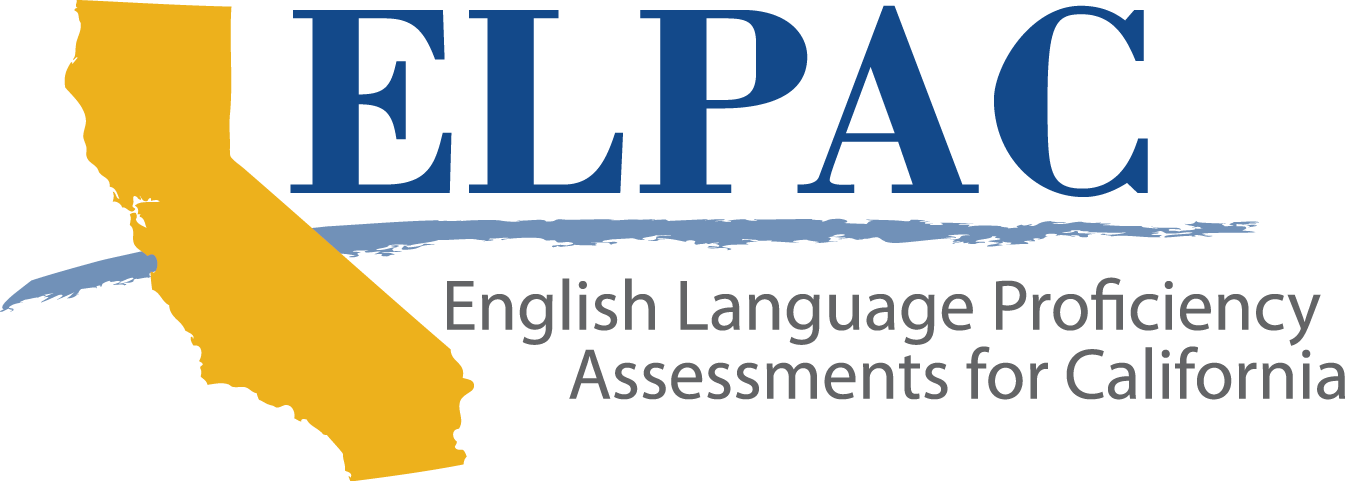


# An Investigation of Factor Structure for the Summative English Language Proficiency Assessments for California

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## Executive Summary

This report summarizes a multidimensional item response theory (MIRT) study conducted by ETS to evaluate four competing models that represent the hypothesized factor structure for the Summative English Language Proficiency Assessments for California (ELPAC). Specifically, the study investigated whether the Summative ELPAC factor structure is consistent with the theoretical construct underlying the ELPAC design. Understanding the factor structure informed the Summative ELPAC scaling and score reporting plan. The study used data from the spring 2017 Summative ELPAC field test across seven grade levels and grade spans.

MIRT was used to analyze two competing models that include the following:

1. Correlated two-factor model where Listening and Speaking were defined as oral language skills and Reading and Writing were defined as written language skills
2. Single-factor model where all four language skills were psychometrically indistinguishable from one another

The evaluation criteria for the two competing models included model fit, model parsimony, correlations among latent factors, and reasonableness of individual item parameter estimates across the seven assessments investigated.

The results indicated that the correlated two-factor model, where Listening and Speaking were defined as oral language and Reading and Writing were defined as written language, was sufficient to support the theoretical construct of the underlying ELPAC design. Specifically, this model exhibited reasonable fit, and the correlation between the oral language and written language skills was moderate across kindergarten through grade twelve, which made them distinct enough to be reported separately.

Students with disabilities are eligible for domain exemptions when their individualized education program (IEP) or Section 504 plan specifies that they cannot take one or more domains of the Summative ELPAC with allowed universal tools, designated supports, or accommodations. Based on the results of this study, the most appropriate policy is to report overall scores to students who respond to at least one domain in oral language and one domain in written language. So, a student may be exempted from one domain associated with oral language and one domain in written language and still receive an overall score.

## Introduction and Purposes

The ELPAC is aligned with California’s 2012 English Language Development (CA ELD) Standards. One of the important features of the CA ELD Standards is to consider students’ English proficiency holistically, including a focus on many integrated language skills. Previous English language proficiency (ELP) assessments, such as the California English Language Development Test, attempted to measure and scale multiple language skills separately and did not promote use of integrated items because of measurement model concerns. The CA ELD Standards incorporate the multidimensional aspect of language proficiency; the ELPAC brings this feature into the assessment by implementing integrated test items that incorporate multiple domains of Listening, Speaking, Reading, and Writing.

To allow students’ progress to be compared over time, the item response theory (IRT) analysis and score reporting requires that continuous scales be constructed for the Summative ELPAC. To develop a stable continuous scale and individually reliable scores, it is desirable to have continuous scales that are based on more items; however, this approach could imply a longer test. To minimize the testing burden on students, schools, and local educational agencies, and to increase reliability, it is beneficial to combine domains in scaling analyses. Although it is theoretically reasonable to combine domains, it is important to also review empirical evidence prior to implementing this approach in scaling. This study investigates whether the factor structure of the ELPAC is consistent with the theoretical construct underlying the ELPAC design; further, it informs Summative ELPAC scaling and reporting.

### Significance

The first operational administration of the Summative ELPAC occurred in spring 2018.

The Every Student Succeeds Act contains legislation that requires states to measure student English proficiency in the Listening, Speaking, Reading, and Writing domains and provide an overall measure of ELP.

This investigation of dimensionality was meant to inform how many scores should be reported for the ELPAC and which scores those should be. Because there are as few as six items specified for individual domains, an approach in which four scores are reported is not feasible; score reliability tends to be too low for tests of this length. There were two approaches that were considered:

1. Report only one score—This would be the recommended approach if the dimensionality study showed that more highly skilled students perform better in all four domains, and less highly skilled students perform worse in all four domains. When this happens, the test is said to be unidimensional. The resulting recommendation would be that only overall scores be reported because scores based on domains would be less reliable and contain no additional information.
2. Report oral language and written language scores—This would be the recommended approach if the dimensionality study showed that
   1. more highly skilled students in Listening also perform better in Speaking, or vice versa;
   2. more highly skilled students in Reading also perform better in Writing, or vice versa;
   3. more highly skilled students in Listening or Speaking do not necessarily perform better in Reading or Writing; and
   4. more highly skilled students in Reading or Writing do not necessarily perform better in Listening or Speaking.

When this happens, test performance is said to reflect two dimensions. The resulting recommendation would be that only oral language and written language scores be reported because reporting a single score would discard information about performance differences based on oral language and written language content.

The study also informs the way scores are reported for students with disabilities who are eligible for domain exemptions when their IEP or Section 504 plan specifies that they cannot take one or more domains of the Summative ELPAC with allowed universal tools, designated supports, or accommodations. Performance on an exempted domain can be assumed to be similar to performance within the same dimension but cannot be assumed to be similar to performance across dimensions.

Results from the current study serve as important validity evidence to support decision-making for Summative ELPAC reporting options.

## Theoretical Framework

Historically, researchers in language testing have evaluated several competing models of language ability that include multiple abilities that are distinct, correlated, or hierarchically related to an overall ability (Bachman & Palmer, 1982; Carroll, 1965; Kunnan, 1995; Oller, 1976; Sawaki, Stricker, & Oranje, 2008).

English language tests that contain multiple modalities, each measuring related but distinct latent factors, are commonly encountered in practice. In such cases, each item belongs only to one particular modality, and the assessments are designed such that each modality is assessed in isolation. For example, the Listening factor is explained only by Listening items, so they contribute only to the Listening score.

In the past, item response modeling of such tests has proceeded either by applying a unidimensional model to each of the scales separately or by ignoring the multidimensionality and treating the test as unidimensional.

Pooler and Wolf (2016) emphasized a recent shift in the standards used to measure ELP, observing a movement away from standards focusing on discrete language skills toward standards that call for the integration of language skills. For standards measuring ELP, this transition occurs from treating isolated modalities in Listening, Speaking, Reading, and Writing to treating these four modalities as necessarily integrated and intertwined when used authentically to communicate in academic contexts.

Bacher and Anderson (2016) pointed out that integrated skills in the new standards call for significant change in how ELP assessments are designed. Tasks within the ELP assessments should assess these integrated standards in multiple modes, such as collaborative and interactive language situations. In addition, there is a need to specify what the integrated tasks are intended to assess for making adequate inferences about students’ abilities. Bacher and Anderson (2016) indicated that integrated task types potentially have a positive impact on measurement accuracy and instruction, as integrated task types reflect authentic language uses.

Hansen and Winter (2016) reviewed measurement models and scoring issues related to measuring integrated language skills in the English Language Proficiency Assessment for the 21st Century testing. They concluded that multidimensional measurement models can accommodate tasks that require language skills that have been previously assessed separately. Their study implies that it is not necessary to seek “pure” measures of each domain. With more integrated tasks, combined domains may clarify the overall test structure.

The CA ELD Standards used the *Framework for English Language Proficiency Development Standards corresponding to the Common Core State Standards and the Next Generation Science Standards* (2012) in their development and are quite different from ELD or ELP standards of the past. In effect, the integrated model of language present in the Common Core State Standards and the CA ELD Standards conceptualizes language as something complex, dynamic, and interactive. The model focuses on how language is used in academic contexts by students to make meaning, interact with others, and learn academic content.

## Methods

Empirical data obtained during the spring 2017 Summative ELPAC field test was used for this study.

The Summative ELPAC is configured into seven grade levels and grade spans targeting kindergarten, grade one, grade two, grade span three through five, grade span six through eight, grade span nine and ten, and grade span eleven and twelve. A sample of more than 41,000 English learner (EL) students across California participated in the field test.

To assign students to take the field test, a geographically representative list of schools was first selected in the sample recruitment effort. Once schools accepted the invitation to participate, target student rosters and expanded student rosters were generated for each school to ensure that a representative sample of EL students were included.

Table 1 displays the demographic characteristics of the ELPAC field test sample compared to all EL students in the California Longitudinal Pupil Achievement Data System (CALPADS).[[1]](#footnote-2) It shows that the field test sample data is close to the demographic composition of the population of EL students in California. The ELPAC sample has a lower percentage of students with disabilities because students with specific disabilities that cannot be reasonably accommodated by the Summative ELPAC field test were not recruited to participate in the field test.

Table 1. Demographic Information for the Summative ELPAC Field Test Sample

|  |  |  |
| --- | --- | --- |
| Student Group | ELPAC Field Test Sample | CALPADS Total Data |
| **Total Sample Size:** | **41,942** | **91,639** |
| Gender—Female | 46.3% | 45.2% |
| Gender—Male | 53.7% | 54.8% |
| Race or ethnicity—American Indian or Alaska Native | 0.1% | 0.1% |
| Race or ethnicity—Asian | 9.2% | 7.9% |
| Race or ethnicity—Black or African American | 0.3% | 0.3% |
| Race or ethnicity—White | 4.5% | 4.1% |
| Race or ethnicity—Hispanic or Latino | 83.3% | 85.1% |
| Race or ethnicity—Native Hawaiian or Pacific Islander | 0.3% | 0.3% |
| Race or ethnicity—Two or more races | 0.3% | 0.3% |

Table 1 *(continuation)*

|  |  |  |
| --- | --- | --- |
| Student Group | ELPAC Field Test Sample | CALPADS Total Data |
| Special education services—Students with disability | 9.9% | 16.6% |
| Economic status—Economically disadvantaged | 84.4% | 85.8% |
| Home language—Spanish | 84.0% | 85.6% |
| Home language—Vietnamese | 1.8% | 1.7% |
| Home language—Chinese | 2.6% | 2.1% |
| Home language—Hmong | 0.6% | 0.6% |
| Home language—Arabic | 1.6% | 1.5% |

Four field test forms were available for each grade level or grade span test. Two of the field test forms included vertical linking items from the grade level or grade span below to facilitate the development of a continuous vertical scale.

Each of the four field test forms was assigned to approximately 1,500 students. The forms were spiraled at the school level, so all students within a school were administered the same test form.

Each student was administered all four domains of the Summative ELPAC field test; therefore, interdomain relationships were established using the data collected.

An item-level factor analytic approach, applying MIRT, was used to evaluate two competing models that represent the hypothesized factor structure of the Summative ELPAC. These two models were as follows:

1. Correlated two-factor model, where Listening and Speaking were considered *oral language skills* and Reading and Writing were considered *written language skills* (shown in figure 1)
2. Single-factor model, where all four language skills were psychometrically indistinguishable from one another (shown in figure 2)

To provide the context to interpret the results and assess the models, the number of items per each domain of each grade level and grade span was reported in table 2. It is noted that these numbers were taken from the first version of the *Summative Assessment Test Blueprints for the ELPAC* (California Department of Education [CDE], 2017b). The blueprints were revised in 2019 (CDE, 2019). However, the changes to the number of items for a domain were within only one or two items.

Table 2. Overview of Items and Points by Domain and Grade Level or Grade Span

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Domain | K Items | K Points | Grade 1 Items | Grade 1 Points | Grade 2 Items | Grade 2 Points | Grade Span 3–5 Items | Grade Span 3–5 Points | Grade Span 6–8 Items | Grade Span 6–8 Points | Grade Span 9 and 10 Items | Grade Span 9 and 10 Points | Grade Span 11 and 12 Items | Grade Span 11 and 12 Points |
| Listening | 20 | 20 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 |
| Speaking | 10 | 21 | 10 | 21 | 13 | 27 | 13 | 29 | 13 | 29 | 13 | 29 | 13 | 29 |
| Reading | 14 | 17 | 20 | 20 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| Writing | 8 | 12 | 7 | 15 | 7 | 15 | 6 | 17 | 6 | 17 | 6 | 17 | 6 | 17 |
| **Total:** | **52** | **70** | **59** | **78** | **68** | **90** | **67** | **94** | **67** | **94** | **67** | **94** | **67** | **94** |

In figure 1, the schematic shows a correlated two-factor model. The two factors, oral language and written language, are represented by oval shapes. The two-way arrows connecting the ovals represent the correlations between the factors. For each factor, there are items that measure the factor. This is represented by a series of one-way arrows from the factor to each item.

**Listening 1**

**Listening 2**

**Speaking 1**

**Listening *N***

**Speaking 2**

**Reading 1**

**Speaking *N***

**Reading 2**

**Writing 1**

**Reading *N***

**Writing 2**

**Writing *N***

**…**

**…**

**…**

**…**

Figure 1. Schematic figure—correlated two-factor model (oral language and written language)

In figure 2, the schematic shows a unidimensional factor model. The ELP factor is represented by the oval. For this factor, all items measure this factor. This is represented by a series of one-way arrows from the factor to each item.

**Listening 1**

**Listening 2**

**Speaking 1**

**Listening *N***

**Speaking 2**

**Reading 1**

**Speaking *N***

**Reading 2**

**Writing 1**

**Reading *N***

**Writing 2**

**Writing *N***

**…**

**…**

**…**

**…**

Figure 2. Schematic figure—unidimensional model (ELP)

As illustrated in the schematic figures, instead of mapping to multiple domains, each ELPAC test item was associated with oral language or written language skills (figure 1) or ELP (figure 2). It is a best practice in score reporting to associate each test item to only one reporting category; the factor structures tested in this study were aligned to such a principle.

Because student responses from all four test forms within each grade level and grade span were used in the grade level and grade span analyses, a sparse matrix of item responses, which included the whole pool of ELPAC field test items, was used in the grade level and grade span analyses.

To compare the factor-analytic models, the Akaike information criterion (AIC), the Bayesian information criterion (BIC), and -2 log-likelihood (-2LL) were used. Those model-fit indices are comparative measures of model fit. Lower values indicate better model fit.

Despite considerable advances in the estimation of confirmatory factor models, there is no rule of thumb nor perfect-fit index for factor-model acceptance. In addition to the comparison of model-fit indices, model parsimony and the reasonableness of individual parameter estimates (statistical significance), as well as correlations among the latent factors, were considered in the evaluation of competing models.

## Results

Analyses were carried out for each of the seven grade level and grade span assessments. The models were evaluated both on statistical criteria and practical considerations. Three statistical criteria used in the evaluation are presented: model fit, factor loadings, and correlation among latent domains.

Model-fit indices are shown in table 3 (for kindergarten through grade two) and table 4 (for grades three through twelve). Models in table 3 and table 4 were denoted as follows:

* 1F denotes the single-factor model.
* 2F (O+W) denotes the correlated two-factor model with oral language and written language scales.

Note that smaller values in the *Order of Fit* columns in table 3 and table 4 indicate better model-data fit.

Table 3. Summary of Fit Statistics for Lower Grades (Kindergarten Through Grade Two)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Grade Level | Model | DF | -2 LL | AIC | BIC | Order of Fit |
| K | 1F | 151 | 88,502 | 88,804 | 89,581 | 2 |
| K | 2F (O+W) | 152 | 85,439 | 85,743 | 86,525 | 1 |
| 1 | 1F | 171 | 98,683 | 99,025 | 99,942 | 2 |
| 1 | 2F (O+W) | 172 | 95,972 | 96,316 | 97,239 | 1 |
| 2 | 1F | 196 | 124,070 | 124,462 | 125,512 | 2 |
| 2 | 2F (O+W) | 197 | 121,331 | 121,725 | 122,781 | 1 |

Table 4. Summary of Fit Statistics for Upper Grades (Grades Three Through Twelve)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Grade Span | Model | DF | -2 LL | AIC | BIC | Order of Fit |
| 3–5 | 1F | 198 | 143,992 | 144,388 | 145,448 | 2 |
| 3–5 | 2F (O+W) | 199 | 142,679 | 143,077 | 144,141 | 1 |
| 6–8 | 1F | 203 | 150,449 | 150,855 | 151,926 | 2 |
| 6–8 | 2F (O+W) | 204 | 149,304 | 149,712 | 150,789 | 1 |
| 9–10 | 1F | 206 | 158,622 | 159,034 | 160,127 | 2 |
| 9–10 | 2F (O+W) | 207 | 156,910 | 157,324 | 158,423 | 1 |
| 11–12 | 1F | 206 | 137,136 | 137,548 | 138,618 | 2 |
| 11–12 | 2F (O+W) | 207 | 136,257 | 136,671 | 137,747 | 1 |

As described previously, three model-fit indices—AIC, BIC, and -2LL—were used for model comparisons in table 3 and table 4. Results show that all model-fit indices consistently show the same pattern across all grade levels and grade spans. Among the models, the less restrictive two-factor model, with the lowest model-fit index value, is the best fit model; the more restrictive single-factor model shows the poorest fit.

For absolute-fit indices, table 5 shows the root mean square error of approximation (RMSEA) and Tucker-Lewis Index (TLI) for all the three models for each grade level or grade span. Denotations in this table are the same as in table 3 and table 4.

