	3	173	12188	1.4
	CCSS.ELA-Literacy.L.7.5.b	2	918	12188	7.5
	CCSS.ELA-Literacy.L.7.5.c	2	1145	12188	9.4
	CCSS.ELA-Literacy.RI.7.7	1	1859	12188	15.3
	CCSS.ELA-Literacy.RI.8.5	90	12192	12581	96.9
	CCSS.ELA-Literacy.RI.8.1	83	12103	12581	96.2
	CCSS.ELA-Literacy.RL.8.4	78	12009	12581	95.5
	CCSS.ELA-Literacy.RI.8.4	73	12153	12581	96.6
8	CCSS.ELA-Literacy.RL.8.3	65	12306	12581	97.8
	CCSS.ELA-Literacy.RI.8.2	57	11689	12581	92.9
	CCSS.ELA-Literacy.RI.8.3	46	9213	12581	73.2
	CCSS.ELA-Literacy.RI.8.6	45	12260	12581	97.4
	CCSS.ELA-Literacy.RL.8.1	39	12244	12581	97.3

Grade	Standard	Item Count	Student Count	Total Student	Percent
	CCSS.ELA-Literacy.RL.8.2	33	10675	12581	84.9
	CCSS.ELA-Literacy.L.8.4.b	29	6661	12581	52.9
	CCSS.ELA-Literacy.L.8.4.a	18	8066	12581	64.1
	CCSS.ELA-Literacy.L.8.5.a	12	2693	12581	21.4
	CCSS.ELA-Literacy.RL.8.6	12	4757	12581	37.8
	CCSS.ELA-Literacy.RI.8.8	10	3270	12581	26.0
	CCSS.ELA-Literacy.L.8.6	8	2204	12581	17.5
	CCSS.ELA-Literacy.RI.8.9	8	2954	12581	23.5
	CCSS.ELA-Literacy.RL.8.9	8	2851	12581	22.7
	CCSS.ELA-Literacy.RL.8.5	7	8479	12581	67.4
	CCSS.ELA-Literacy.RI.8.7	6	2260	12581	18.0
	CCSS.ELA-Literacy.L.8.5.c	3	1593	12581	12.7
	CCSS.ELA-Literacy.L.8.5.b	1	210	12581	1.7
	CCSS.ELA-Literacy.RI.9-10	17	12148	12158	99.9
HS	CCSS.ELA-Literacy.RL.9-10	9	12122	12158	99.7
	CCSS.ELA-Literacy.L.9-10	4	12144	12158	99.9

Table B.2 Content Standard Coverage — Mathematics

Grade	Standard	Item Count	Student Count	Total Student	Percent
3	CCSS.Math.Content.3.MD.B.3	75	8954	12151	73.7
	CCSS.Math.Content.3.MD.A.1	49	10719	12151	88.2
	CCSS.Math.Content.3.MD.B.4	45	9459	12151	77.8
	CCSS.Math.Content.3.OA.D.8	43	9580	12151	78.8
	CCSS.Math.Content.3.NF.A.1	41	8550	12151	70.4
	CCSS.Math.Content.3.OA.A.1	36	8257	12151	68.0
	CCSS.Math.Content.3.MD.D.8	35	9946	12151	81.9
	CCSS.Math.Content.3.NF.A.3.b	33	8357	12151	68.8
	CCSS.Math.Content.3.OA.C.7	31	7219	12151	59.4
	CCSS.Math.Content.3.OA.A.3	31	10360	12151	85.3
	CCSS.Math.Content.3.OA.A.4	29	5655	12151	46.5
	CCSS.Math.Content.3.MD.A.2	28	9426	12151	77.6
	CCSS.Math.Content.3.NF.A.2.a	27	7272	12151	59.8
	CCSS.Math.Content.3.NF.A.3.d	26	8974	12151	73.9
	CCSS.Math.Content.3.NF.A.3.c	26	8110	12151	66.7
	CCSS.Math.Content.3.NBT.A.3	23	6185	12151	50.9
	CCSS.Math.Content.3.NBT.A.1	23	8478	12151	69.8
	CCSS.Math.Content.3.NF.A.3.a	22	4099	12151	33.7
	CCSS.Math.Content.3.NBT.A.2	21	6053	12151	49.8
	CCSS.Math.Content.3.NF.A.2.b	20	7479	12151	61.6
	CCSS.Math.Content.3.OA.D.9	19	6151	12151	50.6
	CCSS.Math.Content.3.OA.B.5	17	4918	12151	40.5
	CCSS.Math.Content.3.MD.C.6	16	8901	12151	73.3
	CCSS.Math.Content.3.G.A.2	14	11873	12151	97.7
	CCSS.Math.Content.3.G.A.1	13	11029	12151	90.8
	CCSS.Math.Content.3.MD.C.5	12	4380	12151	36.0
	CCSS.Math.Content.3.OA.B.6	11	5104	12151	42.0
	CCSS.Math.Content.3.MD.C.7.a	9	1655	12151	13.6
	CCSS.Math.Content.3.OA.A.2	5	3438	12151	28.3
	CCSS.Math.Content.3.MD.C.7.d	5	1562	12151	12.9
	CCSS.Math.Content.3.MD.C.7.b	3	1332	12151	11.0
	CCSS.Math.Content.3.MD.C.7.c	2	797	12151	6.6
4	CCSS.Math.Content.4.NBT.A.2	66	7868	12138	64.8
	CCSS.Math.Content.4.MD.B.4	64	11573	12138	95.3
	CCSS.Math.Content.4.G.A.1	55	10702	12138	88.2
	CCSS.Math.Content.4.OA.B.4	51	11088	12138	91.3
	CCSS.Math.Content.4.NBT.B.5	45	9222	12138	76.0
	CCSS.Math.Content.4.NF.A.1	41	6821	12138	56.2
	CCSS.Math.Content.4.NF.A.2	36	8386	12138	69.1
	CCSS.Math.Content.4.NBT.A.3	31	7365	12138	60.7
	CCSS.Math.Content.4.NBT.B.6	31	6571	12138	54.1
	CCSS.Math.Content.4.G.A.2	31	9879	12138	81.4

Grade	Standard	Item Count	Student Count	Total Student	Percent
	CCSS.Math.Content.4.NF.B.3.d	29	6531	12138	53.8
	CCSS.Math.Content.4.NF.C.6	26	6186	12138	51.0
	CCSS.Math.Content.4.OA.A.3	25	8260	12138	68.1
	CCSS.Math.Content.4.MD.C.6	23	6934	12138	57.1
	CCSS.Math.Content.4.NF.C.7	23	7265	12138	59.9
	CCSS.Math.Content.4.OA.A.1	22	9111	12138	75.1
	CCSS.Math.Content.4.MD.A.1	19	8752	12138	72.1
	CCSS.Math.Content.4.G.A.3	18	5782	12138	47.6
	CCSS.Math.Content.4.OA.A.2	17	6846	12138	56.4
	CCSS.Math.Content.4.OA.C.5	14	7273	12138	59.9
	CCSS.Math.Content.4.MD.A.2	13	5169	12138	42.6
	CCSS.Math.Content.4.NF.B.3.c	13	3589	12138	29.6
	CCSS.Math.Content.4.NF.C.5	13	5571	12138	45.9
	CCSS.Math.Content.4.NF.B.4.b	13	3701	12138	30.5
	CCSS.Math.Content.4.NBT.B.4	12	4016	12138	33.1
	CCSS.Math.Content.4.MD.C.5	9	5539	12138	45.6
	CCSS.Math.Content.4.NBT.A.1	8	2927	12138	24.1
	CCSS.Math.Content.4.MD.A.3	8	4696	12138	38.7
	CCSS.Math.Content.4.NF.B.4.c	7	41	12138	0.3
	CCSS.Math.Content.4.NF.B.3.b	6	4108	12138	33.8
	CCSS.Math.Content.4.NF.B.3.a	5	1110	12138	9.1
	CCSS.Math.Content.4.MD.C.7	4	1494	12138	12.3
	CCSS.Math.Content.4.NF.B.4.a	4	2371	12138	19.5
	CCSS.Math.Content.4.MD.A	2	337	12138	2.8
5	CCSS.Math.Content.5.NBT.B.7	80	11752	11919	98.6
	CCSS.Math.Content.5.OA.A.1	58	11916	11919	100.0
	CCSS.Math.Content.5.NF.A.2	53	7980	11919	67.0
	CCSS.Math.Content.5.MD.B.2	50	6892	11919	57.8
	CCSS.Math.Content.5.G.A.1	49	10339	11919	86.7
	CCSS.Math.Content.5.NF.A.1	40	7550	11919	63.3
	CCSS.Math.Content.5.OA.B.3	35	8483	11919	71.2
	CCSS.Math.Content.5.NBT.A.2	29	7645	11919	64.1
	CCSS.Math.Content.5.NBT.A.3.a	28	8841	11919	74.2
	CCSS.Math.Content.5.NBT.B.6	26	7766	11919	65.2
	CCSS.Math.Content.5.MD.C.4	22	11651	11919	97.8
	CCSS.Math.Content.5.G.B.4	22	8160	11919	68.5
	CCSS.Math.Content.5.NBT.A.3.b	20	8176	11919	68.6
	CCSS.Math.Content.5.NBT.B.5	17	6705	11919	56.3
	CCSS.Math.Content.5.NF.B.4.a	17	6122	11919	51.4
	CCSS.Math.Content.5.NBT.A.4	16	1425	11919	12.0
	CCSS.Math.Content.5.G.B.3	16	5876	11919	49.3
	CCSS.Math.Content.5.MD.C.5.b	13	5190	11919	43.5

Grade	Standard	Item Count	Student Count	Total Student	Percent
	CCSS.Math.Content.5.MD.A.1	12	6112	11919	51.3
	CCSS.Math.Content.5.G.A.2	11	11051	11919	92.7
	CCSS.Math.Content.5.MD.C.5.c	11	2921	11919	24.5
	CCSS.Math.Content.5.NF.B.6	11	1913	11919	16.1
	CCSS.Math.Content.5.NF.B.7.b	11	1981	11919	16.6
	CCSS.Math.Content.5.NF.B.5	10	4581	11919	38.4
	CCSS.Math.Content.5.OA.A.2	9	5277	11919	44.3
	CCSS.Math.Content.5.NF.B.3	7	2957	11919	24.8
	CCSS.Math.Content.5.NF.B.7.a	6	1731	11919	14.5
	CCSS.Math.Content.5.MD.C.3	6	6716	11919	56.3
	CCSS.Math.Content.5.NBT.A.1	5	1596	11919	13.4
	CCSS.Math.Content.5.MD.C.5.a	4	4176	11919	35.0
	CCSS.Math.Content.5.NF.B.4.b	3	274	11919	2.3
	CCSS.Math.Content.5.NF.A	2	32	11919	0.3
	CCSS.Math.Content.5.NF.B.7.c	2	603	11919	5.1
	CCSS.Math.Content.5.G.A	1	781	11919	6.6
6	CCSS.Math.Content.6.EE.B.7	70	8601	12080	71.2
	CCSS.Math.Content.6.SP.A.3	51	11744	12080	97.2
	CCSS.Math.Content.6.RP.A.3.c	50	8089	12080	67.0
	CCSS.Math.Content.6.EE.A.2.c	46	10484	12080	86.8
	CCSS.Math.Content.6.G.A.4	41	11599	12080	96.0
	CCSS.Math.Content.6.RP.A.3.b	41	9404	12080	77.8
	CCSS.Math.Content.6.EE.A.1	38	8140	12080	67.4
	CCSS.Math.Content.6.EE.B.8	33	4882	12080	40.4
	CCSS.Math.Content.6.NS.B.4	32	2292	12080	19.0
	CCSS.Math.Content.6.SP.B.5	32	8940	12080	74.0
	CCSS.Math.Content.6.NS.A.1	31	5546	12080	45.9
	CCSS.Math.Content.6.EE.B.6	30	7397	12080	61.2
	CCSS.Math.Content.6.NS.C.6.c	29	6422	12080	53.2
	CCSS.Math.Content.6.NS.C.7.a	25	7660	12080	63.4
	CCSS.Math.Content.6.NS.B.2	23	7923	12080	65.6
	CCSS.Math.Content.6.G.A.3	22	11138	12080	92.2
	CCSS.Math.Content.6.G.A.2	22	7874	12080	65.2
	CCSS.Math.Content.6.SP.A.2	22	5118	12080	42.4
	CCSS.Math.Content.6.RP.A.3.a	20	5412	12080	44.8
	CCSS.Math.Content.6.EE.A.3	19	4558	12080	37.7
	CCSS.Math.Content.6.G.A.1	19	2803	12080	23.2
	CCSS.Math.Content.6.SP.B.4	17	9424	12080	78.0
	CCSS.Math.Content.6.NS.B.3	16	5890	12080	48.8
	CCSS.Math.Content.6.EE.B.5	16	7619	12080	63.1
	CCSS.Math.Content.6.NS.C.6.b	15	5183	12080	42.9
	CCSS.Math.Content.6.NS.C.8	14	3064	12080	25.4
	CCSS.Math.Content.6.NS.C.7.d	14	5158	12080	42.7
	CCSS.Math.Content.6.NS.C.7.c	13	3545	12080	29.3

Grade	Standard	Item Count	Student Count	Total Student	Percent
	CCSS.Math.Content.6.EE.C.9	11	2794	12080	23.1
	CCSS.Math.Content.6.RP.A.2	11	7092	12080	58.7
	CCSS.Math.Content.6.NS.C.5	10	6402	12080	53.0
	CCSS.Math.Content.6.EE.A.2.a	8	1694	12080	14.0
	CCSS.Math.Content.6.EE.A.2.b	8	1917	12080	15.9
	CCSS.Math.Content.6.RP.A.3.d	6	1184	12080	9.8
	CCSS.Math.Content.6.SP.A.1	5	1508	12080	12.5
	CCSS.Math.Content.6.RP.A.1	5	3559	12080	29.5
	CCSS.Math.Content.6.NS.C.7.b	3	2061	12080	17.1
	CCSS.Math.Content.6.NS.C.6.a	2	2102	12080	17.4
	CCSS.Math.Content.7.EE.B.4.a	88	12042	12253	98.3
	CCSS.Math.Content.7.SP.C.7	77	10638	12253	86.8
	CCSS.Math.Content.7.EE.B.4.b	67	8538	12253	69.7
	CCSS.Math.Content.7.SP.C.8	62	10366	12253	84.6
	CCSS.Math.Content.7.G.B.6	51	9848	12253	80.4
	CCSS.Math.Content.7.NS.A.3	41	9770	12253	79.7
	CCSS.Math.Content.7.G.B.4	41	12097	12253	98.7
	CCSS.Math.Content.7.RP.A.3	39	5801	12253	47.3
	CCSS.Math.Content.7.SP.B	37	5423	12253	44.3
	CCSS.Math.Content.7.SP.C.6	31	8374	12253	68.3
	CCSS.Math.Content.7.G.A.1	28	11282	12253	92.1
	CCSS.Math.Content.7.G.B.5	28	6393	12253	52.2
	CCSS.Math.Content.7.EE.B.3	27	9188	12253	75.0
	CCSS.Math.Content.7.SP.A	23	4888	12253	39.9
	CCSS.Math.Content.7.RP.A.2.c	23	7193	12253	58.7
7	CCSS.Math.Content.7.NS.A.1.c	19	5478	12253	44.7
	CCSS.Math.Content.7.RP.A.2.d	18	9053	12253	73.9
	CCSS.Math.Content.7.G.A.3	17	5086	12253	41.5
	CCSS.Math.Content.7.NS.A.1.b	16	6483	12253	52.9
	CCSS.Math.Content.7.NS.A.2.d	16	7099	12253	57.9
	CCSS.Math.Content.7.EE.A.1	15	2351	12253	19.2
	CCSS.Math.Content.7.RP.A.1	14	4541	12253	37.1
	CCSS.Math.Content.7.NS.A.1.d	14	6699	12253	54.7
	CCSS.Math.Content.7.RP.A.2.a	13	7446	12253	60.8
	CCSS.Math.Content.7.NS.A.2.a	12	7235	12253	59.0
	CCSS.Math.Content.7.NS.A.2.b	12	7514	12253	61.3
	CCSS.Math.Content.7.RP.A.2.b	11	8004	12253	65.3
	CCSS.Math.Content.7.NS.A.2.c	10	3833	12253	31.3
	CCSS.Math.Content.7.EE.A.2	8	6896	12253	56.3
	CCSS.Math.Content.7.SP.C.5	8	6479	12253	52.9
	CCSS.Math.Content.7.NS.A.1.a	2	993	12253	8.1
	CCSS.Math.Content.8.SP.A.1	54	12436	12625	98.5
8	CCSS.Math.Content.8.G.A.5	51	12456	12625	98.7
	CCSS.Math.Content.8.F.B.4	45	12476	12625	98.8

Grade	Standard	Item Count	Student Count	Total Student	Percent
	CCSS.Math.Content.8.EE.C.7.b	42	10881	12625	86.2
	CCSS.Math.Content.8.NS.A.2	39	11610	12625	92.0
	CCSS.Math.Content.8.EE.A.4	38	9967	12625	78.9
	CCSS.Math.Content.8.SP.A.3	38	11949	12625	94.6
	CCSS.Math.Content.8.G.A.3	35	10885	12625	86.2
	CCSS.Math.Content.8.G.C.9	32	10666	12625	84.5
	CCSS.Math.Content.8.G.B.7	27	6661	12625	52.8
	CCSS.Math.Content.8.EE.B.5	26	6523	12625	51.7
	CCSS.Math.Content.8.G.B.8	20	4028	12625	31.9
	CCSS.Math.Content.8.NS.A.1	20	10877	12625	86.2
	CCSS.Math.Content.8.F.A.1	20	4372	12625	34.6
	CCSS.Math.Content.8.EE.A.2	18	9747	12625	77.2
	CCSS.Math.Content.8.SP.A.4	17	9262	12625	73.4
	CCSS.Math.Content.8.EE.C.7.a	17	6952	12625	55.1
	CCSS.Math.Content.8.EE.A.1	15	3872	12625	30.7
	CCSS.Math.Content.8.EE.A.3	15	7175	12625	56.8
	CCSS.Math.Content.8.F.B.5	15	9755	12625	77.3
	CCSS.Math.Content.8.G.A.4	15	3422	12625	27.1
	CCSS.Math.Content.8.F.A.2	14	3684	12625	29.2
	CCSS.Math.Content.8.G.A.2	13	4035	12625	32.0
	CCSS.Math.Content.8.EE.B.6	10	2140	12625	17.0
	CCSS.Math.Content.8.F.A.3	10	4439	12625	35.2
	CCSS.Math.Content.8.SP.A.2	10	3029	12625	24.0
	CCSS.Math.Content.8.EE.C.8	7	5031	12625	39.8
	CCSS.Math.Content.8.G.A.1.a	3	1462	12625	11.6
	CCSS.Math.Content.8.G.A.1.c	2	1263	12625	10.0
	CCSS.Math.Content.8.G.A.1.b	1	276	12625	2.2
HS	CCSS.Math.Content.HSN-RN.A.2	18	5708	12192	46.8
	CCSS.Math.Content.HSA-REI.B.4	9	12182	12192	99.9
	CCSS.Math.Content.HSN-RN.A.1	6	12131	12192	99.5
	CCSS.Math.Content.HSG-GMD.A.3	6	12156	12192	99.7
	CCSS.Math.Content.HSF-IF.C.8.	5	1231	12192	10.1
	CCSS.Math.Content.HSA-REI.B.3	5	138	12192	1.1
	CCSS.Math.Content.HSF-IF.B.4	4	352	12192	2.9
	CCSS.Math.Content.HSS-ID.B.5	4	12111	12192	99.3
	CCSS.Math.Content.HSG-CO.A.1	4	12163	12192	99.8
	CCSS.Math.Content.HSS-ID.A.2	4	2203	12192	18.1
	CCSS.Math.Content.HSF-IF.A.1	4	12171	12192	99.8
	CCSS.Math.Content.HSS-CP.A.1	3	12121	12192	99.4
	CCSS.Math.Content.HSA-REI.D.1	3	12180	12192	99.9
	CCSS.Math.Content.HSG-SRT.B.5	3	652	12192	5.3

Grade	Standard	Item Count	Student Count	Total Student	Percent
	CCSS.Math.Content.HSA-REI.C.6	3	302	12192	2.5
	CCSS.Math.Content.HSF-IF.C.7.	3	1006	12192	8.3
	CCSS.Math.Content.HSG-CO.A.2	3	12162	12192	99.8
	CCSS.Math.Content.HSG-SRT.B.4	2	58	12192	0.5
	CCSS.Math.Content.HSN-RN.B.3	2	12128	12192	99.5
	CCSS.Math.Content.HSS-CP.A.2	2	807	12192	6.6
	CCSS.Math.Content.HSG-CO.C.10	1	12159	12192	99.7
	CCSS.Math.Content.HSN-Q.A.2	1	12122	12192	99.4
	CCSS.Math.Content.HSN-Q.A.1	1	12133	12192	99.5
	CCSS.Math.Content.HSG-SRT.C.8	1	12136	12192	99.5
	CCSS.Math.Content.HSG-SRT.C.7	1	12150	12192	99.7
	CCSS.Math.Content.HSS-ID.A.3	1	12115	12192	99.4
	CCSS.Math.Content.HSG-SRT.A.1	1	12152	12192	99.7
	CCSS.Math.Content.HSG-GPE.B.7	1	12155	12192	99.7
	CCSS.Math.Content.HSG-CO.A.4	1	974	12192	8.0
	CCSS.Math.Content.HSA-SSE.B.3	1	12178	12192	99.9
	CCSS.Math.Content.HSA-APR.A.1	1	12191	12192	100.0
	CCSS.Math.Content.HSA-CED.A.3	1	12190	12192	100.0
	CCSS.Math.Content.HSA-CED.A.4	1	12186	12192	100.0
	CCSS.Math.Content.HSA-REI.A.1	1	12186	12192	100.0
	CCSS.Math.Content.HSA-SSE.A.2	1	12179	12192	99.9
	CCSS.Math.Content.HSF-BF.A.1.	1	12175	12192	99.9
	CCSS.Math.Content.HSG-CO.A.3	1	40	12192	0.3
	CCSS.Math.Content.HSF-BF.A.2	1	12174	12192	99.9
	CCSS.Math.Content.HSF-IF.A.2	1	299	12192	2.5
	CCSS.Math.Content.HSF-IF.B.5	1	12167	12192	99.8
	CCSS.Math.Content.HSF-IF.B.6	1	51	12192	0.4
	CCSS.Math.Content.HSF-LE.A.3	1	12167	12192	99.8
	CCSS.Math.Content.HSF-LE.B.5	1	12164	12192	99.8
	CCSS.Math.Content.HSS-ID.C.7	1	12106	12192	99.3

Maine Spring 2023 Adaptive Test Simulation Study Report

October 2023

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1. Introduction

The Maine Department of Education contracted with NWEA to administer a through-year assessment for the Maine Comprehensive Assessment System (MECAS) from Spring 2023 to Spring 2024. The MECAS through-year assessment has three administrations per year: fall, winter, and spring. Each administration assesses grades 3−8 and high school (HS) assessments in reading and mathematics.

This report presents results of the adaptive test simulation study for the Spring 2023 administration. This study simulates assessment requirements in order to evaluate the capacity of the item pool to support those requirements through the NWEA constraint-based engine (CBE). This report focuses on five areas:

- An overview of the Maine spring test design
- An overview of the NWEA constraint-based engine
- An examination of the item pool (summative and MAP Growth)
- The accuracy of item selections against the blueprint
- The relative accuracy of student-proficiency estimation

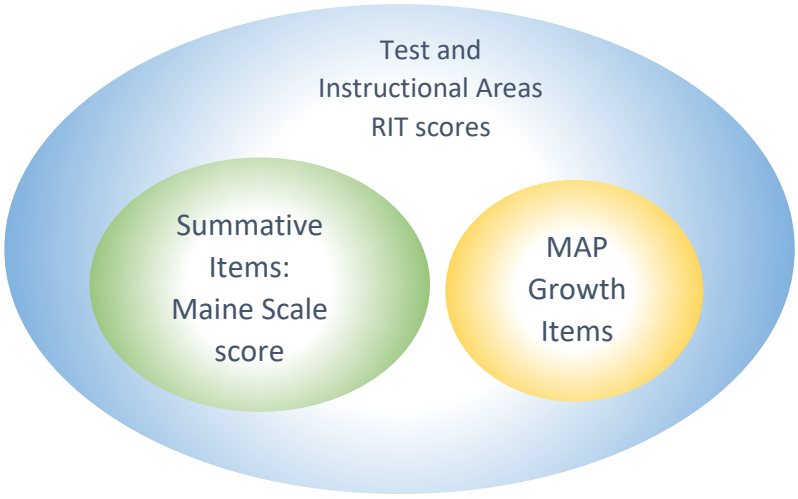
1.1 Maine Spring Test Design Overview

The MECAS through-year assessment serves different purposes in different administrations. Fall and winter administrations produce growth and national norm scores through the NWEA MAP Growth product. The spring administration serves two purposes: determine end-of-grade proficiency and produce growth and national norm scores. In order to fulfill these two purposes, the spring test has two components: the summative portion and the diagnostic portion. Content standards for both portions are aligned to the Common Core State Standards (CCSS). The uses of the spring test are as follows:

- Summative Portion
    - Addresses the breadth and depth of the Maine Learning Results and Maine's grade-level content standards by selecting items from the NWEA state item pool that align to the content standards
    - Produces a summative test score and determines proficiency
    - Satisfies the summative test blueprint for a balance of content representation
- Diagnostic Portion
    - Accesses the MAP Growth item pool to utilize its RIT scale and a Rasch unit scale to generate growth and norm-referenced scores
    - Allows item selection from other grades: grades 3 to 5 can assess items from K to 8, and grades 6 and up allow items from 3 to 12
    - Combines with the summative portion to yield scores for instructional area reporting categories

Figure 1 illustrates how these two components work together to produce both a single summative test score and a suite of diagnostic scores, including instructional areas.

Figure 1. Items Contributing to Summative, MAP Growth, and Instructional Area Scores



1.1.1 Reading and Mathematics Score Types

Figure 2 presents Reading score types, and Figures 3 and 4 present Mathematics score types. As shown in the figures, the Maine scale score is used to determine the student achievement classification. Sub scores are reported for each Instructional Area.

Figure 2. Reading Grades 3–8 and HS Score Type

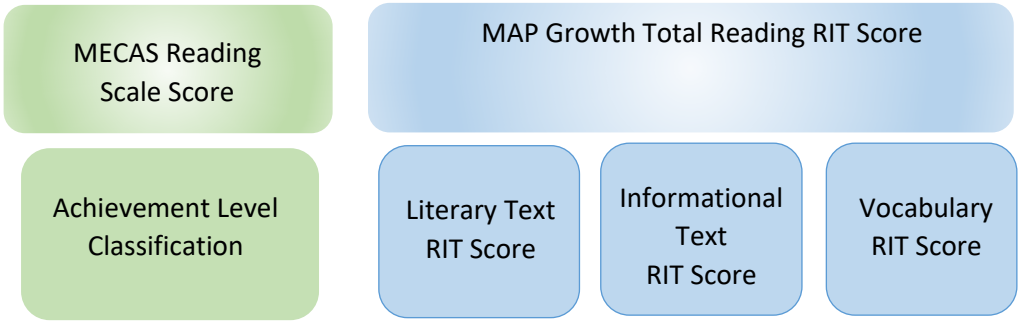


Figure 3. Math Grades 3–5 Score Types

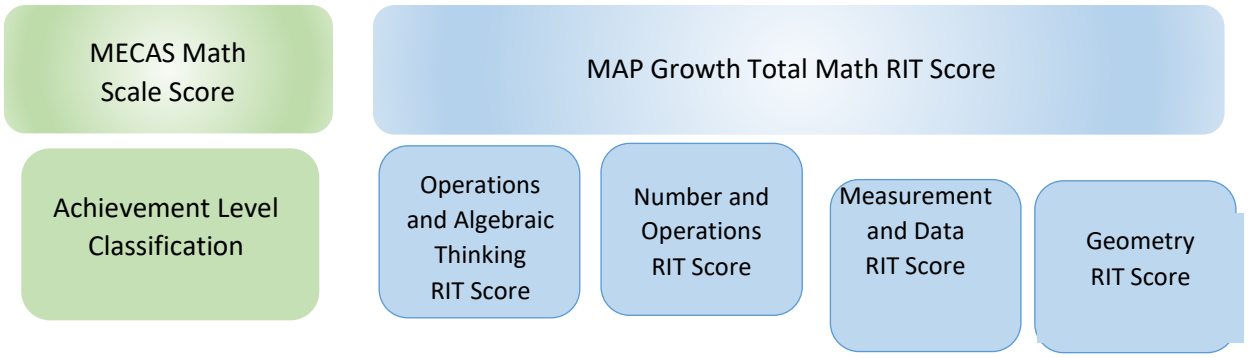
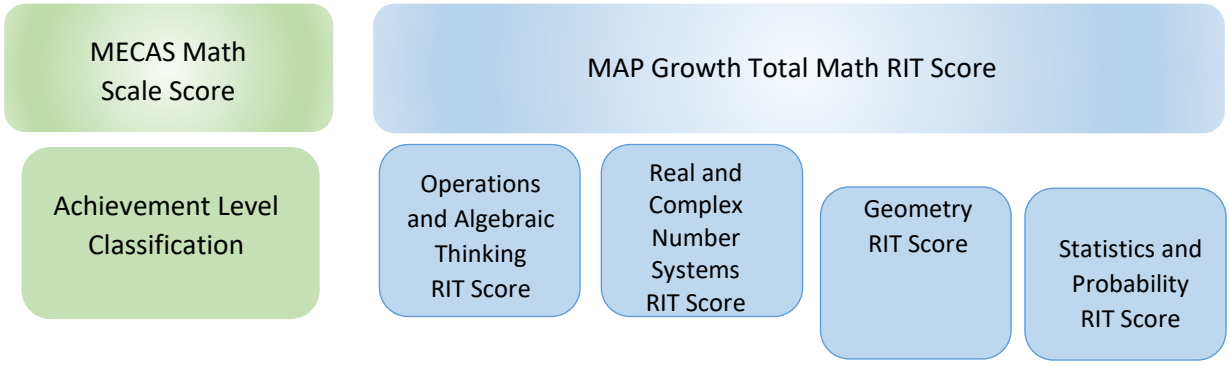


Figure 4. Math Grades 6−8 and HS Score Types



1.2 Simulation Purposes

The MECAS through-year assessment is an item-level computer adaptive test (CAT). One main reason for using a CAT method is to provide a test that is customized to each student's ability level, which increases the reliability of the student's ability estimate. The proprietary constraint-based engine (CBE) from NWEA is used for the adaptive test. In order to facilitate the item-selection process, pattern scoring is used to derive student scores prior to selecting subsequent items. Prior to operational administration, a simulation study is necessary to investigate whether the item pool can sustain the various requirements specified for the MECAS assessment and produce reliable student scores.

The technical purposes of the simulation study are to provide evidence (along with post-administration analyses) supporting test-score interpretation and to support arguments regarding student proficiency relative to the state standards. The simulation is intended to demonstrate that students receive comparable representations of content with sufficient technical adequacy such that the state can infer that test scores have the same meaning across students' individualized test events.

1.3 Constraint-Based Engine Overview

The CBE is an adaptive item-selection engine NWEA has developed for computerized adaptive testing. It combines established psychometric approaches with NWEA-specific innovations to deliver tests that strictly adhere to test blueprints while providing flexibility in item-pool construction and item ordering.

The CBE is designed to address the challenges that test designers face during test construction. It is not locked into any specific IRT model, measurement scale, item-selection criteria, or item-ordering configuration. Rather, a test designer specifies what is needed to run the desired test, and the CBE selects items that meet that test design without adding its own modifications or restrictions. This lets the test designer measure what they desire—including metrics other than student ability—without being encumbered by arbitrary decisions made during administration of the test.

The CBE leverages existing psychometric concepts to achieve its goals but modifies those approaches and blends them with trade-secret innovations. Specifically, it allows the use of any IRT model, such as Rasch, three-parameter logistic (3PL), partial-credit model (PCM), and generalized partial-credit model (GPCM). The CBE also implements a blend of a modified shadow test approach and a modified weighted penalty model. Building on these approaches, it also lets test designers set their own item attributes to measure against, separates item ordering

from item selection, and consumes both constraints and “guidelines”—criteria the designer would prefer to meet but does not require the test to meet.

1.3.1 Item-Selection Approaches

The CBE uses a blended approach for item selection, combining and building on elements of the weighted penalty model (WPM) and the shadow test approach (STA). The critical difference between these two approaches is that the WPM focuses on maximizing information on an item-by-item basis, while the STA focuses on maximizing information for the whole test simultaneously. Combining these approaches lets the CBE both select the best item to present next and select the best items to use in the construction of the test as a whole.

Each item-selection method has its own advantages and disadvantages that the test designer must consider when choosing the best options for a test. The CBE capitalizes on this variety by blending and building on the approaches above to maximize the strengths of each.

The key innovations implanted in the CBE are:

- Blended item-selection approach (shadow test approach and weighted penalty model)
- Separation of item-selection and item-ordering procedures
- Implementation of designer-defined content and item attributes
- Implementation of “guidelines” set by the test designer that they would prefer (but do not require) the test to meet
- Shared stimulus selection by item rather than by stimulus

Both the STA and the WPM are powerful item-selection models in their own right. However, despite these strengths, each has drawbacks that the test designer must consider when choosing between them for implementation on a particular test.

By calculating tests item-by-item, the WPM provides a greater degree of item pool and selection flexibility compared with the STA. Under the WPM, increasingly heavy penalties are applied to items that do not meet the blueprint, while penalties are removed for items that increase information. The item with the best overall “score” (lowest penalty) is then chosen. This increased flexibility, however, means that it is possible to deliver a test that does not meet the blueprint. As the system has no foresight into possible paths that will cause the test to deviate from the blueprint, small deviations can compound over time.

In contrast, the STA guarantees adherence to the test blueprint by calculating the entire test at each selection step. This lets the STA take future selection steps into account and cut off paths that would lead to the test deviating from the blueprint. However, this strict adherence to the test blueprint adds a large degree of rigidity to the item-selection process and requires a large, carefully tailored item pool to be successful. As the best items are positioned early in the test, the likelihood of calculating a feasible test decrease (Robin et al., 2005). This can require the use of a spare item pool to replenish the primary item pool so that feasible tests can continue to be calculated. Maintaining a sufficiently large and manicured item pool, or multiple item pools, is both costly and inefficient.

The CBE combines the item-pool flexibility of the WPM with the foresight of the STA. At each selection step, the CBE calculates all tests that meet all constraints and applies penalties to each of these full tests based on a combination of the degree to which they meet guidelines as well as the extent to which they maximize information. Penalties are applied quadratically rather than linearly to strongly differentiate the tests’ ability to meet guidelines and maximize

information. It then selects the test that maximizes the function of information minus guideline penalties. The result is that any test delivered to the student is guaranteed to meet the test-design specification, but the chances that the item pool will eventually run down (such that a spare is required) is eliminated.

After the CBE calculates the optimal items to be included in the student-specific plan (SSP), it proceeds to order those items based on business rules and the requirements indicated by the test design. Since each item in the student-specific plan has been confirmed to meet all constraints, and since the plan as a whole maximizes both information and adherence to guidelines, ordering can be done in a more lightweight fashion that conserves system resources and improves performance compared with solving for both item selection and order simultaneously. Additionally, this gives the test designer greater control in measuring domain understanding through the choices indicated by the test design around balancing and item-ordering preferences.

1.3.2 Scoring Function Merging and Swapping

For both the PCM and the GPCM, the CBE supports both the “merging” and “swapping” of scoring functions. Either or both options are available for use at the discretion of the test designer. Merging is the process of collapsing scoring categories that have been determined to provide no differentiation of student theta. Muraki (1993, p. 3) provides the following example:

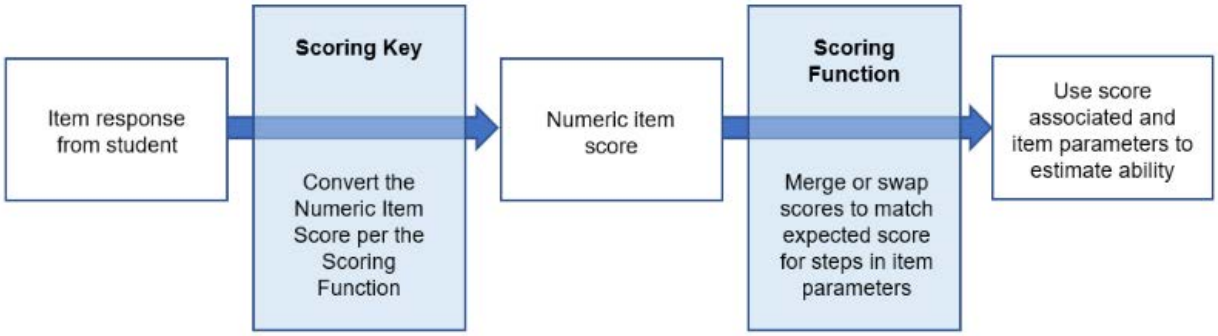
> “If the number of categorical responses of an item is five, then a scoring function T can be specified as T = (1,2,3,4,5). If the original response categories are collapsed by combining the first and second categories into one category, the modified scoring function can be written as T' = (1,1,2,3,4).”

