

# South Carolina Kindergarten Readiness Assessment (KRA)

Annual Technical Report  
2022–2023



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# 1 OVERVIEW

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## 1.1 PURPOSE OF THE KRA

The Kindergarten Readiness Assessment (KRA) provides valid and reliable information on children’s learning and development across the essential domains of school readiness.<sup>1</sup> This information can be used by stakeholders at the local, regional, and state levels to better understand children’s preparedness for kindergarten. Detailed score reports at the individual, classroom, school, district, and state levels inform policy, research, and programmatic decisions, and families can learn about each child’s skills, knowledge, and developmental needs.

## 1.2 PURPOSE OF THIS REPORT

The purpose of this report is to provide evidence of the technical qualities of the KRA, including its reliability and validity for use as a measure of children’s preparedness for kindergarten. This report supplements the *KRA 2.0 Development and Technical Report* (WestEd, 2018), which provides detailed descriptions of the design and development processes, scaling and equating methods, professional development to support administration, the Ready for Kindergarten Online (KReady) system, and South Carolina KRA annual technical reports from prior years.

# 2 KRA DESIGN

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## 2.1 COMMON LANGUAGE STANDARDS

The KRA is a criterion-referenced assessment based on the Common Language Standards, which are described in the *KRA 2.0 Development and Technical Report* (WestEd, 2018). The Common Language Standards are based on prekindergarten standards and incorporate the essential domains of school readiness as defined by the U.S. Department of Education.<sup>2</sup>

## 2.2 ITEM TYPES

A KRA item is one question or observation that aligns to a specific essential skill and knowledge statement from within the Common Language Standards and that results in one recorded score. The KRA includes three item types: selected response, performance task, and observational rubric.

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<sup>1</sup> The U.S. Department of Education defines the essential domains of school readiness as language and literacy development, cognition and general knowledge (including early mathematics and early scientific development), approaches toward learning, physical well-being and motor development, and social and emotional development.

<sup>2</sup> The Social Foundations domain for the KRA incorporates the essential domains of social and emotional development and approaches toward learning.

Selected-response items consist of a question or prompt and three possible answer options, of which there is only one correct answer. A student indicates his or her response by touching one of the three answer options. Selected-response items are worth one score point. The benefits of selected-response items are that they require the least amount of time to administer and can be administered via the KRA App.

Performance-task items consist of an activity or action that the student completes in response to a prompt. In some instances, manipulatives are provided with performance tasks, which allow the student to demonstrate the skill being assessed. Performance-task items are scored with a rubric that is based on the proficiency of the student’s performance, and are worth one, two, or three score points. The benefit of performance-task items is that they allow a student to demonstrate his or her knowledge and, in some instances, to provide an explanation or reason. Some performance-task items can be administered via the KRA App.

Observational-rubric items describe specific behaviors or skills that a student should demonstrate during typical classroom activities. The teacher evaluates and scores each student’s behaviors or skills, using a rubric that describes the quality for each criterion. Observational-rubric items do not require the teacher and the student to directly interact (i.e., the student is unaware of the teacher’s intention to assess) and, therefore, provide the advantage of assessing the student in a natural classroom environment.

## 2.3 BLUEPRINT

The KRA Blueprint, shown in Table 2.3, outlines the distribution of selected-response (SR) items, performance-task (PT) items, observational-rubric (OR) items, total items, total points, and percentage of total points across the domains, as defined in the Common Language Standards.

Table 2.3

*KRA Blueprint*

| Domain                                    | SR | PT | OR | Total Items | Total Points | Percentage of Total Points |
|---|----|----|----|-------------|--------------|----------------------------|
| Language and Literacy                     | 7  | 6  | 4  | 17          | 33           | 35%                        |
| Mathematics                               | 2  | 11 | 0  | 13          | 22           | 23%                        |
| Physical Well-Being and Motor Development | 0  | 0  | 9  | 9           | 18           | 19%                        |
| Social Foundations                        | 0  | 0  | 11 | 11          | 22           | 23%                        |
| Total                                     | 9  | 17 | 24 | 50          | 95           | 100%                       |

## 2.4 SCALE SCORES

Given that the KRA includes a sample of items that can be used to measure readiness for kindergarten, percent-correct scores would not provide a complete explanation of a student's readiness for kindergarten. Instead, raw scores (i.e., the total score points obtained across all items) on the KRA are converted to scale scores. Scale scores account for the difficulty of individual items and forms, which provides consistency in the interpretation of results and allows for comparison of results across cohorts and forms.

The KRA utilizes the Rasch model to define the relationship between the assumed latent trait (readiness for kindergarten) and the probability of a student correctly answering a given KRA item. This model assumes that responses are a function of a student's knowledge about the assessment content and of the difficulty of the item. This model allows the student score and the difficulty of the item to be placed on the same scale, known as theta ( $\theta$ ), which represents the latent trait being measured. This  $\theta$  scale allows for direct interpretation of the difficulty of an item and the probability of a student answering an item correctly. The probability that a student will answer a question at a given level is determined by whether the student's score is below, at, or above the difficulty threshold for the level.

The KRA items were calibrated using WINSTEPS measurement software. A more detailed description of the KRA scaling process, including the item parameters and fit statistics, can be found in the *KRA Technical Report* (WestEd, 2014) and the *KRA 2.0 Development and Technical Report* (WestEd, 2018).

The  $\theta$  scale is centered at 0 and extends in both positive and negative directions. Applying a linear transformation to the  $\theta$  scale is desirable because it allows for a scale that is more easily understood by stakeholders and that does not include negative values. The  $\theta$  scores determined by IRT scaling are converted using a linear transformation such that the *scale score* =  $12 * \theta + 250$ . The KRA scale is truncated at  $\theta$  scores of  $\pm 4$ , which results in minimum and maximum scale scores of 202 and 298, respectively.

The KRA overall scale score determines each student's performance level: Demonstrating Readiness, Approaching Readiness, or Emerging Readiness. Table 2.4.A shows the performance levels and their descriptions, including their associated overall score ranges.

Table 2.4.A

*Performance Levels and Overall Scale Score Ranges for the KRA*

| Performance Level       | Description   | Overall Scale Score Range |
|-------------------------|---|---------------------------|
| Demonstrating Readiness | A student demonstrates foundational skills and behaviors that prepare him/her for a curriculum based on kindergarten standards.         | 270–298                   |
| Approaching Readiness   | A student demonstrates some foundational skills and behaviors that prepare him/her for a curriculum based on kindergarten standards.    | 258–269                   |
| Emerging Readiness      | A student demonstrates minimal foundational skills and behaviors that prepare him/her for a curriculum based on kindergarten standards. | 202–257                   |

To show relative strengths in each student’s performance, domain scale scores are also reported for each student, with each based on the subset of KRA items that are aligned to each domain. The domain scale scores are reported using the same scale as the overall score. Caution must be taken when interpreting domain scores, as these scores are determined by a subset of the items that compose the entire KRA, meaning that they provide a less-precise measure of ability. Table 2.4.B shows the ranges of possible scale scores for each domain.

Table 2.4.B

*Domain Scale Score Ranges for the KRA*

| Domain                                    | Scale Score Range |
|---|-------------------|
| Language and Literacy                     | 202–298           |
| Mathematics                               | 202–298           |
| Physical Well-Being and Motor Development | 202–293           |
| Social Foundations                        | 202–298           |

*Note.* The Physical Well-Being and Motor Development domain has a lower maximum score due to limited numbers of items and score points within the domain.