Table 5. Absolute-Fit Indices for Two-Factor Model with Oral Language and Written Language Skills

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Grade Level or Grade Span | Model | Numbers of Items | RMSEA | TLI | Order of Fit |
| K | 1F | 62 | 0.06 | 0.88 | 2 |
| K | 2F (O+W) | (32 + 30) | 0.04 | 0.95 | 1 |
| 1 | 1F | 70 | 0.04 | 0.92 | 2 |
| 1 | 2F (O+W) | (32 + 38) | 0.03 | 0.97 | 1 |
| 2 | 1F | 82 | 0.04 | 0.91 | 2 |
| 2 | 2F (O+W) | (38 + 44) | 0.02 | 0.96 | 1 |
| 3–5 | 1F | 80 | 0.03 | 0.92 | 2 |
| 3–5 | 2F (O+W) | (38 + 42) | 0.02 | 0.95 | 1 |
| 6–8 | 1F | 83 | 0.03 | 0.90 | 2 |
| 6–8 | 2F (O+W) | (41 + 42) | 0.03 | 0.93 | 1 |
| 9–10 | 1F | 84 | 0.04 | 0.93 | 2 |
| 9–10 | 2F (O+W) | (42 + 42) | 0.03 | 0.96 | 1 |
| 11–12 | 1F | 84 | 0.03 | 0.94 | 2 |
| 11–12 | 2F (O+W) | (42 + 42) | 0.03 | 0.95 | 1 |

The results shown in table 5 are consistent with the relative fit statistics described earlier in table 3 and table 4. The less restrictive two-factor model had better RMSEAs and TLIs across grade levels and grade spans. It can be seen that the model with oral language and written language scales fits well with the data across all grade levels and grade spans. All the RMSEAs for this model were below the conventional threshold of .06 (Hu & Bentler, 1999). Only grade span six through eight had a TLI of .93, which is smaller than the cutoff value of .95 recommended by Hu and Bentler (1999).

Descriptive summary statistics of factor loadings, reported in table 6, indicate how distinctively each hypothesized factor contributes to test structure. [Appendix 1](#_Appendix_2.B_California) contains tables of factor loadings for all individual items by model and by grade level or grade span. The results showed uniformly positive factor loading with average values between .39 and .85. Standard errors remained as low as .06 and as high as .19. These statistics indicated that most of the loadings met the cutoff value of .32 recommended as a rule of thumb by Tabachnick and Fidell (2007). The actual factor loadings shown in [appendix 1](#_Appendix_2.B_California) also appeared to be comparable to the loadings found in other studies for language assessments (e.g., Manna & Yoo, 2015; Manna, Yoo, & Monfils, 2018).

Table 6 also showed the correlations between the pair of latent factors, oral language versus written language, respectively. These correlations show that oral language and written language skills were more distinct for kindergarten through grade eight and less distinct in grades nine through twelve. The mean and standard deviation (SD) of oral language and written language factor loadings are also presented. These calculations excluded the structural zeroes.

Table 6. Correlations and Factor Loadings from Oral Language and Written Language Skills

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Grade Level or Grade Span | N Oral Language Items | N Written Language Items | Mean and (SD) of Oral Language Factor Loadings | Mean and (SD) of Written Language Factor Loadings | Correlations Across Latent Factors |
| K | 78 | 61 | .55 (.14) | .61 (.23) | .62 |
| 1 | 70 | 82 | .54 (.14) | .66 (.09) | .62 |
| 2 | 83 | 92 | .51 (.11) | .67 (.13) | .58 |
| 3–5 | 86 | 96 | .47 (.12) | .45 (.15) | .70 |
| 6–8 | 88 | 85 | .47 (.18) | .39 (.12) | .72 |
| 9–10 | 89 | 85 | .50 (.19) | .46 (.13) | .75 |
| 11–12 | 89 | 85 | .48 (.18) | .43 (.14) | .77 |

## Conclusion

The primary purpose of this investigation into the factor structure of the ELPAC was to inform decisions for IRT scaling and score reporting.

This study provides empirical evidence that oral language and written language skills are distinct enough to be reported separately. It also provides validity evidence for the ELPAC scoring hierarchy that was approved by the California State Board of Education in September 2017 (CDE, 2017a) and will be used for reporting ELPAC scores.

### The Oral-Language-and-Written-Language Model

The oral-language-and-written-language model aligns well with the CA ELD Standards (2012) that were developed as a curriculum framework for instructional purposes. Part I of the standards, which was used to develop the ELPAC, is organized into three aspects: collaborative, interpretive, and productive. Part I weaves the expectations of students’ oral language and written language proficiency across these three aspects.

The oral-language-and-written-language model also improved fit relative to the single-factor model in all grade levels from kindergarten through grade twelve. AIC, BIC, and -2LL values associated with the oral-language-and-written-language model were consistently the smallest. From a practical perspective, this means that adopting the single-factor model could conceal information about student performance in important language areas, such as oral or writing skills. As a result, thorough diagnostic information would not be provided to teachers, students, and other interest holders. For this reason, separate oral language and written language scores can be reported, in addition to an overall score.

Because results suggest that oral language and written language each provide distinct information about student performance, this also informs the way that exemptions drive score reporting for students with disabilities who are eligible for domain exemptions when their IEP or Section 504 plan specifies that they cannot take one or more domains of the Summative ELPAC. A student who is exempted from one domain and tests in the other domain in the composite (e.g., oral language) should have the oral language composite score and the overall score reported. A student who is exempted from both domains in the oral language composite, for example, should have neither an oral language score nor an overall score reported. Table 7 contains six examples of when dimensionality results suggest that scores should be reported.

Table 7. When Overall Scores Should Be Reported

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Listening | Speaking | Reading | Writing | Oral Language | Written Language | Overall |
| Tested | Tested | Tested | Tested | Report | Report | Report |
| Tested | Tested | Tested | Exempted | Report | Report | Report |
| Tested | Exempted | Tested | Exempted | Report | Report | Report |
| Tested | Exempted | Exempted | Exempted | Report | Do not report | Do not report |
| Exempted | Exempted | Tested | Exempted | Do not report | Report | Do not report |
| Exempted | Exempted | Exempted | Exempted | Do not report | Do not report | Do not report |

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## Appendix 1: Factor **Loadings** of Four Models

Table 1.1 Factor Loadings of One-Factor Model for Kindergarten

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Accession Number | Lambda | Standard Error |
| 1 | VH574303 | 0.55 | 0.05 |
| 2 | VH574301 | 0.50 | 0.06 |
| 3 | VH574282 | 0.39 | 0.08 |
| 4 | VH574269 | 0.47 | 0.05 |
| 5 | VH574286 | 0.55 | 0.06 |
| 6 | VH583630 | 0.34 | 0.04 |
| 7 | VH583637 | 0.44 | 0.05 |
| 8 | VH583647 | 0.49 | 0.04 |
| 9 | VH583334 | 0.44 | 0.07 |
| 10 | VH583343 | 0.36 | 0.06 |
| 11 | VH583351 | 0.48 | 0.06 |
| 12 | VH583369 | 0.35 | 0.04 |
| 13 | VH583376 | 0.45 | 0.05 |
| 14 | VH583383 | 0.26 | 0.04 |
| 15 | VH592447 | 0.42 | 0.04 |
| 16 | VH592451 | 0.39 | 0.04 |
| 17 | VH592461 | 0.54 | 0.05 |
| 18 | VH592460 | 0.35 | 0.05 |
| 19 | VH592462 | 0.30 | 0.04 |
| 20 | VH592464 | 0.50 | 0.05 |
| 21 | VH574395 | 0.40 | 0.08 |
| 22 | VH574304 | 0.52 | 0.04 |
| 23 | VH574278 | 0.36 | 0.05 |
| 24 | VH583435 | 0.47 | 0.06 |
| 25 | VH583438 | 0.53 | 0.06 |
| 26 | VH583440 | 0.49 | 0.06 |
| 27 | VH583749 | 0.52 | 0.05 |
| 28 | VH583753 | 0.51 | 0.04 |
| 29 | VH583759 | 0.38 | 0.06 |
| 30 | VH592480 | 0.27 | 0.04 |
| 31 | VH592482 | 0.36 | 0.04 |
| 32 | VH592483 | 0.44 | 0.04 |
| 33 | VH574302 | 0.49 | 0.10 |
| 34 | VH574316 | 0.41 | 0.07 |
| 35 | VH574336 | 0.50 | 0.04 |
| 36 | VH583768 | 0.59 | 0.06 |
| 37 | VH583773 | 0.15 | 0.06 |

Table 1.1 *(continuation one)*

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Accession Number | Lambda | Standard Error |
| 38 | VH583777 | 0.57 | 0.05 |
| 39 | VH583592 | 0.62 | 0.05 |
| 40 | VH583596 | 0.51 | 0.05 |
| 41 | VH583602 | 0.48 | 0.05 |
| 42 | VH592495 | 0.43 | 0.04 |
| 43 | VH592499 | 0.49 | 0.04 |
| 44 | VH592501 | 0.40 | 0.04 |
| 45 | VH574310 | 0.45 | 0.09 |
| 46 | VH583447 | 0.47 | 0.08 |
| 47 | VH583449 | 0.65 | 0.05 |
| 48 | VH583455 | 0.52 | 0.07 |
| 49 | VH591388 | 0.67 | 0.07 |
| 50 | VH591397 | 0.57 | 0.07 |
| 51 | VH591400 | 0.51 | 0.07 |
| 52 | VH591401 | 0.42 | 0.05 |
| 53 | VH591402 | 0.45 | 0.06 |
| 54 | VH591403 | 0.38 | 0.05 |
| 55 | VH573464 | 0.56 | 0.04 |
| 56 | VH573457 | 0.51 | 0.04 |
| 57 | VH582962 | 0.38 | 0.03 |
| 58 | VH589607 | 0.43 | 0.02 |
| 59 | VH583006 | 0.38 | 0.03 |
| 60 | VH586749 | 0.43 | 0.03 |
| 61 | VH591703 | 0.64 | 0.07 |
| 62 | VH591706 | 0.55 | 0.07 |
| 63 | VH591701 | 0.71 | 0.06 |
| 64 | VH591710 | 0.55 | 0.05 |
| 65 | VH591708 | 0.53 | 0.05 |
| 66 | VH591712 | 0.41 | 0.05 |
| 67 | VH573468 | 0.56 | 0.04 |
| 68 | VH589544 | 0.44 | 0.02 |
| 69 | VH586816 | 0.47 | 0.03 |
| 70 | VH590346 | 0.64 | 0.04 |
| 71 | VH590349 | 0.70 | 0.05 |
| 72 | VH590357 | 0.51 | 0.04 |
| 73 | VH590360 | 0.56 | 0.03 |
| 74 | VH590366 | 0.42 | 0.03 |
| 75 | VH590371 | 0.40 | 0.03 |
| 76 | VH573448 | 0.52 | 0.05 |

Table 1.1 *(continuation two)*

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Accession Number | Lambda | Standard Error |
| 77 | VH586833 | 0.47 | 0.03 |
| 78 | VH573456 | 0.57 | 0.05 |
| 79 | VH589727 | 0.69 | 0.03 |
| 80 | VH589737 | 0.32 | 0.05 |
| 81 | VH590627 | 0.75 | 0.03 |
| 82 | VH590632 | 0.45 | 0.06 |
| 83 | VH588850 | 0.43 | 0.03 |
| 84 | VH588854 | 0.55 | 0.05 |
| 85 | VH588855 | 0.55 | 0.05 |
| 86 | VH588860 | 0.48 | 0.04 |
| 87 | VH588689 | 0.36 | 0.03 |
| 88 | VH588702 | 0.51 | 0.04 |
| 89 | VH588707 | 0.48 | 0.03 |
| 90 | VH588710 | 0.52 | 0.04 |
| 91 | VH568976 | 0.62 | 0.04 |
| 92 | VH568979 | 0.32 | 0.05 |
| 93 | VH568983 | 0.57 | 0.05 |
| 94 | VH574344 | 0.51 | 0.05 |
| 95 | VH574347 | 0.55 | 0.04 |
| 96 | VH574351 | 0.42 | 0.05 |
| 97 | VH589844 | 0.69 | 0.04 |
| 98 | VH589886 | 0.40 | 0.09 |
| 99 | VH590473 | 0.75 | 0.03 |
| 100 | VH590479 | 0.26 | 0.05 |
| 101 | VH588892 | 0.39 | 0.03 |
| 102 | VH588896 | 0.55 | 0.03 |
| 103 | VH588898 | 0.19 | 0.04 |
| 104 | VH588902 | 0.31 | 0.04 |
| 105 | VH574382 | 0.58 | 0.04 |
| 106 | VH574387 | 0.43 | 0.05 |
| 107 | VH574392 | 0.42 | 0.04 |
| 108 | VH590334 | 0.72 | 0.03 |
| 109 | VH590336 | 0.55 | 0.05 |
| 110 | VH574308 | 0.46 | 0.05 |
| 111 | VH574313 | 0.34 | 0.07 |
| 112 | VH574315 | 0.30 | 0.06 |
| 113 | VH574281 | 0.43 | 0.05 |
| 114 | VH574283 | 0.52 | 0.06 |
| 115 | VH574285 | 0.58 | 0.05 |

Table 1.1 *(continuation three)*

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Accession Number | Lambda | Standard Error |
| 116 | VH588549 | 0.71 | 0.06 |
| 117 | VH588556 | 0.73 | 0.05 |
| 118 | VH588557 | 0.81 | 0.03 |
| 119 | VH588565 | 0.74 | 0.03 |
| 120 | VH572676 | 0.74 | 0.02 |
| 121 | VH572680 | 0.78 | 0.02 |
| 122 | VH572685 | 0.83 | 0.01 |
| 123 | VH572699 | 0.84 | 0.01 |
| 124 | VH574191 | 0.72 | 0.03 |
| 125 | VH574199 | 0.83 | 0.02 |
| 126 | VH574241 | 0.76 | 0.02 |
| 127 | VH574245 | 0.83 | 0.02 |
| 128 | VH590314 | 0.75 | 0.03 |
| 129 | VH590317 | 0.70 | 0.04 |
| 130 | VH590320 | 0.76 | 0.02 |
| 131 | VH590325 | 0.81 | 0.02 |
| 132 | VH574038 | 0.82 | 0.02 |
| 133 | VH574059 | 0.82 | 0.02 |
| 134 | VH574063 | 0.80 | 0.02 |
| 135 | VH574079 | 0.82 | 0.02 |
| 136 | VH590330 | 0.70 | 0.05 |
| 137 | VH590343 | 0.67 | 0.06 |
| 138 | VH590348 | 0.79 | 0.03 |
| 139 | VH590354 | 0.81 | 0.03 |

Table 1.2 Factor Loadings of One-Factor Model for Grade One

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Accession Number | Lambda | Standard Error |
| 1 | VH572950 | 0.43 | 0.08 |
| 2 | VH574978 | 0.39 | 0.11 |
| 3 | VH575021 | 0.37 | 0.09 |
| 4 | VH575201 | 0.22 | 0.09 |
| 5 | VH574953 | 0.34 | 0.07 |
| 6 | VH579272 | 0.61 | 0.06 |
| 7 | VH579273 | 0.45 | 0.07 |
| 8 | VH579274 | 0.43 | 0.06 |
| 9 | VH582737 | 0.55 | 0.11 |
| 10 | VH582747 | 0.59 | 0.11 |
| 11 | VH582767 | 0.39 | 0.07 |
| 12 | VH582992 | 0.51 | 0.06 |
| 13 | VH583008 | 0.59 | 0.06 |
| 14 | VH583012 | 0.54 | 0.04 |
| 15 | VH591986 | 0.61 | 0.12 |
| 16 | VH591987 | 0.25 | 0.07 |
| 17 | VH591992 | 0.52 | 0.07 |
| 18 | VH592029 | 0.60 | 0.04 |
| 19 | VH592032 | 0.35 | 0.04 |
| 20 | VH592036 | 0.50 | 0.04 |
| 21 | VH575015 | 0.19 | 0.07 |
| 22 | VH575209 | 0.51 | 0.06 |
| 23 | VH575336 | 0.48 | 0.08 |
| 24 | VH575355 | 0.43 | 0.08 |
| 25 | VH581036 | 0.55 | 0.08 |
| 26 | VH581041 | 0.47 | 0.06 |
| 27 | VH581048 | 0.43 | 0.06 |
| 28 | VH582930 | 0.50 | 0.04 |
| 29 | VH582935 | 0.53 | 0.05 |
| 30 | VH582954 | 0.40 | 0.05 |
| 31 | VH592014 | 0.66 | 0.05 |
| 32 | VH592015 | 0.27 | 0.05 |
| 33 | VH592016 | 0.55 | 0.06 |
| 34 | VH575192 | 0.39 | 0.06 |
| 35 | VH574964 | 0.30 | 0.04 |
| 36 | VH582569 | 0.52 | 0.04 |
| 37 | VH582578 | 0.15 | 0.04 |
| 38 | VH582601 | 0.48 | 0.05 |
| 39 | VH590917 | 0.29 | 0.04 |

Table 1.2 *(continuation one)*

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Accession Number | Lambda | Standard Error |
| 40 | VH590924 | 0.53 | 0.04 |
| 41 | VH590926 | 0.51 | 0.04 |
| 42 | VH592325 | 0.60 | 0.12 |
| 43 | VH592326 | 0.71 | 0.08 |
| 44 | VH592329 | 0.50 | 0.10 |
| 45 | VH592355 | 0.39 | 0.06 |
| 46 | VH592359 | 0.47 | 0.05 |
| 47 | VH592362 | 0.42 | 0.05 |
| 48 | VH573469 | 0.51 | 0.04 |
| 49 | VH573706 | 0.52 | 0.04 |
| 50 | VH574113 | 0.53 | 0.05 |
| 51 | VH587025 | 0.46 | 0.03 |
| 52 | VH586866 | 0.45 | 0.03 |
| 53 | VH583018 | 0.41 | 0.03 |
| 54 | VH586719 | 0.47 | 0.03 |
| 55 | VH590450 | 0.79 | 0.07 |
| 56 | VH590456 | 0.72 | 0.08 |
| 57 | VH590455 | 0.69 | 0.09 |
| 58 | VH590457 | 0.30 | 0.04 |
| 59 | VH590459 | 0.40 | 0.06 |
| 60 | VH590461 | 0.47 | 0.05 |
| 61 | VH572597 | 0.56 | 0.05 |
| 62 | VH587033 | 0.46 | 0.03 |
| 63 | VH586728 | 0.36 | 0.03 |
| 64 | VH592221 | 0.65 | 0.08 |
| 65 | VH592223 | 0.57 | 0.05 |
| 66 | VH592225 | 0.66 | 0.08 |
| 67 | VH592226 | 0.44 | 0.05 |
| 68 | VH592227 | 0.42 | 0.05 |
| 69 | VH592230 | 0.40 | 0.05 |
| 70 | VH573681 | 0.46 | 0.04 |
| 71 | VH574937 | 0.69 | 0.04 |
| 72 | VH573961 | 0.70 | 0.05 |
| 73 | VH574904 | 0.70 | 0.04 |
| 74 | VH574871 | 0.76 | 0.06 |
| 75 | VH574793 | 0.70 | 0.04 |
| 76 | VH574783 | 0.69 | 0.04 |
| 77 | VH574847 | 0.70 | 0.04 |
| 78 | VH582902 | 0.76 | 0.03 |