Merging scoring functions in this way lets the test designer set a smaller number of step parameters than the number of possible scores while still using the correct item parameters. In this way, the test designer can, if desired, use items that would otherwise need to be removed from the pool. Additionally, the test designer can choose to swap scoring categories. Muraki continues from the previous example:

> “If this modification of the response categories is recorded by treating the original fourth category as the fifth and the original fifth as the fourth, the scoring function can be further modified to T'' = (1,1,2,4,3).”

Swapping scoring functions lets the test designer address, if desired, unexpected variances in scoring compared with theta estimates discovered in field testing. Note that the scoring function is distinct from the “scoring key,” which converts an item response into a numeric score that will be consumed by a student or other stakeholders.

Figure 5. Merging and Swapping Scoring-Conversion Flow



1.3.3 Maximum Likelihood Estimation with Fencing (MLEF)

In the early stages of the test, each student has a perfect response pattern: all correct or all incorrect. Definitionally, this is always the case until at least two items have been answered. To address this, the CBE uses Maximum Likelihood Estimate with Fences (MLEF) (Han, 2016). Under MLEF, imaginary "fence" items are generated with fixed responses in order to provide a log likelihood function that can be used as a starting point for adaptive selection. The log likelihood function estimated in a dichotomous MLEF item is:

$$L = lnP_{LF} + ln(1 - P_{UF}) + \sum_{j=1}^{n} [\mu_j lnP_j + (1 - \mu_j) ln(1 - P_j)]$$

where: P_{LF} is the item response function of the lower fence, P_{UF} is the item response function of the upper fence, and μ is a response to a string of j items for polytomous items; the upper and lower fences depend on whether the response pattern is all correct or all incorrect.

For all correct:

$$L = lnP_{LF} + \sum_{j=1}^{n} [\mu_j lnP_j + (1 - \mu_j) ln(1 - P_j)]$$

For all incorrect:

$$L = ln(1 - P_{UF}) + \sum_{j=1}^{n} [\mu_j lnP_j + (1 - \mu_j) ln(1 - P_j)]$$

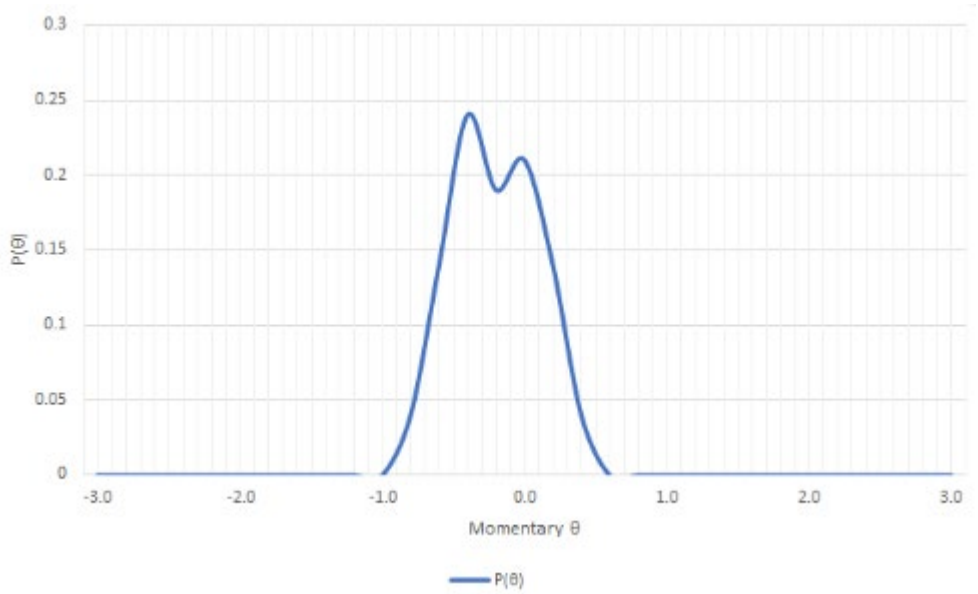
If fencing items are required, the test designer can indicate appropriate scale properties on the test design and apply constraints or guidelines to utilize them. In the event of a perfect response pattern, the CBE uses these scale properties to select the appropriate item to be used as a fence. Additionally, the CBE determines the minimum or maximum difficulty of items that have been administered to the student.

- **If the student response pattern is all correct:** The CBE adds the delta and the maximum difficulty of the administered items and inserts this value into the item-difficulty parameter. It adds a virtual response that is incorrect for that item during the process of calculating the student ability estimate using the MLEF method.

- **If the student response pattern is all incorrect:** The CBE subtracts the delta from the minimum difficulty of the administered items and inserts this value into the item-difficulty parameter. It adds a virtual response that is correct for that item.

In this way, the CBE guarantees there will be a maximum in the MLE process. MLE is calculated by computing the probability of student ability, $p(\theta)$, at every bin defined in the scale and then choosing the theta estimate that has the highest probability. For example, for a scale defined as -3.0 to +3.0 θ, broken into ranges of size 0.1, the CBE calculates the probability of student theta at each bin (-3, -2.9, -2.8, and so on) and then chooses the bin with the highest probability.

Figure 6. Sample Student Theta Probability Subject to MLEF



The example illustrated in Figure 6 shows that two theta estimates are competing for most likely at -0.4 and 0 (i.e., the two peaks). Although they are similar in probability, -0.4 is identified as most likely; therefore, the CBE proceeds with its test=plan calculation under the assumption that θ = -0.4.

2. Study Design

2.1 Sample

This simulation study sampled 1,000 students from Maine who took the Spring 2022 MAP Growth test to obtain a representative sample of the general student population for Maine. This sample represents the ability range and distribution of Maine students' "true ability" and is used in the simulation study. The following tables show the demographic information and student ability estimates of Maine students who took the Spring 2022 MAP Growth test and the sampled students.

Table 2.1. Student Demographic Information for Spring 2022 MAP Growth Assessment

Type	Total	Gender		Ethnicity							
		Female	Male	1. American Indian	2. Asian	3. African Amer.	4. Hispanic	5. Native HI/ Pac. Islander	6. White	7. Two or More Races	8. Not Specified
Grade 3											
N	61077	29837	31240	573	1151	1810	1175	49	43561	1827	10931
%	100%	49%	51%	1%	2%	3%	2%	0%	71%	3%	18%
Grade 4											
N	60263	29497	30766	552	1053	1663	1126	59	43021	2012	10777
%	100%	49%	51%	1%	2%	3%	2%	0%	71%	3%	18%
Grade 5											
N	60274	29809	30465	499	962	1701	1074	28	43323	2012	10675
%	100%	49%	51%	1%	2%	3%	2%	0%	72%	3%	18%
Grade 6											
N	58943	28365	30578	570	918	1649	1111	70	42407	1569	10649
%	100%	48%	52%	1%	2%	3%	2%	0%	72%	3%	18%
Grade 7											
N	60585	29700	30885	611	807	1736	1173	89	43537	1883	10749
%	100%	49%	51%	1%	1%	3%	2%	0%	72%	3%	18%
Grade 8											
N	61352	29585	31767	621	906	1660	1121	45	44431	1612	10956
%	100%	48%	52%	1%	1%	3%	2%	0%	72%	3%	18%
Grade HS											
N	32166	15654	16512	192	458	1096	588	13	25367	885	3567
%	100%	49%	51%	1%	1%	3%	2%	0%	79%	3%	11%

Table 2.2. Summary of Student Ability for Spring 2022 MAP Growth Assessment

Grade	Reading MG RIT Theta				Math MG RIT Theta			
	Mean	SD	Min	Max	Mean	SD	Min	Max
3	-0.87	1.74	-7.93	4.17	-0.72	1.42	-8.99	5.86
4	0.05	1.64	-6.98	5.62	0.21	1.46	-7.99	6.99
5	0.66	1.62	-5.93	6.69	0.95	1.57	-7.06	7.84
6	1.22	1.53	-5.59	6.68	1.45	1.54	-7.79	8.96
7	1.63	1.55	-8.56	6.94	2.05	1.66	-4.96	9.32

Grade	Reading MG RIT Theta				Math MG RIT Theta			
	Mean	SD	Min	Max	Mean	SD	Min	Max
8	1.97	1.60	-6.38	7.04	2.58	1.77	-7.96	9.88
HS	2.31	1.69	-7.77	8.23	3.14	1.94	-7.86	10.29

Table 2.3. Student Demographic Information for Simulation Study Sample—Reading

Type	Total	Gender		Ethnicity							
		Female	Male	1. American Indian	2. Asian	3. African American	4. Hispanic	5. Native HI/ Pac. Islander	6. White	7. Two or More Races	8. Not Specified
Grade 3											
N	1000	491	508	9	16	29	19	2	706	32	186
%	100%	49.1%	50.8%	1%	2%	3%	2%	0%	71%	3%	19%
Grade 4											
N	1000	491	508	9	16	29	19	2	706	32	186
%	100%	49.1%	50.8%	1%	2%	3%	2%	0%	71%	3%	19%
Grade 5											
N	1000	494	505	8	15	30	18	2	708	31	187
%	100%	49.4%	50.5%	1%	2%	3%	2%	0%	71%	3%	19%
Grade 6											
N	1000	480	520	9	15	30	18	2	706	28	192
%	100%	48%	52%	1%	2%	3%	2%	0%	71%	3%	19%
Grade 7											
N	1000	489	511	9	13	27	19	2	707	32	191
%	100%	48.9%	51.1%	1%	1%	3%	2%	0%	71%	3%	19%
Grade 8											
N	1000	480	518	9	15	25	18	2	709	26	194
%	100%	48%	51.8%	1%	2%	2%	2%	0%	71%	3%	19%
Grade HS											
N	1000	485	514	6	14	34	18	2	780	27	118
%	100%	48.5%	51.4%	1%	1%	3%	2%	0%	78%	3%	12%

Table 2.4. Student Demographic Information for Simulation Study Sample—Math

Type	Total	Gender		Ethnicity							
		Female	Male	1. American Indian	2. Asian	3. African American	4. Hispanic	5. Native HI/ Pac. Islander	6. White	7. Two or More Races	8. Not Specified
Grade 3											
N	1000	486	514	9	19	31	19	2	705	30	185
%	100%	49%	51%	1%	2%	3%	2%	0%	70%	3%	18%
Grade 4											
N	1000	491	508	9	16	29	19	2	706	32	186
%	100%	49%	51%	1%	2%	3%	2%	0%	71%	3%	19%
Grade 5											

Type	Total	Gender		Ethnicity							
		Female	Male	1. American Indian	2. Asian	3. African American	4. Hispanic	5. Native HI/ Pac. Islander	6. White	7. Two or More Races	8. Not Specified
N	1000	494	505	8	15	30	18	2	708	31	187
%	100%	49%	50%	1%	2%	3%	2%	0%	71%	3%	19%
Grade 6											
N	1000	480	520	9	15	30	18	2	706	28	192
%	100%	48%	52%	1%	2%	3%	2%	0%	71%	3%	19%
Grade 7											
N	1000	489	511	9	13	27	19	2	707	32	191
%	100%	49%	51%	1%	1%	3%	2%	0%	71%	3%	19%
Grade 8											
N	1000	480	518	9	15	25	18	2	709	26	194
%	100%	48%	52%	1%	2%	2%	2%	0%	71%	3%	19%
Grade HS											
N	1000	485	514	6	14	34	18	2	780	27	118
%	100%	48%	51%	1%	1%	3%	2%	0%	78%	3%	12%

Table 2.5. Summary of Student Ability for Simulation Study Sample

Grade	Reading MG RIT Theta				Math MG RIT Theta			
	Mean	SD	Min	Max	Mean	SD	Min	Max
3	0.49	1.53	-4.97	6.54	-0.33	1.58	-6.50	5.06
4	0.49	1.53	-4.97	6.54	0.49	1.53	-4.97	6.54
5	1.11	1.53	-5.32	5.81	1.11	1.53	-5.32	5.81
6	1.58	1.54	-3.81	6.77	1.58	1.54	-3.81	6.77
7	2.05	1.61	-4.03	9.32	2.05	1.61	-4.03	9.32
8	2.47	1.81	-3.59	8.42	2.47	1.81	-3.59	8.42
HS	2.66	1.94	-3.72	9.68	2.66	1.94	-3.72	9.68

2.2 Item Pool Characteristics

MECAS has two content areas, reading and mathematics, in grades 3–8 and high school. Table 6 presents the number of items in the item pool, including both through-year and MAP Growth sources. Note that the summative portion allows items from +/- one-off grades, and MAP Growth allows items from kindergarten to grade 8 for grade 3 to 5 tests and grades 3 to high school for tests of grade 6 and up. NWEA has large summative and MAP Growth item banks. In order to obtain an adequate number of students taking each item for equating, both item banks are reduced to increase item exposure rates. The reduction of these item banks was done by using instructional areas as sampling strata to get an equivalent number of items for each instructional area.

Table 6 presents the number of items by instructional area for each grade and content area. Remember to include the +/- one-off grade counts when interpreting summative item pool size for each grade. Include grade 2 to 8 items for tests of grades 3 through 5 and grades 3 to HS for tests of grades 6 and up when interpreting MAP Growth item pool size.

The table uses "–" to indicate zero items. Both reading and math high school summative item pools have zero counts because new items are developed for HS summative tests, and those new items are not field tested. For an adaptive test, all items must have statistics in order to compute student ability and select the next item. Those new HS items do not have item statistics that can be used in the adaptive process; thus, they are treated as field test items. The table only counts operational items that have item statistics for the adaptive process. Additionally, math grades 3 to 5 and grades 6 to HS have different instructional areas. Thus, zero counts appear in different Instructional Areas across Math grades.

Table 2.6. Item Counts by Source and Instructional Area

Source	Content Category	Grade							
		2	3	4	5	6	7	8	HS
Reading									
Summative	Literary Text	–	146	112	113	106	106	128	–
	Informational Text	–	156	84	97	115	122	138	–
	Vocabulary	–	58	84	69	58	53	56	–
	Sub Total	–	**360**	**280**	**279**	**279**	**281**	**322**	–
Diagnostic	Literary Text	–	53	83	53	137	65	29	77
	Informational Text	19	43	77	67	100	44	120	139
	Vocabulary	6	26	46	38	74	43	47	60
	Sub Total	**25**	**122**	**206**	**158**	**311**	**152**	**196**	**276**
	Total	**25**	**482**	**486**	**437**	**590**	**433**	**518**	**276**
Math									
Summative	Operations and Algebraic Thinking	–	107	46	38	105	73	150	–
	Numbers and Operations	–	108	158	169	–	–	–	–
	Measurement and Data	–	139	54	48	–	–	–	–
	Geometry	–	14	38	39	36	59	106	–
	The Real and Complex Number Systems	–	–	–	–	113	86	18	–
	Statistics and Probability	–	–	–	–	38	81	53	–
	Sub Total	–	**368**	**296**	**294**	**292**	**299**	**327**	–
Diagnostic	Operations and Algebraic Thinking	24	24	14	21	12	17	45	–
	Numbers and Operations	35	42	35	35	–	–	–	–
	Measurement and Data	24	18	14	20	–	–	–	–
	Geometry	15	7	12	18	14	19	16	11
	The Real and Complex Number Systems	–	–	–	–	32	39	21	27
	Statistics and Probability	–	–	–	–	15	16	21	11
	Sub Total	**98**	**91**	**75**	**94**	**73**	**91**	**103**	**49**
	Total	**98**	**459**	**371**	**388**	**365**	**390**	**430**	**49**

The figures and tables below present the distribution of item difficulty for summative and MAP Growth item pools.

Figure 7. Reading Item Difficulty Distribution

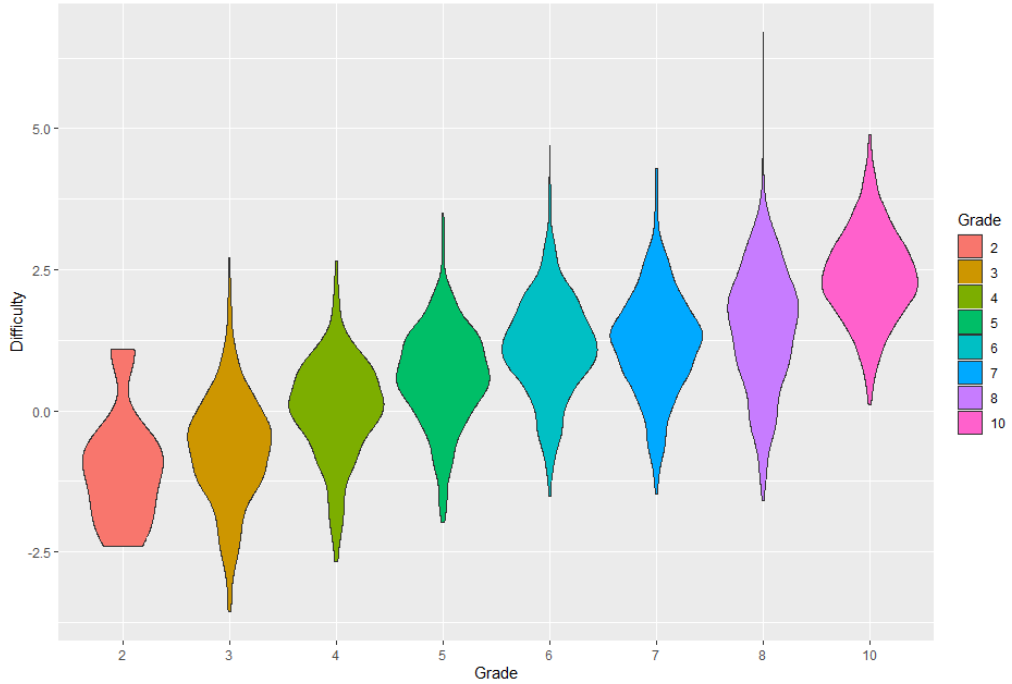


Figure 8. Math Item Difficulty Distribution

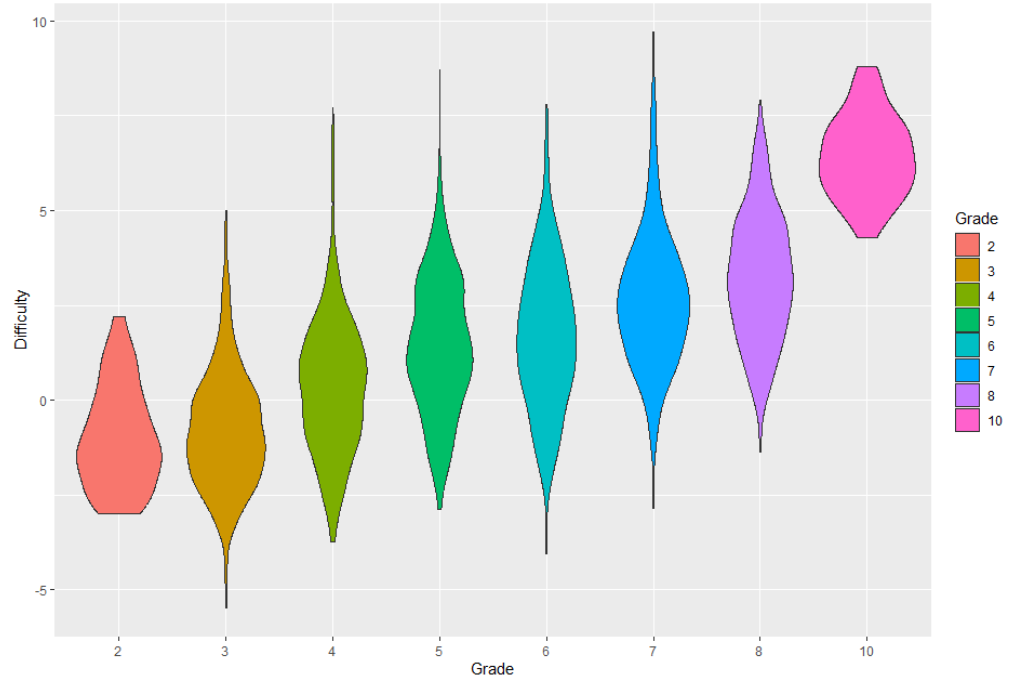


Table 2.7. Summary of Reading and Math Item Difficulties

Subject	Grade	Summative					Total Test				
		N Items	Mean	SD	Min	Max	N Items	Mean	SD	Min	Max
Reading	2	--	--	--	--	--	25	-1.01	0.99	-2.40	1.10
	3	360	-0.77	1.03	-3.57	2.72	482	-0.69	0.99	-3.57	2.72
	4	280	-0.07	0.95	-2.66	2.66	486	0.02	0.90	-2.66	2.66
	5	279	0.56	0.89	-1.97	3.50	437	0.60	0.86	-1.97	3.50
	6	279	0.90	0.84	-1.52	3.49	590	1.12	0.89	-1.52	4.70
	7	281	1.07	0.93	-1.47	3.84	433	1.20	0.93	-1.47	4.30
	8	322	1.15	1.13	-1.59	5.16	518	1.47	1.11	-1.59	6.70
	HS	--	--	--	--	--	276	2.38	0.82	0.10	4.90
Math	2	--	--	--	--	--	98	-0.98	1.34	-3.00	2.20
	3	368	-1.04	1.34	-5.49	2.76	459	-0.80	1.54	-5.49	5.00
	4	296	0.01	1.58	-3.72	6.61	371	0.34	1.77	-3.72	7.70
	5	294	0.98	1.55	-2.89	4.36	388	1.43	1.79	-2.89	8.70
	6	292	1.26	1.69	-4.04	6.19	365	1.68	1.92	-4.04	7.80
	7	299	2.27	1.49	-2.85	7.22	390	2.66	1.82	-2.85	9.70
	8	327	2.84	1.56	-1.36	6.96	430	3.24	1.69	-1.36	7.90
	HS	--	--	--	--	--	49	6.43	1.09	4.30	8.80

2.3. Evaluation Criteria

With item-level adaptive testing, item selection during the test administration is based on accumulating information about a student's performance, such as:

1. Do the selected items meet the requirements of the test blueprints?
2. Is the student's estimated ability matching the difficulty level of the selected items?
3. Do items have an adequate number of students for item-parameter estimates?
4. Do student ability estimates have adequate precision?
5. Are summative, MAP Growth, and field-test items given in the designated sequence?

These questions are addressed by the methods discussed in the following sections.

2.3.1 Aligning with Test Blueprint Specifications

The nature of a CAT is for students to have different items during test administration. Not all students receive the same items. However, the items administered to students must meet the blueprint requirements outlined in the test specifications (e.g., a minimum number of items per content category). This section provides results that show whether the constraint-based engine administered the test based on the blueprints.

Meeting blueprint is evaluated using the matching rate. The matching rate is calculated as the percentage of items that meet the blueprint requirements. For example, if 10 items are required for instructional area 1 and 10 items were administered, the matching rate is 100%.

2.3.2 Ability Estimation Accuracy

The precision of ability estimates assesses how accurately the CBE recovers students' true abilities based on the item pool. The following indices were used to evaluate the precision of score estimation within the CBE:

- **Bias** quantifies the difference between true and final estimated theta.
- ***P* value for the *z*-test** determines whether the bias difference between true and estimated theta is statistically significant. If the *p* value is greater than 0.05, there is no statistically significant bias difference between the true and final estimated theta.
- **Root mean squared error (RMSE)** provides the square root of the average squared bias across the population of examinees. While bias shows the difference between true and final estimated theta, RMSE shows the magnitude of the difference.
- **95% and 99% coverage** shows the percentage of students who fall outside the respective confidence interval in estimated theta. Generally, it is expected that about 5% are outside the 95% confidence interval, and about 1% are outside the 99% confidence interval.

Computational details of ability estimation precision (i.e., bias and RMSE) are as follows (CRESST, 2015):

$$bias = N^{-1} \sum_{i=1}^{N} (\theta_i - \hat{\theta}_i)$$

$$RMSE = \sqrt{N^{-1} \sum_{i=1}^{N} (\theta_i - \hat{\theta}_i)^2}$$

where θ_i is the true score, and $\hat{\theta}_i$ is the estimated (observed) score. To calculate the variance of theta bias, the first-order Taylor series of the above equation is used as follows:

$$var(bias) = \sigma^2 \times g'(\hat{\theta}_i)^2 = \frac{1}{N(N-1)} \sum_{i=1}^{N} \left(\theta_i - \hat{\bar{\theta}}_i\right)^2$$

where $\hat{\bar{\theta}}_i$ is an average of the estimated theta. Significance of the bias is then tested as follows:

$$Z = \frac{bias}{\sqrt{var(bias)}}$$

A *p* value for the significance of the bias is reported from this *z*-test with a two-tailed test. The average standard error (SE) is computed as follows:

$$Mean(se) = \sqrt{N^{-1} \sum_{i=1}^{N} se(\hat{\theta}_i)^2}$$

where $se(\hat{\theta}_i)^2$ is the standard error of the estimated θ for individual *i*. To determine the number of students falling outside the 95% and 99% confidence interval coverage, a *t*-test was performed as follows:

$$t = \frac{\theta_i - \hat{\theta}_i}{se(\hat{\theta}_i)}$$

where $\hat{\theta}_i$ is the ability estimate for individual i, and θ_i is the true score for individual i. The percentage of students' estimated theta falling outside the coverage was determined by comparing the absolute value of the *t*-statistic to a critical value of 1.96 for 95% coverage and to 2.58 for the 99% coverage.

2.3.3 Degree of Items Adapted According to Student Ability

The precision of the student ability estimation depends on whether the items selected are close to student ability. An item pool that covers a wide range of student ability distribution while fully satisfying the blueprint is essential in a successful adaptive test. For example, for lower-ability students, the most difficult items in the pool should not be administered if easier items that also satisfy the content blueprint area are available. If the item pool has adequate depth, then the difficulty of items can match well to student ability while also enforcing the test blueprint.

The relation between student ability distribution and item pool difficulty are investigated using correlation, mean squared error (MSE), Bias, and standard error (SE).

The correlation between student ability and item difficulty is a direct indication of matching between these two data, which is computed using student thetas and average item difficulty taken by each student across students. MSE, Bias, and SE are a set of error estimates between predicted and observed values. In this study, the two values are replaced by theta estimates and item difficulties. MSE is the mean of differences of a student's theta estimate and the difficulties of items taken by the student. The smaller the MSE, the closer the fit between a student's theta and the items selected for the student. MSE can be partitioned into two parts: Bias and SE. Bias is a systematic error that indicates how well the predicted value is at estimating the true value. SE is a random error that indicates how many uncontrolled errors are in the sample of items. The relation between MSE, Bias, and SE is:

$$MSE = Bias^2 + SE^2$$

$$E[(b_i - \theta)^2] = (E[b_i] - \theta)^2 + E(E[b_i] - b_i)^2$$

where θ is student ability, and b_i is item difficulty. MSE is $E[(b_i - \theta)^2]$, Bias is $(E[b_i] - \theta)$ and SE is the square root of $E(E[b_i] - b_i)^2$.

Additionally, the standard error of measure (SEM) quantile is used as an additional way to examine the interaction of the item-selection rules with the item pool. A higher SEM is an indication of a shallower pool for students within these abilities.

2.3.4 Item Exposure Rate

The exposure rate for each item was calculated as the percentage of students who received that item. Because students receive different items based on blueprint constraints and their momentary ability estimates during a CAT administration, one indication of a deep pool and effective item selection is a low exposure rate. A lower exposure rate is also beneficial for test security. However, an adequate number of items is needed for item parameter estimates. Being that this is the first year of the through-year administration and because item parameters will be used to establish Maine scale score, having adequate item exposure for item parameter estimates is critical.

In order to have an adequate student count, multiple actions were taken before this simulation. First, the number of items in item bank was reduced. Second, the number of field test item slots was determined by student population size and the number of field test items. Third, at least 300 students taking each item was set up as a guideline.

2.3.5 Score Precision and Test Reliability

Score precision is estimated through multiple indicators: standard deviation (SD) of estimated thetas across students, mean SEM, and test reliability.

Traditional reliability coefficients from classical test theory (CTT) are designed under the condition that students take the same test form, whereas in a CAT, students receive different items. Thus, CTT reliability is not appropriate for a CAT. Instead, NWEA uses the marginal reliability coefficient for the CATs. The marginal reliability coefficient (Samajima, 1994) is appropriate for CATs because it uses the item response theory's standard error of measurement (σ) and variance of estimated theta [(var(θ)] to estimate the reliability of student scores:

$$Marginal\ Reliability = \frac{var(\hat{\theta}) - \sigma^2}{var(\hat{\theta})}$$

Another method is analyzing the classification accuracy of the Maine scores. Classification accuracy helps understand how effective the item pool is at differentiating students at the boundaries defined in standard setting. Higher accuracy implies that the item pool is rich enough to support the classification decisions. This is not absolute classification accuracy but another tool to use when evaluating the test design and item-pool interaction effects. However, because the Maine score achievement level is not defined when conducting simulation, the analysis cannot be conducted.

2.3.6 Item Sequence

Item sequence is defined as having each test starting with summative items and then gradually add MAP Growth items. Field test items are embedded in the test by avoiding the first and last few slots. The exception to this is items that are part of a set with a common reading passage or paired passages; the engine ensures these items are delivered as a group and not broken up.

3. Simulation Results

3.1 Test Blueprint Matching Rate

The tables below present the blueprint constraint accuracy rate for the summative blueprint by content area. MECAS reports instructional area sub-scores using the combination of summative and MAP Growth items. All summative items will be calibrated to the MAP Growth RIT scale so that summative items can be used for instructional area RIT score reporting.

Instructional areas are configured as constraints to enforce item selection according to state test blueprint and MAP Growth requirements. When determining the number of items for each instructional area, the state-approved blueprints are used to determine the summative portion of the test for each grade and content area, and MAP Growth requirements are used to determine the total test items. The MAP Growth rules are to have at least 4 MAP Growth items and at least 9 items (sum of summative and MAP Growth items) per instructional area. The following tables show the range of the target number of items configured to each instructional area and the range of the actual number of items administered across students.

All tests exhibit a 100% match to the test blueprint, with the exception of HS tests. It is important to note that the blueprint matching rate exclusively considers operational items. As HS summative items are marked as field test items within the item bank, there are no matches for HS, rendering this metric inapplicable.

Table 3.1. Summative Blueprint Matching Rate—Reading

Grade	Instructional Area	Summative (Constraint)					Diagnostic (Guideline)				
		Target		Actual		% Match	Target		Actual		% Match
		Min	Max	Min	Max		Min	Max	Min	Max	
3	Literary Text	12	14	12	14	100	6	7	6	6	100
	Informational Text	8	9	8	9	100	4	5	4	5	100
	Vocabulary	5	7	5	7	100	3	4	3	4	100
4	Literary Text	11	12	11	12	100	6	6	6	6	100
	Informational Text	9	11	9	11	100	5	6	5	5	100
	Vocabulary	5	7	5	7	100	3	4	3	3	100
5	Literary Text	9	11	9	11	100	5	6	5	6	100
	Informational Text	9	11	9	11	100	5	6	5	6	100
	Vocabulary	5	7	5	7	100	3	4	3	4	100
6	Literary Text	9	11	9	11	100	5	6	5	5	100
	Informational Text	11	12	11	12	100	6	6	6	6	100
	Vocabulary	5	7	5	7	100	3	4	3	3	100
7	Literary Text	8	9	8	9	100	4	5	4	5	100
	Informational Text	12	14	12	14	100	6	7	6	7	100
	Vocabulary	5	7	5	7	100	3	4	3	4	100
8	Literary Text	8	9	8	9	100	4	5	4	5	100
	Informational Text	12	14	12	14	100	6	7	6	7	100
	Vocabulary	5	7	5	7	100	3	4	3	4	100
HS	Literary Text	8	9	–	–	–	4	5	3	5	72.0
	Informational Text	12	14	–	–	–	6	7	4	6	17.6
	Vocabulary	5	7	–	–	–	3	4	3	4	100

Table 3.2. Summative Blueprint Matching Rate—Math

Grade	Instructional Area	Summative (State Blueprint)					Diagnostic (Guideline)				
		Target		Actual		% Match	Target		Actual		% Match
		Min	Max	Min	Max		Min	Max	Min	Max	
3	Operations and Algebraic Thinking	6	7	6	6	100	4	4	4	4	100
	Numbers and Operations	9	9	9	9	100	4	4	4	4	100
	Measurement and Data	8	8	8	8	100	4	4	4	4	100
	Geometry	4	4	4	4	100	6	6	6	6	100
4	Operations and Algebraic Thinking	5	5	5	5	100	5	5	5	5	100
	Numbers and Operations	13	14	13	13	100	4	4	4	4	100
	Measurement and Data	5	5	5	5	100	4	4	4	4	100
	Geometry	4	4	4	4	100	5	5	5	5	100
5	Operations and Algebraic Thinking	4	4	4	4	100	5	5	5	5	100
	Numbers and Operations	14	15	14	14	100	4	4	4	4	100
	Measurement and Data	5	5	5	5	100	4	4	4	4	100
	Geometry	4	4	4	4	100	5	5	5	5	100
6	Operations and Algebraic Thinking	7	7	7	7	100	4	4	4	4	100
	The Real and Complex Number Systems	12	12	12	12	100	4	4	4	4	100
	Geometry	4	4	4	4	100	5	5	5	5	100
	Statistics and Probability	4	4	4	4	100	5	5	5	5	100
7	Operations and Algebraic Thinking	5	5	5	5	100	5	5	5	5	100
	The Real and Complex Number Systems	11	11	11	11	100	4	4	4	4	100
	Geometry	6	6	6	6	100	4	4	4	4	100
	Statistics and Probability	5	5	5	5	100	5	5	5	5	100
8	Operations and Algebraic Thinking	14	14	13	13	100	4	4	4	4	100
	The Real and Complex Number Systems	4	4	4	4	100	5	5	5	5	100
	Geometry	6	6	6	6	100	4	4	4	4	100
	Statistics and Probability	4	4	4	4	100	5	5	5	5	100
HS	Operations and Algebraic Thinking	14	14	–	–	–	4	4	4	4	100
	The Real and Complex Number Systems	4	4	–	–	–	4	4	4	4	100
	Geometry	8	8	–	–	–	4	4	4	4	100
	Statistics and Probability	4	4	–	–	–	5	5	5	5	100

3.2 Ability Estimation Accuracy

Table 10 provides information on Bias, *p* value for the *z*-test, RMSE, and 95% and 99% coverage. When considering overall scores across all students, the Biasese are reasonable, with magnitudes less than or equal to 0.04 for both reading and mathematics. For all grade levels, the *p* value from the *z*-test supports the null hypothesis, suggesting no significant difference between the true theta values of simulated students and the final estimated thetas.

The RMSE values are generally small, except for HS tests that include fixed summative items. It's worth noting that in most cases, slightly over 5% of students fall outside the 95% confidence interval, with a maximum 6.6%. Moreover, the majority of mathematics results are within 1% outside the 99% confidence interval, while reading results stay under 1.6%. These findings underscore the remarkable close proximity to the desired values. This pattern may, to some extent, be attributed to limitations in the item pool's capacity to accurately assess students' abilities.

Table 3.3. Ability Estimation Accuracy (True Theta—Estimated Theta)

Subject	Grade	Bias	*P* Value for *Z*-Test	RMSE	95% Coverage	99% Coverage
Reading	3	0.00	1.00	0.36	6.50	1.20
	4	0.00	1.00	0.34	6.50	1.30
	5	-0.02	0.68	0.36	6.60	1.30
	6	-0.01	0.84	0.35	5.20	1.20
	7	0.01	0.84	0.35	5.90	1.40
	8	-0.02	0.73	0.39	5.90	1.00
	HS	0.04	0.52	0.73	5.40	1.60
Mathematics	3	0.01	0.84	0.31	5.90	1.10
	4	-0.01	0.84	0.29	4.10	0.70
	5	0.00	1.00	0.32	6.60	1.30
	6	0.01	0.84	0.32	6.00	0.80
	7	0.02	0.69	0.31	5.40	0.80
	8	0.00	1.00	0.31	5.20	0.80
	HS	0.01	0.87	0.55	5.20	1.00

3.3 Degree of Items Adapted According to Student Ability

In the following tables, the means of MSE, Bias, SE, and median of correlations across students are presented. HS cannot be computed because summative items are field test items.

Results show that math has a much higher correlation and a lower MES, Bias, and SE than reading. The differences may be because reading is constrained by passages, and math is not. Although reading is also adaptive at the item level, items of the same passages are also used in order to limit student reading load. This constraint makes reading less flexible than math in the adaptive process.

