



NORTH DAKOTA DEPARTMENT OF
PUBLIC INSTRUCTION

**North Dakota State
Assessment for ELA/Literacy,
Mathematics, and Science**

2020–2021

**Volume 6
Score Interpretation Guide**

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1. North Dakota Score Reports

In spring 2021, pursuant to Chapter 15 of the North Dakota Century Code (15.1-21-08 to 15.1-21-10), the following North Dakota State Assessment (NDSA) tests were administered to North Dakota students: grades 3–8 and grade 10 English language arts/literacy (ELA/literacy), grades 3–8 and grade 10 mathematics, and grades 4, 8, and 10 science.

The purpose of this Score Interpretation Guide is to document the features of the North Dakota Centralized Reporting System (CRS), which is designed to assist stakeholders in reviewing and downloading the test results and in understanding and appropriately using the results of the state assessments. Additionally, this volume describes the score types reported for the spring 2021 assessments, the features of the score report, and the appropriate uses and inferences that can be drawn from these score types.

1.1 OVERVIEW OF NORTH DAKOTA SCORE REPORTS

NDSA ELA/literacy, mathematics, and science assessments were administered in spring 2021. Test scores from the ELA and mathematics spring 2021 assessments were provided to districts and schools through the CRS on the day the testing window opened, which was March 15, 2021. ELA and mathematics scores were released in near real time after the test was completed and scored. Test scores from the science assessment were released on August 13, 2021 following the standard setting process to determine science cut points. The CRS provides information on student performance and aggregated summaries at several levels—state, district, school, and roster.

The CRS (<https://nd.reporting.cambiumast.com/>) is a web-based application that provides NDSA results at various privileged levels. Test results are available for users based on their roles and the privileges they are given based on the authentication granted to them. There are four basic levels of user roles: district, school, teacher, and roster levels. Each user is granted drill-down access to reports in the system based on their assigned role. This means that teachers can access data only for their roster(s) of students, schools can access data for the students only in their school, and districts can access data for all schools and students in their district.

The following users have access to the system:

- State users: Access to all data at the state, district, school, teacher, and student levels
- District Administrator (DA) and District Test Coordinator (DTC) users: Access to all data for their district and the schools and students in their district
- School Test Coordinator (SC) users: Access to all data for their school and the students in their school
- Teacher (TE) and test administrator (TA) users: Access to all aggregate data for their roster(s) and the students within their roster(s)

Access to reports is password protected, and users can access data at their assigned level and levels below. For example, an SC user can access the school report of students for his or her school, but not for another school.

1.2 OVERALL SCORES AND REPORTING CATEGORIES

Each student receives a single scale score for each subject tested if there is a valid score to report. The validity of a score is determined using invalidation rules, which define a set of parameters under

which a student’s test may be scored. A student’s score will be automatically invalidated if he or she fails to respond to at least five test items on ELA or mathematics assessments and if he or she fails to respond to at least one test item on the science assessment. Failure to provide a response in the written portion of ELA/literacy tests will also result in an invalidated score. Normally, a student takes a test in the test delivery system (TDS) and then submits it. TDS then forwards the test for scoring before the CRS reports the scores. However, tests may also be manually invalidated before reaching the CRS if testing irregularities occur (e.g., cheating, unscheduled interruptions, loss of power, or Internet access).

A student’s score is based on only the operational items on the assessment. A scale score is used to describe how well a student performed on a test and can be an estimate of a student’s knowledge and skills. The scale score is transformed from a theta score, which is estimated based on item response theory (IRT) models as described in Volume 1. Low scale scores indicate that the student does not possess sufficient knowledge and skills measured by the test. Conversely, high scale scores indicate that the student has proficient knowledge and skills measured by the test. Interpretation of scale scores is more meaningful when the scale scores are used along with achievement levels and achievement-level descriptors.

Based on the scale score, a student will receive an overall achievement level. Achievement levels are proficiency categories on a test, which students fall into based on their scale scores. For the NDSA, scale scores are mapped into four achievement levels:

- Level 1—Novice
- Level 2—Partially Proficient
- Level 3—Proficient
- Level 4—Advanced

Achievement-level descriptors set out content-area knowledge and skills that students at each achievement level are expected to possess and are determined by comparing a student’s scale score against carefully determined cut scores, unique to each grade and subject. Cut points are listed in Section 2.5, and additional details can be found in Volume 3.

Achievement levels can be interpreted based on achievement-level descriptors, which represent a more descriptive analysis of a student’s abilities based on their achievement level. Generally, students performing on the NDSA at Levels 3 and 4 are considered on track to demonstrate progress toward mastery of the knowledge and skills necessary for college and career readiness.

In addition to an overall score, students will receive reporting category scores. Reporting categories represent distinct groups of knowledge within each grade subject. For the NDSA, students’ performance on each reporting category are reported using three achievement categories:

1. Below Standard
2. At/Near Standard
3. Above Standard

Unlike the achievement levels for the overall test, student performance on each of the reporting categories is evaluated entirely with respect to meeting the reporting category proficiency cut score. Achievement-level classifications are computed to classify student performance levels for each of the content standard subscales. For each subscale, the band is generally defined as a range extending

1.5 Standard Error of Measurement (SEM) below to 1.5 SEM above the proficiency cut score used on the overall test.

Students performing at either Below Standard or Above Standard can be interpreted as student performances clearly below or above the Meets Standard cut score for a specific reporting category. Students performing at At/Near Standard can be interpreted as student performances that do not provide enough information to tell whether students reached the Meets Standard mark for the specific reporting category. A student is classified as At/Near Standard if the spread of a student’s SEM (as described in the previous paragraph) lies both above and below the achievement level’s proficiency cut score.

Table 1 and Table 2 display the reporting categories by grade and subject.

Table 1: Reporting Categories for ELA/Literacy

Grade	Reporting Category
3–8, 10	1. Reading Literary Text
	2. Reading Informational Text
	3. Writing and Language

Table 2: Reporting Categories for Mathematics

Grade	Reporting Category
3–5	1. Operations and Algebraic Thinking
	2. Number and Operations in Base Ten
	3. Number and Operations—Fractions
	4. Measurement, Data, and Geometry
	5. Modeling and Problem Solving
	6. Use Mathematical Reasoning
6–7	1. Ratios and Proportional Relationships and Number Systems
	2. Expressions and Equations
	3. Geometry
	4. Statistics and Probability
	5. Modeling and Problem Solving
	6. Use Mathematical Reasoning
8	1. Expressions and Equations and Number System
	2. Functions
	3. Geometry
	4. Statistics and Probability
	5. Modeling and Problem Solving
	6. Use Mathematical Reasoning

Grade	Reporting Category
10	<ol style="list-style-type: none"> 1. Algebra 2. Functions 3. Geometry 4. Statistics and Probability 5. Modeling and Problem Solving 6. Use Mathematical Reasoning

Table 3: Reporting Categories for Science

Grade	Reporting Category
4	<ol style="list-style-type: none"> 1. Earth Science and Space 2. Life Science 3. Physical Science
8	<ol style="list-style-type: none"> 1. Earth Science and Space 2. Life Science 3. Physical Science
10	<ol style="list-style-type: none"> 1. Physical Science 2. Life Science

1.3 CENTRALIZED REPORTING SYSTEM

The CRS generates a set of online score reports that includes the information describing student performance for students, parents, educators, and other stakeholders. The online score reports are produced immediately after students complete tests or after the tests are handscored. Because the score reports on students' performance are updated each time that students complete tests or the tests are handscored, authorized users (e.g., school principals, teachers) can have quickly available information on students' performance on the tests and use it to improve student learning. In addition to individual students' score reports, the CRS also produces aggregate score reports by class, school, district, and state. The timely accessibility of aggregate score reports could help users monitor students' performance in each subject by grade area, evaluate the effectiveness of instructional strategies, and inform the adoption of strategies to improve student learning and teaching during the school year.