Table 1.2 *(continuation two)*

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Accession Number | Lambda | Standard Error |
| 79 | VH582916 | 0.62 | 0.04 |
| 80 | VH582881 | 0.64 | 0.05 |
| 81 | VH582871 | 0.72 | 0.05 |
| 82 | VH578939 | 0.54 | 0.05 |
| 83 | VH589879 | 0.72 | 0.04 |
| 84 | VH589880 | 0.62 | 0.05 |
| 85 | VH589881 | 0.65 | 0.05 |
| 86 | VH590201 | 0.68 | 0.04 |
| 87 | VH590202 | 0.73 | 0.04 |
| 88 | VH590204 | 0.84 | 0.03 |
| 89 | VH590029 | 0.50 | 0.06 |
| 90 | VH590035 | 0.61 | 0.06 |
| 91 | VH590037 | 0.68 | 0.05 |
| 92 | VH592958 | 0.70 | 0.04 |
| 93 | VH574780 | 0.63 | 0.04 |
| 94 | VH574908 | 0.70 | 0.04 |
| 95 | VH574863 | 0.72 | 0.04 |
| 96 | VH574901 | 0.68 | 0.04 |
| 97 | VH582874 | 0.65 | 0.05 |
| 98 | VH582892 | 0.74 | 0.04 |
| 99 | VH582896 | 0.54 | 0.05 |
| 100 | VH589386 | 0.46 | 0.05 |
| 101 | VH589389 | 0.66 | 0.04 |
| 102 | VH589390 | 0.71 | 0.04 |
| 103 | VH591509 | 0.74 | 0.05 |
| 104 | VH591510 | 0.71 | 0.05 |
| 105 | VH591512 | 0.80 | 0.03 |
| 106 | VH591646 | 0.64 | 0.04 |
| 107 | VH591649 | 0.68 | 0.04 |
| 108 | VH591650 | 0.69 | 0.05 |
| 109 | VH591652 | 0.56 | 0.05 |
| 110 | VH574814 | 0.73 | 0.04 |
| 111 | VH582867 | 0.64 | 0.03 |
| 112 | VH582906 | 0.56 | 0.03 |
| 113 | VH589871 | 0.63 | 0.05 |
| 114 | VH589872 | 0.66 | 0.04 |
| 115 | VH589874 | 0.61 | 0.05 |
| 116 | VH591625 | 0.67 | 0.03 |
| 117 | VH591629 | 0.58 | 0.04 |

Table 1.2 *(continuation three)*

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Accession Number | Lambda | Standard Error |
| 118 | VH591635 | 0.67 | 0.03 |
| 119 | VH591636 | 0.42 | 0.04 |
| 120 | VH591428 | 0.69 | 0.06 |
| 121 | VH591435 | 0.51 | 0.05 |
| 122 | VH591437 | 0.69 | 0.04 |
| 123 | VH588583 | 0.64 | 0.11 |
| 124 | VH588586 | 0.67 | 0.10 |
| 125 | VH588598 | 0.54 | 0.05 |
| 126 | VH588601 | 0.61 | 0.04 |
| 127 | VH572724 | 0.70 | 0.03 |
| 128 | VH572732 | 0.70 | 0.03 |
| 129 | VH572738 | 0.70 | 0.02 |
| 130 | VH572751 | 0.44 | 0.02 |
| 131 | VH575220 | 0.70 | 0.07 |
| 132 | VH575232 | 0.76 | 0.06 |
| 133 | VH575243 | 0.55 | 0.05 |
| 134 | VH575247 | 0.46 | 0.04 |
| 135 | VH581478 | 0.62 | 0.03 |
| 136 | VH581484 | 0.55 | 0.03 |
| 137 | VH581448 | 0.62 | 0.03 |
| 138 | VH590511 | 0.68 | 0.07 |
| 139 | VH590516 | 0.52 | 0.06 |
| 140 | VH590520 | 0.58 | 0.06 |
| 141 | VH590525 | 0.46 | 0.04 |
| 142 | VH575294 | 0.51 | 0.08 |
| 143 | VH575317 | 0.82 | 0.05 |
| 144 | VH575322 | 0.49 | 0.05 |
| 145 | VH575326 | 0.51 | 0.04 |
| 146 | VH581243 | 0.70 | 0.03 |
| 147 | VH581249 | 0.56 | 0.03 |
| 148 | VH581453 | 0.66 | 0.02 |
| 149 | VH590562 | 0.59 | 0.09 |
| 150 | VH590569 | 0.78 | 0.06 |
| 151 | VH590574 | 0.81 | 0.03 |
| 152 | VH590577 | 0.68 | 0.04 |

Table 1.3 Factor Loadings of One-Factor Model for Grade Two

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Accession Number | Lambda | Standard Error |
| 1 | VH572878 | 0.22 | 0.05 |
| 2 | VH572922 | 0.49 | 0.06 |
| 3 | VH574694 | 0.51 | 0.08 |
| 4 | VH574690 | 0.27 | 0.08 |
| 5 | VH574647 | 0.65 | 0.09 |
| 6 | VH574635 | 0.53 | 0.04 |
| 7 | VH574615 | 0.40 | 0.05 |
| 8 | VH574611 | 0.39 | 0.06 |
| 9 | VH580339 | 0.30 | 0.04 |
| 10 | VH580343 | 0.44 | 0.07 |
| 11 | VH580345 | 0.53 | 0.05 |
| 12 | VH581366 | 0.48 | 0.06 |
| 13 | VH581371 | 0.53 | 0.13 |
| 14 | VH581377 | 0.41 | 0.07 |
| 15 | VH581546 | 0.75 | 0.05 |
| 16 | VH581548 | 0.58 | 0.05 |
| 17 | VH581550 | 0.38 | 0.05 |
| 18 | VH590935 | 0.48 | 0.06 |
| 19 | VH590939 | 0.51 | 0.11 |
| 20 | VH590940 | 0.44 | 0.08 |
| 21 | VH592395 | 0.18 | 0.04 |
| 22 | VH592399 | 0.41 | 0.04 |
| 23 | VH592404 | 0.42 | 0.05 |
| 24 | VH574702 | 0.36 | 0.05 |
| 25 | VH574686 | 0.34 | 0.06 |
| 26 | VH574597 | 0.53 | 0.05 |
| 27 | VH574592 | 0.44 | 0.05 |
| 28 | VH581416 | 0.50 | 0.06 |
| 29 | VH581418 | 0.64 | 0.05 |
| 30 | VH581424 | 0.62 | 0.07 |
| 31 | VH581568 | 0.82 | 0.05 |
| 32 | VH581573 | 0.62 | 0.06 |
| 33 | VH581575 | 0.53 | 0.09 |
| 34 | VH592327 | 0.50 | 0.04 |
| 35 | VH592378 | 0.32 | 0.04 |
| 36 | VH592380 | 0.24 | 0.05 |
| 37 | VH574642 | 0.24 | 0.08 |
| 38 | VH574630 | 0.28 | 0.05 |
| 39 | VH574584 | 0.65 | 0.06 |

Table 1.3 *(continuation one)*

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Accession Number | Lambda | Standard Error |
| 40 | VH581349 | 0.64 | 0.05 |
| 41 | VH581352 | 0.49 | 0.04 |
| 42 | VH581353 | 0.42 | 0.05 |
| 43 | VH581726 | 0.52 | 0.08 |
| 44 | VH581728 | 0.53 | 0.08 |
| 45 | VH581732 | 0.60 | 0.07 |
| 46 | VH592309 | 0.50 | 0.06 |
| 47 | VH592313 | 0.23 | 0.05 |
| 48 | VH592317 | 0.48 | 0.08 |
| 49 | VH590643 | 0.55 | 0.11 |
| 50 | VH590645 | 0.39 | 0.07 |
| 51 | VH590646 | 0.50 | 0.07 |
| 52 | VH590647 | 0.39 | 0.05 |
| 53 | VH590648 | 0.32 | 0.05 |
| 54 | VH590651 | 0.34 | 0.06 |
| 55 | VH581090 | 0.31 | 0.04 |
| 56 | VH581089 | 0.32 | 0.04 |
| 57 | VH581088 | 0.36 | 0.04 |
| 58 | VH581086 | 0.27 | 0.04 |
| 59 | VH574509 | 0.41 | 0.04 |
| 60 | VH574180 | 0.48 | 0.05 |
| 61 | VH582979 | 0.36 | 0.03 |
| 62 | VH588480 | 0.34 | 0.02 |
| 63 | VH585318 | 0.37 | 0.04 |
| 64 | VH592209 | 0.32 | 0.13 |
| 65 | VH592210 | 0.56 | 0.12 |
| 66 | VH592213 | 0.72 | 0.11 |
| 67 | VH592214 | 0.31 | 0.07 |
| 68 | VH592216 | 0.35 | 0.07 |
| 69 | VH592219 | 0.27 | 0.06 |
| 70 | VH581085 | 0.36 | 0.04 |
| 71 | VH579523 | 0.42 | 0.04 |
| 72 | VH574520 | 0.35 | 0.05 |
| 73 | VH585308 | 0.26 | 0.03 |
| 74 | VH592169 | 0.26 | 0.10 |
| 75 | VH592174 | 0.60 | 0.11 |
| 76 | VH592176 | 0.67 | 0.11 |
| 77 | VH592177 | 0.54 | 0.05 |
| 78 | VH592180 | 0.41 | 0.07 |

Table 1.3 *(continuation two)*

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Accession Number | Lambda | Standard Error |
| 79 | VH592186 | 0.23 | 0.05 |
| 80 | VH581087 | 0.38 | 0.04 |
| 81 | VH579512 | 0.32 | 0.03 |
| 82 | VH588439 | 0.33 | 0.03 |
| 83 | VH584200 | 0.30 | 0.04 |
| 84 | VH574425 | 0.77 | 0.06 |
| 85 | VH575002 | 0.75 | 0.04 |
| 86 | VH574991 | 0.64 | 0.06 |
| 87 | VH574996 | 0.84 | 0.04 |
| 88 | VH574982 | 0.76 | 0.06 |
| 89 | VH575007 | 0.75 | 0.05 |
| 90 | VH578954 | 0.67 | 0.04 |
| 91 | VH581130 | 0.81 | 0.03 |
| 92 | VH581120 | 0.60 | 0.04 |
| 93 | VH581200 | 0.78 | 0.04 |
| 94 | VH581134 | 0.34 | 0.04 |
| 95 | VH581212 | 0.80 | 0.03 |
| 96 | VH590634 | 0.29 | 0.06 |
| 97 | VH590639 | 0.61 | 0.05 |
| 98 | VH590644 | 0.56 | 0.05 |
| 99 | VH590676 | 0.39 | 0.04 |
| 100 | VH590678 | 0.56 | 0.04 |
| 101 | VH590679 | 0.69 | 0.03 |
| 102 | VH591632 | 0.71 | 0.03 |
| 103 | VH591639 | 0.75 | 0.03 |
| 104 | VH591644 | 0.68 | 0.04 |
| 105 | VH591647 | 0.78 | 0.03 |
| 106 | VH591678 | 0.63 | 0.05 |
| 107 | VH591682 | 0.62 | 0.05 |
| 108 | VH591684 | 0.71 | 0.04 |
| 109 | VH591685 | 0.65 | 0.05 |
| 110 | VH591770 | 0.57 | 0.04 |
| 111 | VH591772 | 0.60 | 0.04 |
| 112 | VH591773 | 0.67 | 0.03 |
| 113 | VH591774 | 0.72 | 0.03 |
| 114 | VH575137 | 0.78 | 0.04 |
| 115 | VH575138 | 0.79 | 0.04 |
| 116 | VH575147 | 0.67 | 0.04 |
| 117 | VH581123 | 0.69 | 0.03 |

Table 1.3 *(continuation three)*

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Accession Number | Lambda | Standard Error |
| 118 | VH581133 | 0.77 | 0.03 |
| 119 | VH581126 | 0.58 | 0.04 |
| 120 | VH590689 | 0.67 | 0.03 |
| 121 | VH590692 | 0.76 | 0.03 |
| 122 | VH590693 | 0.19 | 0.04 |
| 123 | VH591657 | 0.81 | 0.02 |
| 124 | VH591666 | 0.50 | 0.04 |
| 125 | VH591671 | 0.76 | 0.03 |
| 126 | VH591672 | 0.77 | 0.03 |
| 127 | VH591660 | 0.73 | 0.04 |
| 128 | VH591662 | 0.67 | 0.04 |
| 129 | VH591663 | 0.44 | 0.05 |
| 130 | VH591664 | 0.71 | 0.04 |
| 131 | VH575159 | 0.78 | 0.04 |
| 132 | VH575132 | 0.83 | 0.04 |
| 133 | VH575144 | 0.81 | 0.03 |
| 134 | VH581192 | 0.83 | 0.03 |
| 135 | VH581209 | 0.84 | 0.02 |
| 136 | VH581206 | 0.81 | 0.03 |
| 137 | VH590652 | 0.59 | 0.04 |
| 138 | VH590654 | 0.73 | 0.04 |
| 139 | VH590657 | 0.63 | 0.04 |
| 140 | VH591559 | 0.68 | 0.04 |
| 141 | VH591566 | 0.76 | 0.04 |
| 142 | VH591573 | 0.64 | 0.05 |
| 143 | VH591579 | 0.55 | 0.05 |
| 144 | VH590066 | 0.57 | 0.05 |
| 145 | VH590098 | 0.80 | 0.03 |
| 146 | VH590100 | 0.46 | 0.05 |
| 147 | VH590104 | 0.69 | 0.04 |
| 148 | VH589177 | 0.49 | 0.05 |
| 149 | VH589178 | 0.41 | 0.05 |
| 150 | VH589201 | 0.59 | 0.04 |
| 151 | VH573925 | 0.66 | 0.04 |
| 152 | VH573927 | 0.66 | 0.04 |
| 153 | VH573930 | 0.70 | 0.03 |
| 154 | VH573933 | 0.45 | 0.03 |
| 155 | VH575042 | 0.67 | 0.04 |
| 156 | VH575047 | 0.59 | 0.04 |

Table 1.3 *(continuation four)*

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Accession Number | Lambda | Standard Error |
| 157 | VH575048 | 0.67 | 0.02 |
| 158 | VH575060 | 0.48 | 0.02 |
| 159 | VH581409 | 0.66 | 0.03 |
| 160 | VH581417 | 0.44 | 0.03 |
| 161 | VH581430 | 0.67 | 0.04 |
| 162 | VH589142 | 0.59 | 0.05 |
| 163 | VH589144 | 0.50 | 0.05 |
| 164 | VH589146 | 0.59 | 0.04 |
| 165 | VH576303 | 0.75 | 0.04 |
| 166 | VH576316 | 0.65 | 0.04 |
| 167 | VH576324 | 0.59 | 0.03 |
| 168 | VH576547 | 0.47 | 0.03 |
| 169 | VH581433 | 0.65 | 0.04 |
| 170 | VH588717 | 0.67 | 0.03 |
| 171 | VH588719 | 0.65 | 0.03 |
| 172 | VH588721 | 0.62 | 0.03 |
| 173 | VH581499 | 0.75 | 0.03 |
| 174 | VH581501 | 0.59 | 0.04 |
| 175 | VH581435 | 0.62 | 0.04 |

Table 1.4 Factor Loadings of One-Factor Model for Grade Span Three Through Five

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Accession Number | Lambda | Standard Error |
| 1 | VH574939 | 0.49 | 0.06 |
| 2 | VH574683 | 0.27 | 0.05 |
| 3 | VH575208 | 0.33 | 0.04 |
| 4 | VH575216 | 0.35 | 0.05 |
| 5 | VH582493 | 0.39 | 0.05 |
| 6 | VH582498 | 0.36 | 0.06 |
| 7 | VH582505 | 0.54 | 0.05 |
| 8 | VH570906 | 0.21 | 0.05 |
| 9 | VH570907 | 0.42 | 0.06 |
| 10 | VH570909 | 0.40 | 0.06 |
| 11 | VH582528 | 0.35 | 0.06 |
| 12 | VH582533 | 0.42 | 0.07 |
| 13 | VH582540 | 0.48 | 0.07 |
| 14 | VH589432 | 0.39 | 0.06 |
| 15 | VH589434 | 0.56 | 0.05 |
| 16 | VH589438 | 0.40 | 0.04 |
| 17 | VH593776 | 0.37 | 0.04 |
| 18 | VH593796 | 0.48 | 0.07 |
| 19 | VH593803 | 0.28 | 0.04 |
| 20 | VH593815 | 0.29 | 0.05 |
| 21 | VH594341 | 0.40 | 0.06 |
| 22 | VH594345 | 0.19 | 0.06 |
| 23 | VH594352 | 0.28 | 0.06 |
| 24 | VH594358 | 0.30 | 0.06 |
| 25 | VH575204 | 0.36 | 0.05 |
| 26 | VH575303 | 0.44 | 0.06 |
| 27 | VH576581 | 0.59 | 0.07 |
| 28 | VH576591 | 0.51 | 0.06 |
| 29 | VH576596 | 0.34 | 0.07 |
| 30 | VH585392 | 0.46 | 0.06 |
| 31 | VH585393 | 0.48 | 0.06 |
| 32 | VH585394 | 0.36 | 0.06 |
| 33 | VH594444 | 0.31 | 0.06 |
| 34 | VH594446 | 0.34 | 0.06 |
| 35 | VH594448 | 0.24 | 0.06 |
| 36 | VH594450 | 0.21 | 0.06 |
| 37 | VH574679 | 0.43 | 0.05 |
| 38 | VH579818 | 0.45 | 0.05 |
| 39 | VH579819 | 0.34 | 0.04 |

Table 1.4 *(continuation one)*

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Accession Number | Lambda | Standard Error |
| 40 | VH579827 | 0.51 | 0.05 |
| 41 | VH585403 | 0.48 | 0.08 |
| 42 | VH585404 | 0.24 | 0.06 |
| 43 | VH585406 | 0.40 | 0.06 |
| 44 | VH594033 | 0.43 | 0.05 |
| 45 | VH594038 | 0.43 | 0.05 |
| 46 | VH594044 | 0.36 | 0.04 |
| 47 | VH594050 | 0.33 | 0.04 |
| 48 | VH574902 | 0.55 | 0.10 |
| 49 | VH575023 | 0.43 | 0.08 |
| 50 | VH575149 | 0.58 | 0.10 |
| 51 | VH585382 | 0.47 | 0.10 |
| 52 | VH585383 | 0.54 | 0.06 |
| 53 | VH585384 | 0.34 | 0.08 |
| 54 | VH586306 | 0.78 | 0.07 |
| 55 | VH586345 | 0.73 | 0.08 |
| 56 | VH586422 | 0.35 | 0.09 |
| 57 | VH586429 | 0.34 | 0.05 |
| 58 | VH586473 | 0.47 | 0.09 |
| 59 | VH586518 | 0.28 | 0.06 |
| 60 | VH572856 | 0.43 | 0.03 |
| 61 | VH573202 | 0.36 | 0.05 |
| 62 | VH573004 | 0.38 | 0.04 |
| 63 | VH570625 | 0.47 | 0.03 |
| 64 | VH572600 | 0.42 | 0.04 |
| 65 | VH589504 | 0.46 | 0.03 |
| 66 | VH589511 | 0.37 | 0.04 |
| 67 | VH582731 | 0.46 | 0.04 |
| 68 | VH586556 | 0.54 | 0.14 |
| 69 | VH586569 | 0.59 | 0.10 |
| 70 | VH586574 | 0.44 | 0.31 |
| 71 | VH586585 | 0.44 | 0.08 |
| 72 | VH586592 | 0.39 | 0.08 |
| 73 | VH586589 | 0.21 | 0.06 |
| 74 | VH588315 | 0.34 | 0.06 |
| 75 | VH573274 | 0.37 | 0.05 |
| 76 | VH572692 | 0.37 | 0.04 |
| 77 | VH589600 | 0.39 | 0.03 |
| 78 | VH587179 | 0.30 | 0.04 |