Table 3.4. Degree of Item Adaptive According to Student Ability—Reading

Grade	Score Type	Correlation	Mean		
			MSE	Bias	SE
3	Summative	0.51	2.55	1.37	0.82
	MAP Growth RIT Score	0.60	1.95	1.04	0.93
	Literary Text	0.54	2.16	1.14	0.93
	Informational Text	0.72	1.37	0.88	0.77
	Vocabulary	0.57	2.31	1.16	0.98
4	Summative	0.61	1.76	1.08	0.77
	MAP Growth RIT Score	0.69	1.40	0.90	0.77
	Literary Text	0.68	1.42	0.91	0.77
	Informational Text	0.73	1.23	0.87	0.69

Grade	Score Type	Correlation	Mean		
			MSE	Bias	SE
	Vocabulary	0.66	1.63	1.02	0.77
5	Summative	0.61	1.80	1.13	0.72
	MAP Growth RIT Score	0.70	1.43	0.96	0.71
	Literary Text	0.68	1.48	0.98	0.72
	Informational Text	0.76	1.18	0.90	0.61
	Vocabulary	0.66	1.77	1.12	0.72
6	Summative	0.50	2.20	1.29	0.73
	MAP Growth RIT Score	0.63	1.70	1.05	0.77
	Literary Text	0.59	1.87	1.15	0.74
	Informational Text	0.69	1.45	0.96	0.73
	Vocabulary	0.62	1.89	1.14	0.77
7	Summative	0.57	2.30	1.30	0.78
	MAP Growth RIT Score	0.68	1.77	1.07	0.79
	Literary Text	0.62	2.09	1.23	0.76
	Informational Text	0.73	1.45	0.97	0.71
	Vocabulary	0.66	1.97	1.14	0.82
8	Summative	0.50	3.46	1.66	0.84
	MAP Growth RIT Score	0.62	2.74	1.42	0.85
	Literary Text	0.56	3.30	1.63	0.80
	Informational Text	0.68	2.26	1.28	0.79
	Vocabulary	0.60	2.98	1.49	0.87
HS	Summative	–	–	–	–
	MAP Growth RIT Score	–	–	–	–
	Literary Text	–	–	–	–
	Informational Text	–	–	–	–
	Vocabulary	–	–	–	–

Table 3.5. Degree of Item Adaptive According to Student Ability—Math

Grade	Score Type	Correlation	Mean		
			MSE	Bias	SE
3	Summative	0.81	0.93	0.59	0.76
	MAP Growth RIT Score	0.85	0.74	0.49	0.71
	Operations and Algebraic Thinking	0.90	0.48	0.49	0.49
	Numbers and Operations	0.84	0.80	0.49	0.75
	Measurement and Data	0.86	0.72	0.52	0.67
	Geometry	0.82	0.94	0.60	0.76
4	Summative	0.79	1.00	0.57	0.82
	MAP Growth RIT Score	0.84	0.78	0.45	0.76
	Operations and Algebraic Thinking	0.91	0.41	0.46	0.45
	Numbers and Operations	0.82	0.88	0.51	0.79
	Measurement and Data	0.78	1.04	0.63	0.80
	Geometry	0.85	0.78	0.47	0.75
5	Summative	0.76	1.16	0.62	0.88
	MAP Growth RIT Score	0.84	0.81	0.45	0.78

Grade	Score Type	Correlation	Mean		
			MSE	Bias	SE
	Operations and Algebraic Thinking	0.92	0.37	0.42	0.44
	Numbers and Operations	0.85	0.73	0.46	0.72
	Measurement and Data	0.73	1.40	0.65	0.99
	Geometry	0.85	0.79	0.48	0.75
6	Summative	0.79	1.00	0.53	0.85
	MAP Growth RIT Score	0.79	1.06	0.46	0.92
	Operations and Algebraic Thinking	0.92	0.41	0.39	0.51
	The Real and Complex Number Systems	0.83	0.86	0.47	0.80
	Geometry	0.81	1.04	0.53	0.87
	Statistics and Probability	0.61	2.18	1.03	1.06
7	Summative	0.75	1.27	0.68	0.90
	MAP Growth RIT Score	0.80	1.06	0.55	0.87
	Operations and Algebraic Thinking	0.90	0.57	0.44	0.61
	The Real and Complex Number Systems	0.80	1.02	0.60	0.81
	Geometry	0.70	1.68	0.72	1.08
	Statistics and Probability	0.82	1.01	0.63	0.78
8	Summative	0.75	1.55	0.87	0.89
	MAP Growth RIT Score	0.82	1.16	0.66	0.85
	Operations and Algebraic Thinking	0.88	0.83	0.66	0.63
	The Real and Complex Number Systems	0.74	1.68	0.76	1.05
	Geometry	0.78	1.42	0.66	0.99
	Statistics and Probability	0.86	0.95	0.71	0.67
HS	Summative	–	–	–	–
	MAP Growth RIT Score	–	–	–	–
	Operations and Algebraic Thinking	–	–	–	–
	Operations and Algebraic Thinking	–	–	–	–
	The Real and Complex Number Systems	–	–	–	–
	Geometry	–	–	–	–
	Statistics and Probability	–	–	–	–

3.3.1 Average SEM by Quantile

Table 13 and Table 14 provide a comparison of the SEM in the simulations across the population. It is used as an additional way to examine the interaction of the item-selection rules with the item pool. A higher SEM is an indication of a shallower pool for students within these abilities. For example, summative and MAP Growth RIT scores have consistent lower SEM across different percentiles. Some of the instructional areas, such as vocabulary, have a higher SEM, especially at the 95 percentiles.

Table 3.6. SEM Distribution of Summative Score—Reading

Grade	Score Type	Overall	5 PCTL	25 PCTL	75 PCTL	95 PCTL
3	Summative Only	0.30	0.30	0.30	0.40	0.40
	MAP Growth RIT Score	0.30	0.30	0.30	0.40	0.40
	Literary Text	0.50	0.40	0.50	0.60	0.70
	Informational Text	0.60	0.50	0.60	0.70	0.80
	Vocabulary	0.70	0.60	0.70	0.80	1.10
4	Summative Only	0.30	0.30	0.30	0.30	0.40
	MAP Growth RIT Score	0.30	0.30	0.30	0.30	0.40
	Literary Text	0.50	0.40	0.50	0.50	0.70
	Informational Text	0.55	0.50	0.50	0.60	0.80
	Vocabulary	0.70	0.60	0.70	0.80	1.10
5	Summative Only	0.30	0.30	0.30	0.30	0.40
	MAP Growth RIT Score	0.30	0.30	0.30	0.30	0.40
	Literary Text	0.50	0.50	0.50	0.60	0.80
	Informational Text	0.50	0.50	0.50	0.60	0.80
	Vocabulary	0.70	0.60	0.70	0.80	1.10
6	Summative Only	0.30	0.30	0.30	0.30	0.50
	MAP Growth RIT Score	0.30	0.30	0.30	0.30	0.50
	Literary Text	0.50	0.50	0.50	0.60	0.80
	Informational Text	0.50	0.40	0.50	0.50	0.80
	Vocabulary	0.70	0.60	0.70	0.80	1.10
7	Summative Only	0.30	0.30	0.30	0.30	0.50
	MAP Growth RIT Score	0.30	0.30	0.30	0.30	0.50
	Literary Text	0.60	0.50	0.60	0.70	1.10
	Informational Text	0.50	0.40	0.50	0.50	0.70
	Vocabulary	0.70	0.60	0.70	0.80	1.10
8	Summative Only	0.30	0.30	0.30	0.40	0.60
	MAP Growth RIT Score	0.30	0.30	0.30	0.40	0.60
	Literary Text	0.60	0.50	0.60	0.80	1.11
	Informational Text	0.50	0.40	0.50	0.60	0.81
	Vocabulary	0.70	0.60	0.70	0.80	1.30
HS	Summative Only	–	–	–	–	–
	MAP Growth RIT Score	–	–	–	–	–
	Literary Text	–	–	–	–	–
	Informational Text	–	–	–	–	–
	Vocabulary	–	–	–	–	–

Note. PCTL = Percentile

Table 3.7. SEM Distribution of Summative Score—Math

Grade	Score Type	Overall	5 PCTL	25 PCTL	75 PCTL	95 PCTL
3	Summative Only	0.30	0.30	0.30	0.30	0.30
	MAP Growth RIT Score	0.30	0.30	0.30	0.30	0.30
	Operations and Algebraic Thinking	0.60	0.60	0.60	0.70	0.80

Grade	Score Type	Overall	5 PCTL	25 PCTL	75 PCTL	95 PCTL
	Number and Operations	0.60	0.50	0.50	0.60	0.70
	Measurement and Data	0.60	0.50	0.60	0.60	0.70
	Geometry	0.70	0.60	0.60	0.70	0.90
4	Summative Only	0.30	0.30	0.30	0.30	0.30
	MAP Growth RIT Score	0.30	0.30	0.30	0.30	0.30
	Operations and Algebraic Thinking	0.60	0.60	0.60	0.70	0.80
	Number and Operations	0.50	0.50	0.50	0.50	0.60
	Measurement and Data	0.70	0.60	0.70	0.70	0.80
	Geometry	0.70	0.60	0.70	0.70	0.80
5	Summative Only	0.30	0.30	0.30	0.30	0.30
	MAP Growth RIT Score	0.30	0.30	0.30	0.30	0.30
	Operations and Algebraic Thinking	0.70	0.60	0.70	0.70	1.00
	Number and Operations	0.50	0.40	0.50	0.50	0.50
	Measurement and Data	0.70	0.60	0.70	0.70	0.90
	Geometry	0.70	0.60	0.70	0.70	0.80
6	Summative Only	0.30	0.30	0.30	0.30	0.30
	MAP Growth RIT Score	0.30	0.30	0.30	0.30	0.30
	Operations and Algebraic Thinking	0.60	0.60	0.60	0.60	0.80
	Number and Operations	0.50	0.50	0.50	0.50	0.60
	Measurement and Data	0.70	0.60	0.70	0.80	0.80
	Geometry	0.70	0.60	0.70	0.70	0.90
7	Summative Only	0.30	0.30	0.30	0.30	0.30
	MAP Growth RIT Score	0.30	0.30	0.30	0.30	0.30
	Operations and Algebraic Thinking	0.60	0.60	0.60	0.70	0.80
	Number and Operations	0.50	0.50	0.50	0.50	0.60
	Measurement and Data	0.70	0.60	0.70	0.70	0.80
	Geometry	0.60	0.60	0.60	0.70	0.80
8	Summative Only	0.30	0.30	0.30	0.30	0.30
	MAP Growth RIT Score	0.30	0.30	0.30	0.30	0.30
	Operations and Algebraic Thinking	0.50	0.50	0.50	0.50	0.60
	Number and Operations	0.70	0.60	0.70	0.80	0.90
	Measurement and Data	0.70	0.60	0.70	0.70	0.80
	Geometry	0.70	0.60	0.60	0.70	0.90
HS	Summative Only	–	–	–	–	–
	MAP Growth RIT Score	–	–	–	–	–
	Operations and Algebraic Thinking	–	–	–	–	–
	Number and Operations	–	–	–	–	–
	Measurement and Data	–	–	–	–	–
	Geometry	–	–	–	–	–

Note. PCTL = Percentile

3.4 Item Exposure Rates

Table 15 shows a summary of item exposure rates by item type (summative, MAP Growth, and field test items) and 6 exposure-rate categories: 0–20%, 21–40%, 41–60%, 61–80%, 81–99%, and 100%. Note that the first category (0–20%) begins when at least one student receives the

item. Because one student out of 1,000 (0.001) is rounded to 0, the range is presented as 0–20%.

Additionally, because the summative test allows items from adjacent grades and MAP Growth allows a wide grade band, as explained in Section 2.2 Item Pool Characteristics, the number of items used is higher than the item bank size.

Table 3.8. Item Exposure Rate by Item Status

Subject	Grade	Item Type	Item Bank Size	# of Items Used	Item Exposure Rate, N					
					0–20%	21–40%	41–60%	61–80%	81–99%	100 %
Reading	3	Summative	360	596	594	2	0	0	0	0
		MAP Growth	122	497	497	0	0	0	0	0
		Field Test	60	56	56	0	0	0	0	0
	4	Summative	280	835	834	1	0	0	0	0
		MAP Growth	206	392	392	0	0	0	0	0
		Field Test	126	122	122	0	0	0	0	0
	5	Summative	279	813	811	2	0	0	0	0
		MAP Growth	158	312	312	0	0	0	0	0
		Field Test	98	90	90	0	0	0	0	0
	6	Summative	279	777	777	0	0	0	0	0
		MAP Growth	311	366	366	0	0	0	0	0
		Field Test	87	79	79	0	0	0	0	0
	7	Summative	281	853	852	1	0	0	0	0
		MAP Growth	152	405	405	0	0	0	0	0
		Field Test	137	112	112	0	0	0	0	0
	8	Summative	322	599	598	1	0	0	0	0
		MAP Growth	196	420	415	5	0	0	0	0
		Field Test	130	117	117	0	0	0	0	0
	HS	Summative	0	0	0	0	0	0	0	0
		MAP Growth	276	739	736	3	0	0	0	0
		Field Test	50	50	5	15	0	0	0	30
Math	3	Summative	368	643	630	13	0	0	0	0
		MAP Growth	91	386	380	6	0	0	0	0
		Field Test	160	160	160	0	0	0	0	0
	4	Summative	296	818	818	0	0	0	0	0
		MAP Growth	75	432	432	0	0	0	0	0
		Field Test	153	153	153	0	0	0	0	0
	5	Summative	294	847	846	1	0	0	0	0
		MAP Growth	94	429	427	2	0	0	0	0
		Field Test	160	160	160	0	0	0	0	0
	6	Summative	292	850	849	1	0	0	0	0
		MAP Growth	73	429	420	9	0	0	0	0
		Field Test	160	160	160	0	0	0	0	0
	7	Summative	299	861	861	0	0	0	0	0
		MAP Growth	91	477	471	6	0	0	0	0
		Field Test	159	159	159	0	0	0	0	0
	8	Summative	327	607	604	3	0	0	0	0
		MAP Growth	103	489	488	1	0	0	0	0
		Field Test	159	159	159	0	0	0	0	0

Subject	Grade	Item Type	Item Bank Size	# of Items Used	Item Exposure Rate, N					
					0–20%	21–40%	41–60%	61–80%	81–99%	100 %
	HS	Summative	0	0	0	0	0	0	0	0
		MAP Growth	49	355	347	7	1	0	0	0
		Field Test	68	68	38	0	0	0	0	30

3.4.1 Field Test Items

Field test items are embedded in the Spring 2023 test for possible operational use in future test administrations. After evaluating Maine demographic distributions, it has been determined to assign field test items by gender only. Ethnicity is not used because a high proportion of Maine's population is white. The small portions of other ethnicities made assignment by ethnicity unnecessary. The adaptive test set a minimum of 250 students each for male and female subgroups as a guideline. Table 3.9 summarizes the number of students taking field test items.

Table 3.9. Gender Assignment Results for Field Test Items

Subject	Grade	# of FT items	Mean		Female, %		Male, %	
			Female, %	Male, %	Min	Max	Min	Max
Reading	3	56	49%	51%	48%	50%	50%	52%
	4	122	49%	51%	47%	54%	46%	53%
	5	90	49%	51%	46%	55%	45%	54%
	6	79	48%	52%	47%	49%	51%	53%
	7	112	49%	51%	47%	52%	48%	53%
	8	117	48%	52%	47%	50%	50%	53%
	HS	50	48%	52%	45%	51%	49%	55%
Math	3	160	49%	51%	47%	51%	49%	53%
	4	153	49%	51%	47%	51%	49%	53%
	5	160	49%	51%	48%	53%	47%	52%
	6	160	48%	52%	46%	50%	50%	54%
	7	159	49%	51%	47%	51%	49%	53%
	8	159	48%	52%	45%	51%	49%	55%
	HS	68	49%	51%	48%	50%	50%	53%

3.5 Score Precision and Test Reliability

Score precision is estimated through multiple indicators: standard deviation (SD) of estimated thetas across students, mean standard error of measure (SEM) associated with thetas, and reliability. As noted earlier, the HS summative test uses an OP/FT design, and its items do not have statistics yet.

Table 3.10. Score Precision—Reading

Grade	Score Type	Average # Items	SD of Theta	Mean SEM	Reliability
3	Summative	27	1.57	0.34	0.95
	MAP Growth RIT Score	14	1.57	0.34	0.95
	Literary Text	18	1.64	0.54	0.89
	Informational Text	13	1.68	0.63	0.85
	Vocabulary	10	1.72	0.78	0.79

Grade	Score Type	Average # Items	SD of Theta	Mean SEM	Reliability
4	Summative	27	1.59	0.33	0.96
	MAP Growth RIT Score	14	1.59	0.33	0.96
	Literary Text	17	1.65	0.53	0.89
	Informational Text	14	1.68	0.58	0.88
	Vocabulary	9	1.74	0.78	0.79
5	Summative	27	1.60	0.33	0.96
	MAP Growth RIT Score	14	1.60	0.33	0.96
	Literary Text	16	1.66	0.56	0.88
	Informational Text	15	1.67	0.56	0.88
	Vocabulary	10	1.67	0.76	0.78
6	Summative	27	1.63	0.33	0.95
	MAP Growth RIT Score	14	1.63	0.33	0.95
	Literary Text	15	1.69	0.59	0.87
	Informational Text	17	1.70	0.54	0.89
	Vocabulary	9	1.74	0.77	0.79
7	Summative	27	1.65	0.33	0.96
	MAP Growth RIT Score	14	1.65	0.33	0.96
	Literary Text	13	1.76	0.67	0.84
	Informational Text	19	1.72	0.52	0.90
	Vocabulary	10	1.77	0.76	0.80
8	Summative	27	1.87	0.37	0.96
	MAP Growth RIT Score	14	1.87	0.37	0.96
	Literary Text	13	1.90	0.71	0.84
	Informational Text	18	1.91	0.56	0.91
	Vocabulary	10	1.88	0.78	0.82
HS	Summative	–	–	–	–
	MAP Growth RIT Score	12	2.01	0.72	0.86
	Literary Text	–	–	–	–
	Informational Text	–	–	–	–
	Vocabulary	–	–	–	–

Table 3.11. Score Precision—Math

Grade	Score Type	Average # Items	SD of Theta	Mean SEM	Reliability
3	Summative	27	1.62	0.30	0.96
	MAP Growth RIT Score	18	1.62	0.30	0.96
	Operations and Algebraic Thinking	10	1.74	0.66	0.85
	Numbers and Operations	13	1.70	0.58	0.88
	Measurement and Data	12	1.72	0.61	0.87
	Geometry	10	1.75	0.69	0.84
4	Summative	27	1.56	0.30	0.96
	MAP Growth RIT Score	18	1.56	0.30	0.96
	Operations and Algebraic Thinking	10	1.69	0.67	0.84
	Numbers and Operations	17	1.60	0.51	0.90

Grade	Score Type	Average # Items	SD of Theta	Mean SEM	Reliability
	Measurement and Data	9	1.68	0.70	0.82
	Geometry	9	1.69	0.70	0.82
5	Summative	27	1.57	0.30	0.96
	MAP Growth RIT Score	18	1.57	0.30	0.96
	Operations and Algebraic Thinking	9	1.70	0.72	0.82
	Numbers and Operations	18	1.60	0.48	0.91
	Measurement and Data	9	1.72	0.72	0.82
	Geometry	9	1.71	0.71	0.82
6	Summative	27	1.56	0.30	0.96
	MAP Growth RIT Score	18	1.56	0.30	0.96
	Operations and Algebraic Thinking	11	1.70	0.62	0.86
	The Real and Complex Number Systems	16	1.61	0.51	0.90
	Geometry	9	1.70	0.73	0.81
	Statistics and Probability	9	1.66	0.72	0.80
7	Summative	27	1.65	0.30	0.97
	MAP Growth RIT Score	18	1.65	0.30	0.97
	Operations and Algebraic Thinking	10	1.75	0.65	0.86
	The Real and Complex Number Systems	15	1.71	0.52	0.91
	Geometry	10	1.80	0.71	0.84
	Statistics and Probability	10	1.77	0.66	0.86
8	Summative	27	1.85	0.31	0.97
	MAP Growth RIT Score	18	1.85	0.31	0.97
	Operations and Algebraic Thinking	17	1.88	0.51	0.92
	The Real and Complex Number Systems	9	1.96	0.73	0.86
	Geometry	10	1.98	0.71	0.87
	Statistics and Probability	9	2.00	0.70	0.87
HS	Summative	–	–	–	–
	MAP Growth RIT Score	17	2.03	0.53	0.93
	Operations and Algebraic Thinking	–	–	–	–
	The Real and Complex Number Systems	–	–	–	–
	Geometry	–	–	–	–
	Statistics and Probability	–	–	–	–

3.6 Item Sequence

When defining item positions, the plan was to start with summative items, gradually mix with MAP Growth items, and end with MAP Growth items. Field test items were embedded across the test. The results show that math items were assigned positions according to the design. Due

to constraints by passages and the number of items available in each passage, reading item positions shifted a little.

Table 3.12. Item Sequence—Reading Grade 3

Item Sequence	Summative	MAP	Field Test	Total
1	1,000	0	0	1,000
2	1,000	0	0	1,000
3	1,000	0	0	1,000
4	1,000	0	0	1,000
5	1,000	0	0	1,000
6	1,000	0	0	1,000
7	1,000	0	0	1,000
8	1,000	0	0	1,000
9	1,000	0	0	1,000
10	972	0	28	1,000
11	969	0	31	1,000
12	899	70	31	1,000
13	748	221	31	1,000
14	480	489	31	1,000
15	212	757	31	1,000
16	212	757	31	1,000
17	240	757	3	1,000
18	259	741	0	1,000
19	328	672	0	1,000
20	470	530	0	1,000
21	652	348	0	1,000
22	858	142	0	1,000
23	1,000	0	0	1,000
24	1,000	0	0	1,000
25	1,000	0	0	1,000
26	943	0	57	1,000
27	819	2	179	1,000
28	353	468	179	1,000
29	155	666	179	1,000
30	53	768	179	1,000
31	27	794	179	1,000
32	27	794	179	1,000
33	27	851	122	1,000
34	270	730	0	1,000
35	450	550	0	1,000
36	642	358	0	1,000
37	699	301	0	1,000
38	702	298	0	1,000
39	705	295	0	1,000
40	705	295	0	1,000
41	715	285	0	1,000
42	67	143	790	1,000
43	57	153	790	1,000
44	57	153	790	1,000
45	57	153	790	1,000
46	57	153	790	1,000
47	57	153	790	1,000
48	57	153	790	1,000

Table 3.13. Item Sequence—Reading Grade 4

Item Sequence	Summative	MAP	Field Test	Total
1	1,000	0	0	1,000
2	1,000	0	0	1,000
3	1,000	0	0	1,000
4	1,000	0	0	1,000
5	1,000	0	0	1,000
6	1,000	0	0	1,000
7	1,000	0	0	1,000
8	1,000	0	0	1,000
9	1,000	0	0	1,000
10	944	0	56	1,000
11	923	0	77	1,000
12	883	40	77	1,000
13	776	147	77	1,000
14	503	420	77	1,000
15	275	648	77	1,000
16	275	648	77	1,000
17	331	648	21	1,000
18	357	643	0	1,000
19	392	608	0	1,000
20	493	507	0	1,000
21	673	327	0	1,000
22	888	112	0	1,000
23	1,000	0	0	1,000
24	1,000	0	0	1,000
25	1,000	0	0	1,000
26	959	11	30	1,000
27	855	14	131	1,000
28	377	492	131	1,000
29	169	700	131	1,000
30	46	823	131	1,000
31	25	844	131	1,000
32	22	847	131	1,000
33	22	877	101	1,000
34	200	800	0	1,000
35	394	606	0	1,000
36	606	394	0	1,000
37	646	354	0	1,000
38	661	339	0	1,000
39	663	337	0	1,000
40	673	327	0	1,000
41	666	334	0	1,000
42	63	145	792	1,000
43	40	168	792	1,000
44	40	168	792	1,000
45	40	168	792	1,000
46	40	168	792	1,000
47	40	168	792	1,000
48	40	168	792	1,000

Table 3.14. Item Sequence—Reading Grade 5

Item Sequence	Summative	MAP	Field Test	Total
1	1,000	0	0	1,000
2	1,000	0	0	1,000
3	1,000	0	0	1,000
4	1,000	0	0	1,000
5	1,000	0	0	1,000
6	1,000	0	0	1,000
7	1,000	0	0	1,000
8	1,000	0	0	1,000
9	1,000	0	0	1,000
10	894	0	106	1,000
11	860	0	140	1,000
12	840	20	140	1,000
13	767	93	140	1,000
14	564	296	140	1,000
15	302	558	140	1,000
16	302	558	140	1,000
17	408	558	34	1,000
18	446	554	0	1,000
19	475	525	0	1,000
20	553	447	0	1,000
21	704	296	0	1,000
22	915	85	0	1,000
23	1,000	0	0	1,000
24	1,000	0	0	1,000
25	1,000	0	0	1,000
26	976	2	22	1,000
27	882	5	113	1,000
28	395	492	113	1,000
29	227	660	113	1,000
30	102	785	113	1,000
31	54	833	113	1,000
32	53	834	113	1,000
33	53	856	91	1,000
34	190	810	0	1,000
35	326	674	0	1,000
36	490	510	0	1,000
37	584	416	0	1,000
38	608	392	0	1,000
39	625	375	0	1,000
40	631	369	0	1,000
41	569	431	0	1,000
42	61	192	747	1,000
43	24	229	747	1,000
44	24	229	747	1,000
45	24	229	747	1,000
46	24	229	747	1,000
47	24	229	747	1,000
48	24	229	747	1,000

Table 3.15. Item Sequence—Reading Grade 6

Item Sequence	Summative	MAP	Field Test	Total
1	1,000	0	0	1,000
2	1,000	0	0	1,000
3	1,000	0	0	1,000
4	1,000	0	0	1,000
5	1,000	0	0	1,000
6	1,000	0	0	1,000
7	1,000	0	0	1,000
8	1,000	0	0	1,000
9	1,000	0	0	1,000
10	983	0	17	1,000
11	980	0	20	1,000
12	942	38	20	1,000
13	824	156	20	1,000
14	547	433	20	1,000
15	269	711	20	1,000
16	269	711	20	1,000
17	286	711	3	1,000
18	306	694	0	1,000
19	342	658	0	1,000
20	498	502	0	1,000
21	770	230	0	1,000
22	934	66	0	1,000
23	1,000	0	0	1,000
24	1,000	0	0	1,000
25	1,000	0	0	1,000
26	942	0	58	1,000
27	824	1	175	1,000
28	304	521	175	1,000
29	112	713	175	1,000
30	30	795	175	1,000
31	18	807	175	1,000
32	18	807	175	1,000
33	18	865	117	1,000
34	173	827	0	1,000
35	345	655	0	1,000
36	603	397	0	1,000
37	653	347	0	1,000
38	655	345	0	1,000
39	655	345	0	1,000
40	655	345	0	1,000
41	633	367	0	1,000
42	64	131	805	1,000
43	58	137	805	1,000
44	58	137	805	1,000
45	58	137	805	1,000
46	58	137	805	1,000
47	58	137	805	1,000
48	58	137	805	1,000

Table 3.16. Item Sequence—Reading Grade 7

Item Sequence	Summative	MAP	Field Test	Total
1	1,000	0	0	1,000
2	1,000	0	0	1,000
3	1,000	0	0	1,000
4	1,000	0	0	1,000
5	1,000	0	0	1,000
6	1,000	0	0	1,000
7	1,000	0	0	1,000
8	1,000	0	0	1,000
9	1,000	0	0	1,000
10	988	0	12	1,000
11	984	0	16	1,000
12	939	45	16	1,000
13	832	152	16	1,000
14	566	418	16	1,000
15	221	763	16	1,000
16	222	762	16	1,000
17	236	760	4	1,000
18	285	715	0	1,000
19	372	628	0	1,000
20	480	520	0	1,000
21	661	339	0	1,000
22	816	184	0	1,000
23	948	52	0	1,000
24	988	12	0	1,000
25	1,000	0	0	1,000
26	901	4	95	1,000
27	780	4	216	1,000
28	427	357	216	1,000
29	274	510	216	1,000
30	140	644	216	1,000
31	75	709	216	1,000
32	41	743	216	1,000
33	26	853	121	1,000
34	219	781	0	1,000
35	351	649	0	1,000
36	512	488	0	1,000
37	624	376	0	1,000
38	626	374	0	1,000
39	623	377	0	1,000
40	608	392	0	1,000
41	578	422	0	1,000
42	71	161	768	1,000
43	99	133	768	1,000
44	99	133	768	1,000
45	97	135	768	1,000
46	97	135	768	1,000
47	97	135	768	1,000
48	97	135	768	1,000

Table 3.17. Item Sequence—Reading Grade 8

Item Sequence	Summative	MAP	Field Test	Total
1	1,000	0	0	1,000
2	1,000	0	0	1,000
3	1,000	0	0	1,000
4	1,000	0	0	1,000
5	1,000	0	0	1,000
6	1,000	0	0	1,000
7	1,000	0	0	1,000
8	1,000	0	0	1,000
9	1,000	0	0	1,000
10	953	0	47	1,000
11	951	0	49	1,000
12	931	20	49	1,000
13	850	101	49	1,000
14	614	337	49	1,000
15	271	680	49	1,000
16	271	680	49	1,000
17	318	680	2	1,000
18	334	666	0	1,000
19	383	617	0	1,000
20	509	491	0	1,000
21	827	173	0	1,000
22	971	29	0	1,000
23	1,000	0	0	1,000
24	1,000	0	0	1,000
25	1,000	0	0	1,000
26	892	2	106	1,000
27	765	2	233	1,000
28	296	471	233	1,000
29	109	658	233	1,000
30	29	738	233	1,000
31	10	757	233	1,000
32	10	757	233	1,000
33	10	863	127	1,000
34	180	820	0	1,000
35	260	740	0	1,000
36	476	524	0	1,000
37	607	393	0	1,000
38	611	389	0	1,000
39	615	385	0	1,000
40	615	385	0	1,000
41	584	416	0	1,000
42	120	162	718	1,000
43	106	176	718	1,000
44	106	176	718	1,000
45	104	178	718	1,000
46	104	178	718	1,000
47	104	178	718	1,000
48	104	178	718	1,000

Table 3.18. Item Sequence—Reading Grade HS

Item Sequence	Summative	MAP	Field Test	Total
1	0	0	1,000	1,000
2	0	0	1,000	1,000
3	0	0	1,000	1,000
4	0	0	1,000	1,000
5	0	0	1,000	1,000
6	0	0	1,000	1,000
7	0	0	1,000	1,000
8	0	0	1,000	1,000
9	0	0	1,000	1,000
10	0	0	1,000	1,000
11	0	0	1,000	1,000
12	0	0	1,000	1,000
13	0	0	1,000	1,000
14	0	100	900	1,000
15	0	169	831	1,000
16	0	169	831	1,000
17	0	106	894	1,000
18	0	33	967	1,000
19	0	15	985	1,000
20	0	4	996	1,000
21	0	0	1,000	1,000
22	0	0	1,000	1,000
23	0	0	1,000	1,000
24	0	0	1,000	1,000
25	0	0	1,000	1,000
26	0	104	896	1,000
27	0	104	896	1,000
28	0	344	656	1,000
29	0	530	470	1,000
30	0	623	377	1,000
31	0	775	225	1,000
32	0	804	196	1,000
33	0	804	196	1,000
34	0	593	407	1,000
35	0	367	633	1,000
36	0	424	576	1,000
37	0	361	639	1,000
38	0	337	663	1,000
39	0	336	664	1,000
40	0	362	638	1,000
41	0	387	613	1,000
42	0	751	249	1,000
43	0	598	402	1,000
44	0	616	384	1,000
45	0	728	272	1,000
46	0	728	272	1,000
47	0	728	272	1,000

Table 3.19. Item Sequence—Math Grade 3

Item Sequence	Summative	MAP	Field Test	Total
1	1,000	0	0	1,000
2	1,000	0	0	1,000
3	1,000	0	0	1,000
4	1,000	0	0	1,000
5	1,000	0	0	1,000
6	1,000	0	0	1,000
7	1,000	0	0	1,000
8	1,000	0	0	1,000
9	1,000	0	0	1,000
10	0	0	1,000	1,000
11	0	0	1,000	1,000
12	0	1,000	0	1,000
13	0	1,000	0	1,000
14	0	1,000	0	1,000
15	0	1,000	0	1,000
16	1,000	0	0	1,000
17	1,000	0	0	1,000
18	1,000	0	0	1,000
19	1,000	0	0	1,000
20	1,000	0	0	1,000
21	1,000	0	0	1,000
22	1,000	0	0	1,000
23	1,000	0	0	1,000
24	1,000	0	0	1,000
25	1,000	0	0	1,000
26	0	0	1,000	1,000
27	0	0	1.000	1,000
28	0	1,000	0	1,000
29	0	1,000	0	1,000
30	0	1,000	0	1,000
31	0	1,000	0	1,000
32	0	1,000	0	1,000
33	0	1,000	0	1,000
34	1,000	0	0	1,000
35	1,000	0	0	1,000
36	1,000	0	0	1,000
37	1,000	0	0	1,000
38	1,000	0	0	1,000
39	1,000	0	0	1,000
40	1,000	0	0	1,000
41	1,000	0	0	1,000
42	0	0	1,000	1,000
43	0	0	1,000	1,000
44	0	0	1,000	1,000
45	0	1,000	0	1,000
46	0	1,000	0	1,000
47	0	1,000	0	1,000
48	0	1,000	0	1,000
49	0	1,000	0	1,000
50	0	1,000	0	1,000
51	0	1,000	0	1,000
52	0	1,000	0	1,000

Table 3.20. Item Sequence—Math Grade 4

Item Sequence	Summative	MAP	Field Test	Total
1	1,000	0	0	1,000
2	1,000	0	0	1,000
3	1,000	0	0	1,000
4	1,000	0	0	1,000
5	1,000	0	0	1,000
6	1,000	0	0	1,000
7	1,000	0	0	1,000
8	1,000	0	0	1,000
9	1,000	0	0	1,000
10	0	0	1,000	1,000
11	0	0	1,000	1,000
12	0	1,000	0	1,000
13	0	1,000	0	1,000
14	0	1,000	0	1,000
15	0	1,000	0	1,000
16	1,000	0	0	1,000
17	1,000	0	0	1,000
18	1,000	0	0	1,000
19	1,000	0	0	1,000
20	1,000	0	0	1,000
21	1,000	0	0	1,000
22	1,000	0	0	1,000
23	1,000	0	0	1,000
24	1,000	0	0	1,000
25	1,000	0	0	1,000
26	0	0	1,000	1,000
27	0	0	1,000	1,000
28	0	1,000	0	1,000
29	0	1,000	0	1,000
30	0	1,000	0	1,000
31	0	1,000	0	1,000
32	0	1,000	0	1,000
33	0	1,000	0	1,000
34	1,000	0	0	1,000
35	1,000	0	0	1,000
36	1,000	0	0	1,000
37	1,000	0	0	1,000
38	1,000	0	0	1,000
39	1,000	0	0	1,000
40	1,000	0	0	1,000
41	1,000	0	0	1,000
42	0	0	1,000	1,000
43	0	0	1,000	1,000
44	0	0	1,000	1,000
45	0	1,000	0	1,000
46	0	1,000	0	1,000
47	0	1,000	0	1,000
48	0	1,000	0	1,000
49	0	1,000	0	1,000
50	0	1,000	0	1,000
51	0	1,000	0	1,000
52	0	1,000	0	1,000

Table 3.21. Item Sequence—Math Grade 5

Item Sequence	Summative	MAP	Field Test	Total
1	1,000	0	0	1,000
2	1,000	0	0	1,000
3	1,000	0	0	1,000
4	1,000	0	0	1,000
5	1,000	0	0	1,000
6	1,000	0	0	1,000
7	1,000	0	0	1,000
8	1,000	0	0	1,000
9	1,000	0	0	1,000
10	0	0	1,000	1,000
11	0	0	1,000	1,000
12	0	1,000	0	1,000
13	0	1,000	0	1,000
14	0	1,000	0	1,000
15	0	1,000	0	1,000
16	1,000	0	0	1,000
17	1,000	0	0	1,000
18	1,000	0	0	1,000
19	1,000	0	0	1,000
20	1,000	0	0	1,000
21	1,000	0	0	1,000
22	1,000	0	0	1,000
23	1,000	0	0	1,000
24	1,000	0	0	1,000
25	1,000	0	0	1,000
26	0	0	1,000	1,000
27	0	0	1,000	1,000
28	0	1,000	0	1,000
29	0	1,000	0	1,000
30	0	1,000	0	1,000
31	0	1,000	0	1,000
32	0	1,000	0	1,000
33	0	1,000	0	1,000
34	1,000	0	0	1,000
35	1,000	0	0	1,000
36	1,000	0	0	1,000
37	1,000	0	0	1,000
38	1,000	0	0	1,000
39	1,000	0	0	1,000
40	1,000	0	0	1,000
41	1,000	0	0	1,000
42	0	0	1,000	1,000
43	0	0	1,000	1,000
44	0	0	1,000	1,000
45	0	1,000	0	1,000
46	0	1,000	0	1,000
47	0	1,000	0	1,000
48	0	1,000	0	1,000
49	0	1,000	0	1,000
50	0	1,000	0	1,000
51	0	1,000	0	1,000
52	0	1,000	0	1,000

Table 3.22. Item Sequence—Math Grade 6

Item Sequence	Summative	MAP	Field Test	Total
1	1,000	0	0	1,000
2	1,000	0	0	1,000
3	1,000	0	0	1,000
4	1,000	0	0	1,000
5	1,000	0	0	1,000
6	1,000	0	0	1,000
7	1,000	0	0	1,000
8	1,000	0	0	1,000
9	1,000	0	0	1,000
10	0	0	1,000	1,000
11	0	0	1,000	1,000
12	0	1,000	0	1,000
13	0	1,000	0	1,000
14	0	1,000	0	1,000
15	0	1,000	0	1,000
16	1,000	0	0	1,000
17	1,000	0	0	1,000
18	1,000	0	0	1,000
19	1,000	0	0	1,000
20	1,000	0	0	1,000
21	1,000	0	0	1,000
22	1,000	0	0	1,000
23	1,000	0	0	1,000
24	1,000	0	0	1,000
25	1,000	0	0	1,000
26	0	0	1,000	1,000
27	0	0	1,000	1,000
28	0	1,000	0	1,000
29	0	1,000	0	1,000
30	0	1,000	0	1,000
31	0	1,000	0	1,000
32	0	1,000	0	1,000
33	0	1,000	0	1,000
34	1,000	0	0	1,000
35	1,000	0	0	1,000
36	1,000	0	0	1,000
37	1,000	0	0	1,000
38	1,000	0	0	1,000
39	1,000	0	0	1,000
40	1,000	0	0	1,000
41	1,000	0	0	1,000
42	0	0	1,000	1,000
43	0	0	1,000	1,000
44	0	0	1,000	1,000
45	0	1,000	0	1,000
46	0	1,000	0	1,000
47	0	1,000	0	1,000
48	0	1,000	0	1,000
49	0	1,000	0	1,000
50	0	1,000	0	1,000
51	0	1,000	0	1,000
52	0	1,000	0	1,000