1.4 TYPES OF SCORE REPORTS

The CRS is designed to help educators and students answer questions about how well students have performed on ELA, mathematics, and science assessments. The CRS is the online tool that provides educators and other stakeholders with timely, relevant score reports. The CRS for the NDSA assessment has been designed with stakeholders, who are not technical measurement experts, in mind in order to make score reports easy to read. This is achieved by using simple language so that users can quickly understand assessment results and make inferences about student achievement. The CRS is also designed to present student performance in a uniform format. For example, similar colors are

used for groups of similar elements, such as achievement levels, throughout the design. This design strategy allows readers to compare similar elements and to avoid comparing dissimilar elements.

Once authorized users log in to the CRS, the dashboard page shows overall test results for all tests that the students have taken grouped by test family (e.g., Summative ELA). Once the user clicks the test family that he or she wants to explore further, it will take the user to the detailed dashboard, where the results are shown by test (e.g., grade 3 ELA). Additionally, when authorized state-level users log in to the CRS and select “State View,” the CRS generates a summary of student performance data for a test across the entire state.

Generally, the CRS provides two categories of online score reports: (1) aggregate score reports and (2) student score reports. Table 4 summarizes the types of online score reports available at the aggregate level and the individual student level. Detailed information about the online score reports and instructions on how to navigate the online score reporting system can be found in the *Centralized Reporting System User Guide*, located via a help button on the CRS.

Table 4: Types of Online Score Reports by Level of Aggregation

Level of Aggregation	Types of Online Score Reports
State	<ul style="list-style-type: none"> Number of students tested and percentage of students proficient (for overall students and by subgroup)
District	<ul style="list-style-type: none"> Average scale score and standard error of average scale score on the overall test and reporting category (for overall students and by subgroup)
School	<ul style="list-style-type: none"> Percentage of students at each achievement level on the overall test (for overall students and by subgroup)
Teacher	<ul style="list-style-type: none"> Performance category in each target (for overall students)¹
Roster	<ul style="list-style-type: none"> On-demand student roster report
Student	<ul style="list-style-type: none"> Total scale score and SEM Achievement level on overall score with achievement-level descriptors Student reporting category performance in each reporting category Average scale scores and standard errors of average scale scores for student's school, district, and state Student growth in scale score and achievement level over time Reported Lexile® Measure and Quantile® Measure (ELA/Math only) Writing performance descriptors and scores by dimensions

Note: 1 = Performance category in each target is provided for all aggregate levels except for state.

Aggregate score reports at a selected aggregate level are provided for overall students and by subgroup. Users can see student assessment results by any of the subgroups. Table 5 presents the types of subgroup and subgroup categories provided in the CRS.

Table 5: Types of Subgroups

Subgroup	Subgroup Category
Race/Ethnicity	American Indian/Alaskan Native

Subgroup	Subgroup Category
	Asian/Pacific Islander
	Asian Race
	African American
	Hispanic
	Pacific Islander Race
	White
	Multi-Racial
	Declined to Report
Gender	Female
	Male
IDEA Indicator	Yes
	No
English Language Status	Yes
	No
Economic Disadvantage Status	Yes
	No
Section 504 Plan Status	Yes
	No
	Unknown/Cannot Provide
	03
	04
	05
Enrolled Grade	06
	07
	08
	10

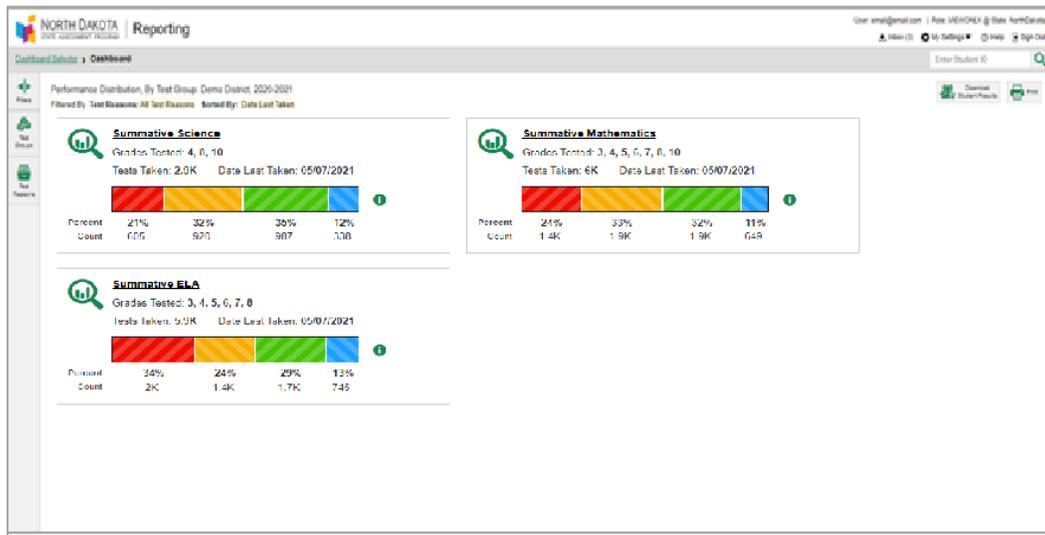
1.5 REPORTS

1.5.1 Dashboard

The first page users see when they log in to the CRS contains summaries of student performance by test family (e.g., Summative Mathematics). District personnel see district summaries, school personnel see school summaries, and teachers see summaries of their students.

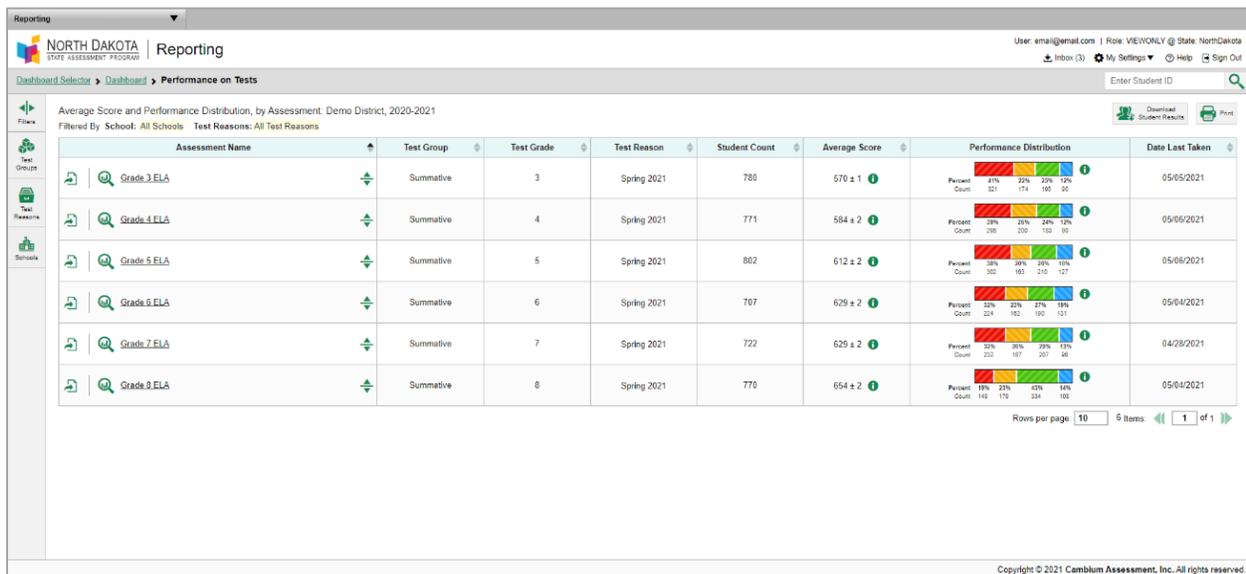
The dashboard summarizes students' performance by test family, including: (1) the number of students tested, (2) the grades of the students who have tested, and (3) the percentage and counts of students at each performance level. Figure 1 presents a sampled dashboard page at the district level.