Table 1.4 *(continuation two)*

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Accession Number | Lambda | Standard Error |
| 79 | VH573185 | 0.45 | 0.04 |
| 80 | VH587882 | 0.36 | 0.04 |
| 81 | VH586404 | 0.62 | 0.09 |
| 82 | VH586416 | 0.51 | 0.09 |
| 83 | VH586419 | 0.57 | 0.12 |
| 84 | VH586440 | 0.43 | 0.07 |
| 85 | VH586450 | 0.51 | 0.06 |
| 86 | VH586452 | 0.35 | 0.06 |
| 87 | VH587577 | 0.61 | 0.08 |
| 88 | VH583935 | 0.62 | 0.06 |
| 89 | VH594168 | 0.69 | 0.03 |
| 90 | VH594170 | 0.50 | 0.04 |
| 91 | VH594172 | 0.54 | 0.04 |
| 92 | VH594176 | 0.49 | 0.04 |
| 93 | VH593846 | 0.56 | 0.03 |
| 94 | VH593851 | 0.52 | 0.04 |
| 95 | VH593897 | 0.60 | 0.03 |
| 96 | VH593908 | 0.37 | 0.04 |
| 97 | VH583165 | 0.32 | 0.06 |
| 98 | VH583192 | 0.24 | 0.06 |
| 99 | VH583239 | 0.24 | 0.06 |
| 100 | VH583255 | 0.19 | 0.06 |
| 101 | VH583263 | 0.19 | 0.06 |
| 102 | VH583927 | 0.44 | 0.05 |
| 103 | VH583274 | 0.42 | 0.05 |
| 104 | VH590856 | 0.45 | 0.04 |
| 105 | VH590862 | 0.44 | 0.04 |
| 106 | VH590884 | 0.43 | 0.04 |
| 107 | VH590890 | 0.55 | 0.04 |
| 108 | VH590896 | 0.72 | 0.03 |
| 109 | VH590920 | 0.53 | 0.04 |
| 110 | VH590925 | 0.66 | 0.03 |
| 111 | VH593500 | 0.47 | 0.05 |
| 112 | VH593505 | 0.39 | 0.05 |
| 113 | VH593510 | 0.02 | 0.06 |
| 114 | VH593517 | 0.36 | 0.05 |
| 115 | VH593536 | 0.30 | 0.06 |
| 116 | VH593544 | 0.36 | 0.05 |
| 117 | VH585440 | 0.34 | 0.06 |

Table 1.4 *(continuation three)*

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Accession Number | Lambda | Standard Error |
| 118 | VH585442 | 0.38 | 0.04 |
| 119 | VH594157 | 0.51 | 0.04 |
| 120 | VH594158 | 0.44 | 0.04 |
| 121 | VH594160 | 0.17 | 0.04 |
| 122 | VH633339 | 0.48 | 0.04 |
| 123 | VH583964 | 0.57 | 0.05 |
| 124 | VH583968 | 0.07 | 0.07 |
| 125 | VH583980 | 0.57 | 0.05 |
| 126 | VH583985 | 0.09 | 0.07 |
| 127 | VH584001 | 0.57 | 0.05 |
| 128 | VH584005 | 0.34 | 0.06 |
| 129 | VH584007 | 0.15 | 0.06 |
| 130 | VH593446 | 0.63 | 0.04 |
| 131 | VH593450 | 0.41 | 0.06 |
| 132 | VH593454 | 0.43 | 0.05 |
| 133 | VH593464 | 0.39 | 0.06 |
| 134 | VH593470 | 0.43 | 0.06 |
| 135 | VH593477 | 0.38 | 0.06 |
| 136 | VH586185 | 0.72 | 0.07 |
| 137 | VH585437 | 0.46 | 0.06 |
| 138 | VH583431 | 0.30 | 0.04 |
| 139 | VH583705 | 0.35 | 0.04 |
| 140 | VH583715 | 0.38 | 0.04 |
| 141 | VH583861 | 0.45 | 0.04 |
| 142 | VH583874 | 0.37 | 0.04 |
| 143 | VH583885 | 0.15 | 0.04 |
| 144 | VH583896 | 0.21 | 0.04 |
| 145 | VH592042 | 0.69 | 0.05 |
| 146 | VH592062 | 0.55 | 0.05 |
| 147 | VH592066 | 0.64 | 0.05 |
| 148 | VH592075 | 0.62 | 0.05 |
| 149 | VH592077 | 0.57 | 0.05 |
| 150 | VH592080 | 0.67 | 0.05 |
| 151 | VH592083 | 0.52 | 0.05 |
| 152 | VH593545 | 0.50 | 0.05 |
| 153 | VH593555 | 0.62 | 0.05 |
| 154 | VH593564 | 0.41 | 0.05 |
| 155 | VH593578 | 0.40 | 0.06 |
| 156 | VH593614 | 0.06 | 0.07 |

Table 1.4 *(continuation four)*

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Accession Number | Lambda | Standard Error |
| 157 | VH593627 | 0.39 | 0.05 |
| 158 | VH593753 | 0.48 | 0.05 |
| 159 | VH583159 | 0.40 | 0.03 |
| 160 | VH583163 | 0.51 | 0.03 |
| 161 | VH583170 | 0.39 | 0.03 |
| 162 | VH583174 | 0.47 | 0.03 |
| 163 | VH574735 | 0.43 | 0.03 |
| 164 | VH573816 | 0.49 | 0.03 |
| 165 | VH631617 | 0.52 | 0.03 |
| 166 | VH631621 | 0.49 | 0.03 |
| 167 | VH631647 | 0.53 | 0.03 |
| 168 | VH631650 | 0.53 | 0.03 |
| 169 | VH575888 | 0.46 | 0.04 |
| 170 | VH581290 | 0.28 | 0.05 |
| 171 | VH581300 | 0.52 | 0.05 |
| 172 | VH581309 | 0.37 | 0.05 |
| 173 | VH581314 | 0.37 | 0.05 |
| 174 | VH573070 | 0.46 | 0.03 |
| 175 | VH631658 | 0.48 | 0.03 |
| 176 | VH631663 | 0.54 | 0.03 |
| 177 | VH575157 | 0.47 | 0.04 |
| 178 | VH583183 | 0.37 | 0.05 |
| 179 | VH583207 | 0.39 | 0.05 |
| 180 | VH583212 | 0.38 | 0.06 |
| 181 | VH583220 | 0.44 | 0.05 |
| 182 | VH576052 | 0.51 | 0.03 |

Table 1.5 Factor Loadings of One-Factor Model for Grade Span Six Through Eight

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Accession Number | Lambda | Standard Error |
| 1 | VH574684 | 0.44 | 0.05 |
| 2 | VH575433 | 0.19 | 0.05 |
| 3 | VH575462 | 0.50 | 0.08 |
| 4 | VH575068 | 0.42 | 0.06 |
| 5 | VH575116 | 0.20 | 0.06 |
| 6 | VH575121 | 0.50 | 0.07 |
| 7 | VH592775 | 0.34 | 0.05 |
| 8 | VH592777 | 0.33 | 0.05 |
| 9 | VH592779 | 0.13 | 0.05 |
| 10 | VH592783 | 0.34 | 0.05 |
| 11 | VH592785 | 0.23 | 0.05 |
| 13 | VH592872 | 0.39 | 0.04 |
| 14 | VH592878 | 0.30 | 0.04 |
| 15 | VH592884 | 0.31 | 0.04 |
| 16 | VH592896 | 0.31 | 0.04 |
| 17 | VH587161 | 0.46 | 0.05 |
| 18 | VH587175 | 0.41 | 0.05 |
| 19 | VH587183 | 0.14 | 0.04 |
| 20 | VH587222 | 0.47 | 0.04 |
| 21 | VH587223 | 0.49 | 0.05 |
| 22 | VH585631 | 0.42 | 0.05 |
| 23 | VH585653 | 0.32 | 0.04 |
| 24 | VH585659 | 0.42 | 0.04 |
| 25 | VH585681 | 0.31 | 0.04 |
| 26 | VH585683 | 0.23 | 0.04 |
| 27 | VH574717 | 0.35 | 0.07 |
| 28 | VH575120 | 0.33 | 0.06 |
| 29 | VH575122 | 0.33 | 0.07 |
| 30 | VH575124 | 0.26 | 0.07 |
| 31 | VH592977 | 0.31 | 0.05 |
| 32 | VH592984 | 0.07 | 0.05 |
| 33 | VH593022 | 0.31 | 0.05 |
| 34 | VH593024 | 0.19 | 0.05 |
| 35 | VH593029 | 0.12 | 0.05 |
| 36 | VH585577 | 0.40 | 0.05 |
| 37 | VH585579 | 0.17 | 0.05 |
| 38 | VH585583 | 0.51 | 0.05 |
| 39 | VH585586 | 0.32 | 0.05 |
| 40 | VH585597 | 0.30 | 0.04 |

Table 1.5 *(continuation one)*

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Accession Number | Lambda | Standard Error |
| 41 | VH575040 | 0.67 | 0.04 |
| 42 | VH575399 | 0.30 | 0.04 |
| 43 | VH575067 | 0.59 | 0.10 |
| 44 | VH575110 | 0.45 | 0.10 |
| 45 | VH575112 | 0.33 | 0.08 |
| 46 | VH575114 | 0.42 | 0.09 |
| 47 | VH586687 | 0.44 | 0.04 |
| 48 | VH587095 | 0.38 | 0.04 |
| 49 | VH587018 | 0.59 | 0.04 |
| 50 | VH587022 | 0.36 | 0.04 |
| 51 | VH587100 | 0.57 | 0.04 |
| 52 | VH574708 | 0.52 | 0.09 |
| 53 | VH586468 | 0.80 | 0.07 |
| 54 | VH586472 | 0.82 | 0.06 |
| 55 | VH586476 | 0.64 | 0.06 |
| 56 | VH586478 | 0.66 | 0.07 |
| 57 | VH586496 | 0.54 | 0.05 |
| 58 | VH586500 | 0.52 | 0.06 |
| 59 | VH573015 | 0.54 | 0.04 |
| 60 | VH573426 | 0.55 | 0.04 |
| 61 | VH573022 | 0.59 | 0.04 |
| 62 | VH573439 | 0.56 | 0.04 |
| 63 | VH573085 | 0.55 | 0.03 |
| 64 | VH572824 | 0.53 | 0.04 |
| 65 | VH570113 | 0.48 | 0.05 |
| 66 | VH570166 | 0.41 | 0.05 |
| 67 | VH588064 | 0.49 | 0.04 |
| 68 | VH586576 | 0.75 | 0.07 |
| 69 | VH586580 | 0.68 | 0.09 |
| 70 | VH586583 | 0.65 | 0.06 |
| 71 | VH586587 | 0.52 | 0.05 |
| 72 | VH586591 | 0.50 | 0.07 |
| 73 | VH586593 | 0.48 | 0.06 |
| 74 | VH573303 | 0.53 | 0.04 |
| 75 | VH573017 | 0.45 | 0.04 |
| 76 | VH572624 | 0.50 | 0.03 |
| 77 | VH574641 | 0.45 | 0.04 |
| 78 | VH574643 | 0.44 | 0.04 |
| 79 | VH587883 | 0.45 | 0.04 |

Table 1.5 *(continuation two)*

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Accession Number | Lambda | Standard Error |
| 80 | VH586602 | 0.82 | 0.07 |
| 81 | VH586605 | 0.71 | 0.13 |
| 82 | VH586613 | 0.63 | 0.10 |
| 83 | VH586621 | 0.45 | 0.06 |
| 84 | VH586625 | 0.63 | 0.06 |
| 85 | VH586642 | 0.33 | 0.06 |
| 86 | VH573357 | 0.53 | 0.04 |
| 87 | VH573363 | 0.52 | 0.03 |
| 88 | VH587770 | 0.48 | 0.04 |
| 89 | VH594022 | 0.53 | 0.04 |
| 90 | VH594026 | 0.32 | 0.05 |
| 91 | VH594030 | 0.26 | 0.04 |
| 92 | VH594035 | 0.36 | 0.04 |
| 93 | VH594085 | 0.29 | 0.06 |
| 94 | VH594089 | 0.45 | 0.06 |
| 95 | VH594090 | 0.38 | 0.06 |
| 96 | VH594091 | 0.29 | 0.07 |
| 97 | VH584012 | 0.49 | 0.06 |
| 98 | VH584014 | 0.52 | 0.06 |
| 99 | VH584015 | 0.34 | 0.06 |
| 100 | VH584016 | 0.32 | 0.06 |
| 101 | VH584018 | 0.28 | 0.06 |
| 102 | VH584019 | 0.22 | 0.06 |
| 103 | VH584025 | 0.41 | 0.06 |
| 104 | VH584026 | 0.38 | 0.06 |
| 105 | VH584028 | 0.42 | 0.06 |
| 106 | VH592127 | 0.41 | 0.05 |
| 107 | VH592132 | 0.24 | 0.04 |
| 108 | VH592142 | 0.43 | 0.04 |
| 109 | VH592152 | 0.49 | 0.04 |
| 110 | VH592159 | 0.48 | 0.04 |
| 111 | VH592161 | 0.47 | 0.04 |
| 112 | VH592168 | 0.44 | 0.04 |
| 113 | VH593530 | 0.19 | 0.04 |
| 114 | VH593538 | 0.19 | 0.04 |
| 115 | VH593546 | 0.33 | 0.04 |
| 116 | VH593550 | 0.24 | 0.04 |
| 117 | VH593560 | 0.42 | 0.04 |
| 118 | VH593565 | 0.12 | 0.05 |

Table 1.5 *(continuation three)*

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Accession Number | Lambda | Standard Error |
| 119 | VH593574 | 0.12 | 0.04 |
| 120 | VH593976 | 0.33 | 0.06 |
| 121 | VH593990 | 0.35 | 0.06 |
| 122 | VH593996 | 0.31 | 0.06 |
| 123 | VH594001 | 0.32 | 0.06 |
| 124 | VH583925 | 0.48 | 0.04 |
| 125 | VH583931 | 0.24 | 0.05 |
| 126 | VH583936 | 0.24 | 0.04 |
| 127 | VH583951 | 0.34 | 0.04 |
| 128 | VH583960 | 0.24 | 0.05 |
| 129 | VH584093 | 0.25 | 0.04 |
| 130 | VH584107 | 0.32 | 0.04 |
| 131 | VH584120 | 0.49 | 0.04 |
| 132 | VH614051 | 0.39 | 0.06 |
| 133 | VH614058 | 0.45 | 0.06 |
| 134 | VH614059 | 0.16 | 0.06 |
| 135 | VH614061 | 0.20 | 0.07 |
| 136 | VH614062 | 0.11 | 0.07 |
| 137 | VH614067 | 0.41 | 0.06 |
| 138 | VH614071 | 0.46 | 0.06 |
| 139 | VH593310 | 0.15 | 0.05 |
| 140 | VH593323 | 0.16 | 0.05 |
| 141 | VH593328 | 0.48 | 0.04 |
| 142 | VH593338 | 0.25 | 0.04 |
| 143 | VH592766 | 0.35 | 0.06 |
| 144 | VH592767 | 0.49 | 0.06 |
| 145 | VH592768 | 0.35 | 0.06 |
| 146 | VH592770 | 0.46 | 0.05 |
| 147 | VH592771 | 0.31 | 0.05 |
| 148 | VH592773 | 0.38 | 0.06 |
| 149 | VH592774 | 0.10 | 0.06 |
| 150 | VH583249 | 0.35 | 0.06 |
| 151 | VH583283 | 0.51 | 0.05 |
| 152 | VH583296 | 0.42 | 0.06 |
| 153 | VH583321 | 0.44 | 0.05 |
| 154 | VH573831 | 0.46 | 0.03 |
| 155 | VH574196 | 0.45 | 0.03 |
| 156 | VH577846 | 0.42 | 0.04 |
| 157 | VH577860 | 0.45 | 0.03 |

Table 1.5 *(continuation four)*

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Accession Number | Lambda | Standard Error |
| 158 | VH576043 | 0.36 | 0.04 |
| 159 | VH576047 | 0.41 | 0.03 |
| 160 | VH575169 | 0.43 | 0.04 |
| 161 | VH582315 | 0.38 | 0.05 |
| 162 | VH582318 | 0.55 | 0.05 |
| 163 | VH582321 | 0.43 | 0.05 |
| 164 | VH582323 | 0.35 | 0.05 |
| 165 | VH575964 | 0.50 | 0.04 |
| 166 | VH575973 | 0.48 | 0.03 |
| 167 | VH575895 | 0.48 | 0.04 |
| 168 | VH582348 | 0.30 | 0.06 |
| 169 | VH582350 | 0.48 | 0.06 |
| 170 | VH582453 | 0.33 | 0.06 |
| 171 | VH582455 | 0.42 | 0.06 |
| 172 | VH574768 | 0.42 | 0.03 |
| 173 | VH575173 | 0.43 | 0.04 |

Table 1.6 Factor Loadings of One-Factor Model for Grade Span Nine and Ten

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Accession Number | Lambda | Standard Error |
| 1 | VH575075 | 0.59 | 0.05 |
| 2 | VH574838 | 0.25 | 0.05 |
| 3 | VH574410 | 0.08 | 0.04 |
| 4 | VH575704 | 0.42 | 0.06 |
| 5 | VH567844 | 0.33 | 0.06 |
| 6 | VH567891 | 0.18 | 0.06 |
| 7 | VH567899 | 0.57 | 0.06 |
| 8 | VH593068 | 0.38 | 0.06 |
| 9 | VH593083 | 0.35 | 0.06 |
| 10 | VH593093 | 0.46 | 0.06 |
| 11 | VH593104 | 0.41 | 0.06 |
| 12 | VH593114 | 0.39 | 0.06 |
| 13 | VH593202 | 0.37 | 0.04 |
| 14 | VH593206 | 0.40 | 0.05 |
| 15 | VH593218 | 0.47 | 0.04 |
| 16 | VH593226 | 0.29 | 0.04 |
| 17 | VH593230 | 0.31 | 0.04 |
| 18 | VH579170 | 0.18 | 0.04 |
| 19 | VH579175 | 0.50 | 0.04 |
| 20 | VH579180 | 0.52 | 0.04 |
| 21 | VH579185 | 0.36 | 0.04 |
| 22 | VH579189 | 0.39 | 0.04 |
| 23 | VH585396 | 0.52 | 0.04 |
| 24 | VH585397 | 0.43 | 0.05 |
| 25 | VH585398 | 0.49 | 0.04 |
| 26 | VH585399 | 0.50 | 0.04 |
| 27 | VH585400 | 0.56 | 0.04 |
| 28 | VH574851 | 0.40 | 0.06 |
| 29 | VH574731 | 0.39 | 0.06 |
| 30 | VH569142 | 0.50 | 0.04 |
| 31 | VH569145 | 0.11 | 0.04 |
| 32 | VH569149 | 0.47 | 0.04 |
| 33 | VH591571 | 0.38 | 0.07 |
| 34 | VH592416 | 0.35 | 0.06 |
| 35 | VH592422 | 0.28 | 0.06 |
| 36 | VH592429 | 0.35 | 0.06 |
| 37 | VH592434 | 0.56 | 0.06 |
| 38 | VH584000 | 0.52 | 0.04 |
| 39 | VH584037 | 0.49 | 0.05 |