Table 3.23. Item Sequence—Math Grade 7

Item Sequence	Summative	MAP	Field Test	Total
1	1,000	0	0	1,000
2	1,000	0	0	1,000
3	1,000	0	0	1,000
4	1,000	0	0	1,000
5	1,000	0	0	1,000
6	1,000	0	0	1,000
7	1,000	0	0	1,000
8	1,000	0	0	1,000
9	1,000	0	0	1,000
10	0	0	1,000	1,000
11	0	0	1,000	1,000
12	0	1,000	0	1,000
13	0	1,000	0	1,000
14	0	1,000	0	1,000
15	0	1,000	0	1,000
16	1,000	0	0	1,000
17	1,000	0	0	1,000
18	1,000	0	0	1,000
19	1,000	0	0	1,000
20	1,000	0	0	1,000
21	1,000	0	0	1,000
22	1,000	0	0	1,000
23	1,000	0	0	1,000
24	1,000	0	0	1,000
25	1,000	0	0	1,000
26	0	0	1,000	1,000
27	0	0	1,000	1,000
28	0	1,000	0	1,000
29	0	1,000	0	1,000
30	0	1,000	0	1,000
31	0	1,000	0	1,000
32	0	1,000	0	1,000
33	0	1,000	0	1,000
34	1,000	0	0	1,000
35	1,000	0	0	1,000
36	1,000	0	0	1,000
37	1,000	0	0	1,000
38	1,000	0	0	1,000
39	1,000	0	0	1,000
40	1,000	0	0	1,000
41	1,000	0	0	1,000
42	0	0	1,000	1,000
43	0	0	1,000	1,000
44	0	0	1,000	1,000
45	0	1,000	0	1,000
46	0	1,000	0	1,000
47	0	1,000	0	1,000
48	0	1,000	0	1,000
49	0	1,000	0	1,000
50	0	1,000	0	1,000
51	0	1,000	0	1,000
52	0	1,000	0	1,000

Table 3.24. Item Sequence—Math Grade 8

Item Sequence	Summative	MAP	Field Test	Total
1	1,000	0	0	1,000
2	1,000	0	0	1,000
3	1,000	0	0	1,000
4	1,000	0	0	1,000
5	1,000	0	0	1,000
6	1,000	0	0	1,000
7	1,000	0	0	1,000
8	1,000	0	0	1,000
9	1,000	0	0	1,000
10	0	0	1,000	1,000
11	0	0	1,000	1,000
12	0	1,000	0	1,000
13	0	1,000	0	1,000
14	0	1,000	0	1,000
15	0	1,000	0	1,000
16	1,000	0	0	1,000
17	1,000	0	0	1,000
18	1,000	0	0	1,000
19	1,000	0	0	1,000
20	1,000	0	0	1,000
21	1,000	0	0	1,000
22	1,000	0	0	1,000
23	1,000	0	0	1,000
24	1,000	0	0	1,000
25	1,000	0	0	1,000
26	0	0	1,000	1,000
27	0	0	1,000	1,000
28	0	1,000	0	1,000
29	0	1,000	0	1,000
30	0	1,000	0	1,000
31	0	1,000	0	1,000
32	0	1,000	0	1,000
33	0	1,000	0	1,000
34	1,000	0	0	1,000
35	1,000	0	0	1,000
36	1,000	0	0	1,000
37	1,000	0	0	1,000
38	1,000	0	0	1,000
39	1,000	0	0	1,000
40	1,000	0	0	1,000
41	1,000	0	0	1,000
42	0	0	1,000	1,000
43	0	0	1,000	1,000
44	0	0	1,000	1,000
45	0	1,000	0	1,000
46	0	1,000	0	1,000
47	0	1,000	0	1,000
48	0	1,000	0	1,000
49	0	1,000	0	1,000
50	0	1,000	0	1,000
51	0	1,000	0	1,000
52	0	1,000	0	1,000

Table 3.25. Item Sequence—Math Grade HS

Item Sequence	Summative	MAP	Field Test	Total
1	0	0	1,000	1,000
2	0	0	1,000	1,000
3	0	0	1,000	1,000
4	0	0	1,000	1,000
5	0	0	1,000	1,000
6	0	0	1,000	1,000
7	0	0	1,000	1,000
8	0	0	1,000	1,000
9	0	0	1,000	1,000
10	0	0	1,000	1,000
11	0	0	1,000	1,000
12	0	1,000	0	1,000
13	0	1,000	0	1,000
14	0	1,000	0	1,000
15	0	1,000	0	1,000
16	0	0	1,000	1,000
17	0	0	1,000	1,000
18	0	0	1,000	1,000
19	0	0	1,000	1,000
20	0	0	1,000	1,000
21	0	0	1,000	1,000
22	0	0	1,000	1,000
23	0	0	1,000	1,000
24	0	0	1,000	1,000
25	0	0	1,000	1,000
26	0	0	1,000	1,000
27	0	0	1,000	1,000
28	0	1,000	0	1,000
29	0	1,000	0	1,000
30	0	1,000	0	1,000
31	0	1,000	0	1,000
32	0	1,000	0	1,000
33	0	0	1,000	1,000
34	0	0	1,000	1,000
35	0	0	1,000	1,000
36	0	0	1,000	1,000
37	0	0	1,000	1,000
38	0	0	1,000	1,000
39	0	0	1,000	1,000
40	0	0	1,000	1,000
41	0	0	1,000	1,000
42	0	0	1,000	1,000
43	0	0	1,000	1,000
44	0	0	1,000	1,000
45	0	1,000	0	1,000
46	0	1,000	0	1,000
47	0	1,000	0	1,000
48	0	1,000	0	1,000
49	0	1,000	0	1,000
50	0	1,000	0	1,000
51	0	1,000	0	1,000
52	0	1,000	0	1,000

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Appendix D: Summary of *P* Values by Item Type

Table D.1. Summary of *P* Values by Item Type—Operational Items

Grade	Item Type	N	Mean	Median	SD	Min.	Max.	#Items by *P*-Value Range									
								≤ 0.1	≤ 0.2	≤ 0.3	≤ 0.4	≤ 0.5	≤ 0.6	≤ 0.7	≤ 0.8	≤ 0.9	> 0.9
Reading																	
3	Multiselect	45	0.48	0.49	0.19	0.06	0.84	2	1	7	6	7	9	7	4	2	0
	Multiple Choice	492	0.46	0.47	0.18	0.03	0.86	6	30	71	81	86	109	60	39	10	0
	Composite	22	0.35	0.34	0.15	0.04	0.59	1	2	7	2	6	4	0	0	0	0
	Gap Match Multiple	28	0.33	0.33	0.18	0.06	0.88	2	6	5	5	6	2	1	0	1	0
	Hot Text	4	0.36	0.36	0.25	0.05	0.65	1	0	1	0	1	0	1	0	0	0
4	Multiselect	57	0.53	0.49	0.17	0.09	0.86	1	1	2	7	20	2	12	9	3	0
	Multiple Choice	724	0.52	0.52	0.19	0.05	0.86	6	30	66	103	130	121	121	99	44	4
	Composite	27	0.44	0.44	0.19	0.04	0.75	2	2	3	3	5	6	3	3	0	0
	Gap Match Multiple	34	0.40	0.35	0.19	0.06	0.91	2	0	10	8	2	7	3	1	0	1
	Gap Match Single	2	0.11	0.11	0.07	0.06	0.16	1	1	0	0	0	0	0	0	0	0
	Hot Text	5	0.40	0.30	0.23	0.20	0.73	0	0	2	1	0	1	0	1	0	0
5	Multiselect	38	0.55	0.57	0.18	0.09	0.84	1	1	3	0	8	8	9	7	1	0
	Multiple Choice	700	0.53	0.53	0.18	0.04	0.91	1	23	53	91	139	135	114	91	51	2
	Composite	15	0.36	0.37	0.19	0.08	0.78	2	1	3	5	0	3	0	1	0	0
	Gap Match Multiple	22	0.40	0.42	0.19	0.02	0.81	2	2	2	4	6	3	2	0	1	0
	Gap Match Single	3	0.17	0.13	0.10	0.10	0.28	0	2	1	0	0	0	0	0	0	0
	Hot Text	5	0.52	0.51	0.22	0.30	0.79	0	0	1	1	0	1	1	1	0	0
6	Multiselect	44	0.38	0.36	0.21	0.06	0.74	2	11	4	7	6	5	6	3	0	0
	Multiple Choice	692	0.50	0.50	0.18	0.07	0.90	2	26	74	116	124	140	107	78	25	0
	Composite	18	0.34	0.30	0.18	0.08	0.70	1	4	4	2	3	3	0	1	0	0

Grade	Item Type	N	Mean	Median	SD	Min.	Max.	#Items by *P*-Value Range									
								≤ 0.1	≤ 0.2	≤ 0.3	≤ 0.4	≤ 0.5	≤ 0.6	≤ 0.7	≤ 0.8	≤ 0.9	> 0.9
7	Gap Match Multiple	22	0.37	0.41	0.20	0.06	0.79	2	3	4	2	6	3	1	1	0	0
	Gap Match Single	6	0.25	0.25	0.12	0.07	0.41	1	1	1	2	1	0	0	0	0	0
	Hot Text	6	0.40	0.39	0.15	0.17	0.61	0	1	0	2	1	1	1	0	0	0
	Multiselect	43	0.37	0.32	0.20	0.09	0.75	1	12	6	5	6	6	4	3	0	0
	Multiple Choice	720	0.55	0.56	0.18	0.03	0.91	2	20	43	80	134	146	135	107	49	4
	Composite	17	0.44	0.44	0.17	0.15	0.70	0	2	2	4	2	3	4	0	0	0
	Gap Match Multiple	21	0.42	0.43	0.22	0.05	0.78	1	4	3	2	1	6	1	3	0	0
	Gap Match Single	4	0.33	0.30	0.07	0.28	0.44	0	0	2	1	1	0	0	0	0	0
	Hot Text	2	0.53	0.53	0.17	0.42	0.65	0	0	0	0	1	0	1	0	0	0

Grade	Item Type	N	Mean	Median	SD	Min.	Max.	#Items by *P*-Value Range									
								≤ 0.1	≤ 0.2	≤ 0.3	≤ 0.4	≤ 0.5	≤ 0.6	≤ 0.7	≤ 0.8	≤ 0.9	> 0.9
8	Multiselect	34	0.41	0.39	0.21	0.13	0.80	0	7	7	3	7	2	2	5	1	0
	Multiple Choice	489	0.61	0.62	0.17	0.03	0.97	1	8	17	44	59	89	112	92	61	6
	Composite	10	0.54	0.54	0.16	0.27	0.72	0	0	2	0	2	2	1	3	0	0
	Gap Match Multiple	15	0.50	0.51	0.23	0.18	0.88	0	1	2	3	1	3	2	1	2	0
	Gap Match Single	3	0.38	0.41	0.10	0.27	0.47	0	0	1	0	2	0	0	0	0	0
	Hot Text	2	0.52	0.52	0.01	0.51	0.53	0	0	0	0	0	2	0	0	0	0
HS	Multiselect	5	0.54	0.54	0.06	0.47	0.61	0	0	0	0	1	3	1	0	0	0
	Multiple Choice	19	0.56	0.55	0.17	0.18	0.88	0	1	1	1	4	3	5	3	1	0
	Composite	6	0.58	0.59	0.14	0.35	0.78	0	0	0	1	1	1	2	1	0	0
Mathematics																	
3	Multiselect	58	0.32	0.28	0.20	0.07	0.86	8	15	9	9	7	5	0	4	1	0
	Multiple Choice	391	0.48	0.47	0.23	0.01	0.96	17	46	35	54	57	51	49	42	35	5
	Composite	39	0.41	0.42	0.21	0.01	0.79	4	3	3	8	10	3	4	4	0	0
	Gap Match Multiple	41	0.33	0.27	0.27	0.01	0.80	15	3	3	3	1	6	8	2	0	0
	Gap Match Single	5	0.27	0.21	0.22	0.08	0.61	1	1	1	1	0	0	1	0	0	0
	Graphic Gap Match	49	0.30	0.25	0.23	0.00	0.93	10	10	8	9	3	4	0	1	3	1
	Hot Text	8	0.16	0.12	0.11	0.01	0.31	3	2	2	1	0	0	0	0	0	0
	Text Entry	56	0.43	0.42	0.24	0.03	0.96	5	5	9	8	7	9	6	3	3	1
4	Multiselect	87	0.40	0.38	0.21	0.03	0.88	9	8	17	13	11	14	6	8	1	0
	Multiple Choice	565	0.55	0.57	0.24	0.01	0.97	15	33	52	61	79	64	80	74	92	15
	Composite	82	0.41	0.40	0.22	0.04	0.89	5	11	16	9	11	8	14	5	3	0
	Gap Match Multiple	53	0.41	0.35	0.30	0.03	0.88	8	14	3	4	5	2	3	6	8	0
	Gap Match Single	6	0.43	0.36	0.20	0.25	0.77	0	0	1	2	1	1	0	1	0	0
	Graphic Gap Match	71	0.37	0.35	0.25	0.00	0.93	12	8	11	12	7	8	5	3	3	2
	Hot Text	12	0.24	0.20	0.16	0.03	0.59	2	4	2	2	1	1	0	0	0	0

Grade	Item Type	N	Mean	Median	SD	Min.	Max.	#Items by *P*-Value Range									
								≤ 0.1	≤ 0.2	≤ 0.3	≤ 0.4	≤ 0.5	≤ 0.6	≤ 0.7	≤ 0.8	≤ 0.9	> 0.9
	Text Entry	84	0.45	0.47	0.28	0.01	0.97	14	9	7	4	10	10	8	14	5	3
5	Multiselect	69	0.35	0.35	0.23	0.00	0.91	13	9	9	8	10	7	9	3	0	1
	Multiple Choice	365	0.55	0.57	0.22	0.03	0.98	14	15	22	50	42	51	61	59	41	10
	Composite	58	0.43	0.40	0.21	0.09	0.86	1	6	11	11	9	7	4	4	5	0
	Gap Match Multiple	34	0.34	0.24	0.26	0.07	0.91	5	9	4	5	3	3	1	1	1	2
	Gap Match Single	3	0.46	0.46	0.13	0.33	0.59	0	0	0	1	1	1	0	0	0	0
	Graphic Gap Match	49	0.41	0.36	0.25	0.01	0.94	5	8	4	8	4	8	6	2	2	2
	Hot Text	11	0.28	0.27	0.20	0.03	0.71	2	3	2	2	0	1	0	1	0	0
	Text Entry	55	0.37	0.30	0.24	0.03	0.85	7	9	11	5	5	8	3	2	5	0

Grade	Item Type	N	Mean	Median	SD	Min.	Max.	#Items by *P*-Value Range									
								≤ 0.1	≤ 0.2	≤ 0.3	≤ 0.4	≤ 0.5	≤ 0.6	≤ 0.7	≤ 0.8	≤ 0.9	> 0.9
6	Multiselect	46	0.20	0.17	0.14	0.01	0.59	12	17	10	1	2	4	0	0	0	0
	Multiple Choice	421	0.51	0.51	0.22	0.04	0.96	7	33	48	54	60	63	55	61	33	7
	Composite	66	0.40	0.37	0.20	0.02	0.85	3	9	6	23	8	4	3	8	2	0
	Gap Match Multiple	38	0.27	0.20	0.18	0.05	0.76	6	11	9	3	4	2	2	1	0	0
	Gap Match Single	1	0.55	0.55	N/A	0.55	0.55	0	0	0	0	0	1	0	0	0	0
	Graphic Gap Match	27	0.30	0.21	0.20	0.08	0.74	2	9	5	3	3	1	3	1	0	0
	Hot Text	23	0.23	0.20	0.13	0.06	0.60	2	10	5	4	1	0	1	0	0	0
	Text Entry	60	0.29	0.28	0.20	0.01	0.75	14	11	6	12	8	4	1	4	0	0
7	Multiselect	51	0.17	0.15	0.12	0.01	0.56	20	14	10	3	3	1	0	0	0	0
	Multiple Choice	429	0.50	0.50	0.22	0.02	0.96	14	32	41	70	59	61	52	49	44	7
	Composite	55	0.36	0.34	0.21	0.04	0.87	5	11	7	12	9	5	0	4	2	0
	Gap Match Multiple	34	0.27	0.20	0.20	0.01	0.84	5	12	5	6	1	2	1	1	1	0
	Gap Match Single	1	0.04	0.04	N/A	0.04	0.04	1	0	0	0	0	0	0	0	0	0
	Graphic Gap Match	8	0.31	0.21	0.22	0.11	0.77	0	3	3	0	0	1	0	1	0	0
	Hot Text	31	0.28	0.27	0.19	0.02	0.72	6	6	5	7	1	4	1	1	0	0
	Text Entry	59	0.23	0.17	0.20	0.01	0.71	23	15	3	7	4	3	3	1	0	0
8	Multiselect	43	0.22	0.21	0.13	0.05	0.53	9	12	11	8	1	2	0	0	0	0
	Multiple Choice	307	0.47	0.46	0.18	0.08	0.90	3	19	38	54	65	50	36	31	10	1
	Composite	42	0.39	0.40	0.17	0.06	0.76	3	2	7	8	13	5	2	2	0	0
	Gap Match Multiple	31	0.28	0.26	0.16	0.03	0.77	2	7	11	6	3	0	1	1	0	0
	Gap Match Single	1	0.10	0.10	N/A	0.10	0.10	0	1	0	0	0	0	0	0	0	0
	Graphic Gap Match	11	0.33	0.25	0.18	0.17	0.74	0	2	4	3	0	1	0	1	0	0
	Hot Text	44	0.32	0.32	0.18	0.05	0.88	5	7	8	8	9	5	1	0	1	0
	Text Entry	50	0.27	0.23	0.17	0.04	0.68	9	13	11	5	5	4	3	0	0	0

Grade	Item Type	N	Mean	Median	SD	Min.	Max.	#Items by *P*-Value Range									
								≤ 0.1	≤ 0.2	≤ 0.3	≤ 0.4	≤ 0.5	≤ 0.6	≤ 0.7	≤ 0.8	≤ 0.9	> 0.9
HS	Multiselect	7	0.13	0.16	0.07	0.04	0.2	3	3	1	0	0	0	0	0	0	0
	Multiple Choice	19	0.34	0.33	0.1	0.16	0.5	0	2	5	6	6	0	0	0	0	0
	Composite	4	0.33	0.31	0.15	0.17	0.53	0	1	1	1	0	1	0	0	0	0

Note. N/A = Not Applicable

Table D.2. Summary of *P* Values by Item Type—Field Test Items

Grade	Item Type	N	Mean	Median	SD	Min.	Max.	#Items by *P*-value Range									
								≤ 0.1	≤ 0.2	≤ 0.3	≤ 0.4	≤ 0.5	≤ 0.6	≤ 0.7	≤ 0.8	≤ 0.9	> 0.9
Reading																	
3	Multiselect	5	0.52	0.56	0.08	0.39	0.58	0	0	0	1	0	4	0	0	0	0
	Multiple Choice	46	0.47	0.47	0.13	0.21	0.74	0	0	5	5	18	11	4	3	0	0
	Composite	4	0.26	0.22	0.08	0.21	0.37	0	0	3	1	0	0	0	0	0	0
	Gap Match Multiple	4	0.42	0.45	0.13	0.24	0.53	0	0	1	0	2	1	0	0	0	0
	Hot Text	1	0.52	0.52	N/A	0.52	0.52	0	0	0	0	0	1	0	0	0	0
4	Multiselect	19	0.48	0.48	0.08	0.36	0.64	0	0	0	5	8	5	1	0	0	0
	Multiple Choice	75	0.47	0.45	0.15	0.19	0.79	0	2	6	19	18	14	7	9	0	0
	Composite	20	0.37	0.38	0.14	0.18	0.63	0	2	6	2	6	2	2	0	0	0
	Gap Match Multiple	11	0.37	0.34	0.11	0.22	0.54	0	0	3	5	1	2	0	0	0	0
	Hot Text	1	0.05	0.05	N/A	0.05	0.05	1	0	0	0	0	0	0	0	0	0
5	Multiselect	20	0.51	0.52	0.08	0.32	0.70	0	0	0	1	9	9	0	1	0	0
	Multiple Choice	65	0.46	0.45	0.14	0.17	0.87	0	1	4	20	17	13	7	2	1	0
	Composite	3	0.42	0.36	0.22	0.23	0.65	0	0	1	1	0	0	1	0	0	0
	Gap Match Multiple	7	0.50	0.52	0.11	0.27	0.61	0	0	1	0	1	4	1	0	0	0
	Hot Text	3	0.51	0.54	0.20	0.29	0.70	0	0	1	0	0	1	1	0	0	0
6	Multiselect	20	0.53	0.51	0.09	0.40	0.69	0	0	0	1	7	9	3	0	0	0
	Multiple Choice	48	0.47	0.47	0.15	0.21	0.82	0	0	8	8	11	13	5	2	1	0
	Composite	9	0.34	0.32	0.12	0.20	0.58	0	0	3	4	1	1	0	0	0	0
	Gap Match Multiple	7	0.35	0.29	0.16	0.19	0.64	0	1	3	1	1	0	1	0	0	0
	Hot Text	3	0.41	0.52	0.20	0.18	0.52	0	1	0	0	0	2	0	0	0	0
7	Multiselect	25	0.54	0.51	0.09	0.36	0.77	0	0	0	1	11	6	5	2	0	0
	Multiple Choice	67	0.53	0.52	0.14	0.21	0.76	0	0	5	7	15	17	14	9	0	0
	Composite	22	0.39	0.37	0.10	0.24	0.56	0	0	5	7	7	3	0	0	0	0
	Gap Match Multiple	14	0.37	0.36	0.15	0.22	0.62	0	0	6	2	3	1	2	0	0	0

Grade	Item Type	N	Mean	Median	SD	Min.	Max.	#Items by *P*-value Range									
								≤ 0.1	≤ 0.2	≤ 0.3	≤ 0.4	≤ 0.5	≤ 0.6	≤ 0.7	≤ 0.8	≤ 0.9	> 0.9
	Hot Text	9	0.39	0.43	0.14	0.17	0.59	0	1	2	1	3	2	0	0	0	0

Grade	Item Type	N	Mean	Median	SD	Min.	Max.	#Items by *P*-value Range									
								≤ 0.1	≤ 0.2	≤ 0.3	≤ 0.4	≤ 0.5	≤ 0.6	≤ 0.7	≤ 0.8	≤ 0.9	> 0.9
8	Multiselect	19	0.56	0.55	0.09	0.39	0.75	0	0	0	1	5	6	6	1	0	0
	Multiple Choice	64	0.56	0.53	0.16	0.23	0.88	0	0	3	7	16	12	12	9	5	0
	Composite	21	0.38	0.36	0.15	0.19	0.70	0	1	7	5	4	1	3	0	0	0
	Gap Match Multiple	16	0.46	0.48	0.15	0.23	0.71	0	0	3	3	2	6	1	1	0	0
	Hot Text	10	0.36	0.37	0.16	0.10	0.63	0	2	1	3	2	1	1	0	0	0
HS	Multiselect	3	0.53	0.57	0.13	0.39	0.64	0	0	0	1	0	1	1	0	0	0
	Multiple Choice	12	0.56	0.55	0.11	0.37	0.78	0	0	0	1	3	5	1	2	0	0
	Composite	2	0.42	0.42	0.03	0.40	0.44	0	0	0	0	2	0	0	0	0	0
	Gap Match Multiple	1	0.30	0.30	N/A	0.30	0.30	0	0	0	1	0	0	0	0	0	0
	Gap Match Single	1	0.27	0.27	N/A	0.27	0.27	0	0	1	0	0	0	0	0	0	0
Mathematics																	
3	Multiselect	21	0.27	0.22	0.20	0.08	0.89	3	6	6	3	1	0	1	0	1	0
	Multiple Choice	36	0.51	0.48	0.19	0.17	0.91	0	1	3	8	9	4	3	6	1	1
	Composite	21	0.38	0.38	0.18	0.12	0.75	0	3	5	4	5	1	1	2	0	0
	Gap Match Multiple	24	0.43	0.43	0.19	0.11	0.83	0	4	2	4	5	4	4	0	1	0
	Gap Match Single	5	0.60	0.63	0.24	0.30	0.92	0	0	1	0	1	0	2	0	0	1
	Graphic Gap Match	13	0.49	0.54	0.24	0.04	0.87	1	0	1	4	0	3	2	0	2	0
	Hot Text	23	0.29	0.28	0.14	0.08	0.57	2	7	4	4	4	2	0	0	0	0
	Text Entry	17	0.37	0.34	0.18	0.06	0.72	1	3	3	3	3	3	0	1	0	0
4	Multiselect	19	0.31	0.32	0.16	0.05	0.61	1	6	2	5	2	2	1	0	0	0
	Multiple Choice	47	0.50	0.47	0.19	0.23	0.95	0	0	7	11	8	7	5	5	3	1
	Composite	21	0.31	0.33	0.11	0.09	0.53	1	2	6	9	1	2	0	0	0	0
	Gap Match Multiple	6	0.69	0.76	0.27	0.20	0.95	0	0	1	0	0	0	2	0	2	1
	Gap Match Single	3	0.09	0.12	0.06	0.02	0.14	1	2	0	0	0	0	0	0	0	0

Grade	Item Type	N	Mean	Median	SD	Min.	Max.	#Items by *P*-value Range									
								≤ 0.1	≤ 0.2	≤ 0.3	≤ 0.4	≤ 0.5	≤ 0.6	≤ 0.7	≤ 0.8	≤ 0.9	> 0.9
	Graphic Gap Match	10	0.50	0.48	0.23	0.19	0.82	0	1	1	2	1	1	1	2	1	0
	Hot Text	27	0.36	0.38	0.18	0.11	0.83	0	5	7	5	4	4	1	0	1	0
	Text Entry	20	0.36	0.33	0.23	0.01	0.80	4	1	4	4	1	2	2	2	0	0
5	Multiselect	14	0.44	0.39	0.22	0.16	0.85	0	2	3	2	1	2	2	1	1	0
	Multiple Choice	45	0.46	0.47	0.15	0.20	0.84	0	0	9	4	13	13	2	3	1	0
	Composite	24	0.35	0.37	0.11	0.14	0.54	0	4	3	8	7	2	0	0	0	0
	Gap Match Multiple	19	0.35	0.26	0.23	0.08	0.84	1	6	4	2	2	1	0	2	1	0
	Gap Match Single	4	0.40	0.39	0.33	0.08	0.73	1	1	0	0	0	0	1	1	0	0
	Graphic Gap Match	12	0.27	0.24	0.16	0.03	0.50	2	1	5	1	2	1	0	0	0	0
	Hot Text	23	0.30	0.24	0.18	0.10	0.66	2	8	3	3	3	2	2	0	0	0
	Text Entry	19	0.29	0.26	0.17	0.02	0.60	2	5	3	4	3	2	0	0	0	0

Grade	Item Type	N	Mean	Median	SD	Min.	Max.	#Items by *P*-value Range									
								≤ 0.1	≤ 0.2	≤ 0.3	≤ 0.4	≤ 0.5	≤ 0.6	≤ 0.7	≤ 0.8	≤ 0.9	> 0.9
6	Multiselect	17	0.21	0.18	0.15	0.06	0.58	5	7	1	1	2	1	0	0	0	0
	Multiple Choice	33	0.37	0.37	0.12	0.11	0.63	0	3	6	11	10	2	1	0	0	0
	Composite	21	0.31	0.29	0.12	0.10	0.54	1	3	7	3	6	1	0	0	0	0
	Gap Match Multiple	25	0.35	0.31	0.24	0.02	0.88	4	4	4	5	3	1	1	2	1	0
	Graphic Gap Match	6	0.23	0.19	0.21	0.05	0.64	1	3	1	0	0	0	1	0	0	0
	Hot Text	24	0.23	0.21	0.12	0.07	0.44	4	7	6	4	3	0	0	0	0	0
	Text Entry	34	0.26	0.23	0.17	0.06	0.79	4	11	10	5	1	1	0	2	0	0
7	Multiselect	19	0.15	0.12	0.14	0.01	0.61	9	6	3	0	0	0	1	0	0	0
	Multiple Choice	47	0.45	0.43	0.18	0.10	0.79	0	3	5	13	6	11	5	4	0	0
	Composite	19	0.32	0.30	0.16	0.04	0.67	1	3	6	5	2	0	2	0	0	0
	Gap Match Multiple	20	0.28	0.24	0.22	0.04	0.82	5	3	5	2	2	0	2	0	1	0
	Graphic Gap Match	4	0.31	0.32	0.24	0.04	0.56	1	1	0	0	1	1	0	0	0	0
	Hot Text	33	0.29	0.27	0.15	0.05	0.61	2	7	10	5	5	3	1	0	0	0
	Text Entry	17	0.21	0.14	0.17	0.01	0.64	4	6	2	3	1	0	1	0	0	0
8	Multiselect	16	0.26	0.25	0.14	0.06	0.62	2	4	5	3	1	0	1	0	0	0
	Multiple Choice	42	0.46	0.43	0.16	0.21	0.86	0	0	5	14	6	8	5	3	1	0
	Composite	21	0.26	0.21	0.13	0.04	0.51	2	8	3	5	2	1	0	0	0	0
	Gap Match Multiple	13	0.21	0.14	0.23	0.04	0.74	5	5	1	0	0	0	1	1	0	0
	Gap Match Single	1	0.56	0.56	N/A	0.56	0.56	0	0	0	0	0	1	0	0	0	0
	Graphic Gap Match	8	0.36	0.23	0.24	0.16	0.73	0	2	3	0	1	0	1	1	0	0
	Hot Text	33	0.36	0.35	0.18	0.08	0.68	1	9	3	6	7	3	4	0	0	0
	Text Entry	25	0.16	0.11	0.17	0.02	0.81	11	10	2	0	0	1	0	0	1	0
HS	Multiselect	7	0.15	0.14	0.08	0.04	0.25	2	3	2	0	0	0	0	0	0	0
	Multiple Choice	4	0.54	0.54	0.14	0.38	0.72	0	0	0	1	0	2	0	1	0	0
	Composite	7	0.26	0.19	0.19	0.09	0.65	1	3	1	1	0	0	1	0	0	0

Grade	Item Type	N	Mean	Median	SD	Min.	Max.	#Items by *P*-value Range									
								≤ 0.1	≤ 0.2	≤ 0.3	≤ 0.4	≤ 0.5	≤ 0.6	≤ 0.7	≤ 0.8	≤ 0.9	> 0.9
	Gap Match Multiple	10	0.17	0.20	0.10	0.03	0.33	3	2	4	1	0	0	0	0	0	0
	Graphic Gap Match	1	0.17	0.17	N/A	0.17	0.17	0	1	0	0	0	0	0	0	0	0
	Hot Text	6	0.14	0.12	0.10	0.02	0.29	3	1	2	0	0	0	0	0	0	0
	Text Entry	1	0.03	0.03	N/A	0.03	0.03	1	0	0	0	0	0	0	0	0	0

Note. N/A = Not Applicable

Appendix E: Summary of Item-Total Correlation by Item Type

Table E.1. Summary of Item-Total Correlation by Item Type—Operational Items

Grade	Item Type	N	Mean	Median	SD	Min.	Max.	#Items by Item-Total Correlation Range									
								≤ 0.1	≤ 0.2	≤ 0.3	≤ 0.4	≤ 0.5	≤ 0.6	≤ 0.7	≤ 0.8	≤ 0.9	> 0.9
Reading																	
3	Multiselect	45	0.40	0.38	0.12	0.18	0.78	0	1	6	17	13	4	2	1	0	0
	Multiple Choice	492	0.35	0.35	0.14	-0.30	0.99	26	30	95	172	111	34	12	3	3	1
	Composite	22	0.46	0.49	0.10	0.18	0.60	0	1	1	2	7	11	0	0	0	0
	Gap Match Multiple	28	0.42	0.44	0.13	0.08	0.60	1	1	2	6	10	8	0	0	0	0
	Hot Text	4	0.42	0.43	0.11	0.29	0.52	0	0	1	1	1	1	0	0	0	0
4	Multiselect	57	0.38	0.39	0.18	-0.14	1.00	4	3	8	15	19	2	5	0	0	1
	Multiple Choice	724	0.34	0.35	0.17	-1.00	1.00	35	65	132	231	139	42	10	11	5	4
	Composite	27	0.42	0.45	0.12	0.10	0.63	0	2	1	6	13	4	1	0	0	0
	Gap Match Multiple	34	0.42	0.39	0.11	0.28	0.75	0	0	3	17	8	3	2	1	0	0
	Gap Match Single	2	0.35	0.35	0.06	0.31	0.39	0	0	0	2	0	0	0	0	0	0
	Hot Text	5	0.35	0.45	0.22	0.03	0.49	1	0	0	0	3	0	0	0	0	0
5	Multiselect	38	0.38	0.40	0.18	-0.40	0.67	2	0	7	9	13	5	2	0	0	0
	Multiple Choice	700	0.33	0.34	0.15	-1.00	0.90	26	54	163	268	139	26	8	3	0	1
	Composite	15	0.42	0.47	0.14	0.06	0.61	1	0	0	4	6	1	1	0	0	0
	Gap Match Multiple	22	0.42	0.41	0.21	-0.01	1.00	1	2	1	5	5	4	1	0	0	1
	Gap Match Single	3	0.25	0.20	0.10	0.18	0.36	0	1	1	1	0	0	0	0	0	0
	Hot Text	5	0.38	0.31	0.16	0.24	0.61	0	0	2	1	1	0	1	0	0	0
6	Multiselect	44	0.39	0.39	0.09	0.25	0.56	0	0	9	13	14	4	0	0	0	0
	Multiple Choice	692	0.33	0.34	0.17	-1.00	1.00	32	68	129	228	142	49	10	3	0	5
	Composite	18	0.51	0.49	0.17	0.24	1.00	0	0	1	3	4	6	1	0	0	1
	Gap Match Multiple	22	0.39	0.42	0.16	-0.02	0.70	1	2	2	5	7	3	2	0	0	0
	Gap Match Single	6	0.28	0.31	0.14	0.02	0.42	1	0	2	2	1	0	0	0	0	0

Grade	Item Type	N	Mean	Median	SD	Min.	Max.	#Items by Item-Total Correlation Range									
								≤ 0.1	≤ 0.2	≤ 0.3	≤ 0.4	≤ 0.5	≤ 0.6	≤ 0.7	≤ 0.8	≤ 0.9	> 0.9
	Hot Text	6	0.42	0.42	0.17	0.20	0.71	0	1	0	2	2	0	0	1	0	0
7	Multiselect	43	0.37	0.39	0.14	-0.22	0.61	1	2	7	12	15	5	1	0	0	0
	Multiple Choice	720	0.35	0.36	0.17	-1.00	1.00	27	58	140	217	169	50	21	8	4	4
	Composite	17	0.39	0.43	0.32	-0.65	1.00	1	1	1	2	7	3	1	0	0	1
	Gap Match Multiple	21	0.40	0.40	0.09	0.19	0.52	0	1	2	7	5	3	0	0	0	0
	Gap Match Single	4	0.32	0.32	N/A	0.22	0.42	0	0	1	1	1	0	0	0	0	0
	Hot Text	2	0.32	0.32	N/A	0.32	0.32	0	0	0	1	0	0	0	0	0	0

Grade	Item Type	N	Mean	Median	SD	Min.	Max.	#Items by Item-Total Correlation Range									
								≤ 0.1	≤ 0.2	≤ 0.3	≤ 0.4	≤ 0.5	≤ 0.6	≤ 0.7	≤ 0.8	≤ 0.9	> 0.9
8	Multiselect	34	0.38	0.36	0.15	0.08	0.87	1	2	5	13	8	3	0	1	1	0
	Multiple Choice	489	0.36	0.37	0.15	-1.00	1.00	10	33	87	170	118	33	8	1	2	5
	Composite	10	0.39	0.42	0.12	0.12	0.51	0	1	1	1	4	2	0	0	0	0
	Gap Match Multiple	15	0.36	0.39	0.18	-0.10	0.64	1	1	2	4	4	2	1	0	0	0
	Gap Match Single	3	0.33	0.33	0.10	0.22	0.43	0	0	1	1	1	0	0	0	0	0
	Hot Text	2	0.52	0.52	0.23	0.36	0.68	0	0	0	1	0	0	1	0	0	0
HS	Choice Multiple	5	0.51	0.51	0.08	0.39	0.60	0	0	0	1	0	3	1	0	0	0
	Choice Single	19	0.38	0.42	0.14	-0.11	0.55	1	0	2	5	9	2	0	0	0	0
	Composite	6	0.57	0.58	0.06	0.51	0.67	0	0	0	0	0	4	2	0	0	0
Mathematics																	
3	Multiselect	58	0.35	0.35	0.19	-0.69	0.61	2	2	16	19	10	6	3	0	0	0
	Multiple Choice	391	0.31	0.32	0.12	-0.46	0.77	14	39	107	155	63	10	1	2	0	0
	Composite	39	0.49	0.50	0.16	0.02	0.81	1	0	5	3	9	11	6	2	1	0
	Gap Match Multiple	41	0.35	0.35	0.09	0.09	0.48	1	2	8	14	16	0	0	0	0	0
	Gap Match Single	5	0.31	0.32	0.05	0.22	0.35	0	0	2	3	0	0	0	0	0	0
	Graphic Gap Match	49	0.33	0.35	0.13	0.01	0.58	4	4	7	22	9	3	0	0	0	0
	Hot Text	8	0.34	0.31	0.13	0.18	0.51	0	1	2	1	2	1	0	0	0	0
	Text Entry	56	0.36	0.36	0.09	-0.03	0.54	1	1	7	31	14	2	0	0	0	0
4	Multiselect	87	0.36	0.36	0.12	0.07	0.68	3	6	15	29	25	7	2	0	0	0
	Multiple Choice	565	0.33	0.33	0.13	-0.14	0.70	26	56	137	199	108	30	7	2	0	0
	Composite	82	0.41	0.40	0.14	0.11	0.78	0	6	12	22	21	14	6	1	0	0
	Gap Match Multiple	53	0.37	0.36	0.11	0.13	0.69	0	4	13	15	16	4	1	0	0	0
	Gap Match Single	6	0.35	0.33	0.09	0.26	0.47	0	0	2	2	2	0	0	0	0	0
	Graphic Gap Match	71	0.36	0.36	0.11	0.06	0.68	1	4	15	25	20	5	1	0	0	0
	Hot Text	12	0.39	0.40	0.09	0.24	0.52	0	0	2	4	5	1	0	0	0	0
	Text Entry	84	0.36	0.36	0.12	0.03	0.77	1	5	16	36	16	8	1	1	0	0