Figure 1: Dashboard



Educators can click the subject group to view individual test results for the selected test group. Once the user clicks the test family that he or she wants to explore further, the detailed dashboard page will appear. The detailed dashboard summarizes students’ performance by test, including: (1) the number of students tested, (2) average score and standard error of the means, and (3) the percentage and counts of students at each performance level. Figure 2 presents a sampled detailed dashboard page for the NDSA Summative ELA at the district level.

Figure 2: Detailed Dashboard: District Level

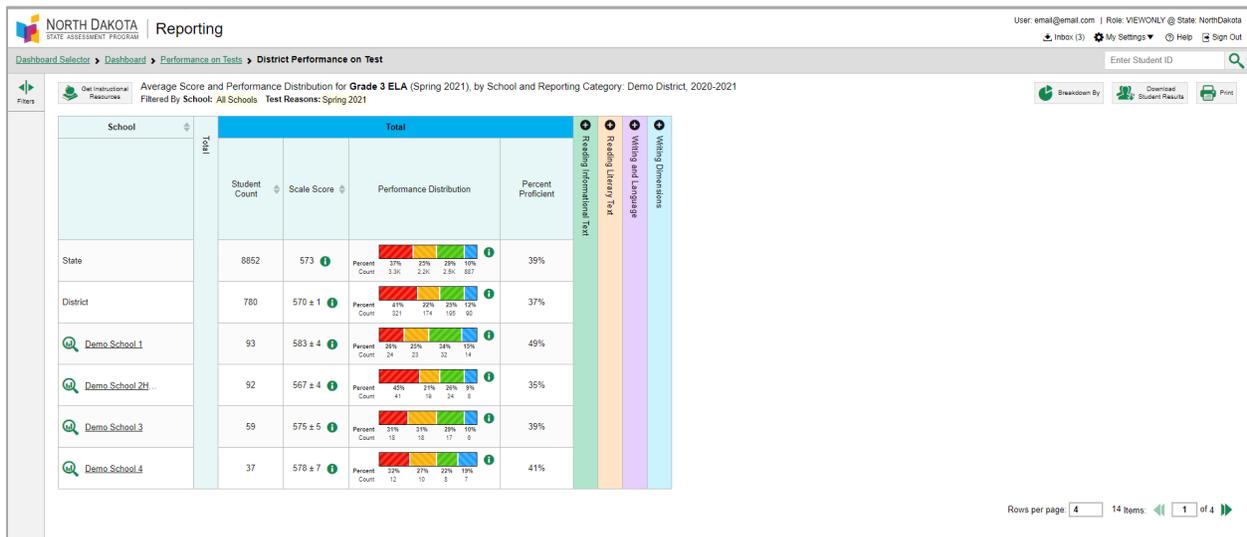


1.5.2 Subject Summary Results

Detailed summaries of student performance for each grade in a subject area for a selected aggregate level are presented when users select a specific assessment name. On each aggregate report, the summary report presents the summary results for the selected aggregate unit and the summary results for the state and the aggregate unit above the selected aggregate. For example, if a school is selected, the summary results of the state and district of the school are provided above the school summary results as well so that school performance can be compared with the aggregate levels.

The aggregated subject summary report provides the summaries on a specific subject area, including: (1) the number of students tested, (2) the average scale score and standard error associated with the average scale score, (3) the percentage of proficient students, and (4) the percentage and counts of students in each achievement level. The summaries are also presented for students overall and by subgroup. Figure 3 presents an example of a subject summary results for grade 3 ELA at the district level.

Figure 3: Subject Summary Results for Grade 3 ELA: District Level

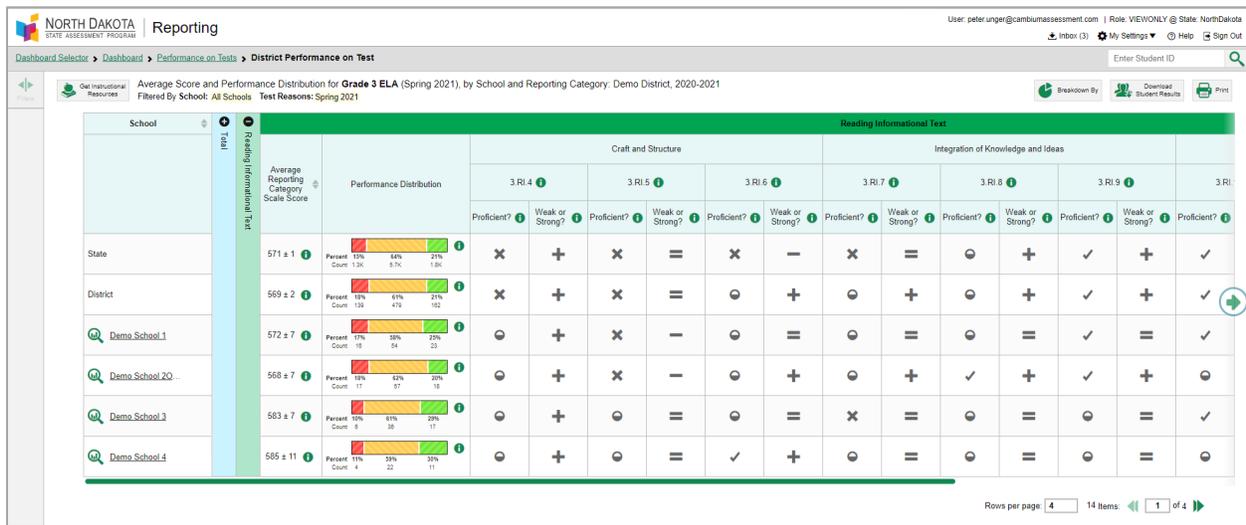


1.5.3 Reporting Category Level Results

Aggregated reporting category results are also available on the same report page as the subject level results. The reporting category result provides the aggregate summaries on student performance in each reporting category for a particular grade and subject. In addition to reporting overall average scale scores for the test, the results show reporting category average scale scores.

Like the subject level results, the summary report presents the summary results for the selected aggregate unit and the summary results for the state and aggregate unit above the selected aggregate. Also, the summaries on reporting category level performance can be presented for overall students and by subgroup. Figure 4 presents an example of a reporting category level results for grade 3 ELA at the district level.