Table 1.6 *(continuation one)*

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Accession Number | Lambda | Standard Error |
| 40 | VH584044 | 0.40 | 0.04 |
| 41 | VH584047 | 0.47 | 0.04 |
| 42 | VH584049 | 0.54 | 0.04 |
| 43 | VH575078 | 0.41 | 0.04 |
| 44 | VH575081 | 0.39 | 0.05 |
| 45 | VH574720 | 0.53 | 0.04 |
| 46 | VH593135 | 0.34 | 0.04 |
| 47 | VH593142 | 0.52 | 0.04 |
| 48 | VH593149 | 0.30 | 0.04 |
| 49 | VH593161 | 0.15 | 0.04 |
| 50 | VH593182 | 0.35 | 0.04 |
| 51 | VH585427 | 0.55 | 0.05 |
| 52 | VH585429 | 0.54 | 0.04 |
| 53 | VH585431 | 0.30 | 0.04 |
| 54 | VH585432 | 0.25 | 0.04 |
| 55 | VH585433 | 0.35 | 0.04 |
| 56 | VH587524 | 0.79 | 0.07 |
| 57 | VH587533 | 0.84 | 0.04 |
| 58 | VH587540 | 0.86 | 0.04 |
| 59 | VH587546 | 0.69 | 0.05 |
| 60 | VH587553 | 0.68 | 0.05 |
| 61 | VH587561 | 0.43 | 0.05 |
| 62 | VH573248 | 0.64 | 0.03 |
| 63 | VH573040 | 0.56 | 0.03 |
| 64 | VH573500 | 0.54 | 0.03 |
| 65 | VH572682 | 0.65 | 0.04 |
| 66 | VH574287 | 0.63 | 0.03 |
| 67 | VH574569 | 0.55 | 0.03 |
| 68 | VH574653 | 0.59 | 0.03 |
| 69 | VH574655 | 0.52 | 0.03 |
| 70 | VH587886 | 0.49 | 0.03 |
| 71 | VH588901 | 0.77 | 0.04 |
| 72 | VH588907 | 0.71 | 0.05 |
| 73 | VH588922 | 0.66 | 0.07 |
| 74 | VH588923 | 0.48 | 0.05 |
| 75 | VH588925 | 0.73 | 0.04 |
| 76 | VH588928 | 0.63 | 0.05 |
| 77 | VH573250 | 0.58 | 0.03 |
| 78 | VH572838 | 0.55 | 0.03 |

Table 1.6 *(continuation two)*

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Accession Number | Lambda | Standard Error |
| 79 | VH573602 | 0.48 | 0.03 |
| 80 | VH573615 | 0.51 | 0.03 |
| 81 | VH588228 | 0.41 | 0.04 |
| 82 | VH573042 | 0.67 | 0.03 |
| 83 | VH588078 | 0.47 | 0.04 |
| 84 | VH587594 | 0.81 | 0.03 |
| 85 | VH587603 | 0.66 | 0.05 |
| 86 | VH587610 | 0.84 | 0.04 |
| 87 | VH587619 | 0.62 | 0.04 |
| 88 | VH587625 | 0.81 | 0.03 |
| 89 | VH587631 | 0.67 | 0.04 |
| 90 | VH594048 | 0.40 | 0.07 |
| 91 | VH594052 | 0.25 | 0.06 |
| 92 | VH594065 | 0.49 | 0.05 |
| 93 | VH594068 | 0.43 | 0.06 |
| 94 | VH593411 | 0.41 | 0.04 |
| 95 | VH593413 | 0.37 | 0.04 |
| 96 | VH593417 | 0.47 | 0.04 |
| 97 | VH593422 | 0.38 | 0.04 |
| 98 | VH583418 | 0.46 | 0.04 |
| 99 | VH583439 | 0.35 | 0.04 |
| 100 | VH583446 | 0.49 | 0.04 |
| 101 | VH583451 | 0.50 | 0.03 |
| 102 | VH583454 | 0.27 | 0.04 |
| 103 | VH583458 | 0.35 | 0.04 |
| 104 | VH583948 | 0.45 | 0.04 |
| 105 | VH583462 | 0.11 | 0.04 |
| 106 | VH583474 | 0.28 | 0.04 |
| 107 | VH592780 | 0.37 | 0.04 |
| 108 | VH592781 | 0.57 | 0.04 |
| 109 | VH592782 | 0.31 | 0.04 |
| 110 | VH592784 | 0.14 | 0.05 |
| 111 | VH592786 | 0.25 | 0.04 |
| 112 | VH592788 | 0.48 | 0.04 |
| 113 | VH592789 | 0.51 | 0.04 |
| 114 | VH594110 | 0.30 | 0.06 |
| 115 | VH594114 | 0.36 | 0.06 |
| 116 | VH594124 | 0.31 | 0.06 |
| 117 | VH594128 | 0.46 | 0.05 |

Table 1.6 *(continuation three)*

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Accession Number | Lambda | Standard Error |
| 118 | VH594135 | 0.30 | 0.06 |
| 119 | VH594142 | 0.45 | 0.05 |
| 120 | VH594149 | 0.54 | 0.05 |
| 121 | VH593308 | 0.34 | 0.06 |
| 122 | VH593312 | 0.14 | 0.06 |
| 123 | VH593315 | 0.44 | 0.06 |
| 124 | VH593318 | 0.47 | 0.05 |
| 125 | VH584145 | 0.57 | 0.05 |
| 126 | VH584203 | 0.53 | 0.05 |
| 127 | VH585289 | 0.26 | 0.06 |
| 128 | VH585294 | 0.32 | 0.06 |
| 129 | VH585291 | 0.20 | 0.06 |
| 130 | VH585309 | 0.17 | 0.06 |
| 131 | VH585314 | 0.32 | 0.06 |
| 132 | VH613961 | 0.57 | 0.04 |
| 133 | VH613990 | 0.42 | 0.04 |
| 134 | VH613994 | 0.36 | 0.04 |
| 135 | VH614007 | 0.50 | 0.04 |
| 136 | VH614015 | 0.50 | 0.04 |
| 137 | VH614027 | 0.36 | 0.04 |
| 138 | VH614039 | 0.44 | 0.04 |
| 139 | VH593586 | 0.47 | 0.04 |
| 140 | VH593592 | 0.10 | 0.04 |
| 141 | VH593598 | 0.46 | 0.04 |
| 142 | VH593604 | 0.56 | 0.04 |
| 143 | VH592017 | 0.48 | 0.05 |
| 144 | VH592095 | 0.54 | 0.05 |
| 145 | VH592114 | 0.49 | 0.05 |
| 146 | VH592119 | 0.57 | 0.05 |
| 147 | VH592126 | 0.58 | 0.05 |
| 148 | VH592134 | 0.64 | 0.05 |
| 149 | VH592144 | 0.51 | 0.05 |
| 150 | VH583485 | 0.43 | 0.05 |
| 151 | VH583487 | 0.57 | 0.05 |
| 152 | VH583491 | 0.51 | 0.05 |
| 153 | VH583496 | 0.53 | 0.05 |
| 154 | VH574232 | 0.53 | 0.03 |
| 155 | VH574247 | 0.48 | 0.03 |
| 156 | VH576013 | 0.47 | 0.03 |

Table 1.6 *(continuation four)*

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Accession Number | Lambda | Standard Error |
| 157 | VH576020 | 0.46 | 0.03 |
| 158 | VH579215 | 0.52 | 0.03 |
| 159 | VH579227 | 0.51 | 0.03 |
| 160 | VH576280 | 0.56 | 0.04 |
| 161 | VH582495 | 0.41 | 0.05 |
| 162 | VH582502 | 0.50 | 0.05 |
| 163 | VH582506 | 0.41 | 0.05 |
| 164 | VH582523 | 0.47 | 0.05 |
| 165 | VH574782 | 0.49 | 0.04 |
| 166 | VH576197 | 0.52 | 0.03 |
| 167 | VH576200 | 0.50 | 0.03 |
| 168 | VH575919 | 0.52 | 0.04 |
| 169 | VH583459 | 0.39 | 0.05 |
| 170 | VH583467 | 0.42 | 0.05 |
| 171 | VH583471 | 0.37 | 0.05 |
| 172 | VH583476 | 0.39 | 0.05 |
| 173 | VH573880 | 0.49 | 0.03 |
| 174 | VH575185 | 0.52 | 0.04 |

Table 1.7 Factor Loadings of One-Factor Model for Grade Span Eleven and Twelve

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Accession Number | Lambda | Standard Error |
| 1 | VH575718 | 0.39 | 0.07 |
| 2 | VH574943 | 0.55 | 0.07 |
| 3 | VH574959 | 0.63 | 0.04 |
| 4 | VH575726 | 0.09 | 0.05 |
| 5 | VH569169 | 0.67 | 0.07 |
| 6 | VH569174 | 0.43 | 0.07 |
| 7 | VH569178 | 0.20 | 0.06 |
| 8 | VH593252 | 0.41 | 0.06 |
| 9 | VH593264 | 0.25 | 0.07 |
| 10 | VH593286 | 0.36 | 0.06 |
| 11 | VH593268 | 0.53 | 0.06 |
| 12 | VH593291 | 0.42 | 0.06 |
| 13 | VH593368 | 0.43 | 0.05 |
| 14 | VH593369 | 0.48 | 0.04 |
| 15 | VH593370 | 0.30 | 0.05 |
| 16 | VH593372 | 0.11 | 0.05 |
| 17 | VH593375 | 0.20 | 0.05 |
| 18 | VH585445 | 0.48 | 0.05 |
| 19 | VH585447 | 0.41 | 0.04 |
| 20 | VH585450 | 0.48 | 0.04 |
| 21 | VH585451 | 0.24 | 0.05 |
| 22 | VH585448 | 0.32 | 0.04 |
| 23 | VH585456 | 0.52 | 0.04 |
| 24 | VH585457 | 0.48 | 0.04 |
| 25 | VH585458 | 0.33 | 0.05 |
| 26 | VH585459 | 0.33 | 0.04 |
| 27 | VH585460 | 0.46 | 0.04 |
| 28 | VH574948 | 0.40 | 0.07 |
| 29 | VH574951 | 0.27 | 0.07 |
| 30 | VH570664 | 0.31 | 0.05 |
| 31 | VH570700 | 0.17 | 0.04 |
| 32 | VH570707 | 0.38 | 0.05 |
| 33 | VH593346 | 0.35 | 0.06 |
| 34 | VH593347 | 0.34 | 0.06 |
| 35 | VH593348 | 0.32 | 0.06 |
| 36 | VH593350 | 0.30 | 0.07 |
| 37 | VH593352 | 0.39 | 0.06 |
| 38 | VH584148 | 0.47 | 0.04 |
| 39 | VH584152 | 0.45 | 0.06 |

Table 1.7 *(continuation one)*

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Accession Number | Lambda | Standard Error |
| 40 | VH584157 | 0.36 | 0.05 |
| 41 | VH584158 | 0.45 | 0.04 |
| 42 | VH584163 | 0.38 | 0.05 |
| 43 | VH575731 | 0.14 | 0.05 |
| 44 | VH574936 | 0.15 | 0.04 |
| 45 | VH575869 | 0.58 | 0.04 |
| 46 | VH593349 | 0.19 | 0.05 |
| 47 | VH593354 | 0.25 | 0.05 |
| 48 | VH593355 | 0.52 | 0.04 |
| 49 | VH593361 | 0.39 | 0.04 |
| 50 | VH593365 | 0.34 | 0.05 |
| 51 | VH584191 | 0.49 | 0.05 |
| 52 | VH584193 | 0.37 | 0.05 |
| 53 | VH584196 | 0.36 | 0.05 |
| 54 | VH584197 | 0.51 | 0.05 |
| 55 | VH584201 | 0.50 | 0.04 |
| 56 | VH587667 | 0.69 | 0.06 |
| 57 | VH587673 | 0.68 | 0.06 |
| 58 | VH587690 | 0.47 | 0.06 |
| 59 | VH587699 | 0.51 | 0.05 |
| 60 | VH587706 | 0.58 | 0.06 |
| 61 | VH587711 | 0.68 | 0.05 |
| 62 | VH573283 | 0.60 | 0.04 |
| 63 | VH573046 | 0.64 | 0.03 |
| 64 | VH573627 | 0.62 | 0.04 |
| 65 | VH573092 | 0.65 | 0.05 |
| 66 | VH574874 | 0.52 | 0.03 |
| 67 | VH574885 | 0.56 | 0.03 |
| 68 | VH574659 | 0.54 | 0.03 |
| 69 | VH574660 | 0.54 | 0.03 |
| 70 | VH587927 | 0.47 | 0.04 |
| 71 | VH588954 | 0.75 | 0.07 |
| 72 | VH588957 | 0.51 | 0.06 |
| 73 | VH588958 | 0.75 | 0.05 |
| 74 | VH588961 | 0.71 | 0.05 |
| 75 | VH588972 | 0.43 | 0.05 |
| 76 | VH588976 | 0.53 | 0.05 |
| 77 | VH573658 | 0.61 | 0.03 |
| 78 | VH572648 | 0.57 | 0.03 |

Table 1.7 *(continuation two)*

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Accession Number | Lambda | Standard Error |
| 79 | VH573795 | 0.59 | 0.03 |
| 80 | VH573801 | 0.53 | 0.03 |
| 81 | VH588090 | 0.60 | 0.04 |
| 82 | VH573534 | 0.64 | 0.04 |
| 83 | VH588283 | 0.57 | 0.04 |
| 84 | VH588983 | 0.77 | 0.08 |
| 85 | VH588987 | 0.83 | 0.04 |
| 86 | VH588998 | 0.73 | 0.06 |
| 87 | VH589000 | 0.66 | 0.05 |
| 88 | VH589002 | 0.56 | 0.05 |
| 89 | VH589003 | 0.51 | 0.06 |
| 90 | VH593631 | 0.42 | 0.05 |
| 91 | VH593637 | 0.34 | 0.05 |
| 92 | VH593643 | 0.61 | 0.05 |
| 93 | VH594523 | 0.29 | 0.04 |
| 94 | VH594080 | 0.39 | 0.06 |
| 95 | VH594082 | 0.35 | 0.06 |
| 96 | VH594084 | 0.20 | 0.07 |
| 97 | VH594087 | 0.35 | 0.06 |
| 98 | VH585340 | 0.39 | 0.05 |
| 99 | VH585351 | 0.40 | 0.04 |
| 100 | VH585354 | 0.14 | 0.05 |
| 101 | VH585357 | 0.52 | 0.04 |
| 102 | VH585359 | 0.24 | 0.04 |
| 103 | VH585361 | 0.35 | 0.04 |
| 104 | VH585366 | 0.44 | 0.04 |
| 105 | VH585379 | 0.48 | 0.04 |
| 106 | VH585380 | 0.50 | 0.05 |
| 107 | VH592791 | 0.36 | 0.04 |
| 108 | VH592792 | 0.46 | 0.04 |
| 109 | VH592793 | 0.39 | 0.04 |
| 110 | VH592794 | 0.35 | 0.05 |
| 111 | VH592798 | 0.25 | 0.05 |
| 112 | VH592799 | 0.49 | 0.04 |
| 113 | VH594164 | 0.39 | 0.06 |
| 114 | VH594219 | 0.47 | 0.06 |
| 115 | VH594220 | 0.36 | 0.06 |
| 116 | VH594221 | 0.36 | 0.06 |
| 117 | VH594222 | 0.45 | 0.06 |

Table 1.7 *(continuation three)*

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Accession Number | Lambda | Standard Error |
| 118 | VH594223 | 0.23 | 0.07 |
| 119 | VH594224 | 0.41 | 0.06 |
| 120 | VH593655 | 0.40 | 0.06 |
| 121 | VH593659 | 0.44 | 0.06 |
| 122 | VH593661 | 0.34 | 0.06 |
| 123 | VH593663 | 0.33 | 0.06 |
| 124 | VH575525 | 0.47 | 0.06 |
| 125 | VH575534 | 0.64 | 0.05 |
| 126 | VH575541 | 0.43 | 0.06 |
| 127 | VH575550 | 0.56 | 0.05 |
| 128 | VH575552 | 0.55 | 0.06 |
| 129 | VH575590 | 0.51 | 0.07 |
| 130 | VH575595 | 0.48 | 0.07 |
| 131 | VH575602 | 0.23 | 0.07 |
| 132 | VH575612 | 0.13 | 0.07 |
| 133 | VH594027 | 0.22 | 0.05 |
| 134 | VH594031 | 0.30 | 0.04 |
| 135 | VH594041 | 0.01 | 0.05 |
| 136 | VH594045 | 0.18 | 0.05 |
| 137 | VH594049 | 0.21 | 0.05 |
| 138 | VH594054 | 0.06 | 0.05 |
| 139 | VH594409 | 0.21 | 0.05 |
| 140 | VH594413 | 0.41 | 0.04 |
| 141 | VH594412 | 0.36 | 0.04 |
| 142 | VH594407 | 0.61 | 0.04 |
| 143 | VH592466 | 0.40 | 0.06 |
| 144 | VH592469 | 0.49 | 0.06 |
| 145 | VH592479 | 0.50 | 0.06 |
| 146 | VH592484 | 0.18 | 0.07 |
| 147 | VH592489 | 0.49 | 0.06 |
| 148 | VH592492 | 0.34 | 0.07 |
| 149 | VH592497 | 0.45 | 0.06 |
| 150 | VH583503 | 0.44 | 0.06 |
| 151 | VH583504 | 0.49 | 0.06 |
| 152 | VH583505 | 0.36 | 0.06 |
| 153 | VH583507 | 0.41 | 0.06 |
| 154 | VH574846 | 0.54 | 0.03 |
| 155 | VH573892 | 0.48 | 0.03 |
| 156 | VH579418 | 0.41 | 0.04 |

Table 1.7 *(continuation four)*

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Accession Number | Lambda | Standard Error |
| 157 | VH579430 | 0.47 | 0.03 |
| 158 | VH574580 | 0.47 | 0.04 |
| 159 | VH574583 | 0.53 | 0.03 |
| 160 | VH576320 | 0.55 | 0.04 |
| 161 | VH582599 | 0.37 | 0.06 |
| 162 | VH582602 | 0.62 | 0.05 |
| 163 | VH582605 | 0.36 | 0.06 |
| 164 | VH582607 | 0.44 | 0.06 |
| 165 | VH574264 | 0.55 | 0.04 |
| 166 | VH576208 | 0.44 | 0.04 |
| 167 | VH576213 | 0.48 | 0.03 |
| 168 | VH576308 | 0.51 | 0.04 |
| 169 | VH582552 | 0.38 | 0.06 |
| 170 | VH582560 | 0.55 | 0.06 |
| 171 | VH582570 | 0.51 | 0.06 |
| 172 | VH582576 | 0.44 | 0.05 |
| 173 | VH574271 | 0.55 | 0.03 |
| 174 | VH575258 | 0.53 | 0.04 |