Grade	Item Type	N	Mean	Median	SD	Min.	Max.	#Items by Item-Total Correlation Range									
								≤ 0.1	≤ 0.2	≤ 0.3	≤ 0.4	≤ 0.5	≤ 0.6	≤ 0.7	≤ 0.8	≤ 0.9	> 0.9
5	Multiselect	69	0.37	0.38	0.11	0.00	0.62	1	2	13	24	23	4	1	0	0	0
	Multiple Choice	365	0.35	0.35	0.09	0.00	0.64	1	20	85	146	96	14	1	0	0	0
	Composite	58	0.44	0.43	0.15	-0.13	0.98	1	1	4	16	20	11	3	0	1	1
	Gap Match Multiple	34	0.36	0.34	0.09	0.25	0.58	0	0	9	14	5	5	0	0	0	0
	Gap Match Single	3	0.32	0.31	0.02	0.30	0.35	0	0	0	3	0	0	0	0	0	0
	Graphic Gap Match	49	0.36	0.37	0.08	0.16	0.49	0	2	10	19	17	0	0	0	0	0
	Hot Text	11	0.32	0.34	0.18	-0.12	0.56	1	1	0	6	2	1	0	0	0	0
	Text Entry	55	0.37	0.36	0.09	0.11	0.58	0	1	9	27	12	5	0	0	0	0

Grade	Item Type	N	Mean	Median	SD	Min.	Max.	#Items by Item-Total Correlation Range									
								≤ 0.1	≤ 0.2	≤ 0.3	≤ 0.4	≤ 0.5	≤ 0.6	≤ 0.7	≤ 0.8	≤ 0.9	> 0.9
6	Multiselect	46	0.37	0.41	0.25	-1.00	0.77	1	2	5	12	18	4	1	2	0	0
	Multiple Choice	421	0.35	0.37	0.21	-1.00	1.00	23	21	72	131	87	34	4	5	3	7
	Composite	66	0.41	0.43	0.14	-0.22	0.69	2	3	3	19	22	12	3	0	0	0
	Gap Match Multiple	38	0.36	0.33	0.10	0.06	0.56	1	0	7	13	8	3	0	0	0	0
	Gap Match Single	1	0.33	0.33	N/A	0.33	0.33	0	0	0	1	0	0	0	0	0	0
	Graphic Gap Match	27	0.33	0.36	0.21	-0.50	0.73	1	0	7	9	6	1	0	1	0	0
	Hot Text	23	0.25	0.30	0.30	-0.43	1.00	4	2	5	6	4	0	0	0	0	1
	Text Entry	60	0.42	0.39	0.17	0.16	1.00	0	2	8	17	20	2	1	0	1	2
7	Multiselect	51	0.37	0.37	0.13	-0.08	0.80	1	1	8	18	13	2	1	1	0	0
	Multiple Choice	429	0.33	0.34	0.19	-0.66	1.00	28	41	81	147	72	30	9	4	3	5
	Composite	55	0.44	0.42	0.17	0.03	0.98	2	2	5	13	13	8	6	2	0	1
	Gap Match Multiple	34	0.36	0.40	0.15	-0.06	0.64	2	4	3	10	9	4	1	0	0	0
	Gap Match Single	1	0.43	0.43	N/A	0.43	0.43	0	0	0	0	1	0	0	0	0	0
	Graphic Gap Match	8	0.33	0.32	0.07	0.24	0.46	0	0	1	4	1	0	0	0	0	0
	Hot Text	31	0.32	0.35	0.14	-0.05	0.55	3	3	6	7	8	2	0	0	0	0
	Text Entry	59	0.44	0.41	0.14	0.00	1.00	1	0	4	18	20	10	2	1	0	1
8	Multiselect	43	0.40	0.37	0.16	0.07	0.88	1	1	7	18	6	2	5	1	1	0
	Multiple Choice	307	0.33	0.33	0.15	-0.57	0.94	16	15	67	134	43	7	5	2	2	1
	Composite	42	0.40	0.39	0.15	-0.06	0.81	1	3	4	15	11	4	2	1	1	0
	Gap Match Multiple	31	0.38	0.37	0.15	0.01	0.75	1	0	7	11	8	0	1	2	0	0
	Gap Match Single	1	0.49	0.49	N/A	0.49	0.49	0	0	0	0	1	0	0	0	0	0
	Graphic Gap Match	11	0.39	0.33	0.11	0.26	0.62	0	0	2	5	2	1	1	0	0	0
	Hot Text	44	0.35	0.34	0.15	-0.11	0.73	2	1	11	14	9	3	1	1	0	0
	Text Entry	50	0.39	0.37	0.08	0.22	0.63	0	0	5	25	14	3	1	0	0	0
HS	Multiselect	7	0.47	0.50	0.11	0.31	0.60	0	0	0	2	1	3	1	0	0	0
	Multiple Choice	19	0.33	0.38	0.13	0.05	0.52	1	2	4	6	4	2	0	0	0	0

Grade	Item Type	N	Mean	Median	SD	Min.	Max.	#Items by Item-Total Correlation Range									
								≤ 0.1	≤ 0.2	≤ 0.3	≤ 0.4	≤ 0.5	≤ 0.6	≤ 0.7	≤ 0.8	≤ 0.9	> 0.9
	Composite	4	0.41	0.40	0.05	0.36	0.49	0	0	0	2	2	0	0	0	0	0

Note. N/A = Not Applicable

Table E.2. Summary of Item-Total Correlation by Item Type—Field Test Items

Grade	Item Type	N	Mean	Median	SD	Min.	Max.	#Items by Item-Total Correlation Range									
								≤ 0.1	≤ 0.2	≤ 0.3	≤ 0.4	≤ 0.5	≤ 0.6	≤ 0.7	≤ 0.8	≤ 0.9	> 0.9
Reading																	
3	Multiselect	5	0.33	0.39	0.19	0.02	0.52	1	0	1	1	1	1	0	0	0	0
	Multiple Choice	46	0.34	0.37	0.14	-0.01	0.54	4	4	3	14	20	1	0	0	0	0
	Composite	4	0.42	0.44	0.04	0.36	0.45	0	0	0	1	3	0	0	0	0	0
	Gap Match Multiple	4	0.42	0.42	0.05	0.37	0.47	0	0	0	2	2	0	0	0	0	0
	Hot Text	1	0.41	0.41	N/A	0.41	0.41	0	0	0	0	1	0	0	0	0	0
4	Multiselect	19	0.28	0.26	0.10	0.09	0.47	1	3	7	5	3	0	0	0	0	0
	Multiple Choice	75	0.31	0.32	0.11	0.04	0.51	3	9	22	26	14	1	0	0	0	0
	Composite	20	0.35	0.39	0.15	-0.02	0.55	3	0	2	6	7	2	0	0	0	0
	Gap Match Multiple	11	0.40	0.39	0.07	0.33	0.57	0	0	0	6	4	1	0	0	0	0
	Hot Text	1	0.14	0.14	N/A	0.14	0.14	0	1	0	0	0	0	0	0	0	0
5	Multiselect	20	0.31	0.32	0.13	0.00	0.47	2	2	4	5	7	0	0	0	0	0
	Multiple Choice	65	0.30	0.31	0.11	0.00	0.47	3	9	19	24	10	0	0	0	0	0
	Composite	3	0.33	0.24	0.22	0.18	0.58	0	1	1	0	0	1	0	0	0	0
	Gap Match Multiple	7	0.40	0.37	0.11	0.29	0.57	0	0	2	2	1	2	0	0	0	0
	Hot Text	3	0.37	0.41	0.11	0.25	0.47	0	0	1	0	2	0	0	0	0	0
6	Multiselect	20	0.31	0.30	0.11	0.10	0.48	0	4	5	5	6	0	0	0	0	0
	Multiple Choice	48	0.31	0.34	0.12	0.04	0.50	1	9	12	11	15	0	0	0	0	0
	Composite	9	0.36	0.38	0.09	0.23	0.52	0	0	3	3	2	1	0	0	0	0
	Gap Match Multiple	7	0.37	0.39	0.12	0.19	0.53	0	1	1	3	1	1	0	0	0	0
	Hot Text	3	0.41	0.43	0.14	0.26	0.53	0	0	1	0	1	1	0	0	0	0
7	Multiselect	25	0.34	0.35	0.13	0.12	0.53	0	5	5	4	9	2	0	0	0	0
	Multiple Choice	67	0.31	0.34	0.12	0.02	0.52	5	7	14	24	15	2	0	0	0	0
	Composite	22	0.36	0.37	0.12	0.12	0.58	0	3	3	6	9	1	0	0	0	0
	Gap Match Multiple	14	0.38	0.37	0.07	0.23	0.54	0	0	2	7	4	1	0	0	0	0

Grade	Item Type	N	Mean	Median	SD	Min.	Max.	#Items by Item-Total Correlation Range									
								≤ 0.1	≤ 0.2	≤ 0.3	≤ 0.4	≤ 0.5	≤ 0.6	≤ 0.7	≤ 0.8	≤ 0.9	> 0.9
	Hot Text	9	0.29	0.30	0.13	0.11	0.48	0	3	1	3	2	0	0	0	0	0

Grade	Item Type	N	Mean	Median	SD	Min.	Max.	#Items by Item-Total Correlation Range									
								≤ 0.1	≤ 0.2	≤ 0.3	≤ 0.4	≤ 0.5	≤ 0.6	≤ 0.7	≤ 0.8	≤ 0.9	> 0.9
8	Multiselect	19	0.32	0.35	0.13	0.04	0.57	1	2	4	6	5	1	0	0	0	0
	Multiple Choice	64	0.33	0.34	0.13	-0.02	0.59	4	6	13	22	16	3	0	0	0	0
	Composite	21	0.33	0.35	0.15	0.10	0.58	1	5	2	4	5	4	0	0	0	0
	Gap Match Multiple	16	0.40	0.43	0.12	0.07	0.59	1	0	2	3	7	3	0	0	0	0
	Hot Text	10	0.26	0.29	0.16	0.05	0.52	2	2	1	3	1	1	0	0	0	0
HS	Multiselect	3	0.37	0.41	0.07	0.29	0.42	0	0	1	0	2	0	0	0	0	0
	Multiple Choice	12	0.32	0.34	0.13	0.12	0.49	0	3	1	3	5	0	0	0	0	0
	Composite	2	0.49	0.49	0.10	0.42	0.57	0	0	0	0	1	1	0	0	0	0
	Gap Match Multiple	1	0.46	0.46	N/A	0.46	0.46	0	0	0	0	1	0	0	0	0	0
	Gap Match Single	1	0.29	0.29	N/A	0.29	0.29	0	0	1	0	0	0	0	0	0	0
Mathematics																	
3	Multiselect	21	0.36	0.38	0.10	0.21	0.52	0	0	6	6	7	2	0	0	0	0
	Multiple Choice	36	0.31	0.30	0.12	-0.02	0.51	2	2	15	8	6	3	0	0	0	0
	Composite	21	0.43	0.44	0.13	0.16	0.62	0	2	1	6	4	6	2	0	0	0
	Gap Match Multiple	24	0.38	0.40	0.11	0.16	0.54	0	3	4	5	9	3	0	0	0	0
	Gap Match Single	5	0.41	0.38	0.06	0.36	0.51	0	0	0	3	1	1	0	0	0	0
	Graphic Gap Match	13	0.36	0.37	0.10	0.19	0.51	0	1	2	4	5	1	0	0	0	0
	Hot Text	23	0.34	0.35	0.11	0.13	0.52	0	2	5	9	5	2	0	0	0	0
	Text Entry	17	0.48	0.46	0.06	0.36	0.57	0	0	0	2	9	6	0	0	0	0
4	Multiselect	19	0.38	0.38	0.17	0.03	0.61	2	1	3	4	1	7	1	0	0	0
	Multiple Choice	47	0.31	0.35	0.14	-0.12	0.52	5	3	8	18	12	1	0	0	0	0
	Composite	21	0.46	0.47	0.10	0.21	0.63	0	0	2	2	9	7	1	0	0	0
	Gap Match Multiple	6	0.35	0.39	0.12	0.16	0.48	0	1	1	1	3	0	0	0	0	0
	Gap Match Single	3	0.30	0.28	0.05	0.26	0.35	0	0	2	1	0	0	0	0	0	0
	Graphic Gap Match	10	0.46	0.48	0.06	0.33	0.56	0	0	0	2	7	1	0	0	0	0
	Hot Text	27	0.40	0.40	0.08	0.12	0.58	0	1	0	12	12	2	0	0	0	0

Grade	Item Type	N	Mean	Median	SD	Min.	Max.	#Items by Item-Total Correlation Range									
								≤ 0.1	≤ 0.2	≤ 0.3	≤ 0.4	≤ 0.5	≤ 0.6	≤ 0.7	≤ 0.8	≤ 0.9	> 0.9
	Text Entry	20	0.44	0.45	0.10	0.16	0.58	0	1	0	4	9	6	0	0	0	0
5	Multiselect	14	0.42	0.46	0.09	0.28	0.54	0	0	2	4	7	1	0	0	0	0
	Multiple Choice	45	0.32	0.33	0.10	0.05	0.47	1	5	11	19	9	0	0	0	0	0
	Composite	24	0.50	0.51	0.08	0.32	0.64	0	0	0	2	9	11	2	0	0	0
	Gap Match Multiple	19	0.38	0.37	0.11	0.18	0.58	0	1	4	6	6	2	0	0	0	0
	Gap Match Single	4	0.30	0.33	0.10	0.15	0.37	0	1	0	3	0	0	0	0	0	0
	Graphic Gap Match	12	0.40	0.38	0.11	0.25	0.55	0	0	3	4	1	4	0	0	0	0
	Hot Text	23	0.36	0.36	0.13	0.01	0.57	1	2	2	8	6	4	0	0	0	0
	Text Entry	19	0.46	0.48	0.10	0.26	0.59	0	0	3	2	6	8	0	0	0	0

Grade	Item Type	N	Mean	Median	SD	Min.	Max.	#Items by Item-Total Correlation Range									
								≤ 0.1	≤ 0.2	≤ 0.3	≤ 0.4	≤ 0.5	≤ 0.6	≤ 0.7	≤ 0.8	≤ 0.9	> 0.9
6	Multiselect	17	0.38	0.38	0.13	0.22	0.60	0	0	7	3	4	3	0	0	0	0
	Multiple Choice	33	0.25	0.26	0.13	-0.06	0.50	5	4	11	9	4	0	0	0	0	0
	Composite	21	0.48	0.48	0.11	0.20	0.62	0	1	1	2	7	8	2	0	0	0
	Gap Match Multiple	25	0.36	0.38	0.13	-0.01	0.58	1	0	7	8	6	3	0	0	0	0
	Graphic Gap Match	6	0.45	0.42	0.07	0.38	0.54	0	0	0	1	3	2	0	0	0	0
	Hot Text	24	0.33	0.32	0.14	0.04	0.55	1	3	5	8	4	3	0	0	0	0
	Text Entry	34	0.43	0.46	0.09	0.19	0.54	0	1	2	6	19	6	0	0	0	0
7	Multiselect	19	0.30	0.28	0.16	0.04	0.56	3	2	6	2	4	2	0	0	0	0
	Multiple Choice	47	0.29	0.32	0.14	-0.08	0.50	6	7	9	13	10	2	0	0	0	0
	Composite	19	0.37	0.36	0.17	0.10	0.65	0	3	3	5	3	2	3	0	0	0
	Gap Match Multiple	20	0.39	0.35	0.13	0.16	0.62	0	2	2	7	5	3	1	0	0	0
	Graphic Gap Match	4	0.42	0.49	0.18	0.16	0.55	0	1	0	0	1	2	0	0	0	0
	Hot Text	33	0.33	0.30	0.15	0.05	0.60	2	5	8	5	9	4	0	0	0	0
	Text Entry	17	0.45	0.46	0.12	0.16	0.65	0	1	1	2	6	5	2	0	0	0
8	Multiselect	16	0.36	0.36	0.13	-0.01	0.57	1	0	3	5	5	2	0	0	0	0
	Multiple Choice	42	0.29	0.30	0.13	-0.07	0.52	5	5	11	12	8	1	0	0	0	0
	Composite	21	0.38	0.42	0.14	0.02	0.58	2	1	1	4	12	1	0	0	0	0
	Gap Match Multiple	13	0.39	0.44	0.14	0.14	0.53	0	2	2	1	3	5	0	0	0	0
	Gap Match Single	1	0.23	0.23	N/A	0.23	0.23	0	0	1	0	0	0	0	0	0	0
	Graphic Gap Match	8	0.37	0.39	0.11	0.21	0.53	0	0	2	3	2	1	0	0	0	0
	Hot Text	33	0.38	0.41	0.11	0.11	0.57	0	2	7	7	13	4	0	0	0	0
	Text Entry	25	0.43	0.45	0.08	0.23	0.57	0	0	3	4	16	2	0	0	0	0
HS	Multiselect	7	0.44	0.44	0.13	0.25	0.59	0	0	1	2	1	3	0	0	0	0
	Multiple Choice	4	0.23	0.22	0.03	0.20	0.27	0	1	3	0	0	0	0	0	0	0
	Composite	7	0.33	0.35	0.09	0.21	0.43	0	0	2	3	2	0	0	0	0	0

Grade	Item Type	N	Mean	Median	SD	Min.	Max.	#Items by Item-Total Correlation Range									
								≤ 0.1	≤ 0.2	≤ 0.3	≤ 0.4	≤ 0.5	≤ 0.6	≤ 0.7	≤ 0.8	≤ 0.9	> 0.9
	Gap Match Multiple	11	0.35	0.38	0.15	0.08	0.55	1	1	2	3	2	2	0	0	0	0
	Graphic Gap Match	1	0.46	0.46	N/A	0.46	0.46	0	0	0	0	1	0	0	0	0	0
	Hot Text	6	0.34	0.37	0.10	0.18	0.47	0	1	1	3	1	0	0	0	0	0
	Text Entry	1	0.39	0.39	N/A	0.39	0.39	0	0	0	1	0	0	0	0	0	0

Note. N/A = Not Applicable

Maine Through Year Assessment

Reports Interpretive Guide – State Version

(includes State and Region Reports)

23/24 SY

Reading and Mathematics

Contributors

Maine Through Year Assessments are administered by the Maine Department of Education (Maine DOE)

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Augusta, Maine 04333-0023
1-207-624-6600

The assessment contractor is NWEA.
NWEA can be reached by calling Partner Support: 1-855-430-1777.

Assessment Year: 2023-2024

Last Update Date and by:

Date	By
August 2023	NWEA
September 2023	NWEA and Maine DOE

Table of Contents

Part 1 - Introduction

This guide is designed to help teachers and administrators interpret the Maine Through Year Assessment reports in Reading and Mathematics in grades 3–8 and 2nd Year of High School. For more resources and information on Maine's Through Year Assessments, visit the Maine DOE Through Year Assessment webpage or the Maine Connections page.

About the Maine Through Year Assessment

The Maine Through Year Assessments are administered in Reading and Mathematics. These assessments were developed specifically for Maine to provide teachers, students, and parents with information on student learning strengths and needs throughout the year, as well as student progress in mastering college and career-ready skills based on Maine's accountability standards, the Common Core State Standards.

Maine's Through Year Assessments are comprised of eligible items from NWEA's Through Year item bank as well as newly developed items (high school only) that were administered during the spring 2023 administration. NWEA also includes MAP Growth™ items as part of the Maine Through Year Assessment.

Students in grades 3–8 and in the 2nd year of high school are administered assessments in Reading and Mathematics. For the 2023–2024 academic year, both the Fall and Spring administrations are required, while the Winter administration is optional. Paper, large print, and braille assessments are available for qualifying students.

Achievement Level Descriptors

An achievement level is a range of scores that defines a specific level of student achievement, as articulated in the achievement level descriptors (ALDs). The ALDs are a plain-language description of what students must know to fall into each of the achievement levels established through cut scores. The ALDs firmly root the cut scores and achievement levels in the content that students are supposed to learn. In qualitative and quantitative terms, the ALDs and cut scores *together* define the difference between a student who is performing at, below, or above grade-level expectations.

- Well-Below State Expectations - On this assessment, students at this achievement level **demonstrate limited understanding of the knowledge and skills** necessary at this grade level, as specified in the Common Core State Standards. The students ***need substantial academic support*** to be prepared for the next grade level and to be on track for college and career readiness.
- Below State Expectations - On this assessment, students at this achievement level **demonstrate partial understanding of the knowledge and skills** necessary at this grade level, as specified in the Common Core State Standards. The students ***need additional academic support*** to be prepared for the next grade level and to be on track for college and career readiness.
- At State Expectations - On this assessment, students at this achievement level **demonstrate the knowledge and skills** necessary at this grade level, as specified in the Common Core State Standards. The students ***are prepared*** for the next grade level and are on track for college and career readiness.
- Above State Expectations - On this assessment, students at this achievement level **demonstrate advanced understanding of the knowledge and skills** necessary at this grade level, as specified in the Common Core State Standards. The students ***are well prepared*** for the next grade level and are well prepared for college and career readiness.

The cut scores for these achievement levels were established and validated in summer 2023 by Maine educators, the Maine DOE, and the Maine Technical Advisory Committee.

Setting the Cut Scores

To establish the cut scores, a process called “embedded standard setting” helps to determine two points along the scale score range (known as cut scores) that define the score range for each achievement level. Maine educators and stakeholders from around the state participated in the embedded standard-setting process for the Maine Through Year assessments facilitated by edCount and Creative Measurement. The cut score recommendations from this statewide committee were presented to the Maine Department of Education and were approved in late August 2023.

Table 1: Scale Score Ranges by Grade on the following page presents the scale score ranges for each achievement level by content area. The **At State Expectations** cut scores demark the minimum level of achievement considered to be proficient for accountability purposes. For example, Grade 5 At State Expectations cut scores are 1500-1524 for Reading and 1500-1524 for Mathematics.

Table 1: Scale Score Ranges by Grade

Math	Scale Score Ranges			
Grade	Well Below State Expectations	Below State Expectations	At State Expectations	Above State Expectations
3	1400-1485	1486-1499	1500-1524	1525-1600
4	1400-1487	1488-1499	1500-1524	1525-1600
5	1400-1483	1484-1499	1500-1524	1525-1600
6	1400-1480	1481-1499	1500-1524	1525-1600
7	1400-1481	1482-1499	1500-1524	1525-1600
8	1400-1483	1484-1499	1500-1524	1525-1600
HS	1400-1488	1489-1499	1500-1524	1525-1600
Reading	**Scale Score Ranges**			
Grade	Well Below State Expectations	Below State Expectations	At State Expectations	Above State Expectations
3	1400-1482	1483-1499	1500-1524	1525-1600
4	1400-1485	1486-1499	1500-1524	1525-1600
5	1400-1486	1487-1499	1500-1524	1525-1600
6	1400-1485	1486-1499	1500-1524	1525-1600
7	1400-1482	1483-1499	1500-1524	1525-1600
8	1400-1483	1484-1499	1500-1524	1525-1600
HS	1400-1488	1489-1499	1500-1524	1525-1600

RIT Scores

In addition to scale scores, student reports show a RIT score. The RIT score helps place student achievement in the context of national norms. The RIT scale measures levels in academic difficulty, and extends equally across all grades, making it possible to compare a student's score at various points throughout his/her education.

The RIT score is provided on reports for the overall Math and Reading content areas. The RIT score is also provided for all Instructional Areas in each content area.

Interpreting the Test Results

In the interpretation of test results, it is not appropriate to compare scale scores across content areas. Each content area is scaled separately; therefore, the scale scores for one content area cannot be compared to another content area.

Sample Maine Through Year reports and terminology explanations appear on the following pages to aid in understanding test results.

Available Reports

The following reports are described in this Maine Through Year Reports Interpretive Guide. *Please note that the data used in these reports within this guide are mocked and do not reflect actual results*.

Report Name	Aggregation Level	Summary
State Report on page 144	State	Shows the average scale scores for regions in the state, the distribution of region average scale scores across the achievement levels, and the distribution of student scale scores in each region.
Region Report on page 147	Region	Shows the average scale scores for districts in the region, the distribution of district average scale scores across the achievement levels, and the distribution of student scale scores in each district.
District Report on page 150	District	Shows the average scale scores for schools in the district, the distribution of school average scale scores across the achievement levels, and the distribution of student scale scores in each school.
School Report on page 153	School	Shows the average scale scores for students in the school, the distribution of student scale scores across the achievement levels, the average scale scores, and score distribution for each group in the school, and the individual scale scores for each student in the school.
Teacher Report on page 157	Group	Shows the average scale scores for students in the group, the distribution of student scale scores across the achievement levels, and the individual scale scores for each student in the group.
Student Report on page 161	Individual student	Shows all the details for an individual student's test.
Individual Student Report on page 166	Individual Student	Shows all tests in all available content areas for a student in this academic year. Designed for parents and families.
RIT Report on page 170	Varies—based on user type	Shows RIT score information for all students matching the search criteria, including RIT score, achievement percentile, and reporting category RIT.
Demographic Report on page 172	Varies—based on user type	Shows the average scale scores, average reporting category scores, and distribution of scale scores for demographic groups such as gender, ethnicity/race, and targeted group.

Part 2 - Organization Reports

State Report

The organization report for the state shows student performance in each region in the state. It is available for users with state-level access to reports.

To generate an organization report at the state level:

1. In Acacia, select **Menu** > **Reports** > **Student Scores**.
2. Verify that you are on the **Organization** tab. This is the default tab.

3. In the **Organization** field, select the Maine.
4. Select the other report criteria as desired, then select **Find**.
5. The report appears in the search results. Select the report to view it.

State Report: Histogram View

The histogram view of the state report contains bar graphs showing the number of regions with an average scale score in each achievement level for the selected grade and content area.

1. **Median* Scale Score**: The median scale score for students in this grade in the state.
2. **Regions with Scores**: Select this to switch to the list view. Refer to State Report: List View on page 146.
3. **Bar Graph**: Total number of regions with an average* scale score lying in each achievement level.
4. **Regions**: Select an achievement level from the bar graph to see a list of regions with an average* scale score in that achievement level. Select any region to view the region report. Refer to Region Report: Histogram View on page 148.
5. **Students Completed**: Students with completed tests, out of the total number of registered students in the grade in this region.
6. **Average* Score**: The average scale score for students in this grade and content area.
7. **Score Levels**: The percentage of students in the region who scored in each achievement level.
8. **Score Levels (footer)**: The cut scores for each achievement level for this grade and content area.
9. **Print**: Select the PDF icon to print this report.

* Note that all averages and medians are updated as students continue testing; wait until the end of the test window to make comparisons based on school, district, or state averages and medians.

State Report: List View

The list view of the state report shows each region in the state along with information about assessment results for the content area in that region. The list view also lists regions without any scores posted, which can help administrators track whether regions have begun testing.

1. **Median* Scale Score**: Select to switch to the histogram view. Refer to State Report: Histogram View on page 145.
2. **Regions With Scores**: Regions with completed tests, out of the total number of regions in the state.
3. **Students Completed**: Students in the grade and region with completed tests, out of the total number of registered students in the grade and region.
4. **Average* Score**: The average scale score for students in the grade and region with completed tests.
5. **Score Levels**: A visual representation of the distribution of scores for students in the grade and region. It shows the percentage of students in each achievement level.
6. **Score Levels (footer)**: The cut scores for each achievement level for this grade and content area.
7. **Print**: Select the PDF icon to print this report.

*Medians and averages: Note that all averages and medians are updated as students continue testing; wait until the end of the test window to make comparisons based on school, district, or state averages and medians.

Region Report

The organization report for a region shows student performance in each district in the region. Users with region-level access can generate this report directly, while users with higher level access can drill down to this report from the state report, as well as access the report directly by choosing a district name.

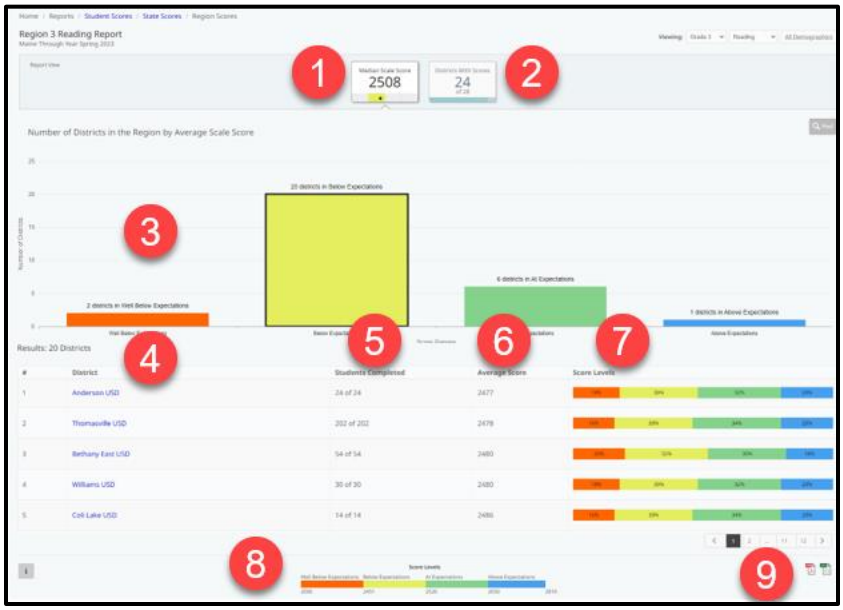
To generate an organization report at the region level:

1. In Acacia, select **Menu** > **Reports** > **Student Scores**.
2. Verify that you are on the **Organization** tab. This is the default tab.
3. In the **Organization** field, select your region.

4. Select the other report criteria as desired, then select **Find**.
5. The report appears in the search results. Select the report to view it.

Region Report: Histogram View

The histogram view of the region report contains bar graphs showing the number of districts with an average scale score in each achievement level for the selected grade and content area.



1. **Median* Scale Score**: The median scale score for students in this grade in the region.
2. **Districts with Scores**: Select this to switch to the list view. Refer to Region Report: List View on page 149.
3. **Bar Graph**: Total number of districts with an average* scale score lying in each achievement level.
4. **Districts**: Select an achievement level from the bar graph to see a list of districts with an average* scale score in that achievement level. Select any district to view the district report. Refer to District report: Histogram view on page 151.
5. **Students Completed**: Students with completed tests, out of the total number of registered students in the grade at this district.
6. **Average* Score**: The average scale score for students in this grade and content area.
7. **Score Levels**: The percentage of students at the district who scored in each achievement level.
8. **Score Levels (footer)**: The cut scores for each achievement level for this grade and content area.
9. **Print**: Select the PDF icon to print this report, or the CSV icon to download a spreadsheet of data.

* Note that all averages and medians are updated as students continue testing; wait until the end of the test window to make comparisons based on school, district, or state averages and medians.

Region Report: List View

The list view shows each district in the region along with information about assessment results in the selected content area at that district. The list view also lists districts without any scores posted, which can help administrators track whether districts have begun testing.

1. **Median* Scale Score**: Select to switch to the histogram view. Refer to Region Report: Histogram View on page 148.
2. **Districts With Scores**: Districts with completed tests, out of the total number of districts in the region.
3. **Students Completed**: Students in the grade and district with completed tests, out of the total number of registered students in the grade and district.

4. **Average* Score**: The average scale score for students in the grade and district with completed tests.
5. **Score Levels**: A visual representation of the distribution of scores for students in the grade and district. It shows the percentage of students in each achievement level.
6. **Score Levels (footer)**: The cut scores for each achievement level for this grade and content area.
7. **Print**: Select the PDF icon to print this report.

*Medians and averages: Note that all averages and medians are updated as students continue testing; wait until the end of the test window to make comparisons based on school, district, or state averages and medians.

District Report

The organization report for a district shows student performance in each school in the district. Users with district-level access such as District Assessment Coordinators can access this report directly, while users with higher level access can drill down to this report from a region report, as well as access the report directly by choosing a region name.

To generate an organization report at the district level:

1. In Acacia, select **Menu** > **Reports** > **Student Scores**.
2. Verify that you are on the **Organization** tab. This is the default tab.
3. In the **Organization** field, select your district.

4. Select the other report criteria as desired, then select **Find**.
5. The report appears in the search results. Select the report to view it.

District Report: Histogram View

The histogram view of the district report contains bar graphs showing the number of schools with an average scale score in each achievement level for the selected grade and content area.

1. **Median* Scale Score**: The median scale score for students in this grade at the district.
2. **Schools with Scores**: Select to switch to the list view. Refer to District Report: List view on page 152.
3. **Bar Graph**: Total number of schools with an average* scale score lying in each achievement level.
4. **Schools**: Select an achievement level from the bar graph to see a list of schools with an average* scale score in that achievement level. Select any school to view the school report. Refer to School Report: Histogram View on page 154.
5. **Students Completed**: Students with completed tests, out of the total number of registered students in the grade at this school.

6. **Average* Score**: The average scale score for students in this grade and content area.
7. **Score Levels**: The percentage of students at the school who scored in each achievement level.
8. **Score Levels (footer)**: The cut scores for each achievement level for this grade and content area.
9. **Print**: Select the PDF icon to print this report, or the CSV icon to download a spreadsheet of data.

* Note that all averages and medians are updated as students continue testing; wait until the end of the test window to make comparisons based on school, district, or state averages and medians.

District Report: List View

The list view shows each school in the district along with information about assessment results in the selected content area at that school. The list view also lists schools without any scores posted, which can help administrators track whether schools have begun testing.

1. **Median* Scale Score**: Select to switch to the histogram view. Refer to District Report: Histogram View on page 151.
2. **Schools with Scores**: Select to switch to the list view.
3. **Students Completed**: Students in the grade and school with completed tests, out of the total number of registered students in the grade and school.
4. **Average* Score**: The average scale score for students in the grade and school with completed tests.
5. **Score Levels**: A visual representation of the distribution of scores for students in the grade and school. It shows the percentage of students in each achievement level.
6. **Score Levels (footer)**: The cut scores for each achievement level for this grade and content area.
7. **Print**: Select the PDF icon to print this report or the CSV icon to download a spreadsheet.

*Medians and averages: Note that all averages and medians are updated as students continue testing; wait until the end of the test window to make comparisons based on school, district, or state averages and medians.

School Report

The organization report for a school shows student performance at the school. Users with school-level access such as School Assessment Contacts can access this report directly, while users with higher level access can drill down to this report from a district report, as well as access the report directly by choosing a school name.

To generate an organization report at the school level:

1. In Acacia, select **Menu** > **Reports** > **Student Scores**.
2. Verify that you are on the **Organization** tab. This is the default tab.
3. In the **Organization** field, select your school.

4. Select the other report criteria as desired, then select **Find**.
5. The report appears in the search results. Select the report to view it.

School Report: Histogram View

The histogram view of the school report contains bar graphs showing the number of students with a scale score in each achievement level for the selected grade and content area.

1. **Median* Scale Score**: The median scale score for students in this grade and school.
2. **Students Tested**: Select to switch to the list view. Refer to School Report: List View on page 155.
3. **Median* RIT**: Select to switch to the RIT score view. Refer to School Report: RIT View on page 156.
4. **Bar Graph**: Total number of students in each achievement level for this grade and school.
5. **Median* Score Comparison**: The median scores for the grade at the school, region, district, and state level.
6. **Student Details**: Select an achievement level from the bar graph to see a list of students who scored in that achievement level. Select any column heading to sort. Choose any student to view their student report. Refer to Student Reports starting on page 161.
7. **Current Achievement Level**: The achievement level associated with the student's scale score.
8. **Score Range**: The student's score and achievement level on the overall scale. The dot shows the student's scale score, and the lines show the range. The range indicates that, if the student were tested again in similar circumstances, we would expect their score to be within the range.
9. **Score Levels (footer)**: The cut scores for each achievement level for this grade and content area.
10. **Print**: Select the PDF icon to print this report.

* Note that all averages and medians are updated as students continue testing; wait until the end of the test window to make comparisons based on school, district, or state averages and medians.