## 2.5 REPORTS

Upon completion of the KRA, each student receives an individual student report (ISR), which is generated by the teacher upon completion of the assessment with the student. The ISR provides the overall score, including the associated conditional standard error of measurement, and the performance level, based on the overall score.

In addition to the ISR, multiple reports are available to teachers via the KReady system. The following reports can be generated by teachers throughout and after the administration window:

- *Interactive Data Displays:* The Interactive Data Displays are interactive charts and graphs that present the KRA data in multiple ways, including the option to filter by student group.

- *Domain Data Export*: This report is a Microsoft Excel file of a teacher’s class roster, organized by domain, showing total raw points earned by each student.
- *Data Results Export*: This report is similar to the Domain Data Export but is organized by item. The spreadsheet can be sorted and filtered to meet the teacher’s needs.
- *Class Item Results*: This report is a PDF with scoring rubrics, showing student performance by item.
- *Individual Student Item Results*: This report is a PDF of student scores by item, including scoring rubrics. This report can be printed separately for each student, showing the student’s scores for all items or only for selected items.

The KReady system also offers a variety of reports for school and district administrators. Having access to the KRA data and results allows school and district administrators to provide targeted supports or interventions. In addition to the previously described Interactive Data Displays and Domain Data Export reports, the following reports can be generated by school and/or district administrators:

- *KRA ISR Report*: This report is a Microsoft Excel file that includes all student data (including demographic information), students’ overall and domain scores, and students’ item-level scores. This report also includes links to view students’ ISRs.
- *KRA Percentage Completion Report*: This report provides the percentage of students in a school or district who have completed the KRA.
- *KRA Completion by Item Report*: This report provides the KRA items that have been completed for each student in a school or district.
- *ISR ZIP File*: A ZIP file of all student ISRs.

### 3 VALIDITY AND RELIABILITY

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The *Standards for Educational and Psychological Testing*, published by the American Educational Research Association, the American Psychological Association, and the National Council on Measurement in Education (AERA et al., 2014), provide detailed explanations of validity and reliability. These standards were used to guide the entire design, development, scoring, administration, and reporting processes for the KRA. The statistics presented throughout this section are based on data collected during the KRA administration in fall 2022.

#### 3.1 VALIDITY

According to the *Standards for Educational and Psychological Testing*, “validity refers to the degree to which evidence and theory support the interpretation of test scores for proposed uses of tests.” Further, “the process of validation involves accumulating relevant evidence to provide a sound scientific basis for the proposed score interpretations;” therefore, “statements about validity should refer to particular interpretations for specified uses” (AERA et al., 2014, p. 11).



Every aspect of an assessment, including design, content specifications, item development, psychometric characteristics, and administration procedures, provides evidence in support of its validity (or evidence of lack of validity). Therefore, every section of this report provides evidence of validity for the use of the KRA to describe children’s preparedness for a kindergarten curriculum.

### 3.1.1 Evidence Based on Test Content

The KRA Blueprint, item specifications, and item development process provide evidence for test content validity.

As described in Section 2 of this report, the KRA is aligned to the Common Language Standards, which are based on the KRA states’ early learning standards and incorporate the essential domains of school readiness as defined by the U.S. Department of Education. The KRA Blueprint emphasizes all domains of school readiness and utilizes multiple item types to best assess the skills and behaviors within each domain.

Prior to item development, detailed item specifications aligned to the Common Language Standards were created by WestEd content experts and reviewed by content experts from the KRA states’ departments of education. The item specifications ensure alignment to the Common Language Standards and describe the parameters for item development.

As described in detail in the *KRA 2.0 Development and Technical Report* (WestEd, 2018), cognitive interviews, a pilot, and a field test were conducted. Each step of these processes further contributed to the validity and reliability of the KRA and provided opportunities for expert and stakeholder review and feedback, in addition to statistical analyses. Prior to field testing, every KRA item went through a bias and content review. The bias and content review committees consisted of early childhood educators from the KRA states. Staff from the state departments of education also reviewed and approved each item prior to field testing. In an effort to ensure maximum accessibility for English Learners, experts from the WIDA Consortium reviewed and provided feedback on every KRA item prior to field testing. The extensive rounds of review and feedback ensure fidelity to the standards and appropriateness for use with children entering kindergarten.

All students, including students with disabilities and students who are English Learners, are required to be assessed. A fully accessible approach to assessment design and implementation was necessary to ensure that students with diverse learning characteristics had the opportunity to demonstrate their knowledge and skills. The guidance document for administering the KRA to diverse populations of students is referred to as the *Guidelines on Allowable Supports for the Kindergarten Readiness Assessment*.<sup>3</sup> These guidelines provide detailed information on the strategies and practices that support differentiated administration of the assessment.

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<sup>3</sup> These guidelines are available at: <https://ed.sc.gov/tests/tests-files/pre-k-and-kindergarten-readiness-assessments/guidelines-for-allowable-supports-for-the-kindergarten-readiness-assessment/>.

Training on the KRA ensures that teachers learn about the Universally Designed Allowances that are available for all students, including materials presentations, procedures, and settings that can be used to ensure that all students can access the items. These guidelines also provide an item-by-item decision-making process for providing supports to students with disabilities and to English Learners. These supports, called Level the Field supports, provide equal access and opportunities for all students to participate in the KRA without substantially altering what a student is expected to do. They are intended to reduce or even eliminate the effects of a student’s disability or limited English proficiency.

### 3.1.2 Evidence Based on Response Processes

Response processes of test takers can provide evidence supporting the fit between the construct and the nature of the performance or response that test takers engaged in (AERA et al., 2014). The cognitive interviews described in the *KRA 2.0 Development and Technical Report* (WestEd, 2018) were conducted so that the assessment developers could better understand new item types and formats and to confirm hypotheses about access to the aligned content. The cognitive interviews allowed the developers to test assumptions about the intent of an item or task, including the reasoning processes that students used to respond to the item.

In addition to the cognitive interviews, the teacher surveys that were conducted during the pilot and the field test included questions designed to provide evidence that the students were engaging with and responding to items as intended. As described in the *KRA 2.0 Development and Technical Report* (WestEd, 2018), the results from the teacher surveys include strong evidence to confirm that the response processes of students were consistent with the intended designs of the items.

### 3.1.3 Evidence Based on Internal Structure

The KRA items were evaluated for their mean, standard deviation, difficulty ( $p$ -value), score-point distribution, and discrimination (item-total correlation). The  $p$ -value statistic is a measure of item difficulty (or item easiness) and falls between 0 and 1. For polytomous items, the  $p$ -value statistic is relative to the maximum item score and was calculated by dividing the mean by the maximum possible score for each item. The score-point distributions provide the percentages of students who received each score point on a specific item. The item-total correlation is used to evaluate item discrimination by determining an individual item’s relationship to the overall (or total) score, excluding the item of interest. Item-total correlations are values between  $-1.00$  and  $1.00$ , where 0 represents no correlation.

Table 3.1.A provides a summary of the classical item statistics for the KRA in fall 2022. These statistics fall within acceptable ranges. The classical item statistics for all 50 KRA items administered in fall 2022 are provided in Appendix A.