Table 1.8 Factor Loadings of Two-Factor Model for Kindergarten

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | Accession Number | Lambda 1 | Standard Error | Lambda 2 | Standard Error |
| 1 | VH574303 | 0.54 | 0.05 | 0.00 | N/A |
| 2 | VH574301 | 0.49 | 0.06 | 0.00 | N/A |
| 3 | VH574282 | 0.40 | 0.08 | 0.00 | N/A |
| 4 | VH574269 | 0.48 | 0.05 | 0.00 | N/A |
| 5 | VH574286 | 0.54 | 0.06 | 0.00 | N/A |
| 6 | VH583630 | 0.33 | 0.05 | 0.00 | N/A |
| 7 | VH583637 | 0.42 | 0.05 | 0.00 | N/A |
| 8 | VH583647 | 0.52 | 0.04 | 0.00 | N/A |
| 9 | VH583334 | 0.47 | 0.07 | 0.00 | N/A |
| 10 | VH583343 | 0.36 | 0.07 | 0.00 | N/A |
| 11 | VH583351 | 0.52 | 0.06 | 0.00 | N/A |
| 12 | VH583369 | 0.39 | 0.05 | 0.00 | N/A |
| 13 | VH583376 | 0.39 | 0.06 | 0.00 | N/A |
| 14 | VH583383 | 0.31 | 0.05 | 0.00 | N/A |
| 15 | VH592447 | 0.40 | 0.04 | 0.00 | N/A |
| 16 | VH592451 | 0.39 | 0.04 | 0.00 | N/A |
| 17 | VH592461 | 0.54 | 0.05 | 0.00 | N/A |
| 18 | VH592460 | 0.38 | 0.05 | 0.00 | N/A |
| 19 | VH592462 | 0.33 | 0.04 | 0.00 | N/A |
| 20 | VH592464 | 0.49 | 0.06 | 0.00 | N/A |
| 21 | VH574395 | 0.41 | 0.08 | 0.00 | N/A |
| 22 | VH574304 | 0.55 | 0.04 | 0.00 | N/A |
| 23 | VH574278 | 0.37 | 0.05 | 0.00 | N/A |
| 24 | VH583435 | 0.49 | 0.06 | 0.00 | N/A |
| 25 | VH583438 | 0.60 | 0.05 | 0.00 | N/A |
| 26 | VH583440 | 0.55 | 0.06 | 0.00 | N/A |
| 27 | VH583749 | 0.57 | 0.04 | 0.00 | N/A |
| 28 | VH583753 | 0.58 | 0.04 | 0.00 | N/A |
| 29 | VH583759 | 0.36 | 0.06 | 0.00 | N/A |
| 30 | VH592480 | 0.23 | 0.05 | 0.00 | N/A |
| 31 | VH592482 | 0.39 | 0.04 | 0.00 | N/A |
| 32 | VH592483 | 0.47 | 0.04 | 0.00 | N/A |
| 33 | VH574302 | 0.42 | 0.10 | 0.00 | N/A |
| 34 | VH574316 | 0.41 | 0.06 | 0.00 | N/A |
| 35 | VH574336 | 0.52 | 0.04 | 0.00 | N/A |
| 36 | VH583768 | 0.60 | 0.06 | 0.00 | N/A |
| 37 | VH583773 | 0.12 | 0.06 | 0.00 | N/A |
| 38 | VH583777 | 0.58 | 0.05 | 0.00 | N/A |
| 39 | VH583592 | 0.62 | 0.04 | 0.00 | N/A |

Table 1.8 *(continuation one)*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | Accession Number | Lambda 1 | Standard Error | Lambda 2 | Standard Error |
| 40 | VH583596 | 0.50 | 0.04 | 0.00 | N/A |
| 41 | VH583602 | 0.51 | 0.05 | 0.00 | N/A |
| 42 | VH592495 | 0.42 | 0.04 | 0.00 | N/A |
| 43 | VH592499 | 0.47 | 0.04 | 0.00 | N/A |
| 44 | VH592501 | 0.43 | 0.04 | 0.00 | N/A |
| 45 | VH574310 | 0.47 | 0.09 | 0.00 | N/A |
| 46 | VH583447 | 0.45 | 0.08 | 0.00 | N/A |
| 47 | VH583449 | 0.64 | 0.05 | 0.00 | N/A |
| 48 | VH583455 | 0.51 | 0.07 | 0.00 | N/A |
| 49 | VH591388 | 0.75 | 0.06 | 0.00 | N/A |
| 50 | VH591397 | 0.68 | 0.06 | 0.00 | N/A |
| 51 | VH591400 | 0.68 | 0.05 | 0.00 | N/A |
| 52 | VH591401 | 0.60 | 0.04 | 0.00 | N/A |
| 53 | VH591402 | 0.66 | 0.05 | 0.00 | N/A |
| 54 | VH591403 | 0.60 | 0.04 | 0.00 | N/A |
| 55 | VH573464 | 0.70 | 0.03 | 0.00 | N/A |
| 56 | VH573457 | 0.69 | 0.03 | 0.00 | N/A |
| 57 | VH582962 | 0.72 | 0.02 | 0.00 | N/A |
| 58 | VH589607 | 0.77 | 0.02 | 0.00 | N/A |
| 59 | VH583006 | 0.67 | 0.03 | 0.00 | N/A |
| 60 | VH586749 | 0.72 | 0.02 | 0.00 | N/A |
| 61 | VH591703 | 0.80 | 0.04 | 0.00 | N/A |
| 62 | VH591706 | 0.64 | 0.06 | 0.00 | N/A |
| 63 | VH591701 | 0.74 | 0.06 | 0.00 | N/A |
| 64 | VH591710 | 0.70 | 0.04 | 0.00 | N/A |
| 65 | VH591708 | 0.68 | 0.05 | 0.00 | N/A |
| 66 | VH591712 | 0.58 | 0.04 | 0.00 | N/A |
| 67 | VH573468 | 0.73 | 0.03 | 0.00 | N/A |
| 68 | VH589544 | 0.77 | 0.02 | 0.00 | N/A |
| 69 | VH586816 | 0.75 | 0.02 | 0.00 | N/A |
| 70 | VH590346 | 0.69 | 0.04 | 0.00 | N/A |
| 71 | VH590349 | 0.73 | 0.05 | 0.00 | N/A |
| 72 | VH590357 | 0.60 | 0.04 | 0.00 | N/A |
| 73 | VH590360 | 0.68 | 0.03 | 0.00 | N/A |
| 74 | VH590366 | 0.57 | 0.03 | 0.00 | N/A |
| 75 | VH590371 | 0.58 | 0.03 | 0.00 | N/A |
| 76 | VH573448 | 0.68 | 0.04 | 0.00 | N/A |
| 77 | VH586833 | 0.79 | 0.02 | 0.00 | N/A |
| 78 | VH573456 | 0.69 | 0.04 | 0.00 | N/A |

Table 1.8 *(continuation two)*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | Accession Number | Lambda 1 | Standard Error | Lambda 2 | Standard Error |
| 79 | VH589727 | 0.00 | N/A | 0.76 | 0.03 |
| 80 | VH589737 | 0.00 | N/A | 0.28 | 0.05 |
| 81 | VH590627 | 0.00 | N/A | 0.81 | 0.03 |
| 82 | VH590632 | 0.00 | N/A | 0.42 | 0.07 |
| 83 | VH588850 | 0.00 | N/A | 0.44 | 0.03 |
| 84 | VH588854 | 0.00 | N/A | 0.50 | 0.05 |
| 85 | VH588855 | 0.00 | N/A | 0.49 | 0.05 |
| 86 | VH588860 | 0.00 | N/A | 0.41 | 0.04 |
| 87 | VH588689 | 0.00 | N/A | 0.36 | 0.03 |
| 88 | VH588702 | 0.00 | N/A | 0.46 | 0.04 |
| 89 | VH588707 | 0.00 | N/A | 0.46 | 0.04 |
| 90 | VH588710 | 0.00 | N/A | 0.48 | 0.04 |
| 91 | VH568976 | 0.00 | N/A | 0.55 | 0.04 |
| 92 | VH568979 | 0.00 | N/A | 0.29 | 0.05 |
| 93 | VH568983 | 0.00 | N/A | 0.52 | 0.05 |
| 94 | VH574344 | 0.00 | N/A | 0.44 | 0.05 |
| 95 | VH574347 | 0.00 | N/A | 0.52 | 0.04 |
| 96 | VH574351 | 0.00 | N/A | 0.38 | 0.05 |
| 97 | VH589844 | 0.00 | N/A | 0.76 | 0.04 |
| 98 | VH589886 | 0.00 | N/A | 0.38 | 0.09 |
| 99 | VH590473 | 0.00 | N/A | 0.82 | 0.02 |
| 100 | VH590479 | 0.00 | N/A | 0.19 | 0.06 |
| 101 | VH588892 | 0.00 | N/A | 0.41 | 0.03 |
| 102 | VH588896 | 0.00 | N/A | 0.49 | 0.04 |
| 103 | VH588898 | 0.00 | N/A | 0.16 | 0.04 |
| 104 | VH588902 | 0.00 | N/A | 0.31 | 0.05 |
| 105 | VH574382 | 0.00 | N/A | 0.53 | 0.05 |
| 106 | VH574387 | 0.00 | N/A | 0.44 | 0.05 |
| 107 | VH574392 | 0.00 | N/A | 0.38 | 0.04 |
| 108 | VH590334 | 0.00 | N/A | 0.80 | 0.02 |
| 109 | VH590336 | 0.00 | N/A | 0.50 | 0.06 |
| 110 | VH574308 | 0.00 | N/A | 0.45 | 0.06 |
| 111 | VH574313 | 0.00 | N/A | 0.32 | 0.07 |
| 112 | VH574315 | 0.00 | N/A | 0.29 | 0.06 |
| 113 | VH574281 | 0.00 | N/A | 0.39 | 0.05 |
| 114 | VH574283 | 0.00 | N/A | 0.46 | 0.07 |
| 115 | VH574285 | 0.00 | N/A | 0.52 | 0.06 |
| 116 | VH588549 | 0.00 | N/A | 0.79 | 0.05 |
| 117 | VH588556 | 0.00 | N/A | 0.77 | 0.04 |

Table 1.8 *(continuation three)*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | Accession Number | Lambda 1 | Standard Error | Lambda 2 | Standard Error |
| 118 | VH588557 | 0.00 | N/A | 0.87 | 0.02 |
| 119 | VH588565 | 0.00 | N/A | 0.79 | 0.03 |
| 120 | VH572676 | 0.00 | N/A | 0.79 | 0.02 |
| 121 | VH572680 | 0.00 | N/A | 0.82 | 0.02 |
| 122 | VH572685 | 0.00 | N/A | 0.91 | 0.01 |
| 123 | VH572699 | 0.00 | N/A | 0.91 | 0.01 |
| 124 | VH574191 | 0.00 | N/A | 0.75 | 0.03 |
| 125 | VH574199 | 0.00 | N/A | 0.86 | 0.02 |
| 126 | VH574241 | 0.00 | N/A | 0.82 | 0.02 |
| 127 | VH574245 | 0.00 | N/A | 0.92 | 0.01 |
| 128 | VH590314 | 0.00 | N/A | 0.85 | 0.02 |
| 129 | VH590317 | 0.00 | N/A | 0.77 | 0.03 |
| 130 | VH590320 | 0.00 | N/A | 0.84 | 0.02 |
| 131 | VH590325 | 0.00 | N/A | 0.89 | 0.01 |
| 132 | VH574038 | 0.00 | N/A | 0.88 | 0.02 |
| 133 | VH574059 | 0.00 | N/A | 0.87 | 0.02 |
| 134 | VH574063 | 0.00 | N/A | 0.90 | 0.01 |
| 135 | VH574079 | 0.00 | N/A | 0.92 | 0.01 |
| 136 | VH590330 | 0.00 | N/A | 0.77 | 0.04 |
| 137 | VH590343 | 0.00 | N/A | 0.71 | 0.05 |
| 138 | VH590348 | 0.00 | N/A | 0.88 | 0.02 |
| 139 | VH590354 | 0.00 | N/A | 0.88 | 0.02 |

Table 1.9 Factor Loadings of Two-Factor Model for Grade One

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | Accession Number | Lambda 1 | Standard Error | Lambda 2 | Standard Error |
| 1 | VH572950 | 0.46 | 0.09 | 0.00 | 0.46 |
| 2 | VH574978 | 0.40 | 0.10 | 0.00 | 0.40 |
| 3 | VH575021 | 0.40 | 0.08 | 0.00 | 0.40 |
| 4 | VH575201 | 0.25 | 0.09 | 0.00 | 0.25 |
| 5 | VH574953 | 0.40 | 0.07 | 0.00 | 0.40 |
| 6 | VH579272 | 0.63 | 0.06 | 0.00 | 0.63 |
| 7 | VH579273 | 0.47 | 0.07 | 0.00 | 0.47 |
| 8 | VH579274 | 0.47 | 0.05 | 0.00 | 0.47 |
| 9 | VH582737 | 0.57 | 0.09 | 0.00 | 0.57 |
| 10 | VH582747 | 0.58 | 0.11 | 0.00 | 0.58 |
| 11 | VH582767 | 0.40 | 0.07 | 0.00 | 0.40 |
| 12 | VH582992 | 0.52 | 0.06 | 0.00 | 0.52 |
| 13 | VH583008 | 0.60 | 0.06 | 0.00 | 0.60 |
| 14 | VH583012 | 0.55 | 0.04 | 0.00 | 0.55 |
| 15 | VH591986 | 0.59 | 0.13 | 0.00 | 0.59 |
| 16 | VH591987 | 0.28 | 0.07 | 0.00 | 0.28 |
| 17 | VH591992 | 0.53 | 0.06 | 0.00 | 0.53 |
| 18 | VH592029 | 0.59 | 0.04 | 0.00 | 0.59 |
| 19 | VH592032 | 0.38 | 0.04 | 0.00 | 0.38 |
| 20 | VH592036 | 0.50 | 0.04 | 0.00 | 0.50 |
| 21 | VH575015 | 0.24 | 0.06 | 0.00 | 0.24 |
| 22 | VH575209 | 0.57 | 0.05 | 0.00 | 0.57 |
| 23 | VH575336 | 0.54 | 0.07 | 0.00 | 0.54 |
| 24 | VH575355 | 0.45 | 0.07 | 0.00 | 0.45 |
| 25 | VH581036 | 0.59 | 0.07 | 0.00 | 0.59 |
| 26 | VH581041 | 0.50 | 0.06 | 0.00 | 0.50 |
| 27 | VH581048 | 0.40 | 0.06 | 0.00 | 0.40 |
| 28 | VH582930 | 0.55 | 0.04 | 0.00 | 0.55 |
| 29 | VH582935 | 0.58 | 0.04 | 0.00 | 0.58 |
| 30 | VH582954 | 0.47 | 0.04 | 0.00 | 0.47 |
| 31 | VH592014 | 0.62 | 0.05 | 0.00 | 0.62 |
| 32 | VH592015 | 0.31 | 0.05 | 0.00 | 0.31 |
| 33 | VH592016 | 0.49 | 0.06 | 0.00 | 0.49 |
| 34 | VH575192 | 0.42 | 0.05 | 0.00 | 0.42 |
| 35 | VH574964 | 0.35 | 0.04 | 0.00 | 0.35 |
| 36 | VH582569 | 0.55 | 0.04 | 0.00 | 0.55 |
| 37 | VH582578 | 0.18 | 0.04 | 0.00 | 0.18 |
| 38 | VH582601 | 0.52 | 0.05 | 0.00 | 0.52 |
| 39 | VH590917 | 0.28 | 0.04 | 0.00 | 0.28 |

Table 1.9 *(continuation one)*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | Accession Number | Lambda 1 | Standard Error | Lambda 2 | Standard Error |
| 40 | VH590924 | 0.57 | 0.04 | 0.00 | 0.57 |
| 41 | VH590926 | 0.58 | 0.04 | 0.00 | 0.58 |
| 42 | VH592325 | 0.63 | 0.10 | 0.00 | 0.63 |
| 43 | VH592326 | 0.73 | 0.08 | 0.00 | 0.73 |
| 44 | VH592329 | 0.54 | 0.10 | 0.00 | 0.54 |
| 45 | VH592355 | 0.46 | 0.05 | 0.00 | 0.46 |
| 46 | VH592359 | 0.63 | 0.04 | 0.00 | 0.63 |
| 47 | VH592362 | 0.59 | 0.04 | 0.00 | 0.59 |
| 48 | VH573469 | 0.64 | 0.04 | 0.00 | 0.64 |
| 49 | VH573706 | 0.63 | 0.04 | 0.00 | 0.63 |
| 50 | VH574113 | 0.63 | 0.04 | 0.00 | 0.63 |
| 51 | VH587025 | 0.80 | 0.02 | 0.00 | 0.80 |
| 52 | VH586866 | 0.76 | 0.02 | 0.00 | 0.76 |
| 53 | VH583018 | 0.66 | 0.02 | 0.00 | 0.66 |
| 54 | VH586719 | 0.76 | 0.02 | 0.00 | 0.76 |
| 55 | VH590450 | 0.85 | 0.05 | 0.00 | 0.85 |
| 56 | VH590456 | 0.74 | 0.06 | 0.00 | 0.74 |
| 57 | VH590455 | 0.69 | 0.08 | 0.00 | 0.69 |
| 58 | VH590457 | 0.36 | 0.04 | 0.00 | 0.36 |
| 59 | VH590459 | 0.46 | 0.06 | 0.00 | 0.46 |
| 60 | VH590461 | 0.58 | 0.05 | 0.00 | 0.58 |
| 61 | VH572597 | 0.69 | 0.04 | 0.00 | 0.69 |
| 62 | VH587033 | 0.77 | 0.02 | 0.00 | 0.77 |
| 63 | VH586728 | 0.56 | 0.03 | 0.00 | 0.56 |
| 64 | VH592221 | 0.66 | 0.08 | 0.00 | 0.66 |
| 65 | VH592223 | 0.67 | 0.05 | 0.00 | 0.67 |
| 66 | VH592225 | 0.74 | 0.07 | 0.00 | 0.74 |
| 67 | VH592226 | 0.65 | 0.05 | 0.00 | 0.65 |
| 68 | VH592227 | 0.62 | 0.04 | 0.00 | 0.62 |
| 69 | VH592230 | 0.60 | 0.05 | 0.00 | 0.60 |
| 70 | VH573681 | 0.62 | 0.03 | 0.00 | 0.62 |
| 71 | VH574937 | 0.00 | N/A | 0.70 | 0.00 |
| 72 | VH573961 | 0.00 | N/A | 0.71 | 0.00 |
| 73 | VH574904 | 0.00 | N/A | 0.72 | 0.00 |
| 74 | VH574871 | 0.00 | N/A | 0.75 | 0.00 |
| 75 | VH574793 | 0.00 | N/A | 0.73 | 0.00 |
| 76 | VH574783 | 0.00 | N/A | 0.69 | 0.00 |
| 77 | VH574847 | 0.00 | N/A | 0.71 | 0.00 |
| 78 | VH582902 | 0.00 | N/A | 0.77 | 0.00 |