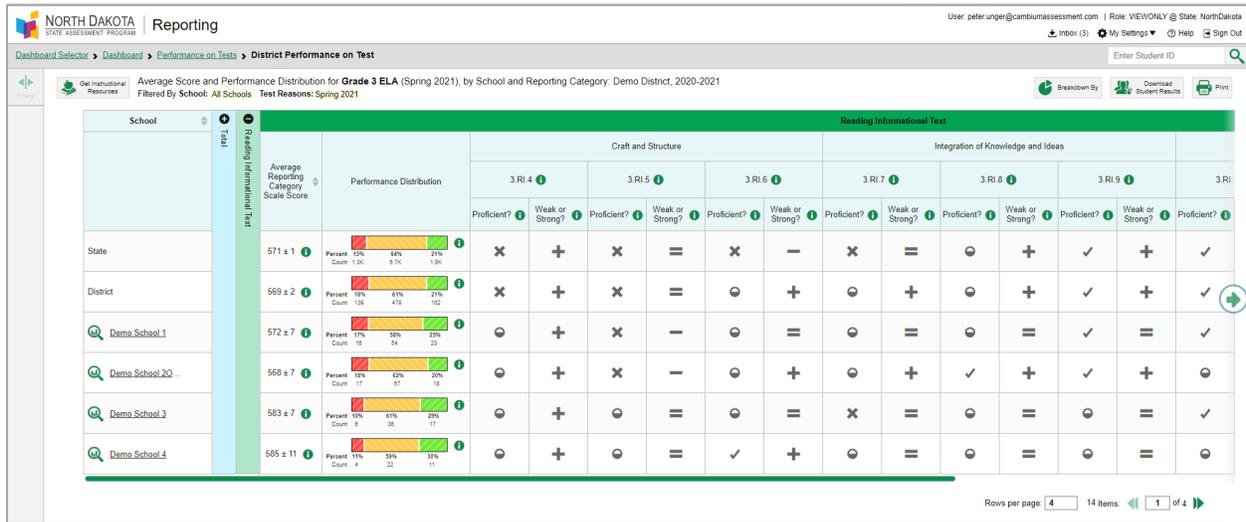
Figure 4: Reporting Category Level Results for Grade 3 ELA: District Level



1.5.4 Target Level Results

The target level results provide the aggregate summaries on student performance in target areas. Strength and weakness indicators are supplied for each target and are computed in two ways (i.e., performance relative to proficiency, performance relative to the test as a whole). In the target level, strengths and weaknesses are reported for groups of students based on whether there is a statistically significant difference between that group’s performance on each target and the group’s performance on the rest of the test. A target level result also includes group performance relative to the expected performance of a student at the proficient cut score. Figure 5 presents an example of target level results for grade 3 ELA at the district level.

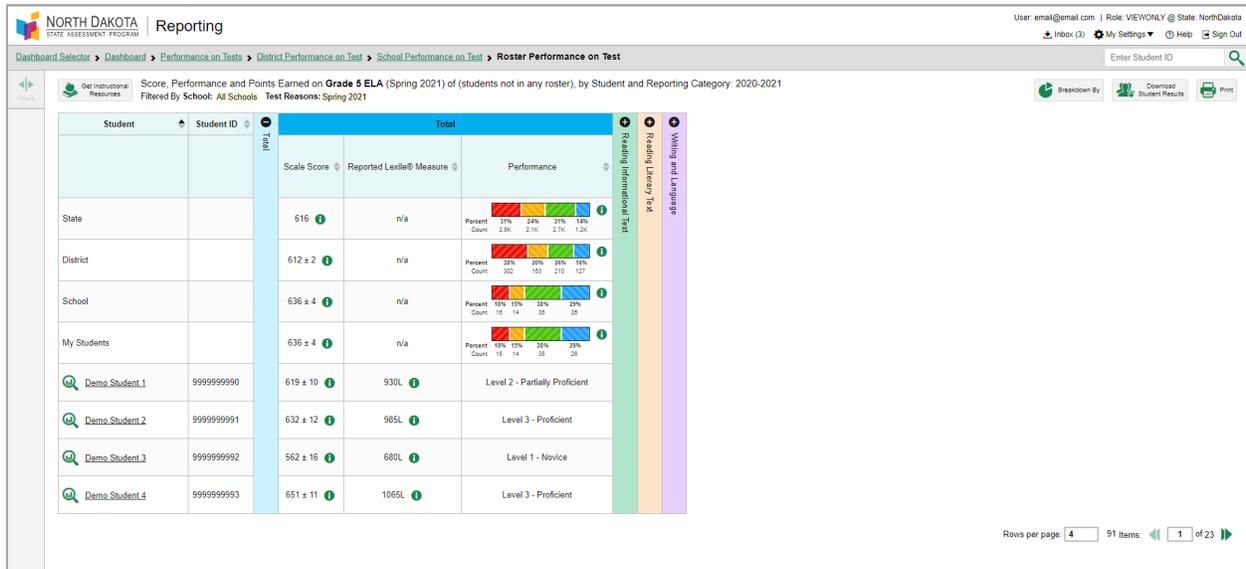
Figure 5: Target Level Results for Grade 3 ELA: District Level



1.5.5 Roster Performance Report

Class, teacher, and school performance rosters provide users with performance data for a group of students belonging to a system-defined or user-defined class. The report includes: (1) the student’s overall subject scale scores with SEM, (2) the performance level, and (3) reported Lexile® measure or reported Quantile® measure, as applicable. Figure 6 shows a sample roster performance report for grade 5 ELA.

Figure 6: Roster Performance Report for Grade 5 ELA



1.5.6 Individual Student Report

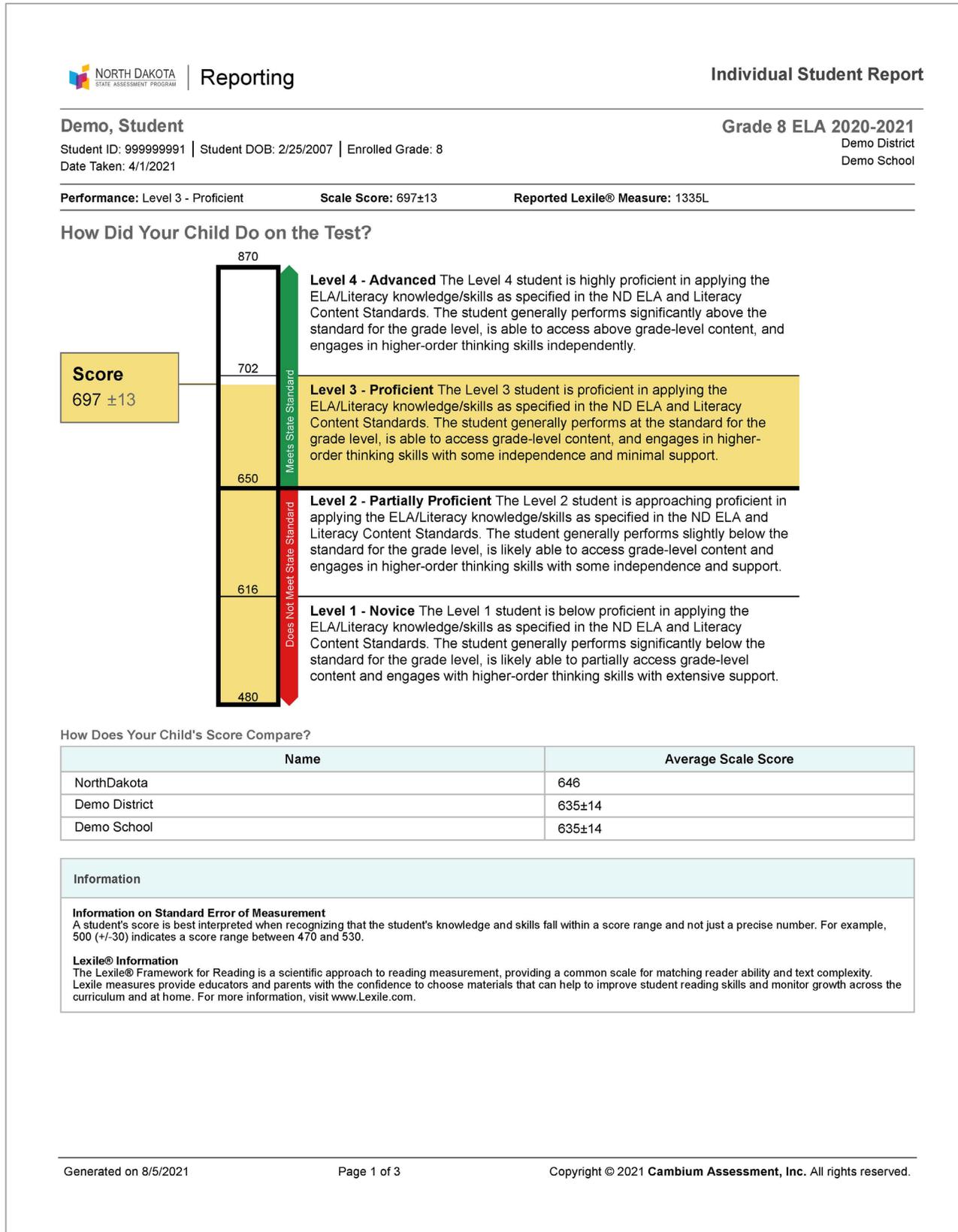
When a student completes a test or a test has been handscored, an individual student score report (ISR) will appear in the CRS. The individual student report shows individual student performance on the test. Figure 7 shows a sample individual student report for grade 8 ELA. In each subject area, the individual student report provides: (1) the scale score and SEM; (2) achievement level for overall test; (3) reported Lexile® measure for ELA or reported Quantile® measure for mathematics; (4) average scale scores for the student’s state, district, and school; (5) student growth in scale score and achievement level over time (ELA and Math only); (6) the student’s reporting category performance in each reporting category; and (7) writing performance descriptors in each dimension (ELA only).