Table 3.1.A

*Summary of Classical Item Statistics for the KRA in Fall 2022*

| Domain                                    | Number of Items | <i>p</i> -Value |           |           | Item-Total Correlation |           |           |
|---|-----------------|-----------------|-----------|-----------|------------------------|-----------|-----------|
|   |                 | <i>M</i>        | <i>SD</i> | Range     | <i>M</i>               | <i>SD</i> | Range     |
| All                                       | 50              | 0.73            | 0.14      | 0.33–0.94 | 0.52                   | 0.13      | 0.27–0.71 |
| Language and Literacy                     | 17              | 0.66            | 0.13      | 0.34–0.89 | 0.49                   | 0.16      | 0.27–0.69 |
| Mathematics                               | 13              | 0.68            | 0.16      | 0.33–0.83 | 0.45                   | 0.11      | 0.29–0.64 |
| Physical Well-Being and Motor Development | 9               | 0.86            | 0.06      | 0.76–0.94 | 0.55                   | 0.07      | 0.44–0.65 |
| Social Foundations                        | 11              | 0.77            | 0.07      | 0.66–0.87 | 0.61                   | 0.08      | 0.50–0.71 |

The overall score and the domain scores for the KRA are also strongly correlated, as evidenced by the Pearson correlation coefficients shown in Table 3.1.B.

Table 3.1.B

*Pearson Correlation Coefficients between the Overall Score and the Domain Scores*

| Domain   | Overall | LL   | MA   | PD   | SF   |
|--|---------|------|------|------|------|
| Overall  | 1.00    |      |      |      |      |
| Language and Literacy (LL)                     | 0.92    | 1.00 |      |      |      |
| Mathematics (MA)                               | 0.84    | 0.79 | 1.00 |      |      |
| Physical Well-Being and Motor Development (PD) | 0.77    | 0.59 | 0.49 | 1.00 |      |
| Social Foundations (SF)                        | 0.81    | 0.62 | 0.51 | 0.80 | 1.00 |

*Note.* *N* = 53,737.

The descriptions of the item calibration process and reporting scale in Section 2.4, the *KRA Technical Report* (WestEd, 2014), the *KRA 2.0 Development and Technical Report* (WestEd, 2018), and the descriptive and reliability statistics that are described in Section 3.2 provide additional validity evidence based on internal structure.

### 3.2 RELIABILITY

In its simplest form, reliability measures the consistency of students' scores if the assessment were given multiple times or via multiple forms. Cronbach's alpha was used to evaluate reliability.

Cronbach's alpha is a function of the number of items, the sum of all of the item variances, and the variance of the total scores. Greater values of Cronbach's alpha (i.e., closer to 1) indicate that the items are closely related to one another and, additionally, that students score consistently across the items. The standard error of measurement is a function of the reliability measure (Cronbach's alpha) and is defined as the standard deviation of error scores for a student under repeated independent testings with the same test (Allen & Yen, 1979).

Table 3.2 summarizes the descriptive statistics and reliability statistics for the KRA overall and domain scores in fall 2022. Appendix B summarizes the descriptive and reliability statistics for each student group. Table 3.2 is based on the students who completed or partially completed the KRA in fall 2022. See Section 4.1 for a detailed description of the students who participated in the KRA in fall 2022.

Table 3.2

*Summary of Descriptive and Reliability Statistics for the KRA in Fall 2022*

| Domain                                    | Mean   | SD    | Range   | Cronbach's Alpha | SEM  |
|---|--------|-------|---------|------------------|------|
| Overall                                   | 265.74 | 14.79 | 202–298 | 0.95             | 3.31 |
| Language and Literacy                     | 264.81 | 16.02 | 202–298 | 0.87             | 5.81 |
| Mathematics                               | 264.41 | 16.89 | 202–298 | 0.82             | 7.19 |
| Physical Well-Being and Motor Development | 272.90 | 19.90 | 202–293 | 0.88             | 6.99 |
| Social Foundations                        | 270.64 | 21.59 | 202–298 | 0.92             | 6.04 |

*Note.*  $N = 53,737$ .

To support the reliability of item scores, all early childhood educators who administer the KRA must complete training activities, including a simulator that models proper administration and scoring processes. Before any early childhood educator can administer the KRA, the educator must also pass a content assessment. A more detailed description of the professional development and training content is provided in the *KRA 2.0 Development and Technical Report* (WestEd, 2018).

## 4 SUMMARY OF RESULTS FOR FALL 2022 ADMINISTRATION

### 4.1 FALL 2022 COHORT DEMOGRAPHICS

Table 4.1 provides a demographic summary of the students who completed the KRA in fall 2022.

Table 4.1

*Demographic Summary of Students for the KRA in Fall 2022*

|                   |   | <i>N</i> | %     |
|-------------------|---|----------|-------|
| Gender            | Female                                    | 16,546   | 30.79 |
|                   | Male                                      | 17,338   | 32.26 |
|                   | Not Reported                              | 19,853   | 36.94 |
| Race/Ethnicity    | American Indian or Alaska Native          | 166      | 0.31  |
|                   | Asian                                     | 482      | 0.90  |
|                   | Black or African American                 | 10,217   | 19.01 |
|                   | Hispanic or Latino                        | 2,804    | 5.22  |
|                   | Native Hawaiian or Other Pacific Islander | 58       | 0.11  |
|                   | Two or More Races                         | 2,006    | 3.73  |
|                   | White                                     | 13,198   | 24.56 |
|                   | Not Reported                              | 24,806   | 46.16 |
| English Learner   | No  | 51,544   | 95.92 |
|                   | Yes                                       | 2,193    | 4.08  |
| Special Education | No  | 51,948   | 96.67 |
|                   | Yes                                       | 1,789    | 3.33  |
| Total             |   | 53,737   | 100.0 |

*Note.* Percentages may not total 100 due to rounding.

## 4.2 FALL 2022 COHORT RESULTS

Table 4.2.A provides the percentage of students at each performance level for all groups of students who completed the KRA in fall 2022. The descriptive and reliability statistics for the overall score and domain scores for all students are provided in Appendix B.

Table 4.2.A

*Percentage of Students at Each Performance Level*

|                      |  | <b>Demonstrating<br/>Readiness</b> | <b>Approaching<br/>Readiness</b> | <b>Emerging<br/>Readiness</b> |
|----------------------|--|------------------------------------|----------------------------------|-------------------------------|
| Gender               | Female                                       | 43.45                              | 35.24                            | 21.31                         |
|                      | Male   | 33.69                              | 34.42                            | 31.89                         |
|                      | Not Reported                                 | 37.85                              | 33.70                            | 28.44                         |
| Race/Ethnicity       | American Indian or Alaska Native             | 30.72                              | 30.12                            | 39.16                         |
|                      | Asian  | 52.90                              | 31.54                            | 15.56                         |
|                      | Black or African American                    | 30.35                              | 37.03                            | 32.62                         |
|                      | Hispanic or Latino                           | 25.89                              | 35.06                            | 39.05                         |
|                      | Native Hawaiian or Other Pacific<br>Islander | 27.59                              | 29.31                            | 43.10                         |
|                      | Two or More Races                            | 37.14                              | 35.74                            | 27.12                         |
|                      | White  | 47.78                              | 32.25                            | 19.97                         |
|                      | Not Reported                                 | 37.68                              | 34.38                            | 27.94                         |
| English Learner      | No   | 39.11                              | 34.45                            | 26.45                         |
|                      | Yes  | 17.78                              | 33.42                            | 48.79                         |
| Special<br>Education | No   | 38.89                              | 34.58                            | 26.53                         |
|                      | Yes  | 19.34                              | 29.35                            | 51.31                         |
| Total                |  | 38.24                              | 34.40                            | 27.36                         |

*Note.* Percentages may not total 100 due to rounding.