Table 1.9 *(continuation two)*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | Accession Number | Lambda 1 | Standard Error | Lambda 2 | Standard Error |
| 79 | VH582916 | 0.00 | N/A | 0.65 | 0.00 |
| 80 | VH582881 | 0.00 | N/A | 0.65 | 0.00 |
| 81 | VH582871 | 0.00 | N/A | 0.72 | 0.00 |
| 82 | VH578939 | 0.00 | N/A | 0.55 | 0.00 |
| 83 | VH589879 | 0.00 | N/A | 0.70 | 0.00 |
| 84 | VH589880 | 0.00 | N/A | 0.65 | 0.00 |
| 85 | VH589881 | 0.00 | N/A | 0.64 | 0.00 |
| 86 | VH590201 | 0.00 | N/A | 0.69 | 0.00 |
| 87 | VH590202 | 0.00 | N/A | 0.74 | 0.00 |
| 88 | VH590204 | 0.00 | N/A | 0.86 | 0.00 |
| 89 | VH590029 | 0.00 | N/A | 0.49 | 0.00 |
| 90 | VH590035 | 0.00 | N/A | 0.62 | 0.00 |
| 91 | VH590037 | 0.00 | N/A | 0.68 | 0.00 |
| 92 | VH592958 | 0.00 | N/A | 0.70 | 0.00 |
| 93 | VH574780 | 0.00 | N/A | 0.66 | 0.00 |
| 94 | VH574908 | 0.00 | N/A | 0.74 | 0.00 |
| 95 | VH574863 | 0.00 | N/A | 0.74 | 0.00 |
| 96 | VH574901 | 0.00 | N/A | 0.69 | 0.00 |
| 97 | VH582874 | 0.00 | N/A | 0.66 | 0.00 |
| 98 | VH582892 | 0.00 | N/A | 0.77 | 0.00 |
| 99 | VH582896 | 0.00 | N/A | 0.57 | 0.00 |
| 100 | VH589386 | 0.00 | N/A | 0.47 | 0.00 |
| 101 | VH589389 | 0.00 | N/A | 0.69 | 0.00 |
| 102 | VH589390 | 0.00 | N/A | 0.73 | 0.00 |
| 103 | VH591509 | 0.00 | N/A | 0.77 | 0.00 |
| 104 | VH591510 | 0.00 | N/A | 0.74 | 0.00 |
| 105 | VH591512 | 0.00 | N/A | 0.84 | 0.00 |
| 106 | VH591646 | 0.00 | N/A | 0.65 | 0.00 |
| 107 | VH591649 | 0.00 | N/A | 0.68 | 0.00 |
| 108 | VH591650 | 0.00 | N/A | 0.71 | 0.00 |
| 109 | VH591652 | 0.00 | N/A | 0.57 | 0.00 |
| 110 | VH574814 | 0.00 | N/A | 0.75 | 0.00 |
| 111 | VH582867 | 0.00 | N/A | 0.66 | 0.00 |
| 112 | VH582906 | 0.00 | N/A | 0.59 | 0.00 |
| 113 | VH589871 | 0.00 | N/A | 0.66 | 0.00 |
| 114 | VH589872 | 0.00 | N/A | 0.67 | 0.00 |
| 115 | VH589874 | 0.00 | N/A | 0.60 | 0.00 |
| 116 | VH591625 | 0.00 | N/A | 0.67 | 0.00 |
| 117 | VH591629 | 0.00 | N/A | 0.58 | 0.00 |

Table 1.9 *(continuation three)*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | Accession Number | Lambda 1 | Standard Error | Lambda 2 | Standard Error |
| 118 | VH591635 | 0.00 | N/A | 0.68 | 0.00 |
| 119 | VH591636 | 0.00 | N/A | 0.42 | 0.00 |
| 120 | VH591428 | 0.00 | N/A | 0.70 | 0.00 |
| 121 | VH591435 | 0.00 | N/A | 0.52 | 0.00 |
| 122 | VH591437 | 0.00 | N/A | 0.70 | 0.00 |
| 123 | VH588583 | 0.00 | N/A | 0.66 | 0.00 |
| 124 | VH588586 | 0.00 | N/A | 0.71 | 0.00 |
| 125 | VH588598 | 0.00 | N/A | 0.54 | 0.00 |
| 126 | VH588601 | 0.00 | N/A | 0.65 | 0.00 |
| 127 | VH572724 | 0.00 | N/A | 0.73 | 0.00 |
| 128 | VH572732 | 0.00 | N/A | 0.74 | 0.00 |
| 129 | VH572738 | 0.00 | N/A | 0.75 | 0.00 |
| 130 | VH572751 | 0.00 | N/A | 0.46 | 0.00 |
| 131 | VH575220 | 0.00 | N/A | 0.71 | 0.00 |
| 132 | VH575232 | 0.00 | N/A | 0.76 | 0.00 |
| 133 | VH575243 | 0.00 | N/A | 0.57 | 0.00 |
| 134 | VH575247 | 0.00 | N/A | 0.46 | 0.00 |
| 135 | VH581478 | 0.00 | N/A | 0.65 | 0.00 |
| 136 | VH581484 | 0.00 | N/A | 0.61 | 0.00 |
| 137 | VH581448 | 0.00 | N/A | 0.69 | 0.00 |
| 138 | VH590511 | 0.00 | N/A | 0.70 | 0.00 |
| 139 | VH590516 | 0.00 | N/A | 0.55 | 0.00 |
| 140 | VH590520 | 0.00 | N/A | 0.63 | 0.00 |
| 141 | VH590525 | 0.00 | N/A | 0.51 | 0.00 |
| 142 | VH575294 | 0.00 | N/A | 0.56 | 0.00 |
| 143 | VH575317 | 0.00 | N/A | 0.86 | 0.00 |
| 144 | VH575322 | 0.00 | N/A | 0.50 | 0.00 |
| 145 | VH575326 | 0.00 | N/A | 0.52 | 0.00 |
| 146 | VH581243 | 0.00 | N/A | 0.74 | 0.00 |
| 147 | VH581249 | 0.00 | N/A | 0.60 | 0.00 |
| 148 | VH581453 | 0.00 | N/A | 0.71 | 0.00 |
| 149 | VH590562 | 0.00 | N/A | 0.59 | 0.00 |
| 150 | VH590569 | 0.00 | N/A | 0.77 | 0.00 |
| 151 | VH590574 | 0.00 | N/A | 0.85 | 0.00 |
| 152 | VH590577 | 0.00 | N/A | 0.72 | 0.00 |

Table 1.10 Factor Loadings of Two-Factor Model for Grade Two

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | Accession Number | Lambda 1 | Standard Error | Lambda 2 | Standard Error |
| 1 | VH572878 | 0.26 | 0.06 | 0.00 | N/A |
| 2 | VH572922 | 0.56 | 0.05 | 0.00 | N/A |
| 3 | VH574694 | 0.53 | 0.07 | 0.00 | N/A |
| 4 | VH574690 | 0.36 | 0.07 | 0.00 | N/A |
| 5 | VH574647 | 0.58 | 0.09 | 0.00 | N/A |
| 6 | VH574635 | 0.50 | 0.05 | 0.00 | N/A |
| 7 | VH574615 | 0.46 | 0.05 | 0.00 | N/A |
| 8 | VH574611 | 0.41 | 0.06 | 0.00 | N/A |
| 9 | VH580339 | 0.36 | 0.04 | 0.00 | N/A |
| 10 | VH580343 | 0.46 | 0.06 | 0.00 | N/A |
| 11 | VH580345 | 0.54 | 0.05 | 0.00 | N/A |
| 12 | VH581366 | 0.54 | 0.06 | 0.00 | N/A |
| 13 | VH581371 | 0.53 | 0.12 | 0.00 | N/A |
| 14 | VH581377 | 0.48 | 0.07 | 0.00 | N/A |
| 15 | VH581546 | 0.67 | 0.06 | 0.00 | N/A |
| 16 | VH581548 | 0.56 | 0.05 | 0.00 | N/A |
| 17 | VH581550 | 0.37 | 0.05 | 0.00 | N/A |
| 18 | VH590935 | 0.49 | 0.06 | 0.00 | N/A |
| 19 | VH590939 | 0.51 | 0.11 | 0.00 | N/A |
| 20 | VH590940 | 0.49 | 0.07 | 0.00 | N/A |
| 21 | VH592395 | 0.17 | 0.04 | 0.00 | N/A |
| 22 | VH592399 | 0.40 | 0.04 | 0.00 | N/A |
| 23 | VH592404 | 0.51 | 0.04 | 0.00 | N/A |
| 24 | VH574702 | 0.40 | 0.05 | 0.00 | N/A |
| 25 | VH574686 | 0.37 | 0.06 | 0.00 | N/A |
| 26 | VH574597 | 0.52 | 0.05 | 0.00 | N/A |
| 27 | VH574592 | 0.41 | 0.06 | 0.00 | N/A |
| 28 | VH581416 | 0.56 | 0.05 | 0.00 | N/A |
| 29 | VH581418 | 0.62 | 0.06 | 0.00 | N/A |
| 30 | VH581424 | 0.64 | 0.06 | 0.00 | N/A |
| 31 | VH581568 | 0.79 | 0.06 | 0.00 | N/A |
| 32 | VH581573 | 0.56 | 0.07 | 0.00 | N/A |
| 33 | VH581575 | 0.60 | 0.08 | 0.00 | N/A |
| 34 | VH592327 | 0.51 | 0.05 | 0.00 | N/A |
| 35 | VH592378 | 0.34 | 0.04 | 0.00 | N/A |
| 36 | VH592380 | 0.27 | 0.05 | 0.00 | N/A |
| 37 | VH574642 | 0.25 | 0.08 | 0.00 | N/A |
| 38 | VH574630 | 0.32 | 0.05 | 0.00 | N/A |
| 39 | VH574584 | 0.57 | 0.08 | 0.00 | N/A |

Table 1.10 *(continuation one)*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | Accession Number | Lambda 1 | Standard Error | Lambda 2 | Standard Error |
| 40 | VH581349 | 0.67 | 0.04 | 0.00 | N/A |
| 41 | VH581352 | 0.54 | 0.04 | 0.00 | N/A |
| 42 | VH581353 | 0.43 | 0.05 | 0.00 | N/A |
| 43 | VH581726 | 0.55 | 0.07 | 0.00 | N/A |
| 44 | VH581728 | 0.59 | 0.07 | 0.00 | N/A |
| 45 | VH581732 | 0.56 | 0.07 | 0.00 | N/A |
| 46 | VH592309 | 0.49 | 0.06 | 0.00 | N/A |
| 47 | VH592313 | 0.25 | 0.06 | 0.00 | N/A |
| 48 | VH592317 | 0.48 | 0.08 | 0.00 | N/A |
| 49 | VH590643 | 0.60 | 0.09 | 0.00 | N/A |
| 50 | VH590645 | 0.44 | 0.07 | 0.00 | N/A |
| 51 | VH590646 | 0.61 | 0.06 | 0.00 | N/A |
| 52 | VH590647 | 0.55 | 0.05 | 0.00 | N/A |
| 53 | VH590648 | 0.49 | 0.05 | 0.00 | N/A |
| 54 | VH590651 | 0.54 | 0.05 | 0.00 | N/A |
| 55 | VH581090 | 0.51 | 0.04 | 0.00 | N/A |
| 56 | VH581089 | 0.55 | 0.04 | 0.00 | N/A |
| 57 | VH581088 | 0.53 | 0.04 | 0.00 | N/A |
| 58 | VH581086 | 0.46 | 0.04 | 0.00 | N/A |
| 59 | VH574509 | 0.63 | 0.03 | 0.00 | N/A |
| 60 | VH574180 | 0.67 | 0.04 | 0.00 | N/A |
| 61 | VH582979 | 0.63 | 0.03 | 0.00 | N/A |
| 62 | VH588480 | 0.61 | 0.02 | 0.00 | N/A |
| 63 | VH585318 | 0.55 | 0.04 | 0.00 | N/A |
| 64 | VH592209 | 0.48 | 0.10 | 0.00 | N/A |
| 65 | VH592210 | 0.64 | 0.10 | 0.00 | N/A |
| 66 | VH592213 | 0.75 | 0.07 | 0.00 | N/A |
| 67 | VH592214 | 0.47 | 0.06 | 0.00 | N/A |
| 68 | VH592216 | 0.57 | 0.06 | 0.00 | N/A |
| 69 | VH592219 | 0.44 | 0.06 | 0.00 | N/A |
| 70 | VH581085 | 0.56 | 0.03 | 0.00 | N/A |
| 71 | VH579523 | 0.59 | 0.04 | 0.00 | N/A |
| 72 | VH574520 | 0.60 | 0.04 | 0.00 | N/A |
| 73 | VH585308 | 0.50 | 0.04 | 0.00 | N/A |
| 74 | VH592169 | 0.44 | 0.08 | 0.00 | N/A |
| 75 | VH592174 | 0.66 | 0.08 | 0.00 | N/A |
| 76 | VH592176 | 0.71 | 0.09 | 0.00 | N/A |
| 77 | VH592177 | 0.57 | 0.06 | 0.00 | N/A |
| 78 | VH592180 | 0.56 | 0.06 | 0.00 | N/A |

Table 1.10 *(continuation two)*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | Accession Number | Lambda 1 | Standard Error | Lambda 2 | Standard Error |
| 79 | VH592186 | 0.41 | 0.05 | 0.00 | N/A |
| 80 | VH581087 | 0.61 | 0.04 | 0.00 | N/A |
| 81 | VH579512 | 0.57 | 0.03 | 0.00 | N/A |
| 82 | VH588439 | 0.58 | 0.03 | 0.00 | N/A |
| 83 | VH584200 | 0.55 | 0.04 | 0.00 | N/A |
| 84 | VH574425 | 0.00 | N/A | 0.81 | 0.05 |
| 85 | VH575002 | 0.00 | N/A | 0.79 | 0.04 |
| 86 | VH574991 | 0.00 | N/A | 0.67 | 0.06 |
| 87 | VH574996 | 0.00 | N/A | 0.87 | 0.03 |
| 88 | VH574982 | 0.00 | N/A | 0.80 | 0.05 |
| 89 | VH575007 | 0.00 | N/A | 0.80 | 0.04 |
| 90 | VH578954 | 0.00 | N/A | 0.68 | 0.04 |
| 91 | VH581130 | 0.00 | N/A | 0.83 | 0.03 |
| 92 | VH581120 | 0.00 | N/A | 0.61 | 0.04 |
| 93 | VH581200 | 0.00 | N/A | 0.81 | 0.03 |
| 94 | VH581134 | 0.00 | N/A | 0.34 | 0.04 |
| 95 | VH581212 | 0.00 | N/A | 0.83 | 0.03 |
| 96 | VH590634 | 0.00 | N/A | 0.30 | 0.06 |
| 97 | VH590639 | 0.00 | N/A | 0.65 | 0.04 |
| 98 | VH590644 | 0.00 | N/A | 0.57 | 0.05 |
| 99 | VH590676 | 0.00 | N/A | 0.37 | 0.04 |
| 100 | VH590678 | 0.00 | N/A | 0.56 | 0.04 |
| 101 | VH590679 | 0.00 | N/A | 0.70 | 0.03 |
| 102 | VH591632 | 0.00 | N/A | 0.73 | 0.03 |
| 103 | VH591639 | 0.00 | N/A | 0.76 | 0.03 |
| 104 | VH591644 | 0.00 | N/A | 0.69 | 0.03 |
| 105 | VH591647 | 0.00 | N/A | 0.79 | 0.03 |
| 106 | VH591678 | 0.00 | N/A | 0.64 | 0.05 |
| 107 | VH591682 | 0.00 | N/A | 0.65 | 0.04 |
| 108 | VH591684 | 0.00 | N/A | 0.73 | 0.04 |
| 109 | VH591685 | 0.00 | N/A | 0.67 | 0.05 |
| 110 | VH591770 | 0.00 | N/A | 0.57 | 0.04 |
| 111 | VH591772 | 0.00 | N/A | 0.61 | 0.04 |
| 112 | VH591773 | 0.00 | N/A | 0.68 | 0.03 |
| 113 | VH591774 | 0.00 | N/A | 0.73 | 0.03 |
| 114 | VH575137 | 0.00 | N/A | 0.79 | 0.04 |
| 115 | VH575138 | 0.00 | N/A | 0.82 | 0.04 |
| 116 | VH575147 | 0.00 | N/A | 0.69 | 0.04 |
| 117 | VH581123 | 0.00 | N/A | 0.69 | 0.03 |

Table 1.10 *(continuation three)*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | Accession Number | Lambda 1 | Standard Error | Lambda 2 | Standard Error |
| 118 | VH581133 | 0.00 | N/A | 0.79 | 0.03 |
| 119 | VH581126 | 0.00 | N/A | 0.59 | 0.04 |
| 120 | VH590689 | 0.00 | N/A | 0.66 | 0.03 |
| 121 | VH590692 | 0.00 | N/A | 0.75 | 0.03 |
| 122 | VH590693 | 0.00 | N/A | 0.19 | 0.04 |
| 123 | VH591657 | 0.00 | N/A | 0.81 | 0.02 |
| 124 | VH591666 | 0.00 | N/A | 0.50 | 0.04 |
| 125 | VH591671 | 0.00 | N/A | 0.77 | 0.03 |
| 126 | VH591672 | 0.00 | N/A | 0.77 | 0.03 |
| 127 | VH591660 | 0.00 | N/A | 0.73 | 0.04 |
| 128 | VH591662 | 0.00 | N/A | 0.66 | 0.04 |
| 129 | VH591663 | 0.00 | N/A | 0.43 | 0.05 |
| 130 | VH591664 | 0.00 | N/A | 0.69 | 0.04 |
| 131 | VH575159 | 0.00 | N/A | 0.79 | 0.04 |
| 132 | VH575132 | 0.00 | N/A | 0.84 | 0.03 |
| 133 | VH575144 | 0.00 | N/A | 0.83 | 0.03 |
| 134 | VH581192 | 0.00 | N/A | 0.85 | 0.03 |
| 135 | VH581209 | 0.00 | N/A | 0.85 | 0.02 |
| 136 | VH581206 | 0.00 | N/A | 0.82 | 0.03 |
| 137 | VH590652 | 0.00 | N/A | 0.58 | 0.05 |
| 138 | VH590654 | 0.00 | N/A | 0.72 | 0.04 |
| 139 | VH590657 | 0.00 | N/A | 0.63 | 0.04 |
| 140 | VH591559 | 0.00 | N/A | 0.66 | 0.04 |
| 141 | VH591566 | 0.00 | N/A | 0.76 | 0.04 |
| 142 | VH591573 | 0.00 | N/A | 0.64 | 0.05 |
| 143 | VH591579 | 0.00 | N/A | 0.56 | 0.04 |
| 144 | VH590066 | 0.00 | N/A | 0.57 | 0.05 |
| 145 | VH590098 | 0.00 | N/A | 0.81 | 0.03 |
| 146 | VH590100 | 0.00 | N/A | 0.48 | 0.05 |
| 147 | VH590104 | 0.00 | N/A | 0.70 | 0.04 |
| 148 | VH589177 | 0.00 | N/A | 0.54 | 0.05 |
| 149 | VH589178 | 0.00 | N/A | 0.42 | 0.05 |
| 150 | VH589201 | 0.00 | N/A | 0.63 | 0.04 |
| 151 | VH573925 | 0.00 | N/A | 0.68 | 0.04 |
| 152 | VH573927 | 0.00 | N/A | 0.67 | 0.04 |
| 153 | VH573930 | 0.00 | N/A | 0.75 | 0.02 |
| 154 | VH573933 | 0.00 | N/A | 0.45 | 0.03 |
| 155 | VH575042 | 0.00 | N/A | 0.67 | 0.04 |
| 156 | VH575047 | 0.00 | N/A | 0.60 | 0.04 |