The student’s name, scale score with the SEM, achievement level, and reported Lexile® measure for ELA or reported Quantile® measure for mathematics are shown at the top of the page. In the middle section, the student’s performance is described in detail using a barrel chart. In the barrel chart, the student’s scale score is presented with the SEM using a “±” sign. SEM represents the precision of the scale score, or the range in which the student would likely score if a similar test were administered multiple times. Furthermore, in the barrel chart, achievement-level descriptors with cut scores at each achievement level are provided. This defines the content area knowledge, skills, and processes that test takers at the achievement level are expected to possess.

Beneath the individual student scores, average scale scores and standard errors of the average scale scores for the state, district, and school are displayed so that student achievement can be compared with the above aggregate levels. It should be noted that the “±” next to the student’s scale score is the SEM of the scale score, whereas the “±” next to the average scale scores for aggregate levels represents the standard error of the average scale scores.

On the following page, the trend of student performance over time is displayed. On the bottom of the page, student performance in writing dimension scores (ELA only) is displayed alongside a description of the student’s performance on each writing dimension.

Figure 7: Individual Student Report for ELA





Reporting

Individual Student Report

Demo, Student

Student ID: 999999991 | Student DOB: 2/25/2007 | Enrolled Grade: 8
Date Taken: 4/1/2021

Grade 8 ELA 2020-2021

Demo District
Demo School

Performance: Level 3 - Proficient

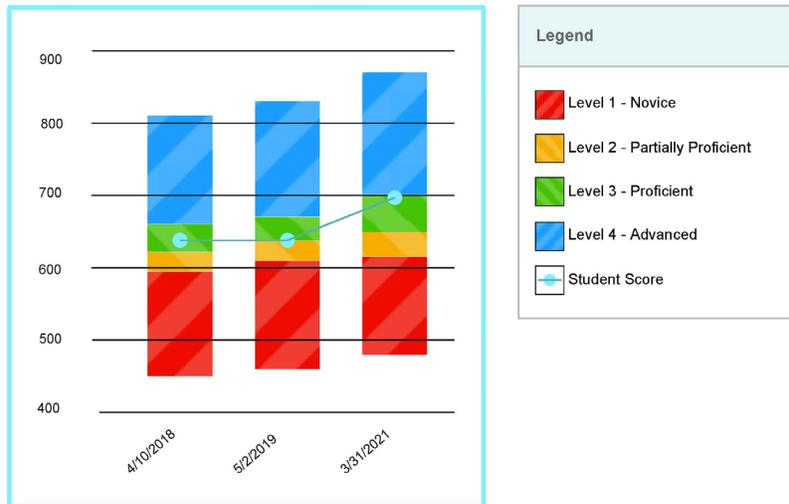
Scale Score: 697±13

Reported Lexile® Measure: 1335L

Your Child's Progress

Longitudinal Trend Chart Information

The chart below reports your child's performance over time. The shaded areas in multiple colors indicate the scale score range in each achievement level. Each mark on the graph represents your child's score and indicates whether he or she met the standards that year.



Your Child's Progress

Date	Test Reason	Test Label	Scale Score	Performance Level
4/10/2018 12:00:00 AM	Spring 2018	NDSA ELA/Literacy Grade 5	638 ± 11	Level 3 - Proficient
5/2/2019 12:00:00 AM	Spring 2019	NDSA ELA/Literacy Grade 6	638 ± 12	Level 3 - Proficient
3/31/2021 12:00:00 AM	Spring 2021	Grade 8 ELA	697 ± 13	Level 3 - Proficient



Reporting

Individual Student Report

Demo, Student

Student ID: 999999991 | Student DOB: 2/25/2007 | Enrolled Grade: 8
Date Taken: 4/1/2021

Grade 8 ELA 2020-2021

Demo District
Demo School

Performance: Level 3 - Proficient Scale Score: 697±13 Reported Lexile® Measure: 1335L

How Did Your Child Perform on Different Areas of the Test?

The table and the graph below indicate student performance on individual reporting categories. The black dot indicates the student's score on each reporting category. The lines to the left and right of the dot show the range of likely scores your student would receive if he or she took the test multiple times.

Below Standard At/Near Standard Above Standard

Category	Performance	Performance	Performance level Description
Reading Informational Text			<p>What These Results Mean Your student can almost always analyze how an author develops a central idea or argument within one or more texts; determine and evaluate authors' points of view in texts or media; analyze how individuals, ideas, and events are connected; and analyze how word choice affects the meaning or tone of a text.</p> <p>Next Steps Ask your student to read different informational texts (articles, books, media) and analyze how the authors develop the central ideas or arguments. Ask your student to evaluate the authors' presentations of their points of view and analyze how individuals, events, and ideas are connected.</p>
Reading Literary Text			<p>What These Results Mean Your student can almost always explain how authors use character, setting, and plot to develop the theme of one or more texts; analyze the effects of word choice or point of view; analyze how a modern work draws upon a traditional story; and compare and contrast the structure of two or more texts.</p> <p>Next Steps Ask your student to read a story and explain how the characters and plot develop the theme. Ask your student to analyze how the author uses different points of view to create effects. Have your student analyze how a modern work draws on a traditional story.</p>
Writing and Language			<p>What These Results Mean Your student is often able to organize writing for a purpose, such as to develop an argument or an explanatory text; develop claims and provide relevant evidence from sources; determine the meaning of words; and demonstrate command of the conventions of standard English grammar, punctuation, and spelling.</p> <p>Next Steps Ask your student to read articles about a topic and then write an essay that explains the topic in detail (informative) or defends a position (argumentative). Argumentative essays should defend a claim against opposing views. All essays need evidence from the texts and formal, subject-specific language.</p>

Student's Writing Performance Based on NDSA Performance Task Rubric.