School Report: List View

The list view shows all reporting groups for the selected grade and content area at the school. For each reporting group, the number of students who have completed the test, the average score, and the distribution of scores across the achievement levels is listed.

At the top of the list of groups, an **All Students** group is listed to see information about all students in the selected grade at the school who were registered for the selected content area. Select a reporting group to view the teacher report for that group. Refer to Teacher Report: List View on page 159.

1. **Median* Scale Score**: Select to switch to the histogram view. Refer to School Report: Histogram View on page 154.
2. **Students Tested**: Students with completed tests, out of the total number of students in the grade and school.
3. **Median* RIT**: Select to switch to the RIT score view. Refer to School Report: RIT View on page 156.
4. **Students Completed**: Students in the reporting group with completed tests, out of the total number of students in the reporting group.
5. **Average* Score**: The average scale score for students in the reporting group with completed tests.
6. **Score Levels**: A visual representation of the distribution of scores for students in the reporting group. It shows the percentage of students in each achievement level.
7. **Score Levels (footer)**: The cut scores for each achievement level for this grade and content area.
8. **Print**: Select the PDF icon to print this report.

*Medians and averages: Note that all averages and medians are updated as students continue testing; wait until the end of the test window to make comparisons based on school, district, or state averages and medians.

School Report: RIT View

The list view shows all students in the selected grade and content area at the school. Each student's RIT score, achievement percentile, and reporting category RIT is displayed. Refer to RIT Scores on page 142 for more information about how RIT scores are generated.

1. **Median* Scale Score**: Select to switch to the histogram view. Refer to School Report: Histogram View on page 154.
2. **Students Tested**: Select to switch to the list view. Refer to School Report: List View on page 155.
3. **Median* RIT**: The median RIT score for students in this grade and content area. The dot represents the achievement percentile corresponding to the median RIT score, and the colored box behind the dot represents the quintile.

4. **Student Details**: Select any column heading to sort the student list.
5. **RIT Score**: The RIT score for this assessment. If the student has an NTC instead of a score, the NTC is displayed.
6. **Achievement Percentile**: The dot represents the student's percentile ranking based on the RIT score. The colored box behind the dot represents the quintile.
7. **Instructional Area RIT**: The RIT score for each reporting category in this content area. Reporting category RIT scores are calculated based on student responses to the items in that category and cannot be averaged to generate an overall RIT.
8. **Percentile Range**: The range of percentiles that comprise each quintile.
9. **Print**: Select the PDF icon to print this report.

*Medians and averages: Note that all averages and medians are updated as students continue testing; wait until the end of the test window to make comparisons based on school, district, or state averages and medians.

Teacher Report

The organization report for a teacher shows student performance in a particular group. Teachers can access this report directly, while users with higher level access can drill down to this report from a school report.

To generate an organization report at the school level:

1. In Acacia, select **Menu** > **Reports** > **Student Scores**.
2. Verify that you are on the **Organization** tab. This is the default tab.
3. In the **Groups** field, select a group, or choose **All Groups**.

4. Select the other report criteria as desired, then select **Find**.
5. Results for the group you specified appear. Select the report you want to view.

Teacher Report: Histogram View

The histogram view of the teacher report contains bar graphs showing the number of students in the group with an average scale score in each achievement level for the selected grade and content area.

1. **Median* Scale Score**: The median scale score for students in this group.
2. **Students Tested**: Select to switch to the list view. Refer to Teacher Report: List View on page 159.
3. **Median* RIT**: Select to switch to the RIT score view. Refer to Teacher Report: RIT view on page 160.
4. **Bar Graph**: Total number of students in each achievement level for this group.
5. **Median* Score Comparison**: The medians for the school, district, region, and state.
6. **Student Scores**: Select an achievement level from the bar graph to see a list of students who scored in that achievement level. Select any student to view their student report. Refer to Student Reports starting on page 161.
7. **Score Range**: The student's score on the overall scale. The dot shows the student's scale score, and the lines show the range. The range indicates that, if the student were tested again in similar circumstances, we would expect their score to be within the range.
8. **Score Levels (footer)**: The cut scores for each achievement level for this grade and content area.
9. **Print**: Select the PDF icon to print this report.

* Note that all averages and medians are updated as students continue testing; wait until the end of the test window to make comparisons based on school, district, or state averages and medians.

Teacher Report: List View

The list view shows all students in the selected group, along with information about their assessment results in the selected content area.

1. **Median* Scale Score**: Select to switch to the histogram view. Refer to Teacher Report: Histogram View on page 158.
2. **Students Tested**: Students with completed tests, out of the total number of students in the group.
3. **Median* RIT**: Select to switch to the RIT score view. Refer to Teacher Report: RIT View on page 160.
4. **Scale Score**: The student's scale score for this content area.
5. **Score Range**: A visual representation of the student's score compared to the achievement levels. The dot shows the student's scale score, and the lines show the range. The range indicates that, if the student were tested again in similar circumstances, we would expect their score to be within the range.
6. **Score Levels (footer)**: The cut scores for each achievement level for this grade and content area.
7. **Print**: Select the PDF icon to print this report.

* Note that all averages and medians are updated as students continue testing; wait until the end of the test window to make comparisons based on school, district, or state averages and medians.

Teacher Report: RIT View

The list view shows all students in the selected group and content area. Each student's RIT score, achievement percentile, and Instructional Area RIT are displayed. Refer to RIT Scores on page 142 for more information about how RIT scores are generated.

1. **Median* Scale Score**: Select to switch to the histogram view. Refer to Teacher Report: Histogram View on page 158.
2. **Students Tested**: Select to switch to the list view. Refer to Teacher Report: List View on page 159.
3. **Median* RIT**: The median RIT score for students in this group and content area. The dot represents the achievement percentile corresponding to the median RIT score, and the colored box behind the dot represents the quintile.
4. **Student RIT Scores**: Select any column heading to sort the student list.
5. **RIT Score**: The RIT score for this assessment. If the student has an NTC instead of a score, the NTC is displayed.
6. **Achievement Percentile**: The dot represents the student's percentile ranking based on the RIT score. The colored box behind the dot represents the quintile.
7. **Instructional Area RIT**: The RIT score for each reporting category in this content area. Instructional Area RIT scores are calculated based on student responses to the items in that category and cannot be averaged to generate an overall RIT.
8. **Percentile Range**: The range of percentiles that comprise each quintile.
9. **Print**: Select the PDF icon to print this report.

*Medians and averages: Note that all averages and medians are updated as students continue testing; wait until the end of the test window to make comparisons based on school, district, or state averages and medians.

Part 3 - Student Reports

Student Report

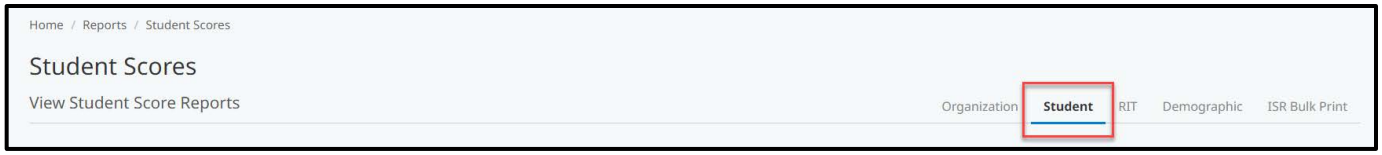
The student report shows a student's achievement on the Maine Through Year Mathematics and Reading assessments. The report shows the student's overall score and RIT score in a particular content area and in Instructional Areas, as well as the student's current achievement level, and the average score for the district. You can also see the student's item responses (correct, incorrect, or partially correct) by reporting category, general information about each item, and the specific Maine Standard to which each item is aligned.

> **Note**: The Student report is designed for use by educators. The Individual Student Report (ISR) is designed to communicate student performance on the Maine Through Year assessments to families. Refer to Individual Student Report on page 166 for details.

The student report is available online through Acacia.

To access the report for a student:

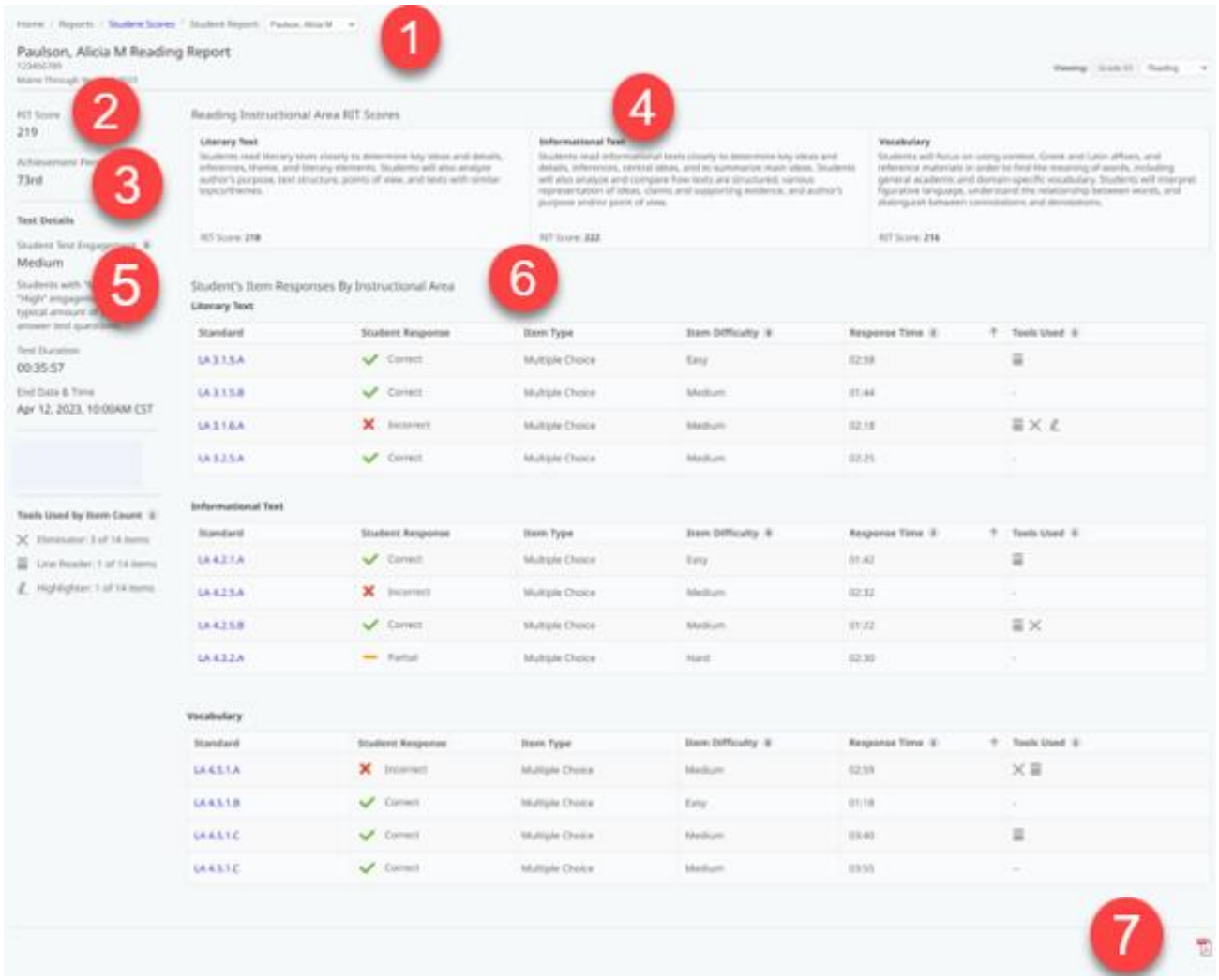
1. In the main menu, select **Reports** > **Student Scores**.
2. At the top right, select the **Student** tab.



3. Enter the search criteria and select **Find**.
4. All reports matching the search criteria are listed. Select the report for the test administration and content area you wish to view.

You can also drill down to a student through a report for a group, school, or district you have access to.

Figure 1: Sample Student Report Fall / Winter



1. **Header and navigation**

   The header area of the report contains information about the student and his/her test, as well as navigation options. On the left, the student's name, ID, and the test season are listed. At the top, you can navigate to reports at different aggregation levels, or use the menu to select another student to view. On the right, you can see the student's grade, and switch between viewing different content areas.

2. **RIT Score**

   The student's RIT score for the content area is shown on the left, while the RIT score for each Instructional Area is in the Instructional Area RIT Scores section.

   A RIT score is available for both Math and Reading content areas.

3. **Achievement Percentile**

   The student's achievement percentile compares the student to national norms, as reported in the 2020 MAP Growth norms. This achievement percentile is calculated using the RIT Score.

   Note: The achievement percentile is calculated assuming a default number of weeks of instruction prior to testing. MAP Growth reports can have the number of weeks of instruction customized, so you may see different achievement percentiles for the same RIT score if you view any saved MAP Growth reports from prior academic years.

4. **Instructional Area RIT Scores**

   This section shows the student's scale score and RIT score for each Instructional Area, and the Instructional Areas are briefly described.

5. **Test Details and Tools Used**

   Details about the student's test are listed here. The Student Test Engagement metric uses the presence of rapid responses to questions to infer whether students rushed through the test. Students with low engagement answered some questions very quickly, and the final score may not reflect the student's best effort. Students with medium or high engagement took the typical amount of time to answer test questions.

   In the Tools Used by Item Count section, select the info icon on the report to learn more about the tools the student used during the test.

6. **Student's Item Responses by Instructional Area**

   This section shows how the student responded to each test item in each reporting category. You can see whether the student's answer was correct, incorrect, or partially correct, as well as the item types shown in Table 2 on page 164 (such as multiple choice), the item's relative difficulty, the student's response time, and the tools used on that item.

   The Common Core State Standards to which the item is aligned is also listed. Select the standard code to read the standard in full.

   Note: Each item assesses only one standard, and some items contribute to the Maine Through Year score, RIT score, or both.

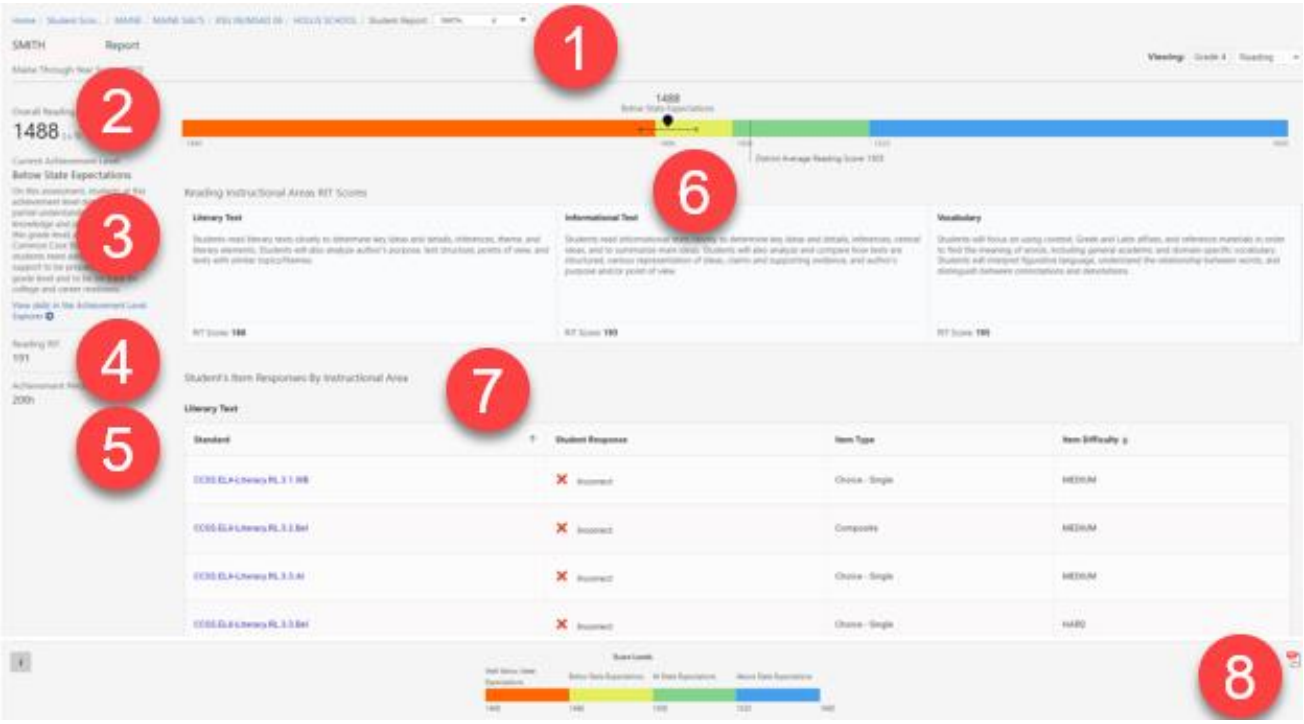
Table 2: List of Item Types

Item Type in Student Report	Item Type
QTI 3 Choice - Single	Choice
QTI 3 Choice - Multiple	Choice Multiple
QTI 3 Composite	Composite
QTI 3 Gap Match - Multiple	Gap Match
QTI 3 Graphic Gap Match	Graphic Gap Match
QTI 3 Hot Text	Hot Text
QTI 3 Text Entry	Text Entry

7. **Print**

   To print a PDF of the report, select the PDF icon on the bottom right.

Figure 2: Sample Student Report for Spring



1. **Header and navigation**

   The header area of the report contains information about the student and his/her test, as well as navigation options. On the left, the student's name, ID, and the test season are listed. At the top, you can navigate to reports at different aggregation levels, or use the menu to select another student to view. On the right, you can see the student's grade, and switch between viewing different content areas.

2. **Scale Score**
   The student's scale score for this content area.

3. **Achievement Level**

   The student's current achievement percentile, determined by comparing their overall score to the cut scores, is shown on the top left. Refer to Achievement Level Descriptors and Setting the Cut Scores on page 141 for more details.

4. **RIT Score**

   The student's RIT score for the content area is shown on the left, while the RIT score for each Instructional Area is in the Instructional Area RIT Scores section.

   A RIT score is available for both Math and Reading content areas.

5. **Achievement Percentile**

   The student's achievement percentile compares the student to national norms, as reported in the 2020 MAP Growth norms. This achievement percentile is calculated using the RIT Score.

   Note: The achievement percentile is calculated assuming a default number of weeks of instruction prior to testing. MAP Growth reports can have the number of weeks of instruction customized, so you may see different achievement percentiles for the same RIT score if you view any saved MAP Growth reports from prior academic years.

6. **Instructional Area RIT Scores**

   This section shows the student's scale score and RIT score for each Instructional Area, and the Instructional Areas are briefly described.

7. **Student's Item Responses by Instructional Area**

   This section shows how the student responded to each test item in each reporting category. You can see whether the student's answer was correct, incorrect, or partially correct, as well as the item types shown in Table 2 on page 164, the item's relative difficulty, the student's response time, and the tools used on that item.

   The Common Core State Standards to which the item is aligned is also listed. Select the standard code to read the standard in full.

   Note: Each item assesses only one standard, and some items contribute to the Maine Through Year score, RIT score, or both.

8. **Print**

   To print a PDF of the report, select the PDF icon on the bottom right.

Individual Student Report (Spring Only)

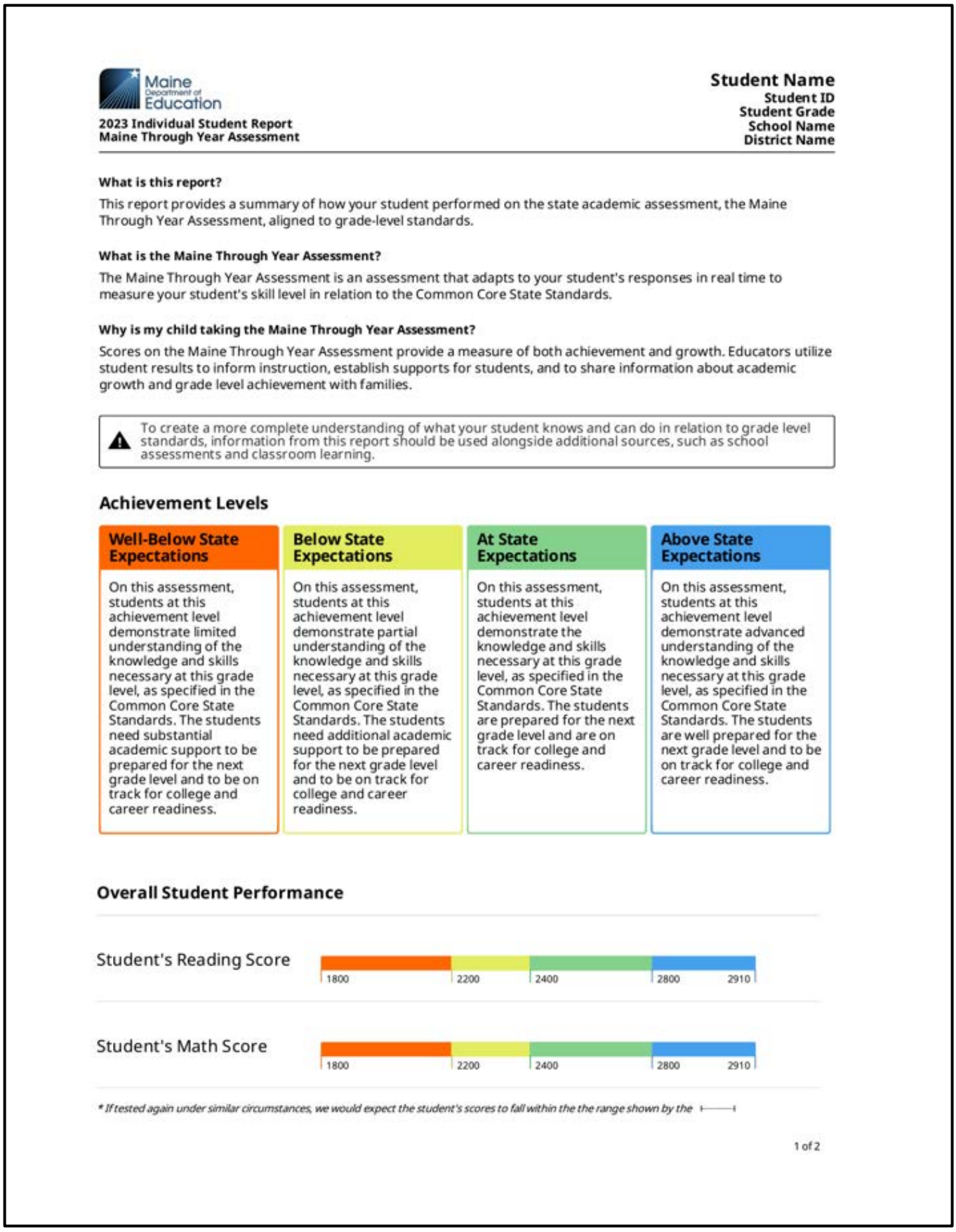
The Individual Student Report (ISR) is designed to show a student's achievement on the Maine Through Year Reading and Mathematics assessments to parents and families. Educators can print these reports in batches, making it easy to distribute after testing is complete. The Individual Student Reports are generated for the spring term assessment and will not be available for the fall and winter assessments.

To generate the ISR for an individual student or a batch of students:

1. In the main menu, select **Reports** > **Student Scores**.
2. At the top right, select the **ISR Bulk Print** tab.
3. Select whether to download ISRs for **Bulk Students** or **One Student**.

4. Enter the search criteria and select **Find**.
5. All reports matching the search criteria are listed. For an individual student, select the PDF icon to download the report. For a batch of students, select the **Generate** button to download a zip file containing the ISRs for this batch of students.

Figure 2: Individual Student Report - Grades 3-5, Page 1



Maine Department of Education

2023 Individual Student Report
Maine Through Year Assessment

Student Name
Student ID
Student Grade
School Name
District Name

What is this report?

This report provides a summary of how your student performed on the state academic assessment, the Maine Through Year Assessment, aligned to grade-level standards.

What is the Maine Through Year Assessment?

The Maine Through Year Assessment is an assessment that adapts to your student's responses in real time to measure your student's skill level in relation to the Common Core State Standards.

Why is my child taking the Maine Through Year Assessment?

Scores on the Maine Through Year Assessment provide a measure of both achievement and growth. Educators utilize student results to inform instruction, establish supports for students, and to share information about academic growth and grade level achievement with families.

⚠ To create a more complete understanding of what your student knows and can do in relation to grade level standards, information from this report should be used alongside additional sources, such as school assessments and classroom learning.

Achievement Levels

Well-Below State Expectations	Below State Expectations	At State Expectations	Above State Expectations
On this assessment, students at this achievement level demonstrate limited understanding of the knowledge and skills necessary at this grade level, as specified in the Common Core State Standards. The students need substantial academic support to be prepared for the next grade level and to be on track for college and career readiness.	On this assessment, students at this achievement level demonstrate partial understanding of the knowledge and skills necessary at this grade level, as specified in the Common Core State Standards. The students need additional academic support to be prepared for the next grade level and to be on track for college and career readiness.	On this assessment, students at this achievement level demonstrate the knowledge and skills necessary at this grade level, as specified in the Common Core State Standards. The students are prepared for the next grade level and are on track for college and career readiness.	On this assessment, students at this achievement level demonstrate advanced understanding of the knowledge and skills necessary at this grade level, as specified in the Common Core State Standards. The students are well prepared for the next grade level and to be on track for college and career readiness.

Overall Student Performance

Student's Reading Score

1800 2200 2400 2800 2910

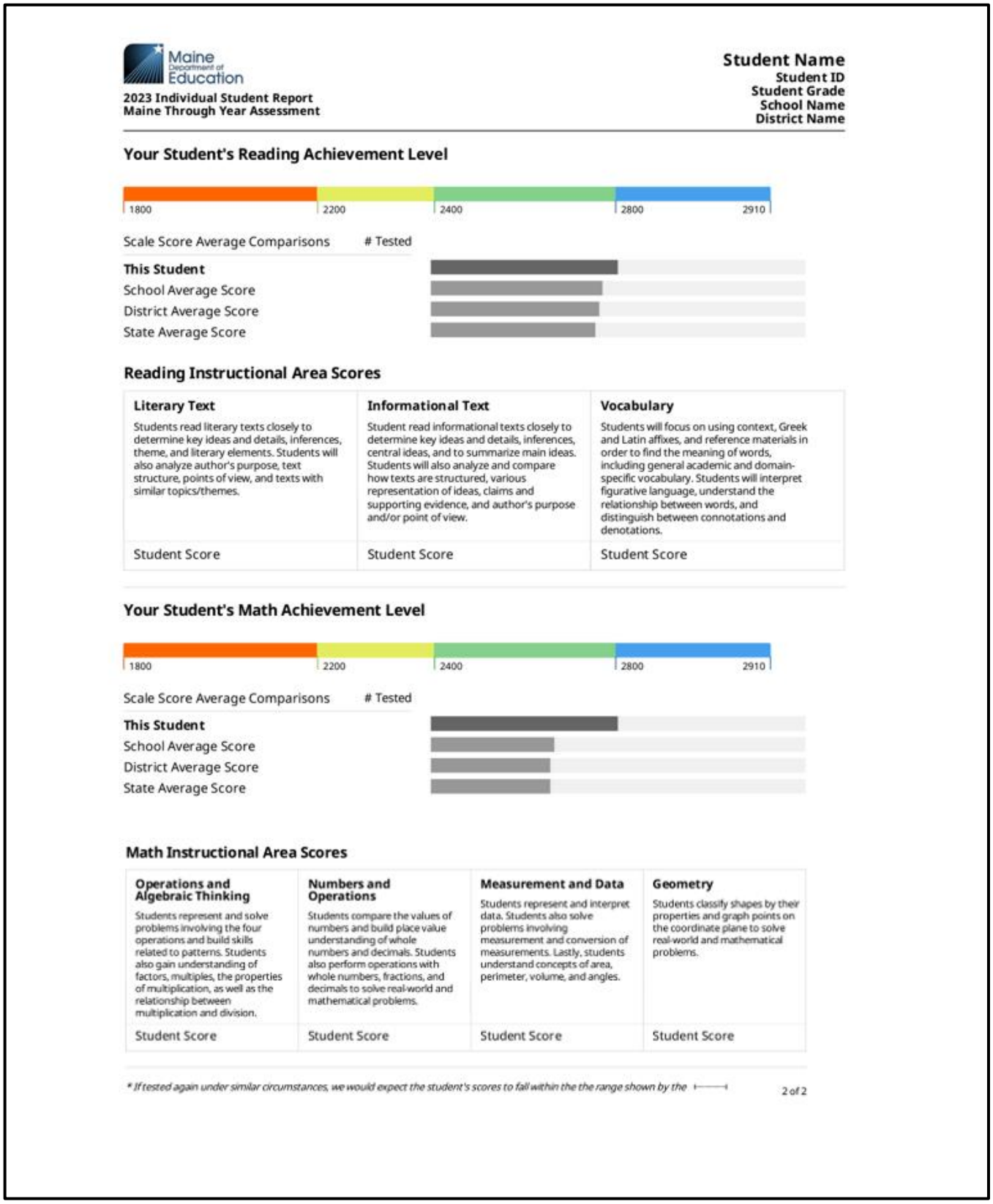
Student's Math Score

1800 2200 2400 2800 2910

** If tested again under similar circumstances, we would expect the student's scores to fall within the the range shown by the* ⊢—⊣

1 of 2

Figure 3: Individual Student Report - Grades 3-5, Page 2



Maine Department of Education

2023 Individual Student Report
Maine Through Year Assessment

Student Name
Student ID
Student Grade
School Name
District Name

Your Student's Reading Achievement Level

1800 | 2200 | 2400 | 2800 | 2910

Scale Score Average Comparisons	# Tested
This Student	
School Average Score	
District Average Score	
State Average Score	

Reading Instructional Area Scores

Literary Text	Informational Text	Vocabulary
Students read literary texts closely to determine key ideas and details, inferences, theme, and literary elements. Students will also analyze author's purpose, text structure, points of view, and texts with similar topics/themes.	Student read informational texts closely to determine key ideas and details, inferences, central ideas, and to summarize main ideas. Students will also analyze and compare how texts are structured, various representation of ideas, claims and supporting evidence, and author's purpose and/or point of view.	Students will focus on using context, Greek and Latin affixes, and reference materials in order to find the meaning of words, including general academic and domain-specific vocabulary. Students will interpret figurative language, understand the relationship between words, and distinguish between connotations and denotations.
Student Score	Student Score	Student Score

Your Student's Math Achievement Level

1800 | 2200 | 2400 | 2800 | 2910

Scale Score Average Comparisons	# Tested
This Student	
School Average Score	
District Average Score	
State Average Score	

Math Instructional Area Scores

Operations and Algebraic Thinking	Numbers and Operations	Measurement and Data	Geometry
Students represent and solve problems involving the four operations and build skills related to patterns. Students also gain understanding of factors, multiples, the properties of multiplication, as well as the relationship between multiplication and division.	Students compare the values of numbers and build place value understanding of whole numbers and decimals. Students also perform operations with whole numbers, fractions, and decimals to solve real-world and mathematical problems.	Students represent and interpret data. Students also solve problems involving measurement and conversion of measurements. Lastly, students understand concepts of area, perimeter, volume, and angles.	Students classify shapes by their properties and graph points on the coordinate plane to solve real-world and mathematical problems.
Student Score	Student Score	Student Score	Student Score

** If tested again under similar circumstances, we would expect the student's scores to fall within the the range shown by the ⊢⊣*

2 of 2

Reading Instructional Areas Grades 3-8 and High School

Literary Text	Informational Text	Vocabulary
Students read literary texts closely to determine key ideas and details, inferences, theme, and literary elements. Students will also analyze author's purpose, text structure, points of view, and texts with similar topics/themes.	Students read informational texts closely to determine key ideas and details, inferences, central ideas, and to summarize main ideas. Students will also analyze and compare how texts are structured, various representation of ideas, claims and supporting evidence, and author's purpose and/or point of view.	Students will focus on using context, Greek and Latin affixes, and reference materials in order to find the meaning of words, including general academic and domain-specific vocabulary. Students will interpret figurative language, understand the relationship between words, and distinguish between connotations and denotations.

Math Instructional Areas Grades 3-5

Operations and Algebraic Thinking	Numbers and Operations	Measurement and Data	Geometry
Students represent and solve problems involving the four operations and build skills related to patterns. Students also gain understanding of factors, multiples, the properties of multiplication, as well as the relationship between multiplication and division.	Students compare the values of numbers and build place value understanding of whole numbers and decimals. Students also perform operations with whole numbers, fractions, and decimals to solve real-world and mathematical problems.	Students represent and interpret data. Students also solve problems involving measurement and conversion of measurements. Lastly, students understand concepts of area, perimeter, volume, and angles.	Students classify shapes by their properties and graph points on the coordinate plane to solve real-world and mathematical problems.

The Math Instructional Area Scores for Math, Grades 6+ are slightly different than the Math Instructional Area Scores for Math, Grades 3 – 5, as shown below in Figure 4.

Figure 4: Individual Student Report - Grades 6 +, Math Instructional Area Scores

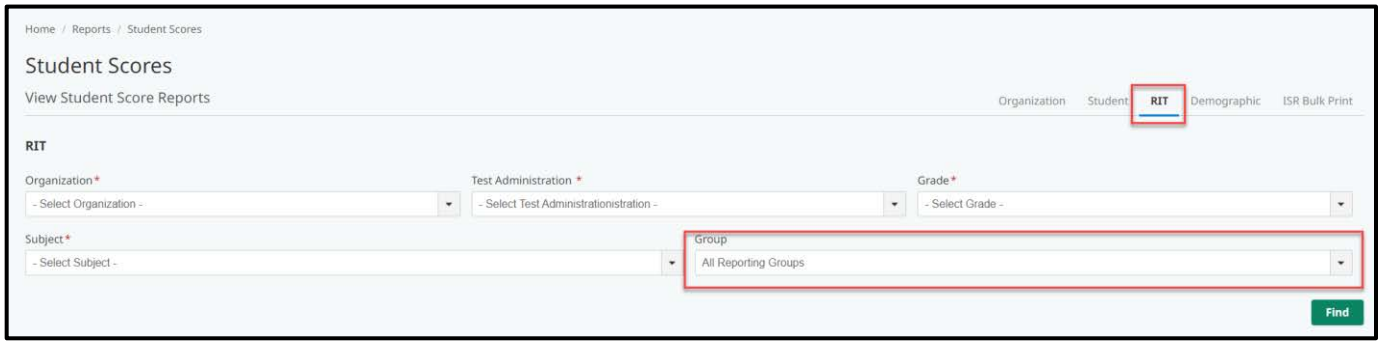
Operations and Algebraic Thinking	The Real and Complex Number Systems	Geometry	Statistics and Probability
Students solve real-life and mathematical problems using numerical and algebraic expressions and equations, as well as linear and quadratic functions.	Students use ratio reasoning and units to solve problems. Students also use properties of rational and irrational numbers and reason quantitatively.	Students solve real-world and mathematical problems involving length, angle measure, area, surface area, and volume. Students also apply and prove geometric theorems. Finally, students understand geometric constructions as well as congruency and similarity transformations.	Students use statistical measures to summarize distributions. Students also understand random sampling, comparative inferences, and probability models. Lastly, students investigate patterns of association as well as represent and interpret data and linear models.

Part 4 - RIT Report

The RIT report shows the RIT scores for students in an organization (such as a school or district), organized by student group. The student's overall RIT score in the content area is displayed, along with the achievement percentile and RIT score for each reporting category. The RIT tab is a new feature that will be available starting with your fall 23 assessment results.

To generate a RIT report:

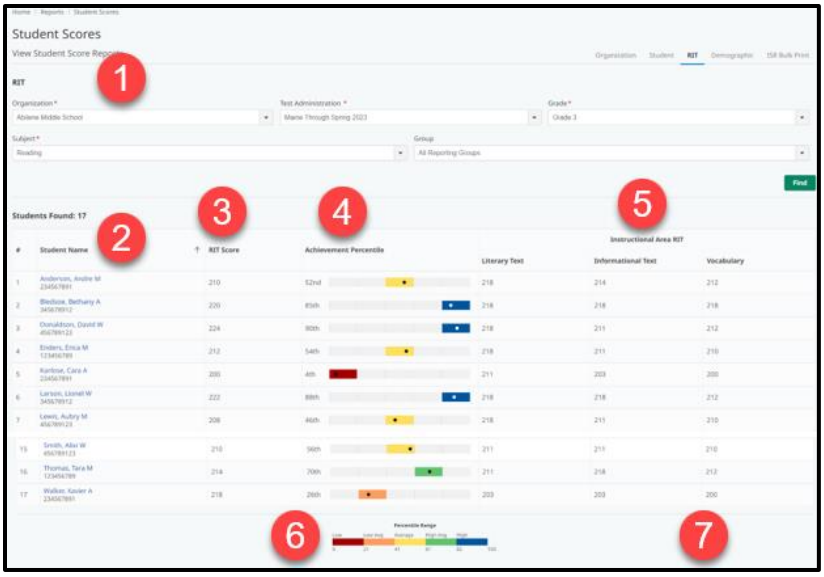
1. In Acacia, select **Menu** > **Reports** > **Student Scores**.
2. Select the **RIT** tab.
3. From the menus, select the organization, test administration, grade, subject, and groups as desired. To view all students in the organization, select **All Reporting Groups**.



4. Select **Find**.
5. A list of students matching the search criteria appears.
6. Select the student's name to view the Student report. Refer to Student Reports starting on page 161 for more details.

1. **Search Criteria**: Adjust the search criteria to view a different selection of students.
2. **Student Name**: The student's name and ID. Select the student's name to view the Student report for that student.
3. **RIT Score**: The RIT score for the student's test. If the student has an NTC, it will be listed instead of the RIT score.