Table 4.2.B provides the overall and domain scores by decile, based on the results from all students who completed the KRA in fall 2022. Appendix C includes frequency distributions of the overall and domain scores.

Table 4.2.B

*Overall and Domain Scores by Decile*

| Domain                                    | Decile |     |     |     |     |     |     |     |     |
|---|--------|-----|-----|-----|-----|-----|-----|-----|-----|
|   | 10     | 20  | 30  | 40  | 50  | 60  | 70  | 80  | 90  |
| Overall                                   | 248    | 254 | 258 | 263 | 266 | 269 | 273 | 277 | 285 |
| Language and Literacy                     | 246    | 254 | 258 | 261 | 265 | 269 | 271 | 277 | 286 |
| Mathematics                               | 245    | 251 | 257 | 259 | 264 | 267 | 271 | 277 | 286 |
| Physical Well-Being and Motor Development | 246    | 255 | 263 | 269 | 278 | 278 | 293 | 293 | 293 |
| Social Foundations                        | 244    | 254 | 259 | 265 | 268 | 278 | 287 | 298 | 298 |

Table 4.2.C provides a summary of the descriptive statistics for the overall and domain scores by performance level. The results include all students who completed the KRA in fall 2022.

Table 4.2.C

*Descriptive Statistics by Performance Level*

| Domain                                    | Performance Level       | N      | Mean   | SD    |
|---|-------------------------|--------|--------|-------|
| Overall                                   | Demonstrating Readiness | 20,547 | 280.04 | 8.32  |
|   | Approaching Readiness   | 18,488 | 263.80 | 3.41  |
|   | Emerging Readiness      | 14,702 | 248.18 | 9.46  |
| Language and Literacy                     | Demonstrating Readiness | 20,547 | 279.02 | 10.05 |
|   | Approaching Readiness   | 18,488 | 262.99 | 6.37  |
|   | Emerging Readiness      | 14,702 | 247.22 | 12.22 |
| Mathematics                               | Demonstrating Readiness | 20,547 | 278.03 | 11.96 |
|   | Approaching Readiness   | 18,488 | 262.85 | 9.18  |
|   | Emerging Readiness      | 14,702 | 247.34 | 13.51 |
| Physical Well-Being and Motor Development | Demonstrating Readiness | 20,547 | 287.34 | 9.62  |
|   | Approaching Readiness   | 18,488 | 273.82 | 14.46 |
|   | Emerging Readiness      | 14,702 | 251.57 | 17.55 |
| Social Foundations                        | Demonstrating Readiness | 20,547 | 287.71 | 12.38 |
|   | Approaching Readiness   | 18,488 | 270.00 | 14.38 |
|   | Emerging Readiness      | 14,702 | 247.56 | 16.98 |

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## APPENDIX A CLASSICAL ITEM STATISTICS

| Item | Domain | N      | Max | Mean | SD   | Difficulty<br>(p-value) | Item-Total<br>Correlation | Percent at Score Point |       |       |       |
|------|--------|--------|-----|------|------|-------------------------|---------------------------|------------------------|-------|-------|-------|
|      |        |        |     |      |      |                         |                           | 0                      | 1     | 2     | 3     |
| A322 | LL     | 53,627 | 1   | 0.53 | 0.50 | 0.53                    | 0.31                      | 46.83                  | 53.17 |       |       |
| A323 | LL     | 53,624 | 1   | 0.64 | 0.48 | 0.64                    | 0.31                      | 35.53                  | 64.47 |       |       |
| A326 | LL     | 53,629 | 1   | 0.65 | 0.48 | 0.65                    | 0.30                      | 34.81                  | 65.19 |       |       |
| A327 | LL     | 53,626 | 1   | 0.60 | 0.49 | 0.60                    | 0.33                      | 39.84                  | 60.16 |       |       |
| A331 | LL     | 53,525 | 3   | 1.73 | 1.14 | 0.58                    | 0.63                      | 21.83                  | 17.49 | 26.96 | 33.72 |
| A333 | LL     | 53,529 | 3   | 1.93 | 1.15 | 0.64                    | 0.61                      | 18.40                  | 15.06 | 21.49 | 45.05 |
| A334 | LL     | 53,516 | 3   | 1.93 | 1.06 | 0.64                    | 0.63                      | 13.59                  | 19.35 | 27.95 | 39.10 |
| A336 | LL     | 53,644 | 1   | 0.34 | 0.47 | 0.34                    | 0.27                      | 66.12                  | 33.88 |       |       |
| A343 | LL     | 53,544 | 3   | 2.67 | 0.75 | 0.89                    | 0.50                      | 4.16                   | 4.35  | 11.59 | 79.91 |
| A345 | LL     | 53,645 | 3   | 2.35 | 0.86 | 0.78                    | 0.52                      | 4.39                   | 12.16 | 27.81 | 55.64 |
| B317 | LL     | 53,611 | 1   | 0.81 | 0.40 | 0.81                    | 0.38                      | 19.42                  | 80.58 |       |       |
| B320 | LL     | 53,615 | 3   | 1.70 | 1.29 | 0.57                    | 0.52                      | 30.19                  | 12.25 | 14.89 | 42.67 |
| B385 | LL     | 53,616 | 1   | 0.64 | 0.48 | 0.64                    | 0.32                      | 36.48                  | 63.52 |       |       |
| R340 | LL     | 53,406 | 2   | 1.51 | 0.67 | 0.76                    | 0.66                      | 9.94                   | 28.80 | 61.26 |       |
| R341 | LL     | 53,494 | 2   | 1.61 | 0.67 | 0.80                    | 0.67                      | 10.25                  | 18.66 | 71.08 |       |
| R346 | LL     | 53,404 | 2   | 1.32 | 0.72 | 0.66                    | 0.69                      | 14.91                  | 38.51 | 46.58 |       |
| R401 | LL     | 53,413 | 2   | 1.30 | 0.75 | 0.65                    | 0.67                      | 17.43                  | 34.97 | 47.60 |       |
| A348 | MA     | 53,606 | 3   | 2.19 | 1.05 | 0.73                    | 0.64                      | 9.12                   | 20.56 | 12.89 | 57.43 |
| A349 | MA     | 53,607 | 1   | 0.80 | 0.40 | 0.80                    | 0.42                      | 20.12                  | 79.88 |       |       |
| A351 | MA     | 53,604 | 3   | 2.49 | 0.88 | 0.83                    | 0.64                      | 6.14                   | 07.51 | 17.16 | 69.18 |
| A354 | MA     | 53,677 | 3   | 2.01 | 1.20 | 0.67                    | 0.57                      | 19.19                  | 13.68 | 14.54 | 52.58 |
| A355 | MA     | 53,603 | 1   | 0.71 | 0.45 | 0.71                    | 0.44                      | 28.61                  | 71.39 |       |       |
| A358 | MA     | 53,674 | 1   | 0.33 | 0.47 | 0.33                    | 0.35                      | 66.64                  | 33.36 |       |       |
| A359 | MA     | 53,669 | 1   | 0.81 | 0.39 | 0.81                    | 0.37                      | 18.75                  | 81.25 |       |       |
| A362 | MA     | 53,680 | 1   | 0.43 | 0.50 | 0.43                    | 0.29                      | 57.00                  | 43.00 |       |       |