Essay	Raw Score	Conventions	Evidence/Elaboration	Organization/Purpose
Argumentation	6 out of 10 points	The response demonstrates an adequate command of basic conventions. The response may include the following: Some minor errors in usage but no patterns of errors; and Adequate use of punctuation, capitalization, sentence formation, and spelling (2 out of 2 points)	The response provides uneven, cursory support/evidence for the writer's claim that includes partial use of sources, facts, and details. The response may include the following: Weakly integrated evidence from sources; erratic or irrelevant references or citations; Repetitive or ineffective use of elaborative techniques; Imprecise or simplistic expression of ideas; Some use of inappropriate domain-specific vocabulary; and Most sentences limited to simple constructions (2 out of 4 points)	The response is somewhat sustained within the purpose, audience, and task but may include loosely related or extraneous material; and it may have a claim with an inconsistent organizational structure. The response may include the following: Focused claim but insufficiently sustained or unclear; Insufficiently addressed alternate or opposing claims; Inconsistent use of transitional strategies with little variety; and Uneven progression of ideas from beginning to end with an inadequate introduction or conclusion (2 out of 4 points)

1.5.7 State-Level Summary

The CRS provides a state dashboard for authorized state-level users to track student performance for a test across the entire state. Users can specify the test and administration year to display in the report. Figure 8 presents a sample of state-level summary for ELA, mathematics, and science.

Figure 8: State Dashboard for NDSA Summative ELA, Mathematics, and Science

Assessment Name	Test Reason	Student Count	Average Score	Performance Distribution	Date Last Taken
Grade 4 Science	Spring 2021	8524	400	Highest: 2.76, 2.56, 2.36, 2.16 Lowest: 2.16, 1.96, 1.76, 1.56	05/07/2021
Grade 8 Science	Spring 2021	8328	800	Highest: 2.76, 2.56, 2.36, 2.16 Lowest: 2.16, 1.96, 1.76, 1.56	05/07/2021
Grade 7 Math	Spring 2021	8548	530 ± 1	Highest: 2.76, 2.56, 2.36, 2.16 Lowest: 2.16, 1.96, 1.76, 1.56	05/07/2021
Grade 3 Math	Spring 2021	8604	424	Highest: 2.76, 2.56, 2.36, 2.16 Lowest: 2.16, 1.96, 1.76, 1.56	05/07/2021
Grade 8 Math	Spring 2021	8548	495 ± 1	Highest: 2.76, 2.56, 2.36, 2.16 Lowest: 2.16, 1.96, 1.76, 1.56	05/07/2021
Grade 5 Math	Spring 2021	8540	475	Highest: 2.76, 2.56, 2.36, 2.16 Lowest: 2.16, 1.96, 1.76, 1.56	05/07/2021
Grade 4 Math	Spring 2021	8558	450	Highest: 2.76, 2.56, 2.36, 2.16 Lowest: 2.16, 1.96, 1.76, 1.56	05/07/2021
Grade 10 Science	Spring 2021	7148	1000	Highest: 2.76, 2.56, 2.36, 2.16 Lowest: 2.16, 1.96, 1.76, 1.56	05/07/2021
Grade 8 Math	Spring 2021	8388	558 ± 1	Highest: 2.76, 2.56, 2.36, 2.16 Lowest: 2.16, 1.96, 1.76, 1.56	05/07/2021
Grade 10 Math	Spring 2021	2883	608 ± 1	Highest: 2.76, 2.56, 2.36, 2.16 Lowest: 2.16, 1.96, 1.76, 1.56	05/07/2021
Grade 8 ELA	Spring 2021	8319	840	Highest: 2.76, 2.56, 2.36, 2.16 Lowest: 2.16, 1.96, 1.76, 1.56	05/07/2021
Grade 9 ELA	Spring 2021	8498	830	Highest: 2.76, 2.56, 2.36, 2.16 Lowest: 2.16, 1.96, 1.76, 1.56	05/07/2021
Grade 4 ELA	Spring 2021	8504	580	Highest: 2.76, 2.56, 2.36, 2.16 Lowest: 2.16, 1.96, 1.76, 1.56	05/07/2021

1.5.8 Data File

CRS users have the option to quickly generate a comprehensive data file of their students’ scores. Data files (see Figure 9) can be downloaded in Microsoft Excel, CSV, or TXT format and contain a wide variety of data, including scale and reporting category scores, demographic data, achievement levels, Lexile®/Quantile® scores (ELA and math), and writing dimension scores (ELA only). Data files can be useful as a resource for further analysis and can be generated at the district, school, teacher, or roster level, depending on an individual’s role.

Figure 9: Data File

D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB		
Economic	English La	Enrolled	G	Gender	IDEA Indic	Race/Ethn	Section	SC	Enrolled	Enrolled	S	Test Reas	Test Opp	Date	Take	Grade 3 EL	Grade 3 EL	Grade 3 EL	Reading Ir	Reading L	Writing ar	Informati	Informati	Informati	Opinion: C	Opinion: C
No	No	03	Female	No	White	No	Demo Dis	Demo Sch	Spring 202	Most	Rece	04/26/202	611	11	780L	Level 3 - P	At/Near S	Above Sta	Above Sta	N/A	N/A	N/A	2	3	3	
No	No	03	Male	No	White	No	Demo Dis	Demo Sch	Spring 202	Most	Rece	04/26/202	601	11	730L	Level 3 - P	At/Near S	At/Near S	At/Near S	N/A	N/A	N/A	2	2	2	
Yes	No	03	Female	No	Black or A	No	Demo Dis	Demo Sch	Spring 202	Most	Rece	04/26/202	521	18	335L	Level 1 - N	Below Sta	Below Sta	Below Sta	PROMPT	PROMPT	PROMPT	N/A	N/A	N/A	
No	No	03	Male	No	Black or A	No	Demo Dis	Demo Sch	Spring 202	Most	Rece	04/27/202	617	10	810L	Level 3 - P	Above Sta	Above Sta	At/Near S	N/A	N/A	N/A	2	2	2	
No	No	03	Female	No	White	No	Demo Dis	Demo Sch	Spring 202	Most	Rece	04/26/202	612	11	785L	Level 3 - P	Above Sta	Above Sta	At/Near S	2	2	N/A	N/A	N/A		
No	No	03	Male	No	White	No	Demo Dis	Demo Sch	Spring 202	Most	Rece	04/26/202	572	10	585L	Level 2 - P	Below Sta	At/Near S	At/Near S	1	2	N/A	N/A	N/A		
No	No	03	Female	No	White	No	Demo Dis	Demo Sch	Spring 202	Most	Rece	04/26/202	630	11	875L	Level 4 - A	Above Sta	Above Sta	Above Sta	N/A	N/A	N/A	2	2	3	
No	No	03	Male	No	White	No	Demo Dis	Demo Sch	Spring 202	Most	Rece	04/27/202	567	12	560L	Level 2 - P	Below Sta	At/Near S	Below Sta	N/A	N/A	N/A	1	2	2	
No	No	03	Female	No	White	No	Demo Dis	Demo Sch	Spring 202	Most	Rece	04/27/202	582	10	635L	Level 2 - P	At/Near S	At/Near S	Above Sta	N/A	N/A	N/A	2	3	3	
Yes	No	03	Female	No	American	No	Demo Dis	Demo Sch	Spring 202	Most	Rece	04/26/202	535	13	405L	Level 1 - N	Below Sta	At/Near S	Below Sta	N/A	N/A	N/A	2	1	1	
No	No	03	Female	No	White	Yes	Demo Dis	Demo Sch	Spring 202	Most	Rece	04/27/202	558	12	520L	Level 1 - N	Above Sta	At/Near S	Below Sta	N/A	N/A	N/A	0	1	1	
No	No	03	Male	No	White	No	Demo Dis	Demo Sch	Spring 202	Most	Rece	04/26/202	590	11	675L	Level 3 - P	At/Near S	At/Near S	Above Sta	N/A	N/A	N/A	2	2	2	
No	No	03	Female	No	White	No	Demo Dis	Demo Sch	Spring 202	Most	Rece	04/27/202	624	12	845L	Level 4 - A	Above Sta	Above Sta	At/Near S	N/A	N/A	N/A	2	2	2	
No	No	03	Female	No	White	No	Demo Dis	Demo Sch	Spring 202	Most	Rece	04/26/202	608	12	765L	Level 3 - P	Above Sta	At/Near S	At/Near S	2	2	N/A	N/A	N/A		
No	No	03	Male	No	White	No	Demo Dis	Demo Sch	Spring 202	Most	Rece	04/27/202	589	10	670L	Level 3 - P	At/Near S	At/Near S	At/Near S	2	2	N/A	N/A	N/A		
No	No	03	Female	No	White	No	Demo Dis	Demo Sch	Spring 202	Most	Rece	04/26/202	671	13	1075L	Level 4 - A	Above Sta	Above Sta	Above Sta	N/A	N/A	N/A	2	3	3	
No	No	03	Male	No	White	No	Demo Dis	Demo Sch	Spring 202	Most	Rece	04/26/202	555	12	505L	Level 1 - N	Below Sta	At/Near S	Below Sta	0	1	1	N/A	N/A	N/A	
No	No	03	Female	No	White	No	Demo Dis	Demo Sch	Spring 202	Most	Rece	04/26/202	591	11	680L	Level 3 - P	At/Near S	At/Near S	At/Near S	N/A	N/A	N/A	2	2	2	
No	No	03	Female	No	White	No	Demo Dis	Demo Sch	Spring 202	Most	Rece	04/27/202	599	11	720L	Level 3 - P	Above Sta	At/Near S	At/Near S	N/A	N/A	N/A	2	2	2	
Yes	No	03	Female	No	White	No	Demo Dis	Demo Sch	Spring 202	Most	Rece	04/26/202	556	12	510L	Level 1 - N	Below Sta	At/Near S	At/Near S	2	2	1	N/A	N/A	N/A	
No	No	03	Male	No	White	No	Demo Dis	Demo Sch	Spring 202	Most	Rece	04/26/202	545	12	455L	Level 1 - N	Below Sta	At/Near S	Below Sta	N/A	N/A	N/A	2	1	2	