   For more information on RIT scores, refer to RIT Scores on page 142. For more information on NTCs, refer to Available NTCs on page 174.



4. **Achievement Percentile**: The dot represents the student's percentile ranking based on the RIT score. The colored box behind the dot represents the quintile.
5. **Instructional Area RIT**: The RIT score for each reporting category in this content area. Reporting category RIT scores are calculated based on student responses to the items in that category and cannot be averaged to generate an overall RIT.
6. **Percentile Range**: The percentile ranges are grouped into five categories: Low, Low-Average, Average, High-Average, and High. This chart shows the ranges of each of these categories. These categories do not correlate to achievement levels.
7. **Page selection will be here, if applicable**: Move between pages of students, as needed.

Part 5 - Demographic Report (Spring Only)

The demographic report shows the average scale score in the selected content area for students in various demographic or targeted groups. This report helps educators identify achievement trends for specific genders, ethnicities, or other groups such as Multilingual Learners or Economically Disadvantaged. The Demographic Report will only be available with your Spring results and will not be available in the Fall and Winter.

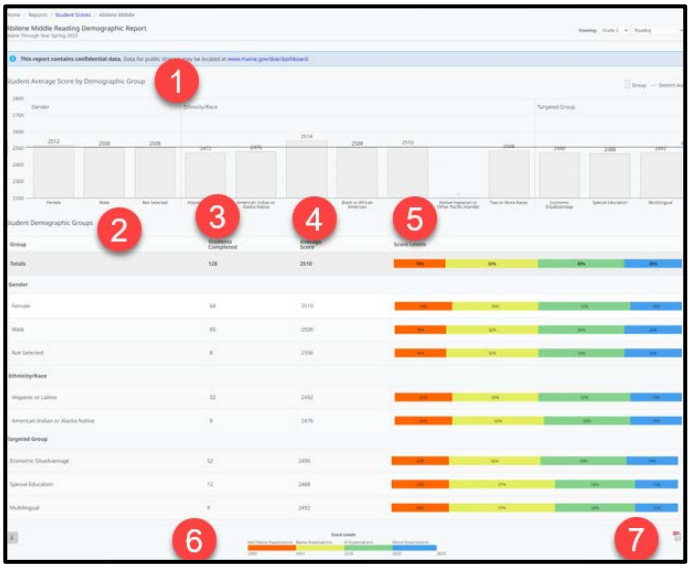
This report can be generated at the state, region, district, or school level.

To generate a demographic report:

1. In Acacia, select **Menu** > **Reports** > **Student Scores**.
2. Select the **Demographic** tab.
3. From the menus, select the organization, test administration, grade, and content area as desired.

4. Select **Find**.
5. A list of available reports appears. Select the report you want to view.

1. **Bar graph**: The average* scale score for students in this demographic group. The solid line represents the district average for all students.
2. **Student Demographic Groups**: More details about the test results for each demographic group. The Totals line shows the information for all students.
3. **Students Completed**: The total number of students with completed test scores in this demographic group.
4. **Average* Score**: The average scale score for students in this demographic group.
5. **Score Levels**: The distribution of scores across the achievement levels for students in this demographic group.
6. **Score Levels (footer)**: The cut scores for each achievement level for this grade and content area.



7. **Print**: Select the PDF icon to print this report.

* Note that all averages and medians are updated as students continue testing; wait until the end of the test window to make comparisons based on school, district, or state averages and medians.

Appendix A - Available NTCs

Not-Tested-Codes (NTCs) are used solely by the Maine DOE to track special circumstances in which students' assessment data will not be included in an SAU's or school's aggregated data. The list below in Table 3 lists the NTCs you may see on reports.

Only Maine DOE will enter NTCs into the Acacia platform. SAUs should not enter NTCs, and any NTCs entered by SAUs will be removed.

Table 3: List of Reportable NTCs

Code	Description	Explanation of Use
INV	Invalid	Student's assessment was invalidated, such as security breach. Requires Maine DOE approval and Maine DOE will also do assignment of the NTC.
EMV	Emergency Medical Waiver	Student was not tested because of an approved emergency medical waiver (special considerations request). Requires Maine DOE approval and Maine DOE will also do assignment of the NTC.
RMV	Removal	Student left the State before the test window; student is a full-time home-schooled student; or there are duplicate records. Requires Maine DOE approval and Maine DOE will also do assignment of the NTC.

Appendix B – Not Enough Items Code (NEI)

The attemptedness code of Not Enough Items (NEI) is applied to both Maine Scale Score (Summative Test / Operational Items) and RIT scores (MAP Growth Tests).

> **Note**: Maine Scale Scores will be available in the Spring admin only and RIT scores will be available in the Fall, Winter, and Spring admins.

For the Maine Scale Score, at least 25% of operational items must be completed to receive a scale score. For the RIT scores, all operational items must be completed to receive RIT scores.

NEIs are not included in aggregate calculation.

- NEIs will not be included in the Demographic Report since NEIs are not included in the aggregate calculations.

Reading Blueprints

Grade 3 Reading Summative Assessment Blueprints

Reporting Category	Approximate Reporting Category Percentages	Text Type	Standards	Proposed weight for each text type
Key Ideas and Details	**55%**	Lit	RL.3.1-3	**30-32%**
		Info	RI.3.1-3	**23-25%**
Craft and Structure/Integration of Knowledge and Ideas	**25%**	Lit	RL.3.5-7,9	**14-16%**
		Info	RI.3.5-9	**9-11%**
Vocabulary Acquisition and Use	**20%**	Lit	RL.3.4	**11-12%**
			L.3.4-6 (4a, 4b, 4c, 4d, 5a, 5c, 6)	
		Info	RI.3.4	**8-9%**
			L.3.4-6 (4a, 4b, 4c, 4d, 5a, 5c, 6)	

Text Type	Approximate % of Reading and Vocabulary Points	Standards
Reading Literary Text	**55-60%**	RL.3 (1, 2, 3,4, 5, 6, 7, 9)
		L.3.4-6 (4a, 4b, 4c, 4d, 5a, 5c, 6)
Reading Informational Text	**40-45%**	RI.3 (1, 2, 3,4, 5, 6, 7, 8, 9)
		L.3.4-6 (4a, 4b, 4c, 4d, 5a, 5c, 6)

Grade 4 Reading Summative Assessment Blueprints

Reporting Category	Approximate Reporting Category Percentages	Text Type	Standards	Proposed weight for each text type
Key Ideas and Details	**55%**	Lit	RL.4.1-3	**30-32%**
		Info	RI.4.1-3	**23-25%**
Craft and Structure/Integration of Knowledge and Ideas	**25%**	Lit	RL.4.5-7,9	**14-16%**
		Info	RI.4.5-9	**9-11%**
Vocabulary Acquisition and Use	**20%**	Lit	RL.4.4 L.4.4-6 (4a, 4b, 4c, 5a, 5b, 5c, 6)	**11-12%**
		Info	RI.4.4 L.4.4-6 (4a, 4b, 4c, 5a, 5b, 5c, 6)	**8-9%**

Text Type	Approximate % of Reading and Vocabulary Points	Standards
Reading Literary Text	**55-60%**	RL.4 (1, 2, 3,4, 5, 6, 7, 9) L.4.4-6 (4a, 4b, 4c, 5a, 5b, 5c, 6)
Reading Informational Text	**40-45%**	RI.4 (1, 2, 3,4, 5, 6, 7, 8, 9) L.4.4-6 (4a, 4b, 4c, 5a, 5b, 5c, 6)

Grade 5 Reading Summative Assessment Blueprints

Reporting Category	Approximate Reporting Category Percentages	Text Type	Standards	Proposed weight for each text type
Key Ideas and Details	**55%**	Lit	RL.5.1-3	**27-28%**
		Info	RI.5.1-3	**27-28%**
Craft and Structure/Integration of Knowledge and Ideas	**25%**	Lit	RL.5.5-7,9	**12-13%**
		Info	RI.5.5-9	**12-13%**
Vocabulary Acquisition and Use	**20%**	Lit	RL.5.4	**9-11%**
			L.5.4-6 (4a, 4b, 4c, 5a, 5b, 5c, 6)	
		Info	RI.5.4	**9-11%**
			L.5.4-6 (4a, 4b, 4c, 5a, 5b, 5c, 6)	

Text Type	Approximate % of Reading and Vocabulary Points	Standards
Reading Literary Text	**50%**	RL.5 (1, 2, 3,4, 5, 6, 7, 9)
		L.5.4-6 (4a, 4b, 4c, 5a, 5b, 5c, 6)
Reading Informational Text	**50%**	RI.5 (1, 2, 3,4, 5, 6, 7, 8, 9)
		L.5.4-6 (4a, 4b, 4c, 5a, 5b, 5c, 6)

Grade 6 Reading Summative Assessment Blueprints

Reporting Category	Approximate Reporting Category Percentages	Text Type	Standards	Proposed weight for each text type
Key Ideas and Details	**55%**	Lit	RL.6.1-3	**27-28%**
		Info	RI.6.1-3	**27-28%**
Craft and Structure/Integration of Knowledge and Ideas	**25%**	Lit	RL.6.5-6,9	**12-13%**
		Info	RI.6.5-9	**12-13%**
Vocabulary Acquisition and Use	**20%**	Lit	RL.6.4	**9-11%**
			L.6.4-6 (4a, 4b, 4c, 4d, 5a, 5b, 5c, 6)	
		Info	RI.6.4	**9-11%**
			L.6.4-6 (4a, 4b, 4c, 4d, 5a, 5b, 5c, 6)	

Text Type	Approximate % of Reading and Vocabulary Points	Standards
Reading Literary Text	**50%**	RL.6 (1, 2, 3,4, 5, 6, 9)
		L.6.4-6 (4a, 4b, 4c, 4d, 5a, 5b, 5c, 6)
Reading Informational Text	**50%**	RI.6 (1, 2, 3,4, 5, 6, 7, 8, 9)
		L.6.4-6 (4a, 4b, 4c, 4d, 5a, 5b, 5c, 6)

Grade 7 Reading Summative Assessment Blueprints

Reporting Category	Approximate Reporting Category Percentages	Text Type	Standards	Proposed weight for each text type
Key Ideas and Details	**55%**	Lit	RL.7.1-3	**23-25%**
		Info	RI.7.1-3	**30-32%**
Craft and Structure/Integration of Knowledge and Ideas	**25%**	Lit	RL.7.5-6,9	**9-11%**
		Info	RI.7.5-9	**14-16%**
Vocabulary Acquisition and Use	**20%**	Lit	RL.7.4	**8-9%**
			L.7.4-6 (4a, 4b, 4c, 4d, 5a, 5b, 5c, 6))	
		Info	RI.7.4	**11-12%**
			L.7.4-6 (4a, 4b, 4c, 4d, 5a, 5b, 5c, 6)	

Text Type	Approximate % of Reading and Vocabulary Points	Standards
Reading Literary Text	**40-45%**	RL.7 (1, 2, 3,4, 5, 6, 9)
		L.7.4-6 (4a, 4b, 4c, 4d, 5a, 5b, 5c, 6)
Reading Informational Text	**55-60%**	ELAGSE7.RI (1, 2, 3,4, 5, 6, 7, 8, 9)
		L.7.4-6 (4a, 4b, 4c, 4d, 5a, 5b, 5c, 6)

Grade 8 Reading Summative Assessment Blueprints

Reporting Category	Approximate Reporting Category Percentages	Text Type	Standards	Proposed weight for each text type
Key Ideas and Details	**55%**	Lit	RL.8.1-3	**23-25%**
		Info	RI.8.1-3	**30-32%**
Craft and Structure/Integration of Knowledge and Ideas	**25%**	Lit	RL.8.5-6,9	**9-11%**
		Info	RI.8.5-9	**14-16%**
Vocabulary Acquisition and Use	**20%**	Lit	RL.8.4	**8-9%**
			L.8.4-6 (4a, 4b, 4c, 4d, 5a, 5b, 5c, 6)	
		Info	RI.8.4	**11-12%**
			L.8.4-6 (4a, 4b, 4c, 4d, 5a, 5b, 5c, 6)	

Text Type	Approximate % of Reading and Vocabulary Points	Standards
Reading Literary Text	**40-45%**	RL.8 (1, 2, 3,4, 5, 6, 9)
		L.8.4-6 (4a, 4b, 4c, 4d, 5a, 5b, 5c, 6)
Reading Informational Text	**55-60%**	RI.8 (1, 2, 3,4, 5, 6, 7, 8, 9)
		L.8.4-6 (4a, 4b, 4c, 4d, 5a, 5b, 5c, 6)

Grade 10 Reading Summative Assessment Blueprints

Reporting Category	Approximate Reporting Category Percentages	Text Type	Standards	Proposed weight for each text type
Key Ideas and Details	**55%**	Lit	RL.9-10.1-3	**23-25%**
		Info	RI.9-10.1-3	**30-32%**
Craft and Structure/Integration of Knowledge and Ideas	**25%**	Lit	RL.9-10.5-6,9	**9-11%**
		Info	RI.9-10.5-9	**14-16%**
Vocabulary Acquisition and Use	**20%**	Lit	RL.9-10.4 L.9-10.4-6 (4a, 4b, 4c, 4d, 5a, 5b, 6)	**8-9%**
		Info	RI.9-10.4 L.9-10.4-6 (4a, 4b, 4c, 4d, 5a, 5b, 6)	**11-12%**

Text Type	Approximate % of Reading and Vocabulary Points	Standards
Reading Literary Text	**40-45%**	RL.9-10 (1, 2, 3,4, 5, 6, 9) L.9-10.4-6 (4a, 4b, 4c, 4d, 5a, 5b, 6)
Reading Informational Text	**55-60%**	RI.9-10 (1, 2, 3,4, 5, 6, 7, 8, 9) L.9-10.4-6 (4a, 4b, 4c, 4d, 5a, 5b, 6)

Grade 3

Reporting Category	Approximate Reporting Category Percentages	Cluster	Standards
Operations and Algebraic Thinking	23-25%	3.OA.A Represent and solve problems involving multiplication and division.	3.OA.1 3.OA.2 3.OA.3 3.OA.4
		3.OA.B Understand properties of multiplication and the relationship between multiplication and division.	3.OA.5 3.OA.6
		3.OA.C Multiply and divide within 100.	3.OA.7
		3.OA.D Solve problems involving the four operations, and identify and explain patterns in arithmetic.	3.OA.8 3.OA.9
Numbers and Operations	33-35%	3.NBT.A Use place value understanding and properties of operations to perform multi-digit arithmetic.	3.NBT.1 3.NBT.2 3.NBT.3
		3.NF.A Developing understanding of fractions as numbers.	3.NF.1 3.NF.2 (a-b) 3.NF.3 (a-d)
Measurement and Data	28-30%	3.MD.A Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.	3.MD.1 3.MD.2
		3. MD.B Represent and Interpret Data	3.MD.3 3.MD.4
		3.MD.C Geometric measurement: understand concepts of area and relate area to multiplication and to addition.	3.MD.5 (a-b) 3.MD.6 3.MD.7 (a-d)
		3.MD.C Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.	3.MD.8
Geometry	13-15%	3.G.A Reason with shapes and their attributes.	3.G.1 3.G.2

Grade 4

Reporting Category	Approximate Reporting Category Percentages	Cluster	Standards
Operations and Algebraic Thinking	18-20%	4.OA.A Use the four operations with whole numbers to solve problems.	4.OA.1 4.OA.2 4.OA.3
		4.OA.B Gain familiarity with factors and multiples.	4.OA.4
		4.OA.C Generate and analyze patterns.	4.OA.5
Numbers and Operations	48-50%	4.NBT.A Generalize place value understanding for multi-digit whole numbers.	4.NBT.1 4.NBT.2 4.NBT.3
		4.NBT.B Use place value understanding and properties of operations to perform multi-digit arithmetic.	4.NBT.4 4.NBT.5 4.NBT.6
		4.NF.A Extend understanding of fraction equivalence and ordering.	4.NF.1 4.NF.2
		4.NF.B Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.	4.NF.3 (a-d) 4.NF.4 (a-c)
		4.NF.C Understand decimal notation for fractions, and compare decimal fractions.	4.NF.5 4.NF.6 4.NF.7
Measurement and Data	18-20%	4.MD.A Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.	4.MD.1 4.MD.2 4.MD.3
		4.MD.B Represent and interpret data.	4.MD.4
		4.MD.C Geometric Measurement: understand concepts of angle and measure angles.	4.MD.5 (a-b) 4.MD.6 4.MD.7
Geometry	13-15%	4.G.A Draw and identify lines and angles, and classify shapes by properties of their lines and angles.	4.G.1 4.G.2 4.G.3

Grade 5

Reporting Category	Approximate Reporting Category Percentages	Cluster	Standards
Operations and Algebraic Thinking	13-15%	5.OA.A Write and interpret numerical expressions.	5.OA.1 5.OA.2
		5.OA.B Analyze patterns and relationships.	5.OA.3
Numbers and Operations	53-55%	5.NBT.A Understand the place value system.	5.NBT.1 5.NBT.2 5.NBT.3 (a-b) 5.NBT.4
		5.NBT.B Perform operations with multi-digit whole numbers and with decimals to hundredths.	5.NBT.5 5.NBT.6 5.NBT.7
		5.NF.A Use equivalent fractions as a strategy to add and subtract fractions.	5.NF.1 5.NF.2
		5.NF.B Apply and extend previous understandings of multiplication and division to multiply and divide fractions.	5.NF.3 5.NF.4 (a-b) 5.NF.5 (a-b) 5.NF.6 5.NF.7 (a-c)
Measurement and Data	18-20%	5.MD.A Convert like measurement units within a given measurement system.	5.MD.1
		5.MD.B Represent and interpret data.	5.MD.2
		5.MD.C Geometric Measurement: understand concepts of volume and relate volume to multiplication and division.	5.MD.3 (a-b) 5.MD.4 5.MD.5 (a-c)
Geometry	13-15%	5.G.A Graph points on the coordinate plane to solve real-world and mathematical problems.	5.G.1 5.G.2
		5.G.B Classify two-dimensional figures into categories based on their properties.	5.G.3 5.G.4

Grade 6

Reporting Category	Approximate Reporting Category Percentages	Cluster	Standards
Operations and Algebraic Thinking	25%	6.EE.A Apply and extend previous understandings of arithmetic to algebraic expressions.	6.EE.1 6.EE.2 (a-c) 6.EE.3 6.EE.4
		6.EE.B Reason about and solve one-variable equations and inequalities.	6.EE.5 6.EE.6 6.EE.7 6.EE.8
		6.EE.C Represent and analyze quantitative relationships between dependent and independent variables.	6.EE.9
The Real and Complex Number Systems	45%	6.RP.A Understand ratio concepts and use ratio reasoning to solve problems.	6.RP.1 6.RP.2 6.RP.3 (a-d)
		6.NS.A Apply and extend previous understandings of multiplication and division to divide fractions by fractions.	6.NS.1
		6.NS.B Compute fluently with multi-digit numbers and find common factors and multiples.	6.NS.2 6.NS.3 6.NS.4
		6.NS.C Apply and extend previous understandings of numbers to the system of rational numbers.	6.NS.5 6.NS.6 (a-c) 6.NS.7 (a-d) 6.NS.8
Geometry	15%	6.G.A Solve real-world and mathematical problems involving area, surface area, and volume.	6.G.1 6.G.2 6.G.3 6.G.4
Statistics and Probability	15%	6.SP.A Develop understanding of statistical variability.	6.SP.1 6.SP.2 6.SP.3
		6.SP.B Summarize and describe distributions.	6.SP.4 6.SP.5 (a-d)

Grade 7

Reporting Category	Approximate Reporting Category Percentages	Cluster	Standards
Operations and Algebraic Thinking	20%	7.EE.A Use properties of operations to generate equivalent expressions.	7.EE.1 7.EE.2
		7.EE.B Solve real-life and mathematical problems using numerical and algebraic expressions and equations.	7.EE.3 7.EE.4 (a-b)
The Real and Complex Number Systems	40%	7.RP.A Analyze proportional relationships and use them to solve real-world and mathematical problems.	7.RP.1 7.RP.2 (a-d) 7.RP.3
		7.NS.A Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.	7.NS.1 (a-d) 7.NS.2 (a-d) 7.NS.3
Geometry	20%	7.G.A Draw, construct, and describe geometrical figures and describe the relationships between them.	7.G.1 7.G.2 7.G.3
		7.G.B Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.	7.G.4 7.G.5 7.G.6
Statistics and Probability	20%	7.SP.A Use random sampling to draw inferences about a population.	7.SP.1 7.SP.2
		7.SP.B Draw informal comparative inferences about two populations.	7.SP.3 7.SP.4
		7.SP.C Investigate chance processes and develop, use, and evaluate probability models.	7.SP.5 7.SP.6 7.SP.7 (a-b) 7.SP.8 (a-c)

Grade 8

Reporting Category	Approximate Reporting Category Percentages	Cluster	Standards
Operations and Algebraic Thinking	48-53%	8.EE.A Work with radicals and integer exponents.	8.EE.1 8.EE.2 8.EE.3 8.EE.4
		8.EE.B Understand the connections between proportional relationships, lines, and linear equations.	8.EE.5 8.EE.6
		8.EE.C Analyze and solve linear equations and pairs of simultaneous linear equations.	8.EE.7 (a-b) 8.EE.8 (a-c)
		8.F.A Define, evaluate, and compare functions.	8.F.1 8.F.2 8.F.3
		8.F.B Use functions to model relationships between quantities.	8.F.4 8.F.5
The Real and Complex Number Systems	13-15%	8.NS.A Know that there are numbers that are not rational, and approximate them by rational numbers.	8.NS.1 8.NS.2
Geometry	21-23%	8.G.A Understand congruence and similarity using physical models, transparencies, or geometry software.	8.G.1 (a-c) 8.G.2 8.G.3 8.G.4 8.G.5
		8.G.B Understand and apply the Pythagorean Theorem.	8.G.6 8.G.7 8.G.8
		8.G.C Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.	8.G.9
Statistics and Probability	13-15%	8.SP.A Investigate patterns of association in bivariate data.	8.SP.1 8.SP.2 8.SP.3 8.SP.4

2nd Year of High School

Reporting Category	Approximate Reporting Category Percentages	Cluster	Standards
Operations and Algebraic Thinking	46-50%	A-SSE Seeing Structure in Expressions	A.SSE.1 A.SSE.2 A.SSE.3a
		A-APR Arithmetic with Polynomials and Rational Expressions	A.APR.1
		A-CED Creating Equations	A.CED.1 A.CED.2 A.CED.3 A.CED.4
		A-REI Reasoning with Equations and Inequalities	A.REI.1 A.REI.3 A.REI.4b A.REI.5 A.REI.6 A.REI.7 A.REI.10 A.REI.11 A.REI.12
		F-IF Interpreting Functions	F.IF.1 F.IF.2 F.IF.3 F.IF.4 F.IF.5 F.IF.6 F.IF.7 (a, e) F.IF.8 (a) F.IF.9
		F-BF Building Functions	F.BF.1 (a-b) F.BF.2 F.BF.3
		F-LE Linear, Quadratic, and Exponential Models	F.LE.1 (a-b) F.LE.2 F.LE.3 F.LE.5

The Real and Complex Number Systems	13-15%	N-RN The Real Number System	N.RN.1 N.RN.2 N.RN.3
		N-Q Quantities	N.Q.1 N.Q.2 N.Q.3
Geometry	26-30%	G-CO Congruence	G-CO.1 G-CO.2 G-CO.3 G-CO.4 G-CO.5 G-CO.6 G-CO.7 G-CO.8 G-CO.9 G-CO.10 G-CO.11 G-CO.12 G-CO.13
		G-SRT Similarity, Right Triangles, and Trigonometry	G.SRT.1 (a-b) G.SRT.2 G.SRT.3 G.SRT.4 G.SRT.5 G.SRT.6 G.SRT.7 G.SRT.8
		G-C Circles	G.C.1 G.C.2 G.C.3
		G-GPE Expressing Geometric Properties with Equations	G.GPE.1 G.GPE.4 G.GPE.5 G.GPE.6 G.GPE.7
		G-GMD Geometric Measurement and Dimension	G.GMD.3 G.GMD.4

Statistics and Probability	13-15%	S-ID Interpreting Categorical and Quantitative Data	S.ID.1 S.ID.2 S.ID.3 S.ID.5 S.ID.6 (a,c) S.ID.7
		S-CP Conditional Probability and the Rules of Probability	S.CP.1 S.CP.2 S.CP.4

Appendix H: Maine TAC Members and Agendas

Name	Title	Affiliation
TAC Members		
Martha Thurlow	Senior Research Associate	National Center on Educational Outcomes/TIES Center at the University of Minnesota
April Zenisky, EdD	Research Associate Professor and Director of Computer-Based Testing Initiatives	Center for Educational Assessment at UMass Amherst
Nathan Dadey, PhD	Senior Associate	The National Center for the Improvement of Educational Assessment
Richard Luecht	Professor of Education Research Methodology	UNC Greensboro
James Pellegrino	Liberal Arts and Science Distinguished Professor and Founding Co-director of the Learning Science Research Institute	University of Illinois Chicago
Leslie Keng	Senior Associate	Center for Assessment

October 12, 2022, TAC Meeting Agenda

Time (EST)	Topic	Lead
1:50 – 2:00	Meeting Room Open to All Attendees	
2:00 – 2:15	Introductions	All
2:15 – 2:35	**Topic 1: Program Overview**	Tara Davis-Banks/Fred Valenzuela
2:35 – 3:00	**Topic 2: Test Blueprints**	Molly Igoe/Amy Merrill
3:00 – 4:00	**Topic 3: Test Design**	Kwang Lee-Chu
4:00 – 4:15	Break	
4:15 – 4:35	**Topic 4: ALD Workshop**	Molly Igoe
4:35 – 5:30	**Topic 5: Embedded Standard Setting**	Daniel Lewis
5:30 – 6:00	Debrief	

January 25, 2023, TAC Meeting Agenda (Day 1)

Time (EST)	Topic	Lead
8:50 – 9:00	Meeting Room Open to All Attendees	
9:00 – 9:15	Introductions	All
9:15 – 10:00	**Topic 1: Test Design**	Kwang Lee-Chu
10:00 – 10:15	Break	
10:15 – 12:00	**Topic 2: Equating Plan**	Kwang Lee-Chu
12:00 – 12:30	Debrief	Kwang Lee-Chu
12:30 – 1:00	TAC/DOE Closed Session	TAC/DOE

January 30, 2023, TAC Meeting Agenda (Day 2)

Time (EST)	Topic	Lead
12:50 – 1:00	Meeting Room Open to All Attendees	
1:15 – 1:30	**Topic 1: Equating Plan (cont.)**	Kwang Lee-Chu
1:30 – 2:30	**Topic 2: Report Mockups**	Priti Maheshwari
2:30 – 3:00	**Topic 3: Comparability Study**	Yong Lu
3:00 – 3:15	Break	
3:15 – 4:15	**Topic 4: Comparability Study (cont.)**	Yong Lu
4:15 – 4:30	Debrief	All
4:30 – 5:00	TAC/DOE Closed Session	TAC/DOE

August 18, 2023, TAC Meeting Agenda

Time (EST)	Topic	Lead
8:50 – 9:00	Meeting Room Open to All Attendees	
9:00 – 9:10	**Opening Comments**	ME DOE
9:10 – 9:20	**Introductions**	All
9:20 – 11:30	**Topic 1: NWEA Psychometrics Calibration Results** • Scaling Method • Technical Report Template Review/Discussion • Comparability Evidence	Kwang Lee-Chu/Lu Yong
11:30 – 12:30	Lunch	
12:30 – 2:30	**Topic 2: Standard Setting Technical Report** • Embedded Standard Setting and Alignment Study Discussion and Cut Score Review/Discussion	Dan Lewis, Creative Measurement
2:30 – 2:45	Break	
2:45 – 3:30	Debrief	All
3:30 – 4:00	TAC/DOE Closed Session	TAC/DOE

Appendix I: December 2022 Content Bias Review

Demographic information about Maine Educators who participated in the December 2022 Content Bias Review:

Mathematics Panel Demographic Information

Current Job Title	***N***	***%***
Classroom Teacher	2	33.3%
Curriculum Specialist	2	33.3%
RTI Coordinator	1	16.7%
Principal	1	16.7%
School Administrative Unit	***N***	***%***
RSU 57	1	16.7%
Auburn School Department	1	16.7%
York School Department	2	33.3%
MSAD 7	1	16.7%
CSD 13	1	16.7%
Gender	***N***	***%***
Female	5	83.3%
Male	1	16.7%
Race/Ethnicity	***N***	***%***
Hispanic or Latino	0	0.0%
American Indian or Alaska Native	0	0.0%
Asian	0	0.0%
Black or African American	0	0.0%
Native American	0	0.0%
White	6	100.0%
Years of Experience in Education	***N***	***%***
1 to 10 years	0	0.0%
11 to 20 years	4	66.7%
21 or more years	2	33.3%
Highest Level of Education	***N***	***%***
Bachelor's degree	2	33.3%
Master's degree	3	50.0%
Doctoral degree	1	16.7%
Experience Teaching Special Education Students	***N***	***%***
Yes	6	100.0%
No	0	0.0%

Experience Teaching Multilingual Learners	N	%
Yes	6	100.0%
No	0	0.0%
Experience Teaching Gifted Students	***N***	***%***
Yes	6	100.0%
No	0	0.0%
Experience Teaching a Class with a High Percentage of Economically Disadvantaged Students	***N***	***%***
Yes	6	100.0%
No	0	0.0%

Reading Panel Demographic Information

Current Job Title	N	%
Classroom Teacher	3	50.0%
Curriculum Specialist	3	50.0%
RTI Coordinator	0	0.0%
Principal	0	0.0%
School Administrative Unit	***N***	***%***
Maine Virtual Academy	1	16.7%
Winthrop Public Schools	1	16.7%
RSU 34	1	16.7%
Lewiston Public Schools	1	16.7%
MSAD 60	1	16.7%
Deer Isle-Stonington	1	16.7%
Gender	***N***	***%***
Female	5	83.3%
Male	1	16.7%
Race/Ethnicity	***N***	***%***
Hispanic or Latino	0	0.0%
American Indian or Alaska Native	0	0.0%
Asian	0	0.0%
Black or African American	0	0.0%
Native American	0	0.0%
White	6	100.0%
Years of Experience in Education	***N***	***%***
1 to 10 years	1	16.7%
11 to 20 years	2	33.3%

21 or more years	3	50.0%
Highest Level of Education	***N***	***%***
Bachelor's degree	2	33.3%
Master's degree	4	66.7%
Doctoral degree	0	0.0%
Experience Teaching Special Education Students	***N***	***%***
Yes	3	100.0%
No	0	0.0%
Experience Teaching Multilingual Learners	***N***	***%***
Yes	3	50.0%
No	3	50.0%
Experience Teaching Gifted Students	***N***	***%***
Yes	6	100.0%
No	0	0.0%
Experience Teaching a Class with a High Percentage of Economically Disadvantaged Students	***N***	***%***
Yes	6	100.0%
No	0	0.0%

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Maine Virtual Content and Bias Review-Prework

November - December 2022

Measuring What Matters™

Content and Bias Review

- Using the Review Portal, you will review the item metadata and content to determine if the content of the item reflects the standard.
- Comments from each participant will be reviewed before the workshop so our conversations will be focused on the necessary revisions.
- Decisions from the alignments made during your review will be analyzed and will help guide future item development.

Content and Alignment

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Measuring What Matters™

What needs to be reviewed?

- Please review the items to determine if the following criteria are met:
  - Items are free of bias or sensitivity issues
  - Item and passage content is accurate and appropriate for the grade level
  - Items are aligned correctly to the standard and Range ALDs
  - Item DOK is correct
  - Items score correctly

What are Range ALDs?

- Range Achievement Level Descriptors
  - Based on Common Core State Standards
  - Describe what a student should likely be able to do at a particular level regarding on-grade content.
- Range ALDs show the range of on-grade content for the grade from easiest or least cognitively challenging to the most difficult or most cognitively challenging.
- The Range ALDs were reviewed and revised in September by Maine educators.

Reading the Range ALDs

		Well Below State Expectations	Below State Expectations	At State Expectations	Above State Expectations
		A student at this level:	A student at this level:	A student at this level:	A student at this level:
Reading Standards for Literature					
Key Ideas and Details					
CCSS.ELA-Literacy.RL.9-10.1	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.	cites textual evidence that supports an explanation of what the text says explicitly.	cites textual evidence that supports an explanation of what the text says explicitly as well as basic inferences drawn from the text.	cites strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.	cites strong and thorough textual evidence that supports an analysis sophisticated inferences drawn over the course of the text.
CCSS.ELA-Literacy.RL.9-10.2	Determine a theme or central idea of a text and analyze in detail its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text	identifies a theme or central idea of a text when it is supported by explicit details; identifies details related to the theme or central idea; sequences major events from the text.	identifies a simple theme or central idea of a text; describes how details support development of the theme or central idea over the course of the text; provides a basic summary of the text.	determines a theme or central idea of a text and closely analyzes in detail its development over the course of the text, including how it emerges and is shaped and refined by specific details; provides an objective summary of the text.	analyzes complex theme(s) or central idea(s) and how they develop over the course of the text, including how specific details shape and contribute to the text; provides a concise and objective summary of the text.

Using the Range ALDs?

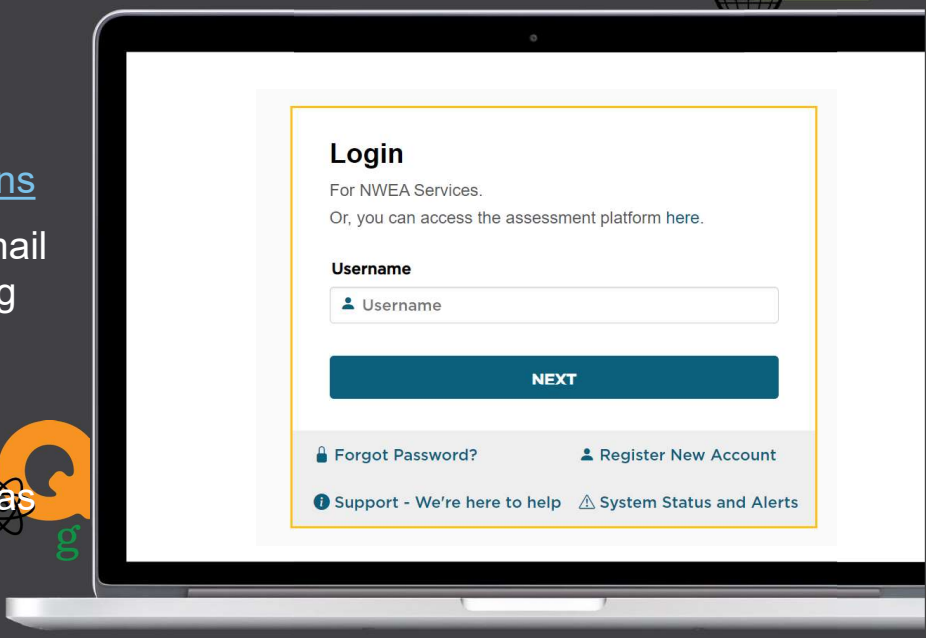
- Consider the alignment to the RALDs when reviewing the items.
- We need a variety of RALDs in order to build grade appropriate adaptive assessments, so we need to distribute items across the range.

Review Portal Login

- Please enter the following URL into the search:

https://review.nwea.org/sessions

- You must log in with the email provided to us when signing up with NWEA and Maine.
- If you are unsure of which email address you used, please contact us as soon as possible.



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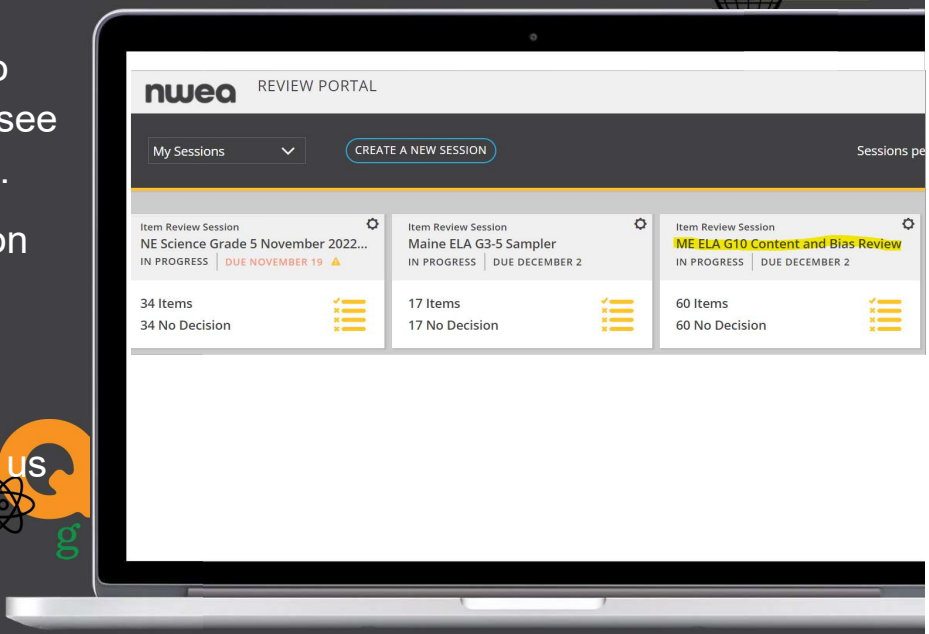
Review Portal Sessions

- Once you have logged in to Review Portal, you should see a screen with a session tile.
- You will only see the session to which you have been assigned.
- If you do not see a session assigned to you, please let us know.