| Item | Domain | N      | Max | Mean | SD   | Difficulty<br>(p-value) | Item-Total<br>Correlation | Percent at Score Point |       |       |   |
|------|--------|--------|-----|------|------|-------------------------|---------------------------|------------------------|-------|-------|---|
|      |        |        |     |      |      |                         |                           | 0                      | 1     | 2     | 3 |
| A363 | MA     | 53,678 | 1   | 0.72 | 0.45 | 0.72                    | 0.42                      | 28.32                  | 71.68 |       |   |
| A366 | MA     | 53,664 | 2   | 1.39 | 0.75 | 0.70                    | 0.50                      | 16.01                  | 28.77 | 55.23 |   |
| A367 | MA     | 53,665 | 1   | 0.50 | 0.50 | 0.50                    | 0.41                      | 50.22                  | 49.78 |       |   |
| A370 | MA     | 53,666 | 2   | 1.66 | 0.66 | 0.83                    | 0.32                      | 10.60                  | 12.65 | 76.75 |   |
| A372 | MA     | 53,582 | 2   | 1.62 | 0.60 | 0.81                    | 0.53                      | 6.21                   | 25.61 | 68.18 |   |
| R373 | PD     | 53,362 | 2   | 1.73 | 0.53 | 0.86                    | 0.53                      | 4.04                   | 19.38 | 76.58 |   |
| R378 | PD     | 53,448 | 2   | 1.52 | 0.66 | 0.76                    | 0.61                      | 9.61                   | 28.76 | 61.63 |   |
| R380 | PD     | 53,363 | 2   | 1.64 | 0.61 | 0.82                    | 0.60                      | 7.00                   | 22.02 | 70.98 |   |
| R381 | PD     | 53,355 | 2   | 1.73 | 0.53 | 0.87                    | 0.57                      | 4.03                   | 18.66 | 77.31 |   |
| R382 | PD     | 53,411 | 2   | 1.55 | 0.65 | 0.78                    | 0.65                      | 8.93                   | 26.99 | 64.09 |   |
| R383 | PD     | 53,355 | 2   | 1.81 | 0.45 | 0.90                    | 0.54                      | 2.57                   | 13.93 | 83.50 |   |
| R384 | PD     | 53,349 | 2   | 1.72 | 0.52 | 0.86                    | 0.55                      | 3.35                   | 21.26 | 75.38 |   |
| R397 | PD     | 53,449 | 2   | 1.87 | 0.38 | 0.93                    | 0.45                      | 1.50                   | 10.45 | 88.05 |   |
| R398 | PD     | 53,376 | 2   | 1.89 | 0.35 | 0.94                    | 0.44                      | 1.31                   | 8.63  | 90.06 |   |
| R300 | SF     | 53,388 | 2   | 1.63 | 0.60 | 0.81                    | 0.59                      | 6.41                   | 24.26 | 69.33 |   |
| R302 | SF     | 53,452 | 2   | 1.65 | 0.60 | 0.82                    | 0.62                      | 6.44                   | 22.34 | 71.22 |   |
| R306 | SF     | 53,366 | 2   | 1.64 | 0.59 | 0.82                    | 0.50                      | 5.80                   | 24.04 | 70.16 |   |
| R307 | SF     | 53,371 | 2   | 1.36 | 0.69 | 0.68                    | 0.62                      | 12.28                  | 39.09 | 48.64 |   |
| R309 | SF     | 53,378 | 2   | 1.35 | 0.71 | 0.68                    | 0.71                      | 13.80                  | 37.01 | 49.19 |   |
| R310 | SF     | 53,373 | 2   | 1.33 | 0.69 | 0.66                    | 0.70                      | 12.57                  | 41.89 | 45.53 |   |
| R312 | SF     | 53,383 | 2   | 1.56 | 0.61 | 0.78                    | 0.66                      | 6.53                   | 30.64 | 62.83 |   |
| R313 | SF     | 53,378 | 2   | 1.74 | 0.52 | 0.87                    | 0.57                      | 4.21                   | 17.21 | 78.58 |   |
| R314 | SF     | 53,376 | 2   | 1.72 | 0.53 | 0.86                    | 0.52                      | 4.04                   | 20.01 | 75.95 |   |
| R315 | SF     | 53,363 | 2   | 1.52 | 0.68 | 0.76                    | 0.70                      | 10.54                  | 26.91 | 62.55 |   |
| R400 | SF     | 53,379 | 2   | 1.47 | 0.67 | 0.73                    | 0.52                      | 9.87                   | 33.26 | 56.86 |   |

LL = Language and Literacy, MA = Mathematics, PD = Physical Well-Being and Motor Development, SF = Social Foundations

## APPENDIX B DESCRIPTIVE AND RELIABILITY STATISTICS BY STUDENT GROUP

| Overall Score     |   | <i>N</i> | Mean   | SD    | Alpha | SEM  |
|-------------------|---|----------|--------|-------|-------|------|
| Gender            | Female                                    | 16,546   | 267.93 | 14.26 | 0.94  | 3.35 |
|                   | Male                                      | 17,338   | 263.98 | 15.14 | 0.95  | 3.28 |
|                   | Not Reported                              | 19,853   | 265.44 | 14.69 | 0.95  | 3.30 |
| Race/Ethnicity    | American Indian or Alaska Native          | 166      | 261.25 | 14.86 | 0.95  | 3.17 |
|                   | Asian                                     | 482      | 270.96 | 15.30 | 0.95  | 3.39 |
|                   | Black or African American                 | 10,217   | 263.18 | 14.29 | 0.95  | 3.23 |
|                   | Hispanic or Latino                        | 2,804    | 261.55 | 14.07 | 0.95  | 3.20 |
|                   | Native Hawaiian or Other Pacific Islander | 58       | 257.95 | 18.17 | 0.97  | 3.10 |
|                   | Two or More Races                         | 2,006    | 265.70 | 14.37 | 0.95  | 3.30 |
|                   | White                                     | 13,198   | 269.10 | 15.00 | 0.95  | 3.36 |
|                   | Not Reported                              | 24,806   | 265.42 | 14.58 | 0.95  | 3.29 |
| English Learner   | No  | 51,544   | 266.07 | 14.74 | 0.95  | 3.31 |
|                   | Yes                                       | 2,193    | 257.90 | 13.80 | 0.95  | 3.15 |
| Special Education | No  | 51,948   | 266.08 | 14.55 | 0.95  | 3.31 |
|                   | Yes                                       | 1,789    | 255.70 | 17.81 | 0.96  | 3.35 |
| Total             |   | 53,737   | 265.74 | 14.79 | 0.95  | 3.31 |

**Language and Literacy Domain Score**

|                   |   | <b>N</b> | <b>Mean</b> | <b>SD</b> | <b>Alpha</b> | <b>SEM</b> |
|-------------------|---|----------|-------------|-----------|--------------|------------|
| Gender            | Female                                    | 16,546   | 266.25      | 15.41     | 0.86         | 5.76       |
|                   | Male                                      | 17,338   | 263.53      | 16.40     | 0.87         | 5.88       |
|                   | Not Reported                              | 19,853   | 264.72      | 16.07     | 0.87         | 5.79       |
| Race/Ethnicity    | American Indian or Alaska Native          | 166      | 259.61      | 16.62     | 0.88         | 5.75       |
|                   | Asian                                     | 482      | 269.61      | 16.41     | 0.87         | 5.88       |
|                   | Black or African American                 | 10,217   | 262.73      | 15.25     | 0.86         | 5.73       |
|                   | Hispanic or Latino                        | 2,804    | 258.75      | 16.76     | 0.88         | 5.76       |
|                   | Native Hawaiian or Other Pacific Islander | 58       | 255.59      | 20.00     | 0.92         | 5.78       |
|                   | Two or More Races                         | 2,006    | 264.80      | 15.22     | 0.86         | 5.75       |
|                   | White                                     | 13,198   | 267.94      | 15.96     | 0.87         | 5.85       |
|                   | Not Reported                              | 24,806   | 264.64      | 15.94     | 0.87         | 5.79       |
| English Learner   | No  | 51,544   | 265.23      | 15.84     | 0.87         | 5.80       |
|                   | Yes                                       | 2,193    | 254.83      | 16.87     | 0.88         | 5.91       |
| Special Education | No  | 51,948   | 265.12      | 15.79     | 0.87         | 5.78       |
|                   | Yes                                       | 1,789    | 255.60      | 19.56     | 0.89         | 6.46       |
| Total             |   | 53,737   | 264.81      | 16.02     | 0.87         | 5.81       |