2. INTERPRETATION OF REPORTED SCORES

A student’s performance on a test is reported as a scale score and an achievement level for the overall test, and as an achievement level for each reporting category. A student’s scores and achievement levels are summarized at the aggregate levels. This section describes how to interpret these scores.

2.1 SCALE SCORE

A scale score is used to describe how well a student performed on a test and can be interpreted as an estimate of a student’s knowledge and skills as measured by their performance on the test. A scale score is the student’s overall numeric score. These scores fall on a continuous scale that increases across grade levels. The NDSA scale scores for ELA/literacy and mathematics are based on a vertical scale, which means that scores from different grades can be compared as long as they are from the same tested subject. The NDSA scale scores for science are not expressed on a vertical scale, which means that scores from different grades cannot be compared. The IRT vertical scale is formed by linking tests across grades using common items, and a statistical relationship is then determined. A vertical linking study provides the relationship among adjacent grade levels, allowing for meaningful comparisons across grades and, by extension, tracking growth over time as a student or cohort advances through each grade level (see Section 6.4 in Volume 1 for more information).

Scale scores can be used to illustrate students’ current levels of achievement and are most powerful when used to measure their growth over time. Low scale scores can indicate that the student does not possess sufficient knowledge and skills measured by the test. Conversely, high scale scores can indicate that the student has proficient knowledge and skills measured by the test. When combined across a student population, scale scores can also describe school- and district-level changes in performance and reveal gaps in achievement among different groups of students. In addition, scale scores can be averaged across groups of students, allowing educators to use group comparison. Interpretation of scale scores is more meaningful when the scale scores are used along with achievement levels and achievement-level descriptors. It should be noted that the utility of scale scores is limited when comparing smaller differences among scores (or averaged group scores), particularly when the difference among scores is within the SEM. Furthermore, the scale score of individual students should be cautiously interpreted when comparing two scale scores, because small differences in scores may not reflect real differences in achievement.

2.2 STANDARD ERROR OF MEASUREMENT

A student’s score is best interpreted when recognizing that the student’s knowledge and skills fall within a score range and are not just precise numbers. A scale score (the observed score on any test) is an estimate of the true score. If a student takes a similar test several times, the resulting scale scores will vary across administrations, sometimes being a little higher, a little lower, or the same. The SEM represents the precision of the scale score, or the range in which the student would likely score if a similar test were administered several times. The SEM can be interpreted as the degree of uncertainty of a student’s score based on a statistical analysis of the student’s answers on a test. When interpreting scale scores, it is recommended to always consider the range of scale scores incorporating the SEM of the scale score.

The “±” next to the student’s scale score provides information about the certainty of, or confidence in, the score’s interpretation. The boundaries of the score band are one SEM above and below the student’s observed scale score, representing a range of score values that is likely to contain the true

score. For example, 680 ± 10 indicates that if a student were tested again, it is likely that he or she would receive a score between 670 and 690.

2.3 ACHIEVEMENT LEVEL

Achievement levels are proficiency categories on a test, which students fall into based on their scale scores. For the NDSA, scale scores are mapped into four achievement levels (Level 1—Novice, Level 2—Partially Proficient, Level 3—Proficient, and Level 4—Advanced) using achievement standards or cut scores (see Section 2.5). Achievement-level descriptors are descriptions of content area, knowledge, and skills that students at each achievement level are expected to possess. Thus, achievement levels can be interpreted based on achievement-level descriptors. Students performing on the NDSA at Levels 3 and 4 are considered on track to demonstrate progress toward mastery of the knowledge and skills necessary for college and career readiness. Achievement levels are for the classification of students in a class into a small number of groups based on the cut scores, therefore they have limited use for measuring growth. The achievement level is an indicator of whether a student has mastered the required skill for a given level.

Achievement-level descriptors are available on the North Dakota Department of Public Instruction web page at <https://www.nd.gov/dpi/districtschools/assessment/ndsap> under the NDSA Proficiency Levels accordion.

2.4 ACHIEVEMENT LEVELS FOR REPORTING CATEGORIES

Students' performance on each reporting category is reported on three achievement categories: Below Standard, At/Near Standard, and Above Standard. Students performing at Below Standard or Above Standard can be interpreted as student performances clearly below or above the Meets Standard cut score for a specific reporting category. Students performing at At/Near Standard can be interpreted as student performances that do not provide enough information to tell whether students reached the Meets Standard mark for the specific reporting category. Achievement levels for the reporting category are limited in their diagnostic ability based on the degree of the calculated SEM of the individual student's scale score for the tested grade and subject.

2.5 CUT SCORES

For all grades and subjects within the NDSA, scale scores are mapped onto four achievement levels (Level 1—Novice through Level 4—Advanced). For each achievement level, there is a minimum and maximum scale score that defines the range of scale scores students within each achievement level have achieved. Collectively, these minimum and maximum scale scores are defined as *cut scores* and are the cutoff points for each achievement level. Table 6, Table 7, and Table 8 show the cut scores for ELA/literacy, mathematics, and science, respectively, for all grades.