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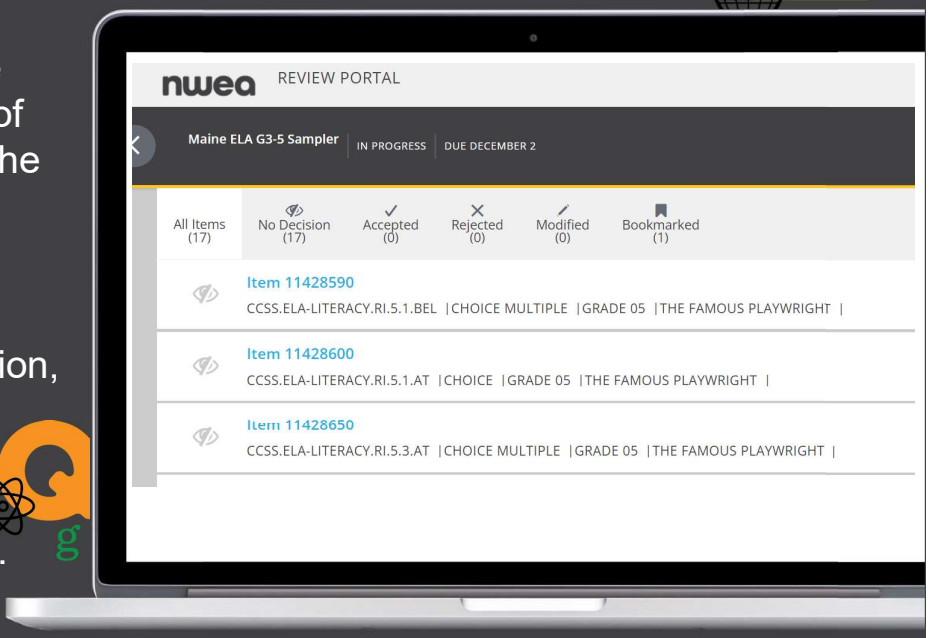
Review Portal Toolbar

- When you click to open the session, you will see a list of items with a toolbar along the top.
- These will allow you to navigate to items that you need to review in No Decision, have marked as Accepted, rejected or Modified, and those which you have bookmarked for discussion.



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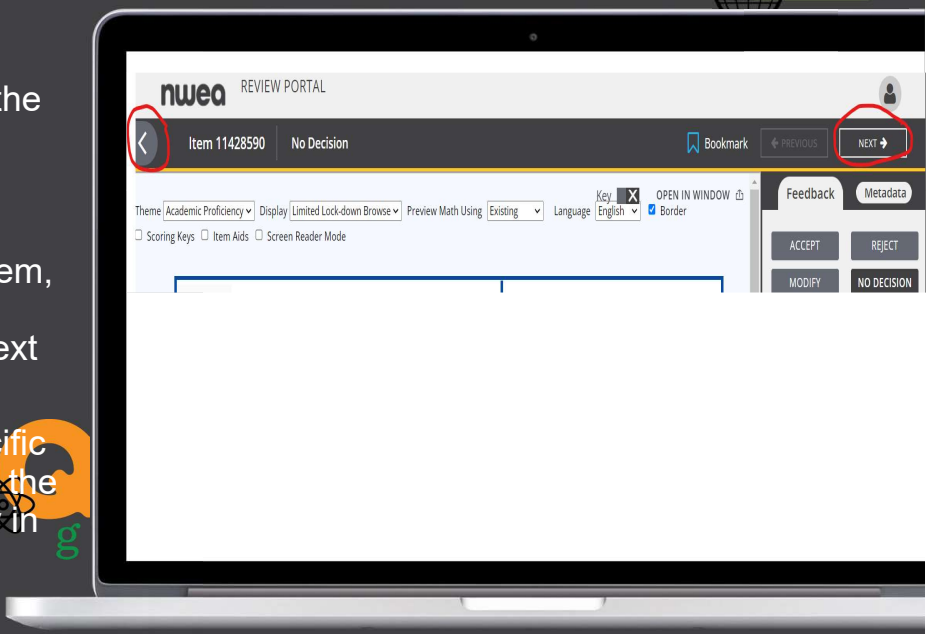
Review Portal Item Navigation and Selection

- To select and item, you can simply click on the item from the list. This allows you to select items from any within the session.
- Once you have selected an item, you can either go back to the main list, or advance to the next item by selecting NEXT.
- If you are trying to find a specific item, use your find function in the search engine's tools (usually in the upper right-hand corner).



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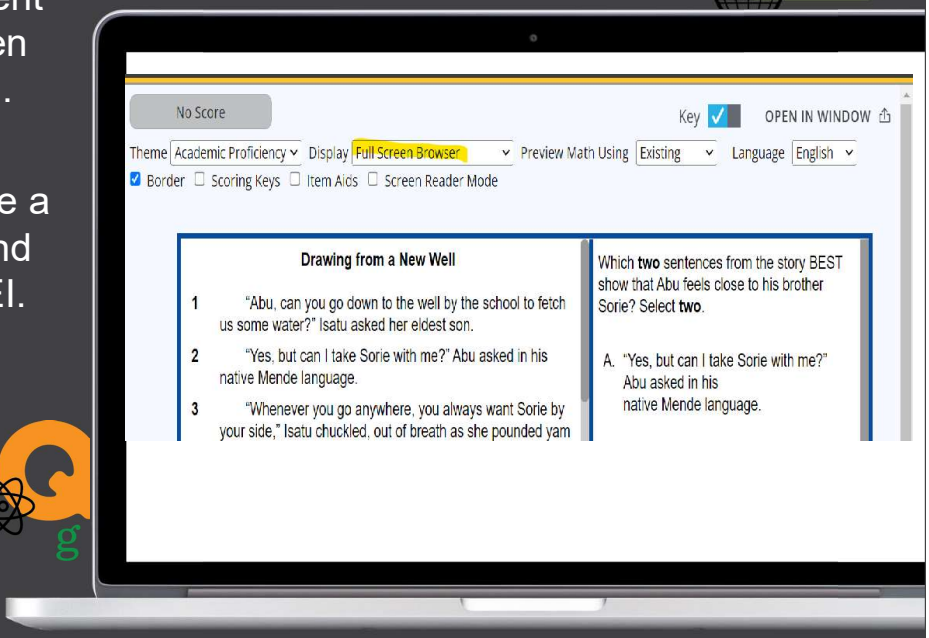
Review Portal Item Review

+ To view the items as the student will view them, select Full Screen Browser as your Display setting. This minimizes scrolling.

+ Review the item as if you were a student. Answer the question and interact with the item if it is a TEI.

+ Use the Item Aids and try the screen reader to see the accommodations available to students who receive accommodations.



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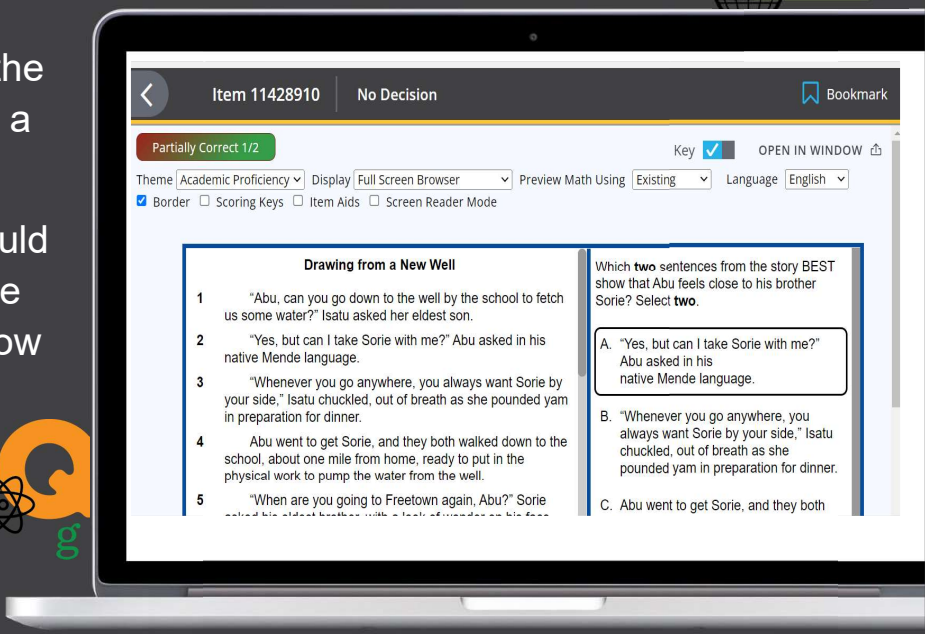
Review Portal Scoring

+ To check the scoring, move the toggle on the Key until there is a blue check.

+ Select the answers. You should see the scoring validation in the upper left corner change to show incorrect, partially correct or correct.



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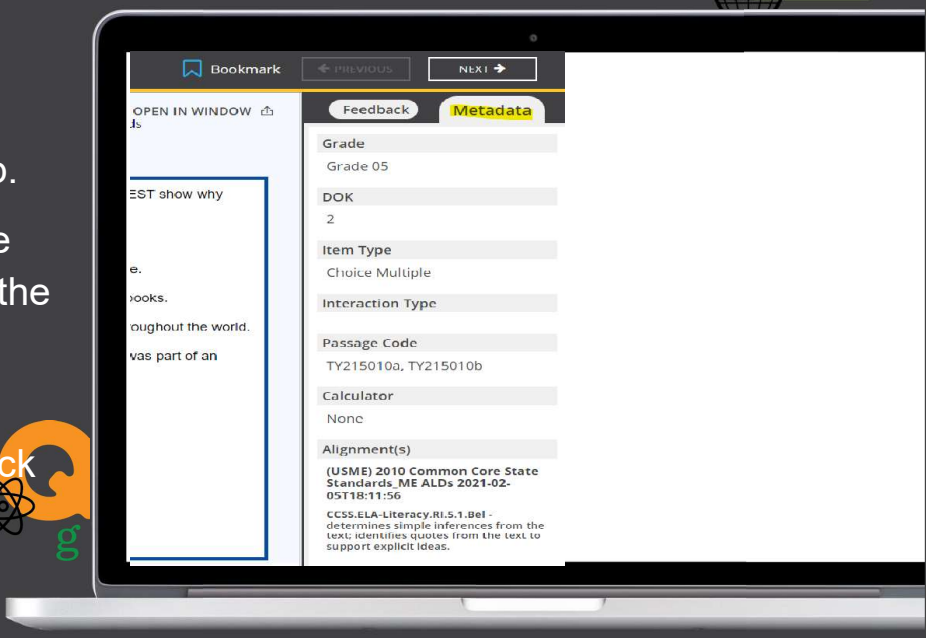
Review Portal Metadata Review

+ On the right side of the item, you will see a menu with two tabs. Choose the metadata tab.
+ Review the information in the tab paying careful attention to the DOK and the Alignment.
+ When you have finished reviewing the metadata, go back to the Feedback tab.



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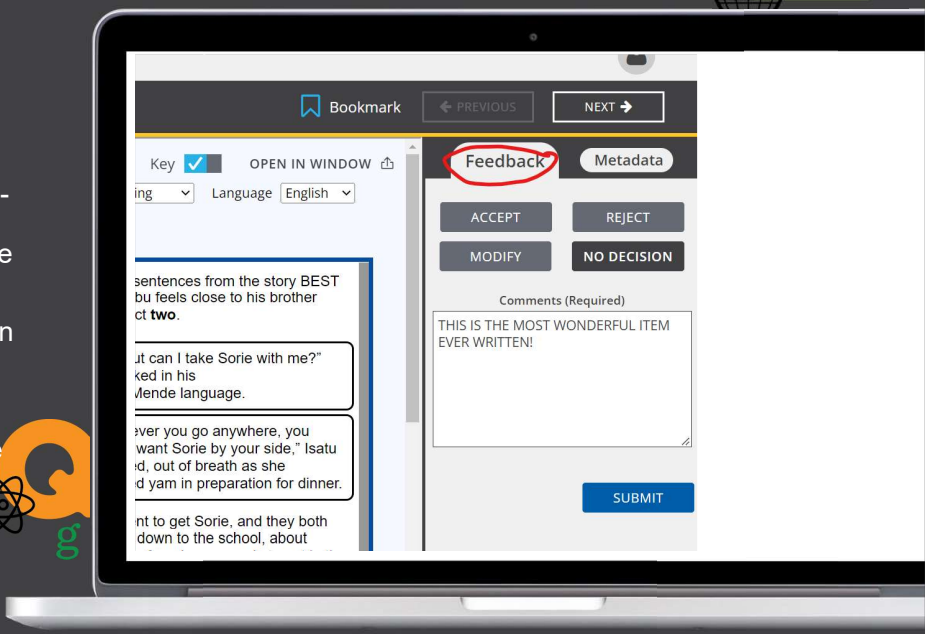
Review Portal Comments and Decision

+ On the feedback tab, you have the ability to leave specific notes about an item's content, alignment, and DOK.
+ If you would like something to be changed, please be very specific. (Ex.- change to DOK 1, change to ALD to DEV, change standard to RP.4, change answer choice C to "When I was …")
+ Positive feedback is also helpful! When you like a certain item, we try to use similar items in future development. If you think students will find the topic engaging, please tell us! We will make every effort to find similar topics for future tests.



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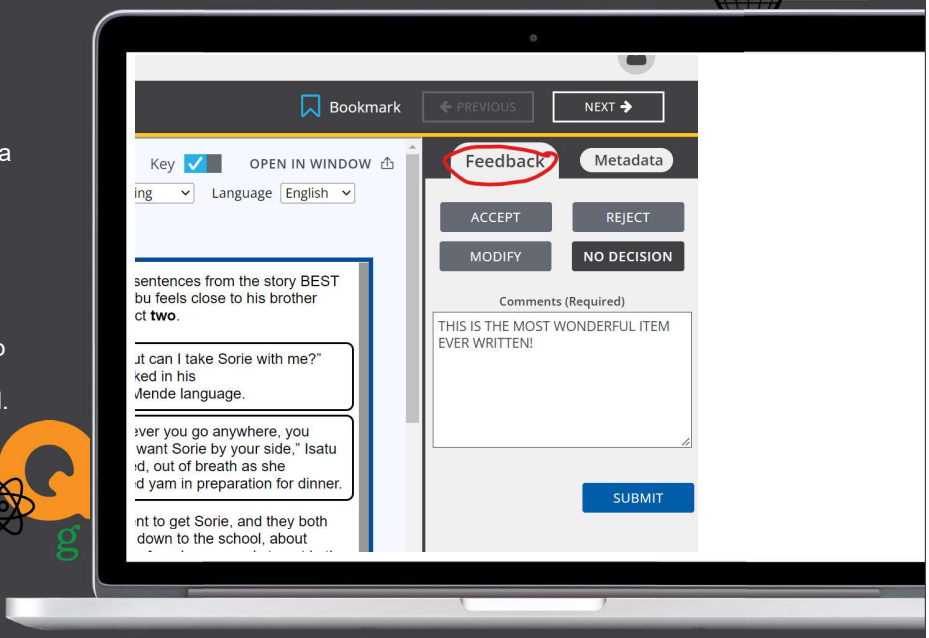
Review Portal Comments and Decision (Continued)

- Once you have left notes, please choose submit. This will capture your comments in the system.
- If you have suggested any edits to metadata or content, please select Modify.
- If you liked the item and do not feel any changes are needed, please select Accept. No notes are required for items that do not need modification.
- As a last resort, select Reject if there are no changes that would make the item align to the standards or the item is severely flawed.
- When you have finished, you can go on to the next item.



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Next steps

- That was a lot of information! Please feel free to reach out with any questions or technology issues.

- Please complete the review by the end of day on Wednesday, November 30th. This will allow the facilitators to download your comments and focus the discussion during our meeting time.

Security

Materials

- Public materials include materials on the Maine website
- Information shared in the Review Portal is considered secure
- Access to the Review Portal will be restricted after Friday, December 2nd.
- You may discuss the process of the review, but please keep specific content confidential.

- Expect a survey at the end of the week to gather your feedback on the meeting. We use your input to improve future meetings.


Thank you!
We look forward to working with you this week.
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Measuring What Matters™

Item Development:
CR1 Checklist and Sign-Off

Content Review 1 Sign-Off

Program	Content Area	Grade/ Course	Batch/Group of Items	Reviewer	Date

Notes:

Content 1 Review Checklist

ALL ITEMS	
☐	Item is properly aligned to assigned standard/objective/benchmark.
☐	Item meets client specifications (e.g., context), if applicable.
☐	Item is assigned an appropriate cognitive level and difficulty level, if applicable.
☐	Item is grade-level (including reading-level, context, topic, etc.) appropriate according to program specifications.
☐	Item adheres to principles of universal design for test items.
☐	Item content has been verified for correctness and clarity (correct, clear, and engaging).
☐	Item complies with client style guide.
☐	If the item is based on a context or scenario, it is realistic (e.g., no 75-pound cats).
☐	Item is free of repetitious wording.
☐	Item is free from clues that could lead students to a particular option (e.g., word repeated in both stem and option; correct grammar between stem and only one option).
☐	Item is free from any bias or sensitivity issues.
☐	Item does not ask for opinions (e.g., “what do you think” or evidence for “your answer” in Part B).
☐	References to art, passages, or other stimuli are precise (e.g., “paragraphs 1 and 2” rather than “the beginning of the passage”).

ITEMS REQUIRING SOURCES (FACTUAL DATA)	
☐	Factual data and source are verifiable.
☐	The source is recorded within the item metadata.

Item Development:
CR1 Checklist and Sign-Off

ITEMS REQUIRING ART OR GRAPHICS	
☐	Art is necessary and appropriate for the item.
☐	Art logs are created (for items requiring art).
☐	Art log is clear and concise.
☐	Art log follows client style guide.

MULTIPLE-CHOICE ITEMS	
☐	Item has one, and only one, possible correct answer. A second or third answer choice cannot be considered correct unless the item is designed to have two or more correct responses.
☐	Item has viable options.
☐	Rationales are plausible and detail the error or misassumption made by the student.
☐	Rationales are clear and concise.
☐	Item has parallel distractors (although excessive attention to parallel length is not necessary, so long as one distractor is not conspicuously long or short).
☐	Choices are ordered according to program requirements (e.g., numerical value, location of information in passage). If direct quotations are used as answer choices, the answer choices appear in the same order as they appear in the passage.

OPEN-ENDED ITEMS	
☐	Item has a sufficient breadth to fit the intended scoring scale and/or to support a full range of responses.
☐	The stem or prompt is written clearly and is likely to elicit the desired response as measured by the rubric.
☐	A detailed exemplar (“clear and correct response”) is included as an example of a fully correct answer, as are brief descriptions of errors that would result in other score point awards.
☐	Score points are clearly delineated; rubric includes statements which clarify the level of knowledge expected to attain a given score point.

TEXT ENTRY/NUMERIC ENTRY	
☐	The correct answer is precise (there are limited variations). Text entry items should be limited to one or two words. Numeric entry items should be limited to a whole number, decimal fraction, or improper fraction. (Currently mixed numbers cannot be scored properly, but this might change in the future.)
☐	Full range of mathematical responses are identified, if applicable.

Item Development:
CR1 Checklist and Sign-Off

☐	All variations/equivalencies of the correct answer are identified (misspellings, if applicable, fraction and decimal equivalents).

TECHNOLOGY-ENHANCED ITEMS	
☐	Directions are clear and concise and follow program style.
☐	Item elements for the specified item type are clear and remain within item type guidelines. (A multiple-select response has the characteristics of a MS and only those of a MS; item types are not blended or unclear.)
☐	All tools, symbols, and/or numbers required to answer the item are provided or are accessible.
☐	Item functions as designed (e.g., multiple answers can be chosen for a multiple-select response).
☐	Scoring table is clear and complete. Items with multiple correct answers include all possible combinations.
☐	Item scoring details include the correct answer or all possible correct answers.

ITEM STIMULI	
☐	Reading passages are accompanied by both quantitative and qualitative analyses that justify the grade-level placement.
☐	Passages or other stimuli meet the program's specifications for bias and sensitivity issues.

Item Development:
CR2 Checklist and Sign-Off

Content Review 2 Sign-Off

Program	Content Area	Grade/ Course	Batch/Group of Items	Reviewer	Date

Notes:

Content 2 Review Checklist

ALL ITEMS	
☐	Item is properly aligned to assigned standard/objective/benchmark.
☐	Item meets client specifications (e.g., context), if applicable.
☐	Item is assigned an appropriate cognitive level and difficulty level, if applicable.
☐	Item is grade-level (including reading-level, context, topic, etc.) appropriate according to program specifications.
☐	Item adheres to principles of universal design for test items.
☐	Item content has been verified for correctness and clarity (correct, clear, and engaging).
☐	Item complies with client style guide.
☐	Item is free of repetitious wording.
☐	Item is free from clues that could lead students to a particular option (e.g., word repeated in both stem and option; correct grammar between stem and only one option).
☐	Item is free from any bias or sensitivity issues.
☐	Item does not ask for opinions (e.g., "what do you think" or evidence for "your answer" in Part B).
☐	References to art, passages, or other stimuli are precise (e.g., "paragraphs 1 and 2" rather than "the beginning of the passage").

ITEMS REQUIRING SOURCES (FACTUAL DATA)	
☐	The source is recorded within the item metadata.

ITEMS REQUIRING ART OR GRAPHICS	
☐	Art is necessary and appropriate for the item.
☐	Art is free of errors.
☐	Art was created according to the request and meets specifications.

Item Development:
CR2 Checklist and Sign-Off

MULTIPLE-CHOICE ITEMS	
☐	Item has one, and only one, possible correct answer. A second or third answer choice cannot be considered correct unless the item is designed to have two or more correct responses.
☐	Item has viable options.
☐	Rationales are plausible and clearly detail the error or misassumption made by the student.
☐	Rationales are clear and concise.
☐	Choices are ordered according to program requirements (e.g., numerical value, location of information in passage). If direct quotations are used as answer choices, the answer choices appear in the same order as they appear in the passage.

OPEN-ENDED ITEMS	
☐	Item has a sufficient breadth to fit the intended scoring scale and/or to support a full range of responses.
☐	The stem or prompt is written clearly and is likely to elicit the desired response as measured by the rubric.
☐	A detailed exemplar ("clear and correct response") is included as an example of a fully correct answer, as are brief descriptions of errors that would result in other score point awards.
☐	Score points are clearly delineated; rubric includes statements which clarify the level of knowledge expected to attain a given score point.

TEXT/NUMERIC ENTRY ITEMS	
☐	The correct answer is precise (there are limited variations). Text entry items should be limited to one or two words. Numeric entry items should be limited to a whole number, decimal fraction, or improper fraction. (Currently mixed numbers cannot be scored properly, but this might change in the future.)
☐	Full range of mathematical responses are identified, if applicable.
☐	All variations/equivalencies of the correct answer are identified (misspellings, if applicable, fraction and decimal equivalents).

TECHNOLOGY-ENHANCED ITEMS	
☐	Directions are clear and concise and follow program style.
☐	Item elements for the specified item type are clear and remain within item type guidelines. (A multiple-select response has the characteristics of a MS and only those of a MS; item types are not blended or unclear.)

Item Development:
CR2 Checklist and Sign-Off

☐	All tools, symbols, and/or numbers required to answer the item are provided or are accessible.
☐	Item functions as designed (e.g., multiple answers can be chosen for a multiple-select response).
☐	Scoring table is clear and complete. Items with multiple correct answers include all possible combinations.
☐	Item scoring details include the correct answer or all possible correct answers.

Appendix K: Item Specifications

Through-Year ELA/Reading Item Specifications

ELA Item Writing General Guidelines

Content of items should:

- Be aligned clearly to the identified standard
- Meet the indicated ALD level
- Assess meaningful content (ask questions worth asking)
- Be accessible to all students (avoid sensitive topics, social economic bias, color dependency, etc.)
- Be supported by credible sources when facts are used
- Context vocabulary items should be at least 1-2 grade-levels above (answer choices at or below)
- Be unique and not cue other items

Item stems should:

- State information clearly and concisely
- Use complete sentences with ending punctuation
- Use *which* before a noun and *what* before a verb
- Avoid using "Which of the following. . . "
- Be stated as a question for multiple choice and choice multiple
- Be intentional when using qualifiers, such as BEST, MOST LIKELY

Item answer options should:

- Be consistent grammatically with the stem and parallel in form
- Be mutually exclusive (independent)
- Be phrased positively (avoid *not*)
- Be free of clues to the correct answer
- Be ordered purposefully (by length, alphabetically, etc.)
- Be plausible but not justifiable (for choice multiple, be sure answers are same level or correctness)

Avoid:

- using "All (or none) of the above"
- using words like "not" and "except"
- using overused words, such as *a lot, very, nice, thing.*
- beginning sentences with *There is___, There was___,* or *There are___.*
- using contractions wherever possible, with the exception of contractions within dialogue.
- Using extreme descriptors, such as "always," "never," and "all."
- Passive voice (when avoidable)

Style:

- Spell out acronyms.
- Use grade level appropriate words.
- Model correct grammar, punctuation, capitalization, spelling.

- Use active voice and present tense (especially for literature).
- Use Smart quotations and apostrophes.
- For more specific details about style, see the NWEA Through-year Style Guide.

Technology enhanced items should:

- Follow the general item writing guidelines
- Clearly indicate the desired outcome in the stem
- Use direction lines specified in the style guide
- Enhance the content measurement through the technology
    - Avoid technology for technology's sake
    - Avoid redundancy in tasks

Through-Year Mathematics Item Specifications

Table of Contents

General Item Writing Guidelines

Content of items should:

- Be aligned clearly to the identified standard
- Meet the indicated standard including content limits and rigor
- Be unique (graphics and context should be specifically created for each item without sharing across items)
- Test meaningful content (ask questions worth asking)
- (If a statistics item) Agree with the fact that there are 8 different methods of calculating a quartile. Visit http://www.wessa.net/rwasp_skewness_kurtosis.wasp.

Item stems should:

- State information clearly and concisely
- Use complete sentences with ending punctuation
- Use *which* before a noun, usually when selecting from options
- Use *what* before a verb or when options are not given (e.g., text entry for What value of x makes the equation true?)
- Avoid using "Which of the following. . . "
- Be stated as a question for multiple choice and choice multiple

Item options should:

- Be plausible
- Be consistent grammatically with the stem and parallel in form
- Be mutually exclusive (independent) unless appropriate for the content being assessed (for example, domain and range)
- Be phrased positively (avoid *not*) unless appropriate for the content being assessed
- Avoid using "All (or none) of the above"
- Be free of clues to the correct answer
- Be ordered purposefully (by ascending value, descending value, length, alphabetically, etc.)

Style

- Spell out acronyms
- Avoid the use of "not" and "except"
- Avoid absolutes (e.g., always, never) unless appropriate for the standard and vague modifiers (e.g., best, worst)
- Use grade level appropriate words
- Ensure correct grammar, punctuation, capitalization, spelling
- Use active voice and present tense when possible
- Minimize scrolling

Universal Design

Create items accessible to all students based on Universal Design Applied to Large Scale Assessments (Thomson, S., Johnstone, C. J., and Thurlowe, M. L., 2002).

- Items are free of unnecessary linguistic complexity.

- Information presented in items is clear, concise, and relevant to the standard being assessed.
- Context and language are fair and familiar to students at the grade level and do not give advantages or disadvantages to subgroups.
- Item is free of stereotypes and potential disrespect regarding age, gender, race, ethnicity, language, religion, sexual orientation, social economic status, disability, or geographic region.
- Item does not challenge personal beliefs or values and avoids emotionally charged topics.
- Avoid names and gender unless necessary. If names must be used, use a variety of genders and ethnicities.
- Graphics are intentional and not merely decorative.
- Graphics are not color dependent.
- MathML has equation tags compatible with text-to-speech and screen readers.
- Art is tagged to be compatible with screen readers where possible.

Fact Checking

Items are supported by credible sources when facts are used

- At least one valid source is used for generic factual statements (e.g., a rectangular table is x feet by y feet) and specific factual statements (e.g., a cheetah runs at x miles per hour).
- Specific factual statements are verified by a Research Librarian.

Scoring

- Dichotomous (1pt) items are used for all assessable standards.
- Polytomous (2pt) items are used for standards assessing major grade level concepts when the standard allows depth beyond what is required in a dichotomous item. These items assess multiple aspects of the standard within the same item.
- Dichotomous (1pt) items may include be multiple choice, choice multiple, gap match, graphic gap match/graphing, hot text, or text entry/equation editor. Students may earn 0 or 1 point.
    - Multiple choice interactions are only worth one point. The item has 1 correct answer out of 4 answer choice options.
    - Choice multiple one-point items typically have 2 correct answers. The item may have 3 or more correct answers if it is basic recall/recognition or is appropriate for the standard. Students must select all correct answers and no incorrect answers to earn the point.
    - Gap match one-point items typically have 2 – 6 correct selections. For example, sorting shapes into a table. Students must place all correct answers and no incorrect answers to earn the point.
    - Graphic gap match/graphing one-point items typically have 2 – 6 correct selections that are placed on a graphic background. For example, creating a fraction with the fraction bar provided as art or plotting a point on a coordinate grid. Students must place all correct answers and no incorrect answers to earn the point.
    - Hot text one-point items typically have 2 correct answers. The item may have 3 or more correct answers if it is basic recall/recognition or is appropriate for the standard. Students must select all correct answers and no incorrect answers to earn the point.
    - Text entry/equation editor interactions can be worth one point. Text entry only allows numerical responses. The correct response allows equivalent numerical values based on

the allowed characters. When commas are allowed and if commas are used, the comma must be placed in the correct location to earn credit; however, it is not required to use commas. An equation editor interaction will allow algebraic responses.

- Polytomous items can have multiple parts or a single interaction.
    - Students may earn 0, 1, or 2 points for two-part items, composite.
    - For two-part items, each part is one point and the parts sum to a total of two points.
        - The parts should be related while avoiding dependence.
        - The parts may be multiple choice, choice multiple, hot text, text entry/equation editor, and eventually gap match and graphic gap match/graphing. However, avoid multiple choice/multiple choice unless it is appropriate for the standard.
        - Each part follows the above rules for dichotomous scoring.
    - For polytomous items with a single interaction, selecting all correct responses without any incorrect responses results in a total of two points.
        - The interaction may be choice multiple, gap match, graphic gap match/graphing, hot text, or text entry/equation editor.
        - The part should require more cognitive processing than a dichotomous item that uses the same type of interaction.
            - Choice multiple two-point items typically have 3 or more correct answers. The item may have 2 correct answers if the item is cognitively demanding and worth 2 points for the standard the item is measuring.
            - At Grades 3 – 5, students will be directed on how many options to choose. At Grades 6 – 8, students be directed to “select all that apply.”
            - The item should allow for partial credit so students can earn 0, 1, or 2 points.
                - If the item is meant to allow partial credit for both 2 correct answers or 2 correct answers and 1 incorrect answer, a scoring line needs to be entered for each situation. At the lower grades, where students must choose the set number, it will limit how many scoring lines need to be entered.
            - Gap match/graphic gap match/graphing two-point items typically require more than 4 selections such as constructing line plots.
                - Each point value needs to be defined. For example, if partial credit is to be given for answering 2 gaps or 3 gaps correctly out of a total of 4 gaps, a line needs to be entered in scoring for each. 2 gaps = 1 point and 3 gaps = 1 point.
            - Hot text two-point items typically have 3 or more correct answers. The item may have 2 correct answers if the item is cognitively demanding and worth 2 points for the standard the item is measuring. The item should allow for partial credit so students can earn 0, 1, or 2 points.
                - Each point value needs to be defined. If partial credit is to be given for answering 2 groups or 3 groups correct, a line needs to be entered in scoring for each. 2 groups = 1 point and 3 groups = 1 point.

- Text entry/equation editor two-point items are made up of two or more text entry/equation editor interactions that are best presented as a stand-alone item instead of labeled parts. Items will be set up and scored as a composite item, but the student sees one item.

Information for Grades 3-8, 10 Standards

DOK

Items will also be reviewed for depth of knowledge. Items on the assessment will align at levels 1, 2, or 3.

- Level 1 (Recall) includes the recall of information such as a fact, definition, term, or a simple procedure, as well as performing a simple algorithm or applying a formula. That is, in mathematics, a one-step, well defined, and straight algorithmic procedure should be included at this lowest level. Other key words that signify Level 1 include "identify," "recall," "recognize," "use," and "measure." Verbs such as "describe" and "explain" could be classified at different levels, depending on what is to be described and explained.

- Level 2 (Skill/Concept) includes the engagement of some mental processing beyond a habitual response. A Level 2 assessment item requires students to make some decisions as to how to approach the problem or activity, whereas Level 1 requires students to demonstrate a rote response, perform a well-known algorithm, follow a set procedure (like a recipe), or perform a clearly defined series of steps. Keywords that generally distinguish a Level 2 item include "classify," "organize," "estimate," "make observations," "collect and display data," and "compare data." These actions imply more than one step. For example, to compare data requires first identifying characteristics of the objects or phenomenon and then grouping or ordering the objects. Some action verbs, such as "explain," "describe," or "interpret," could be classified at different levels depending on the object of the action. For example, interpreting information from a simple graph, or requiring mathematics information from the graph, also is at Level 2. Interpreting information from a complex graph that requires some decisions on what features of the graph need to be considered and how information from the graph can be aggregated is at Level 3. Level 2 activities are not limited solely to number skills but can involve visualization skills and probability skills. Other Level 2 activities include noticing and describing non-trivial patterns; explaining the purpose and use of experimental procedures; carrying out experimental procedures; making observations and collecting data; classifying, organizing, and comparing data; and organizing and displaying data in tables, graphs, and charts.

- Level 3 (Strategic Thinking) requires reasoning, planning, using evidence, and a higher level of thinking than the previous two levels. In most instances, requiring students to explain their thinking is at Level 3. Activities that require students to make conjectures are also at this level. The cognitive demands at Level 3 are complex and abstract. The complexity does not result from the fact that there are multiple answers, a possibility for both Levels 1 and 2, but because the task requires more demanding reasoning. An activity, however, that has more than one possible answer and requires students to justify the response they give would most likely be at Level 3. Other Level 3 activities include drawing conclusions from observations; citing evidence and

developing a logical argument for concepts; explaining phenomena in terms of concepts; and using concepts to solve problems.

- Level 4 (Extended Thinking) requires complex reasoning, planning, developing, and thinking, most likely over an extended period of time. The extended time period is not a distinguishing factor if the required work is only repetitive and does not require applying significant conceptual understanding and higher-order thinking. For example, if a student must take the water temperature from a river each day for a month and then construct a graph, this would be classified as Level 2. However, if the student is to conduct a river study that requires taking into consideration a number of variables, this would be at Level 4. At Level 4, the cognitive demands of the task should be high, and the work should be very complex. Students should be required to make several connections—relate ideas within the content area or among content areas—and to select one approach among many alternatives on how the situation should be solved, to be at this highest level. Level 4 activities include developing and proving conjectures; designing and conducting experiments; making connections between a finding and related concepts and phenomena; combining and synthesizing ideas into new concepts; and critiquing experimental designs. (Webb, 2009).

Tools

Calculators

- Items at Grades 3 – 5 do not include calculators on summative items.
- Basic calculators are assigned on an item-by-item basis for Grade 6 summative items.
- Scientific calculators are assigned on an item-by-item basis for Grades 7, 8, and 10 summative items.
- Graphing calculators are assigned on an item-by-item basis for Grade 10 summative items.
- Items aligned to standards assessing computational skills in grades 6 – 8 and 10 will not allow calculators.

Rulers and Protractors

- Rulers are assigned on an item-by-item basis for items assessing measurement with a ruler.
- Protractors are assigned on an item-by-item basis for items assessing measurement with a protractor.
- Rulers and protractors are not assigned for items for items not requiring it.

Reference Sheets

- Reference sheets are not used in grades 3-5. Required formulas or conversion factors must be provided within the item.
- A universal reference sheet will be available for all items in grade 6-8 and HS assessments.

Technology Enhanced Item Writing Guidelines

Technology enhanced items should:

- Follow the general item writing guidelines
- Clearly indicate the desired outcome in the stem

- Use direction lines appropriate for the type of interaction
- Enhance the content measurement through the technology
    - Avoid technology for technology's sake
    - Avoid redundancy in tasks

Technology Enhanced Item Types

Choice Multiple:

- There are 5 to 8 answer choice options.
- The correct response requires selecting two or more answer choice options.

Gap Match/Graphic Gap Match/Graphing

- The correct response requires moving answer choice options into gaps by selecting and moving the options, selecting the option and then selecting the gap, or using click-and-pop functionality.
- Graphing will allow for plotting points and eventually other graphs.

Hot Text

- The correct response requires selecting one or more answer choice options embedded within text, images, or tables.

Text Entry/Equation Editor

- The correct response requires entering the response in the response box.

Composite Items

- The item contains multiple parts/functionalities. For example, Part A and Part B.
- The parts are related but avoid dependence and redundancy.
- The correct response requires answering all parts.

References

Thompson, S., Johnstone, C. J., & Thurlow, M. L. (2002). Universal design applied to large scale assessments (Synthesis Report 44). Minneapolis, MN: University of Minnesota, National Center on Educational Outcomes

Webb, N.L. (2009). Design of Content Alignment Studies in Mathematics and Reading for 12th Grade NAEP and other Assessments to be used in Preparedness Research Studies. National Assessment Governing Board, Wisconsin Center of Education Research: University of Wisconsin - Madison