**Mathematics Domain Score**

|                   |   | <b>N</b> | <b>Mean</b> | <b>SD</b> | <b>Alpha</b> | <b>SEM</b> |
|-------------------|---|----------|-------------|-----------|--------------|------------|
| Gender            | Female                                    | 16,546   | 265.17      | 16.18     | 0.81         | 7.13       |
|                   | Male                                      | 17,338   | 263.57      | 17.29     | 0.82         | 7.25       |
|                   | Not Reported                              | 19,853   | 264.52      | 17.07     | 0.82         | 7.17       |
| Race/Ethnicity    | American Indian or Alaska Native          | 166      | 259.49      | 15.91     | 0.83         | 6.63       |
|                   | Asian                                     | 482      | 270.44      | 17.01     | 0.81         | 7.32       |
|                   | Black or African American                 | 10,217   | 261.35      | 16.04     | 0.81         | 7.07       |
|                   | Hispanic or Latino                        | 2,804    | 258.99      | 17.24     | 0.83         | 7.16       |
|                   | Native Hawaiian or Other Pacific Islander | 58       | 256.34      | 23.37     | 0.90         | 7.35       |
|                   | Two or More Races                         | 2,006    | 264.63      | 15.98     | 0.80         | 7.13       |
|                   | White                                     | 13,198   | 268.30      | 16.79     | 0.81         | 7.26       |
|                   | Not Reported                              | 24,806   | 264.14      | 16.81     | 0.82         | 7.17       |
| English Learner   | No  | 51,544   | 264.79      | 16.75     | 0.82         | 7.18       |
|                   | Yes                                       | 2,193    | 255.50      | 17.56     | 0.83         | 7.25       |
| Special Education | No  | 51,948   | 264.72      | 16.68     | 0.82         | 7.17       |
|                   | Yes                                       | 1,789    | 255.40      | 20.01     | 0.86         | 7.61       |
| Total             |   | 53,737   | 264.41      | 16.89     | 0.82         | 7.19       |

**Physical Well-Being and Motor Development Domain Score**

|                   |   | <b>N</b> | <b>Mean</b> | <b>SD</b> | <b>Alpha</b> | <b>SEM</b> |
|-------------------|---|----------|-------------|-----------|--------------|------------|
| Gender            | Female                                    | 16,546   | 277.11      | 18.25     | 0.87         | 6.59       |
|                   | Male                                      | 17,338   | 269.90      | 20.39     | 0.88         | 6.98       |
|                   | Not Reported                              | 19,853   | 272.01      | 20.21     | 0.87         | 7.29       |
| Race/Ethnicity    | American Indian or Alaska Native          | 166      | 269.80      | 22.67     | 0.90         | 7.12       |
|                   | Asian                                     | 482      | 278.47      | 18.35     | 0.87         | 6.61       |
|                   | Black or African American                 | 10,217   | 270.40      | 20.18     | 0.88         | 6.91       |
|                   | Hispanic or Latino                        | 2,804    | 271.16      | 18.74     | 0.85         | 7.29       |
|                   | Native Hawaiian or Other Pacific Islander | 58       | 266.78      | 25.05     | 0.92         | 7.15       |
|                   | Two or More Races                         | 2,006    | 272.55      | 19.66     | 0.88         | 6.67       |
|                   | White                                     | 13,198   | 275.91      | 19.28     | 0.88         | 6.57       |
|                   | Not Reported                              | 24,806   | 272.48      | 20.04     | 0.87         | 7.19       |
| English Learner   | No  | 51,544   | 273.14      | 19.88     | 0.88         | 6.97       |
|                   | Yes                                       | 2,193    | 267.37      | 19.65     | 0.87         | 6.95       |
| Special Education | No  | 51,948   | 273.35      | 19.62     | 0.87         | 7.05       |
|                   | Yes                                       | 1,789    | 259.83      | 23.34     | 0.92         | 6.65       |
| Total             |   | 53,737   | 272.90      | 19.90     | 0.88         | 6.99       |

**Social Foundations Domain Score**

|                   |   | <b><i>N</i></b> | <b>Mean</b> | <b><i>SD</i></b> | <b>Alpha</b> | <b>SEM</b> |
|-------------------|---|-----------------|-------------|------------------|--------------|------------|
| Gender            | Female                                    | 16,546          | 275.45      | 20.30            | 0.91         | 5.97       |
|                   | Male                                      | 17,338          | 267.09      | 22.05            | 0.93         | 5.98       |
|                   | Not Reported                              | 19,853          | 269.72      | 21.50            | 0.92         | 6.19       |
| Race/Ethnicity    | American Indian or Alaska Native          | 166             | 266.10      | 23.69            | 0.92         | 6.58       |
|                   | Asian                                     | 482             | 275.62      | 21.20            | 0.92         | 6.09       |
|                   | Black or African American                 | 10,217          | 267.66      | 21.80            | 0.93         | 5.96       |
|                   | Hispanic or Latino                        | 2,804           | 268.29      | 20.79            | 0.91         | 6.11       |
|                   | Native Hawaiian or Other Pacific Islander | 58              | 263.72      | 25.14            | 0.94         | 6.23       |
|                   | Two or More Races                         | 2,006           | 270.87      | 21.58            | 0.92         | 5.93       |
|                   | White                                     | 13,198          | 274.34      | 21.27            | 0.92         | 5.86       |
|                   | Not Reported                              | 24,806          | 270.09      | 21.45            | 0.92         | 6.15       |
| English Learner   | No  | 51,544          | 270.95      | 21.56            | 0.92         | 6.03       |
|                   | Yes                                       | 2,193           | 263.27      | 20.83            | 0.91         | 6.07       |
| Special Education | No  | 51,948          | 271.13      | 21.33            | 0.92         | 6.07       |
|                   | Yes                                       | 1,789           | 256.34      | 24.06            | 0.94         | 5.91       |
| Total             |   | 53,737          | 270.64      | 21.59            | 0.92         | 6.04       |