Table 6: North Dakota State ELA/Literacy Assessment Proficiency Cuts

Grade	Novice	Partially Proficient	Proficient	Advanced
3	420–559	560–584	585–620	621–750
4	430–571	572–599	600–638	639–790

Grade	Novice	Partially Proficient	Proficient	Advanced
5	450–594	595–621	622–660	661–810
6	460–609	610–637	638–670	671–830
7	470–610	611–640	641–679	680–850
8	480–615	616–649	650–701	702–870
10	480–626	627–666	667–712	713–900

Table 7: North Dakota State Mathematics Assessment Proficiency Cuts

Grade	Novice	Partially Proficient	Proficient	Advanced
3	300–409	410–427	428–462	463–550
4	310–436	437–464	465–500	501–610
5	320–445	446–483	484–522	523–660
6	330–469	470–512	513–557	558–720
7	340–502	503–549	550–597	598–750
8	350–518	519–579	580–639	640–830
10	350–593	594–649	650–692	693–960

Table 8: North Dakota State Science Assessment Proficiency Cuts

Grade	Novice	Partially Proficient	Proficient	Advanced
4	300-379	380-406	407-430	431-500
8	700-774	775-801	802-834	835-900
10	900-972	973-999	1000-1034	1035-1100

2.6 AGGREGATED SCORE

Students’ scale scores are aggregated at the roster, teacher, school, district, and state levels to represent how a group of students performs on a test. When students’ scale scores are aggregated, the aggregated scale scores can be interpreted as an estimate of knowledge and skills that a group of students possesses. This interpretation makes aggregated scores a powerful tool when comparing student performance across different groups of students, whether it be at a similar level of

aggregation (e.g., school to school) or an analysis of a subgroup (e.g., comparing a teacher’s roster to the overall school).

Given that student scale scores are estimates, the aggregated scale scores are also estimates and are subject to measures of uncertainty, as expressed using the calculated SEM for an aggregate average scale score. In addition to the aggregated scale scores, the percentage of students in each achievement level is reported at the aggregate level to represent how well a group of students performs overall and by reporting category.

2.7 WRITING PERFORMANCE

ELA/literacy reports include descriptions of the student’s performance on the writing portion based on the performance task writing rubric for each criterion. Essay responses are scored on three dimensions: Purpose, Focus, and Organization; Evidence and Elaboration; and Conventions of Standard English, as Table 9 shows. Each of these dimensions is independently scored and treated as a separate item in the computation of ELA/literacy subject area and writing domain scores.

If a condition code appears for one or more criteria, the student’s written response could not be scored on those criteria. Unscorable responses include responses that are blank, insufficient, written in a nonscorable language, off topic, or off purpose. A description of each condition code can be found in the *ELA and Mathematics Scoring Specifications*. It should be noted that the reporting category score for the writing assessment (Writing and Language) consists of the overall writing score from the prompt and language item scores from the reading component.

Table 9: Writing Scoring Dimensions

Dimension	Possible Scores
Purpose, Focus, and Organization	1–4 points
Evidence and Elaboration	1–4 points
Conventions of Standard English	0–2 points

2.8 RELATIVE STRENGTH AND WEAKNESS

A reporting category performance indicator produces information on how a group of students in a class, school, or district performed on the reporting category compared with the performance on the test as a whole. When observed performance within the reporting category is greater than the observed performance on the test as a whole, then the reporting unit (e.g., class, school, district) shows a relative strength in that reporting category. Conversely, when observed performance for the reporting category is below the achievement category based on overall achievement, then the reporting unit shows a relative weakness in that reporting category.

2.9 LEXILE[®] MEASURE

The Lexile[®] framework uses quantitative methods based on individual words and sentence lengths rather than qualitative analysis of content to produce scores. A Lexile[®] measure is defined as “the numeric representation of an individual’s reading ability or a text’s readability (or difficulty), followed by an ‘L’ (Lexile[®]).” A Lexile[®] text measure is obtained by evaluating the readability of a

piece of text, such as a book or an article. A Lexile[®] measure of a text can assist in selecting targeted materials that present an appropriate level of challenge for a reader—not so difficult as to be frustrating, yet difficult enough to challenge a reader and encourage reading growth.

2.10 QUANTILE[®] MEASURE

Quantile[®] measures provide an alternative—and possibly more useful—measure of mathematics ability than grade-equivalent scores. Similar to the Lexile[®] framework, the Quantile[®] framework measures both the mathematics skill level of a student and the difficulty of mathematics skills and concepts on the same developmental scale. Quantile[®] measures help educators, parents, and students determine which skills and concepts they are ready to learn next. Mathematics skills and concepts content, such as mathematics textbooks and online instructional materials, also get a Quantile[®] measure. Using those two measures together, parents and teachers can match students with resources that help them connect the dots among different mathematics skills and concepts and build on their learning.

2.11 APPROPRIATE USES FOR SCORES AND REPORTS

Assessment results can be used to provide information on individual students’ achievement on the test. Overall, assessment results demonstrate what students know and are able to do in certain subject areas and give further information on whether students are on track to demonstrate the knowledge and skills necessary for college and career readiness. Additionally, assessment results can be used to identify students’ relative strengths and weaknesses in certain content areas. For example, achievement levels for reporting categories can be used to identify an individual student’s relative strengths and weaknesses among reporting categories within a content area.

Assessment results for student achievement on the test can be used to help teachers or schools make decisions on how to support students’ learning. Aggregate score reports for the teacher and school levels provide information about students’ strengths and weaknesses and can be used to improve teaching and student learning. For example, a group of students may have performed well overall, but not as well in several reporting categories. In this case, teachers or schools can identify the strengths and weaknesses of their students through the group performance by reporting category and promote instruction on specific areas where student performance is below overall performance. Furthermore, by narrowing the student performance result by subgroup, teachers and schools can determine what strategies may need to be implemented to improve teaching and student learning, particularly for students from disadvantaged subgroups. For example, teachers might see student assessment results by gender and observe that a particular group of students is struggling with literary response and analysis in reading. Teachers can then provide additional instructions for these students to enhance their achievement of the benchmarks for literary response and analysis.

In addition, assessment results can be used to compare students’ performance among different students and different groups. Teachers can evaluate how their students perform compared with other students in schools and districts by overall scores and reporting category. Since all students are administered the same item sets in each test, scale scores are comparable across students. Furthermore, scale scores can be used to measure the growth of individual students over time, if data are available. The scale score in the NDSA for ELA and mathematics is a vertical scale, which means scales are vertically linked across grades. Because ELA and mathematics scores across grades are on the same scale, the scale scores are comparable. Please note, the NDSA scale scores for science

are not expressed on a vertical scale, which means that scores from different grades cannot be compared.

Although assessment results provide valuable information to understand students' performance, these scores and reports should be used with caution. It is important to note that scale scores are estimates of true scores and hence do not represent the precise measure for student performance. A student's scale score is associated with measurement error; thus, users need to consider measurement error when using student scores to make decisions about student achievement. Moreover, although student scores may be used to help make important decisions about students' placement and retention or teachers' instructional planning and implementation, the assessment results should not be used as the only source of information. Given that assessment results measured by a test provide limited information, other sources on student achievement, such as classroom assessment and teacher evaluation, should be considered when making decisions on student learning. Finally, when student performance is compared across groups, users need to take into account the group size. The smaller the group size, the larger the measurement error related to these aggregate data, requiring a more cautious interpretation.

3. SUMMARY

NDSA results are reported online via the CRS. The results are released in near real time as the tests are completed and scored.

The reporting system is interactive. When educators or administrators log in, they see a summary of data about students for whom they are responsible (e.g., a principal will see the students in his or her school; a teacher will see students in his or her class). They can then drill down through various levels of aggregation all the way to individual reports. The system allows them to tailor the content more precisely, moving from subject area through reporting categories and even to standards-level reports for aggregates. Aggregate reports are available at every level, and authorized users can print or download these reports (or the data on which they are based). Individual student reports can be produced individually or batched as PDF reports.

All authorized users can download files, including data about students for whom they are responsible, at any time. The various reports available may be used to inform stakeholders regarding student performance and instructional strategies. Individual schools in North Dakota are responsible for making the individual student reports (ISRs) available to parents/guardians either electronically or printed.