## APPENDIX C FREQUENCY DISTRIBUTIONS OF OVERALL AND DOMAIN SCORES

### Overall Score Distribution

| Scale Score | Performance Level  | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|-------------|--------------------|-----------|---------|----------------------|--------------------|
| 202         | Emerging Readiness | 133       | 0.25    | 133                  | 0.25               |
| 203         | Emerging Readiness | 23        | 0.04    | 156                  | 0.29               |
| 208         | Emerging Readiness | 18        | 0.03    | 174                  | 0.32               |
| 211         | Emerging Readiness | 40        | 0.07    | 214                  | 0.40               |
| 214         | Emerging Readiness | 31        | 0.06    | 245                  | 0.46               |
| 217         | Emerging Readiness | 48        | 0.09    | 293                  | 0.55               |
| 219         | Emerging Readiness | 35        | 0.07    | 328                  | 0.61               |
| 220         | Emerging Readiness | 41        | 0.08    | 369                  | 0.69               |
| 222         | Emerging Readiness | 40        | 0.07    | 409                  | 0.76               |
| 224         | Emerging Readiness | 35        | 0.07    | 444                  | 0.83               |
| 225         | Emerging Readiness | 51        | 0.09    | 495                  | 0.92               |
| 226         | Emerging Readiness | 40        | 0.07    | 535                  | 1.00               |
| 227         | Emerging Readiness | 53        | 0.10    | 588                  | 1.09               |
| 228         | Emerging Readiness | 68        | 0.13    | 656                  | 1.22               |
| 229         | Emerging Readiness | 47        | 0.09    | 703                  | 1.31               |
| 230         | Emerging Readiness | 63        | 0.12    | 766                  | 1.43               |
| 231         | Emerging Readiness | 64        | 0.12    | 830                  | 1.54               |
| 232         | Emerging Readiness | 71        | 0.13    | 901                  | 1.68               |
| 233         | Emerging Readiness | 078       | 0.15    | 979                  | 1.82               |
| 234         | Emerging Readiness | 092       | 0.17    | 1,071                | 1.99               |
| 235         | Emerging Readiness | 187       | 0.35    | 1,258                | 2.34               |
| 236         | Emerging Readiness | 081       | 0.15    | 1,339                | 2.49               |
| 237         | Emerging Readiness | 219       | 0.41    | 1,558                | 2.90               |
| 238         | Emerging Readiness | 131       | 0.24    | 1,689                | 3.14               |
| 239         | Emerging Readiness | 273       | 0.51    | 1,962                | 3.65               |
| 240         | Emerging Readiness | 143       | 0.27    | 2,105                | 3.92               |
| 241         | Emerging Readiness | 311       | 0.58    | 2,416                | 4.50               |
| 242         | Emerging Readiness | 390       | 0.73    | 2,806                | 5.22               |
| 243         | Emerging Readiness | 195       | 0.36    | 3,001                | 5.58               |
| 244         | Emerging Readiness | 427       | 0.79    | 3,428                | 6.38               |
| 245         | Emerging Readiness | 511       | 0.95    | 3,939                | 7.33               |
| 246         | Emerging Readiness | 512       | 0.95    | 4,451                | 8.28               |
| 247         | Emerging Readiness | 647       | 1.20    | 5,098                | 9.49               |
| 248         | Emerging Readiness | 625       | 1.16    | 5,723                | 10.65              |
| 249         | Emerging Readiness | 764       | 1.42    | 6,487                | 12.07              |



| Scale Score | Performance Level       | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|-------------|-------------------------|-----------|---------|----------------------|--------------------|
| 250         | Emerging Readiness      | 420       | 0.78    | 6,907                | 12.85              |
| 251         | Emerging Readiness      | 866       | 1.61    | 7,773                | 14.46              |
| 252         | Emerging Readiness      | 927       | 1.73    | 8,700                | 16.19              |
| 253         | Emerging Readiness      | 980       | 1.82    | 9,680                | 18.01              |
| 254         | Emerging Readiness      | 1,106     | 2.06    | 10,786               | 20.07              |
| 255         | Emerging Readiness      | 1,211     | 2.25    | 11,997               | 22.33              |
| 256         | Emerging Readiness      | 1,278     | 2.38    | 13,275               | 24.70              |
| 257         | Emerging Readiness      | 1,427     | 2.66    | 14,702               | 27.36              |
| 258         | Approaching Readiness   | 1,457     | 2.71    | 16,159               | 30.07              |
| 259         | Approaching Readiness   | 819       | 1.52    | 16,978               | 31.59              |
| 260         | Approaching Readiness   | 1,739     | 3.24    | 18,717               | 34.83              |
| 261         | Approaching Readiness   | 1,805     | 3.36    | 20,522               | 38.19              |
| 262         | Approaching Readiness   | 935       | 1.74    | 21,457               | 39.93              |
| 263         | Approaching Readiness   | 1,974     | 3.67    | 23,431               | 43.60              |
| 264         | Approaching Readiness   | 1,100     | 2.05    | 24,531               | 45.65              |
| 265         | Approaching Readiness   | 2,302     | 4.28    | 26,833               | 49.93              |
| 266         | Approaching Readiness   | 1,196     | 2.23    | 28,029               | 52.16              |
| 267         | Approaching Readiness   | 1,265     | 2.35    | 29,294               | 54.51              |
| 268         | Approaching Readiness   | 2,569     | 4.78    | 31,863               | 59.29              |
| 269         | Approaching Readiness   | 1,327     | 2.47    | 33,190               | 61.76              |
| 270         | Demonstrating Readiness | 1,434     | 2.67    | 34,624               | 64.43              |
| 271         | Demonstrating Readiness | 1,463     | 2.72    | 36,087               | 67.15              |
| 272         | Demonstrating Readiness | 1,417     | 2.64    | 37,504               | 69.79              |
| 273         | Demonstrating Readiness | 1,461     | 2.72    | 38,965               | 72.51              |
| 274         | Demonstrating Readiness | 1,415     | 2.63    | 40,380               | 75.14              |
| 276         | Demonstrating Readiness | 1,481     | 2.76    | 41,861               | 77.90              |
| 277         | Demonstrating Readiness | 1,453     | 2.70    | 43,314               | 80.60              |
| 279         | Demonstrating Readiness | 1,537     | 2.86    | 44,851               | 83.46              |
| 280         | Demonstrating Readiness | 1,505     | 2.80    | 46,356               | 86.26              |
| 282         | Demonstrating Readiness | 1,442     | 2.68    | 47,798               | 88.95              |
| 285         | Demonstrating Readiness | 1,319     | 2.45    | 49,117               | 91.40              |
| 288         | Demonstrating Readiness | 1,246     | 2.32    | 50,363               | 93.72              |
| 291         | Demonstrating Readiness | 1,151     | 2.14    | 51,514               | 95.86              |
| 296         | Demonstrating Readiness | 994       | 1.85    | 52,508               | 97.71              |
| 298         | Demonstrating Readiness | 1,229     | 2.29    | 53,737               | 100.00             |

**Language and Literacy Score Distribution**

| <b>Scale Score</b> | <b>Frequency</b> | <b>Percent</b> | <b>Cumulative Frequency</b> | <b>Cumulative Percent</b> |
|--------------------|------------------|----------------|-----------------------------|---------------------------|
| 202                | 428              | 0.80           | 428                         | 0.80                      |
| 213                | 167              | 0.31           | 595                         | 1.11                      |
| 222                | 202              | 0.38           | 797                         | 1.48                      |
| 227                | 217              | 0.40           | 1,014                       | 1.89                      |
| 231                | 275              | 0.51           | 1,289                       | 2.40                      |
| 234                | 333              | 0.62           | 1,622                       | 3.02                      |
| 236                | 388              | 0.72           | 2,010                       | 3.74                      |
| 239                | 465              | 0.87           | 2,475                       | 4.61                      |
| 241                | 594              | 1.11           | 3,069                       | 5.71                      |
| 242                | 708              | 1.32           | 3,777                       | 7.03                      |
| 244                | 807              | 1.50           | 4,584                       | 8.53                      |
| 246                | 953              | 1.77           | 5,537                       | 10.30                     |
| 248                | 1,053            | 1.96           | 6,590                       | 12.26                     |
| 249                | 1,219            | 2.27           | 7,809                       | 14.53                     |
| 251                | 1,324            | 2.46           | 9,133                       | 17.00                     |
| 252                | 1,429            | 2.66           | 10,562                      | 19.65                     |
| 254                | 1,528            | 2.84           | 12,090                      | 22.50                     |
| 255                | 1,652            | 3.07           | 13,742                      | 25.57                     |
| 256                | 1,851            | 3.44           | 15,593                      | 29.02                     |
| 258                | 1,975            | 3.68           | 17,568                      | 32.69                     |
| 259                | 2,035            | 3.79           | 19,603                      | 36.48                     |
| 261                | 2,243            | 4.17           | 21,846                      | 40.65                     |
| 262                | 2,354            | 4.38           | 24,200                      | 45.03                     |
| 264                | 2,519            | 4.69           | 26,719                      | 49.72                     |
| 265                | 2,768            | 5.15           | 29,487                      | 54.87                     |
| 267                | 2,755            | 5.13           | 32,242                      | 60.00                     |
| 269                | 2,894            | 5.39           | 35,136                      | 65.39                     |
| 271                | 2,995            | 5.57           | 38,131                      | 70.96                     |
| 274                | 2,957            | 5.50           | 41,088                      | 76.46                     |
| 277                | 3,027            | 5.63           | 44,115                      | 82.09                     |
| 280                | 3,008            | 5.60           | 47,123                      | 87.69                     |
| 286                | 2,720            | 5.06           | 49,843                      | 92.75                     |
| 294                | 2,220            | 4.13           | 52,063                      | 96.88                     |
| 298                | 1,674            | 3.12           | 53,737                      | 100.00                    |

**Mathematics Score Distribution**

| <b>Scale Score</b> | <b>Frequency</b> | <b>Percent</b> | <b>Cumulative Frequency</b> | <b>Cumulative Percent</b> |
|--------------------|------------------|----------------|-----------------------------|---------------------------|
| 202                | 500              | 0.93           | 500                         | 0.93                      |
| 216                | 180              | 0.33           | 680                         | 1.27                      |
| 225                | 279              | 0.52           | 959                         | 1.78                      |
| 230                | 374              | 0.70           | 1,333                       | 2.48                      |
| 234                | 554              | 1.03           | 1,887                       | 3.51                      |
| 237                | 674              | 1.25           | 2,561                       | 4.77                      |
| 240                | 882              | 1.64           | 3,443                       | 6.41                      |
| 243                | 1,071            | 1.99           | 4,514                       | 8.40                      |
| 245                | 1,249            | 2.32           | 5,763                       | 10.72                     |
| 247                | 1,470            | 2.74           | 7,233                       | 13.46                     |
| 249                | 1,716            | 3.19           | 8,949                       | 16.65                     |
| 251                | 1,908            | 3.55           | 10,857                      | 20.20                     |
| 253                | 2,123            | 3.95           | 12,980                      | 24.15                     |
| 255                | 2,439            | 4.54           | 15,419                      | 28.69                     |
| 257                | 2,854            | 5.31           | 18,273                      | 34.00                     |
| 259                | 3,391            | 6.31           | 21,664                      | 40.31                     |
| 262                | 3,745            | 6.97           | 25,409                      | 47.28                     |
| 264                | 4,513            | 8.40           | 29,922                      | 55.68                     |
| 267                | 4,911            | 9.14           | 34,833                      | 64.82                     |
| 271                | 5,122            | 9.53           | 39,955                      | 74.35                     |
| 277                | 5,128            | 9.54           | 45,083                      | 83.90                     |
| 286                | 4,875            | 9.07           | 49,958                      | 92.97                     |
| 298                | 3,779            | 7.03           | 53,737                      | 100.00                    |

**Physical Well-Being and Motor Development Score Distribution**

| <b>Scale Score</b> | <b>Frequency</b> | <b>Percent</b> | <b>Cumulative<br/>Frequency</b> | <b>Cumulative<br/>Percent</b> |
|--------------------|------------------|----------------|---------------------------------|-------------------------------|
| 202                | 525              | 0.98           | 525                             | 0.98                          |
| 206                | 73               | 0.14           | 598                             | 1.11                          |
| 216                | 147              | 0.27           | 745                             | 1.39                          |
| 222                | 187              | 0.35           | 932                             | 1.73                          |
| 226                | 250              | 0.47           | 1,182                           | 2.20                          |
| 230                | 297              | 0.55           | 1,479                           | 2.75                          |
| 234                | 475              | 0.88           | 1,954                           | 3.64                          |
| 237                | 520              | 0.97           | 2,474                           | 4.60                          |
| 240                | 685              | 1.27           | 3,159                           | 5.88                          |
| 243                | 1,238            | 2.30           | 4,397                           | 8.18                          |
| 246                | 1,160            | 2.16           | 5,557                           | 10.34                         |
| 248                | 1,488            | 2.77           | 7,045                           | 13.11                         |
| 251                | 1,861            | 3.46           | 8,906                           | 16.57                         |
| 255                | 2,403            | 4.47           | 11,309                          | 21.05                         |
| 258                | 3,285            | 6.11           | 14,594                          | 27.16                         |
| 263                | 4,231            | 7.87           | 18,825                          | 35.03                         |
| 269                | 6,256            | 11.64          | 25,081                          | 46.67                         |
| 278                | 8,504            | 15.83          | 33,585                          | 62.50                         |
| 293                | 20,152           | 37.50          | 53,737                          | 100.00                        |

**Social Foundations Score Distribution**

| <b>Scale Score</b> | <b>Frequency</b> | <b>Percent</b> | <b>Cumulative Frequency</b> | <b>Cumulative Percent</b> |
|--------------------|------------------|----------------|-----------------------------|---------------------------|
| 202                | 674              | 1.25           | 674                         | 1.25                      |
| 211                | 260              | 0.48           | 934                         | 1.74                      |
| 220                | 354              | 0.66           | 1,288                       | 2.40                      |
| 226                | 345              | 0.64           | 1,633                       | 3.04                      |
| 230                | 411              | 0.76           | 2,044                       | 3.80                      |
| 234                | 533              | 0.99           | 2,577                       | 4.80                      |
| 237                | 665              | 1.24           | 3,242                       | 6.03                      |
| 239                | 759              | 1.41           | 4,001                       | 7.45                      |
| 242                | 802              | 1.49           | 4,803                       | 8.94                      |
| 244                | 939              | 1.75           | 5,742                       | 10.69                     |
| 247                | 1,170            | 2.18           | 6,912                       | 12.86                     |
| 249                | 1,790            | 3.33           | 8,702                       | 16.19                     |
| 251                | 1,654            | 3.08           | 10,356                      | 19.27                     |
| 254                | 1,889            | 3.52           | 12,245                      | 22.79                     |
| 256                | 2,261            | 4.21           | 14,506                      | 26.99                     |
| 259                | 2,593            | 4.83           | 17,099                      | 31.82                     |
| 262                | 3,065            | 5.70           | 20,164                      | 37.52                     |
| 265                | 3,364            | 6.26           | 23,528                      | 43.78                     |
| 268                | 3,706            | 6.90           | 27,234                      | 50.68                     |
| 272                | 4,038            | 7.51           | 31,272                      | 58.19                     |
| 278                | 4,528            | 8.43           | 35,800                      | 66.62                     |
| 287                | 5,025            | 9.35           | 40,825                      | 75.97                     |
| 298                | 12,912           | 24.03          | 53,737                      | 100.00                    |