Table 1.10 *(continuation four)*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | Accession Number | Lambda 1 | Standard Error | Lambda 2 | Standard Error |
| 157 | VH575048 | 0.00 | N/A | 0.72 | 0.02 |
| 158 | VH575060 | 0.00 | N/A | 0.50 | 0.02 |
| 159 | VH581409 | 0.00 | N/A | 0.69 | 0.03 |
| 160 | VH581417 | 0.00 | N/A | 0.46 | 0.03 |
| 161 | VH581430 | 0.00 | N/A | 0.72 | 0.03 |
| 162 | VH589142 | 0.00 | N/A | 0.63 | 0.04 |
| 163 | VH589144 | 0.00 | N/A | 0.53 | 0.05 |
| 164 | VH589146 | 0.00 | N/A | 0.63 | 0.04 |
| 165 | VH576303 | 0.00 | N/A | 0.76 | 0.04 |
| 166 | VH576316 | 0.00 | N/A | 0.67 | 0.04 |
| 167 | VH576324 | 0.00 | N/A | 0.60 | 0.03 |
| 168 | VH576547 | 0.00 | N/A | 0.47 | 0.03 |
| 169 | VH581433 | 0.00 | N/A | 0.69 | 0.04 |
| 170 | VH588717 | 0.00 | N/A | 0.71 | 0.02 |
| 171 | VH588719 | 0.00 | N/A | 0.69 | 0.03 |
| 172 | VH588721 | 0.00 | N/A | 0.67 | 0.03 |
| 173 | VH581499 | 0.00 | N/A | 0.79 | 0.03 |
| 174 | VH581501 | 0.00 | N/A | 0.63 | 0.04 |
| 175 | VH581435 | 0.00 | N/A | 0.65 | 0.04 |

Table 1.11 Factor Loadings of Two-Factor Model for Grade Span Three Through Five

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | Accession Number | Lambda 1 | Standard Error | Lambda 2 | Standard Error |
| 1 | VH574939 | 0.52 | 0.06 | 0.00 | N/A |
| 2 | VH574683 | 0.27 | 0.06 | 0.00 | N/A |
| 3 | VH575208 | 0.33 | 0.05 | 0.00 | N/A |
| 4 | VH575216 | 0.36 | 0.06 | 0.00 | N/A |
| 5 | VH582493 | 0.42 | 0.05 | 0.00 | N/A |
| 6 | VH582498 | 0.39 | 0.06 | 0.00 | N/A |
| 7 | VH582505 | 0.55 | 0.05 | 0.00 | N/A |
| 8 | VH570906 | 0.23 | 0.05 | 0.00 | N/A |
| 9 | VH570907 | 0.45 | 0.06 | 0.00 | N/A |
| 10 | VH570909 | 0.43 | 0.06 | 0.00 | N/A |
| 11 | VH582528 | 0.41 | 0.06 | 0.00 | N/A |
| 12 | VH582533 | 0.42 | 0.07 | 0.00 | N/A |
| 13 | VH582540 | 0.50 | 0.07 | 0.00 | N/A |
| 14 | VH589432 | 0.41 | 0.06 | 0.00 | N/A |
| 15 | VH589434 | 0.59 | 0.05 | 0.00 | N/A |
| 16 | VH589438 | 0.43 | 0.05 | 0.00 | N/A |
| 17 | VH593776 | 0.38 | 0.05 | 0.00 | N/A |
| 18 | VH593796 | 0.47 | 0.07 | 0.00 | N/A |
| 19 | VH593803 | 0.29 | 0.04 | 0.00 | N/A |
| 20 | VH593815 | 0.32 | 0.05 | 0.00 | N/A |
| 21 | VH594341 | 0.42 | 0.06 | 0.00 | N/A |
| 22 | VH594345 | 0.21 | 0.06 | 0.00 | N/A |
| 23 | VH594352 | 0.26 | 0.06 | 0.00 | N/A |
| 24 | VH594358 | 0.32 | 0.06 | 0.00 | N/A |
| 25 | VH575204 | 0.40 | 0.06 | 0.00 | N/A |
| 26 | VH575303 | 0.48 | 0.06 | 0.00 | N/A |
| 27 | VH576581 | 0.58 | 0.07 | 0.00 | N/A |
| 28 | VH576591 | 0.53 | 0.07 | 0.00 | N/A |
| 29 | VH576596 | 0.38 | 0.08 | 0.00 | N/A |
| 30 | VH585392 | 0.50 | 0.06 | 0.00 | N/A |
| 31 | VH585393 | 0.48 | 0.07 | 0.00 | N/A |
| 32 | VH585394 | 0.39 | 0.07 | 0.00 | N/A |
| 33 | VH594444 | 0.34 | 0.07 | 0.00 | N/A |
| 34 | VH594446 | 0.33 | 0.07 | 0.00 | N/A |
| 35 | VH594448 | 0.22 | 0.07 | 0.00 | N/A |
| 36 | VH594450 | 0.26 | 0.06 | 0.00 | N/A |
| 37 | VH574679 | 0.46 | 0.05 | 0.00 | N/A |
| 38 | VH579818 | 0.50 | 0.05 | 0.00 | N/A |
| 39 | VH579819 | 0.39 | 0.05 | 0.00 | N/A |

Table 1.11 *(continuation one)*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | Accession Number | Lambda 1 | Standard Error | Lambda 2 | Standard Error |
| 40 | VH579827 | 0.55 | 0.05 | 0.00 | N/A |
| 41 | VH585403 | 0.55 | 0.08 | 0.00 | N/A |
| 42 | VH585404 | 0.28 | 0.07 | 0.00 | N/A |
| 43 | VH585406 | 0.42 | 0.06 | 0.00 | N/A |
| 44 | VH594033 | 0.44 | 0.05 | 0.00 | N/A |
| 45 | VH594038 | 0.46 | 0.05 | 0.00 | N/A |
| 46 | VH594044 | 0.40 | 0.04 | 0.00 | N/A |
| 47 | VH594050 | 0.33 | 0.04 | 0.00 | N/A |
| 48 | VH574902 | 0.58 | 0.10 | 0.00 | N/A |
| 49 | VH575023 | 0.47 | 0.09 | 0.00 | N/A |
| 50 | VH575149 | 0.59 | 0.10 | 0.00 | N/A |
| 51 | VH585382 | 0.48 | 0.10 | 0.00 | N/A |
| 52 | VH585383 | 0.57 | 0.07 | 0.00 | N/A |
| 53 | VH585384 | 0.37 | 0.08 | 0.00 | N/A |
| 54 | VH586306 | 0.80 | 0.07 | 0.00 | N/A |
| 55 | VH586345 | 0.73 | 0.08 | 0.00 | N/A |
| 56 | VH586422 | 0.44 | 0.09 | 0.00 | N/A |
| 57 | VH586429 | 0.39 | 0.05 | 0.00 | N/A |
| 58 | VH586473 | 0.53 | 0.09 | 0.00 | N/A |
| 59 | VH586518 | 0.37 | 0.06 | 0.00 | N/A |
| 60 | VH572856 | 0.52 | 0.04 | 0.00 | N/A |
| 61 | VH573202 | 0.45 | 0.05 | 0.00 | N/A |
| 62 | VH573004 | 0.46 | 0.04 | 0.00 | N/A |
| 63 | VH570625 | 0.58 | 0.03 | 0.00 | N/A |
| 64 | VH572600 | 0.62 | 0.04 | 0.00 | N/A |
| 65 | VH589504 | 0.60 | 0.03 | 0.00 | N/A |
| 66 | VH589511 | 0.56 | 0.03 | 0.00 | N/A |
| 67 | VH582731 | 0.61 | 0.04 | 0.00 | N/A |
| 68 | VH586556 | 0.64 | 0.11 | 0.00 | N/A |
| 69 | VH586569 | 0.70 | 0.08 | 0.00 | N/A |
| 70 | VH586574 | 0.52 | 0.27 | 0.00 | N/A |
| 71 | VH586585 | 0.54 | 0.08 | 0.00 | N/A |
| 72 | VH586592 | 0.55 | 0.08 | 0.00 | N/A |
| 73 | VH586589 | 0.35 | 0.06 | 0.00 | N/A |
| 74 | VH588315 | 0.48 | 0.06 | 0.00 | N/A |
| 75 | VH573274 | 0.52 | 0.05 | 0.00 | N/A |
| 76 | VH572692 | 0.54 | 0.04 | 0.00 | N/A |
| 77 | VH589600 | 0.57 | 0.04 | 0.00 | N/A |
| 78 | VH587179 | 0.50 | 0.05 | 0.00 | N/A |

Table 1.11 *(continuation two)*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | Accession Number | Lambda 1 | Standard Error | Lambda 2 | Standard Error |
| 79 | VH573185 | 0.55 | 0.04 | 0.00 | N/A |
| 80 | VH587882 | 0.51 | 0.05 | 0.00 | N/A |
| 81 | VH586404 | 0.70 | 0.08 | 0.00 | N/A |
| 82 | VH586416 | 0.59 | 0.08 | 0.00 | N/A |
| 83 | VH586419 | 0.64 | 0.11 | 0.00 | N/A |
| 84 | VH586440 | 0.52 | 0.07 | 0.00 | N/A |
| 85 | VH586450 | 0.58 | 0.06 | 0.00 | N/A |
| 86 | VH586452 | 0.42 | 0.06 | 0.00 | N/A |
| 87 | VH587577 | 0.00 | N/A | 0.65 | 0.07 |
| 88 | VH583935 | 0.00 | N/A | 0.64 | 0.06 |
| 89 | VH594168 | 0.00 | N/A | 0.71 | 0.03 |
| 90 | VH594170 | 0.00 | N/A | 0.51 | 0.04 |
| 91 | VH594172 | 0.00 | N/A | 0.55 | 0.04 |
| 92 | VH594176 | 0.00 | N/A | 0.50 | 0.04 |
| 93 | VH593846 | 0.00 | N/A | 0.55 | 0.03 |
| 94 | VH593851 | 0.00 | N/A | 0.53 | 0.04 |
| 95 | VH593897 | 0.00 | N/A | 0.61 | 0.03 |
| 96 | VH593908 | 0.00 | N/A | 0.38 | 0.04 |
| 97 | VH583165 | 0.00 | N/A | 0.33 | 0.06 |
| 98 | VH583192 | 0.00 | N/A | 0.25 | 0.06 |
| 99 | VH583239 | 0.00 | N/A | 0.24 | 0.06 |
| 100 | VH583255 | 0.00 | N/A | 0.21 | 0.06 |
| 101 | VH583263 | 0.00 | N/A | 0.20 | 0.06 |
| 102 | VH583927 | 0.00 | N/A | 0.46 | 0.05 |
| 103 | VH583274 | 0.00 | N/A | 0.42 | 0.05 |
| 104 | VH590856 | 0.00 | N/A | 0.45 | 0.04 |
| 105 | VH590862 | 0.00 | N/A | 0.46 | 0.04 |
| 106 | VH590884 | 0.00 | N/A | 0.43 | 0.04 |
| 107 | VH590890 | 0.00 | N/A | 0.54 | 0.04 |
| 108 | VH590896 | 0.00 | N/A | 0.74 | 0.03 |
| 109 | VH590920 | 0.00 | N/A | 0.53 | 0.04 |
| 110 | VH590925 | 0.00 | N/A | 0.66 | 0.03 |
| 111 | VH593500 | 0.00 | N/A | 0.46 | 0.05 |
| 112 | VH593505 | 0.00 | N/A | 0.39 | 0.05 |
| 113 | VH593510 | 0.00 | N/A | 0.02 | 0.06 |
| 114 | VH593517 | 0.00 | N/A | 0.36 | 0.05 |
| 115 | VH593536 | 0.00 | N/A | 0.32 | 0.06 |
| 116 | VH593544 | 0.00 | N/A | 0.37 | 0.05 |
| 117 | VH585440 | 0.00 | N/A | 0.34 | 0.06 |

Table 1.11 *(continuation three)*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | Accession Number | Lambda 1 | Standard Error | Lambda 2 | Standard Error |
| 118 | VH585442 | 0.00 | N/A | 0.38 | 0.04 |
| 119 | VH594157 | 0.00 | N/A | 0.51 | 0.04 |
| 120 | VH594158 | 0.00 | N/A | 0.44 | 0.04 |
| 121 | VH594160 | 0.00 | N/A | 0.18 | 0.04 |
| 122 | VH633339 | 0.00 | N/A | 0.49 | 0.04 |
| 123 | VH583964 | 0.00 | N/A | 0.58 | 0.05 |
| 124 | VH583968 | 0.00 | N/A | 0.07 | 0.07 |
| 125 | VH583980 | 0.00 | N/A | 0.58 | 0.05 |
| 126 | VH583985 | 0.00 | N/A | 0.10 | 0.07 |
| 127 | VH584001 | 0.00 | N/A | 0.58 | 0.05 |
| 128 | VH584005 | 0.00 | N/A | 0.33 | 0.06 |
| 129 | VH584007 | 0.00 | N/A | 0.15 | 0.06 |
| 130 | VH593446 | 0.00 | N/A | 0.64 | 0.04 |
| 131 | VH593450 | 0.00 | N/A | 0.41 | 0.06 |
| 132 | VH593454 | 0.00 | N/A | 0.42 | 0.05 |
| 133 | VH593464 | 0.00 | N/A | 0.39 | 0.06 |
| 134 | VH593470 | 0.00 | N/A | 0.43 | 0.06 |
| 135 | VH593477 | 0.00 | N/A | 0.38 | 0.06 |
| 136 | VH586185 | 0.00 | N/A | 0.75 | 0.06 |
| 137 | VH585437 | 0.00 | N/A | 0.47 | 0.06 |
| 138 | VH583431 | 0.00 | N/A | 0.32 | 0.04 |
| 139 | VH583705 | 0.00 | N/A | 0.34 | 0.04 |
| 140 | VH583715 | 0.00 | N/A | 0.39 | 0.04 |
| 141 | VH583861 | 0.00 | N/A | 0.45 | 0.04 |
| 142 | VH583874 | 0.00 | N/A | 0.36 | 0.04 |
| 143 | VH583885 | 0.00 | N/A | 0.15 | 0.04 |
| 144 | VH583896 | 0.00 | N/A | 0.21 | 0.04 |
| 145 | VH592042 | 0.00 | N/A | 0.70 | 0.05 |
| 146 | VH592062 | 0.00 | N/A | 0.58 | 0.05 |
| 147 | VH592066 | 0.00 | N/A | 0.63 | 0.05 |
| 148 | VH592075 | 0.00 | N/A | 0.62 | 0.05 |
| 149 | VH592077 | 0.00 | N/A | 0.58 | 0.05 |
| 150 | VH592080 | 0.00 | N/A | 0.68 | 0.05 |
| 151 | VH592083 | 0.00 | N/A | 0.52 | 0.05 |
| 152 | VH593545 | 0.00 | N/A | 0.52 | 0.05 |
| 153 | VH593555 | 0.00 | N/A | 0.64 | 0.05 |
| 154 | VH593564 | 0.00 | N/A | 0.41 | 0.06 |
| 155 | VH593578 | 0.00 | N/A | 0.39 | 0.06 |
| 156 | VH593614 | 0.00 | N/A | 0.07 | 0.07 |

Table 1.11 *(continuation four)*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | Accession Number | Lambda 1 | Standard Error | Lambda 2 | Standard Error |
| 157 | VH593627 | 0.00 | N/A | 0.39 | 0.05 |
| 158 | VH593753 | 0.00 | N/A | 0.50 | 0.05 |
| 159 | VH583159 | 0.00 | N/A | 0.42 | 0.03 |
| 160 | VH583163 | 0.00 | N/A | 0.52 | 0.03 |
| 161 | VH583170 | 0.00 | N/A | 0.40 | 0.03 |
| 162 | VH583174 | 0.00 | N/A | 0.50 | 0.03 |
| 163 | VH574735 | 0.00 | N/A | 0.47 | 0.03 |
| 164 | VH573816 | 0.00 | N/A | 0.54 | 0.03 |
| 165 | VH631617 | 0.00 | N/A | 0.56 | 0.03 |
| 166 | VH631621 | 0.00 | N/A | 0.54 | 0.03 |
| 167 | VH631647 | 0.00 | N/A | 0.57 | 0.03 |
| 168 | VH631650 | 0.00 | N/A | 0.58 | 0.03 |
| 169 | VH575888 | 0.00 | N/A | 0.50 | 0.04 |
| 170 | VH581290 | 0.00 | N/A | 0.28 | 0.05 |
| 171 | VH581300 | 0.00 | N/A | 0.52 | 0.05 |
| 172 | VH581309 | 0.00 | N/A | 0.37 | 0.05 |
| 173 | VH581314 | 0.00 | N/A | 0.39 | 0.05 |
| 174 | VH573070 | 0.00 | N/A | 0.49 | 0.03 |
| 175 | VH631658 | 0.00 | N/A | 0.51 | 0.03 |
| 176 | VH631663 | 0.00 | N/A | 0.58 | 0.03 |
| 177 | VH575157 | 0.00 | N/A | 0.49 | 0.04 |
| 178 | VH583183 | 0.00 | N/A | 0.39 | 0.05 |
| 179 | VH583207 | 0.00 | N/A | 0.39 | 0.05 |
| 180 | VH583212 | 0.00 | N/A | 0.39 | 0.06 |
| 181 | VH583220 | 0.00 | N/A | 0.45 | 0.05 |
| 182 | VH576052 | 0.00 | N/A | 0.54 | 0.03 |

Table 1.12 Factor Loadings of Two-Factor Model for Grade Span Six Through Eight

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | Accession Number | Lambda 1 | Standard Error | Lambda 2 | Standard Error |
| 1 | VH574684 | 0.44 | 0.05 | 0.00 | N/A |
| 2 | VH575433 | 0.16 | 0.05 | 0.00 | N/A |
| 3 | VH575462 | 0.48 | 0.09 | 0.00 | N/A |
| 4 | VH575068 | 0.39 | 0.06 | 0.00 | N/A |
| 5 | VH575116 | 0.20 | 0.06 | 0.00 | N/A |
| 6 | VH575121 | 0.51 | 0.08 | 0.00 | N/A |
| 7 | VH592775 | 0.33 | 0.05 | 0.00 | N/A |
| 8 | VH592777 | 0.32 | 0.05 | 0.00 | N/A |
| 9 | VH592779 | 0.13 | 0.05 | 0.00 | N/A |
| 10 | VH592783 | 0.34 | 0.05 | 0.00 | N/A |
| 11 | VH592785 | 0.26 | 0.05 | 0.00 | N/A |
| 12 | VH592863 | 0.41 | 0.05 | 0.00 | N/A |
| 13 | VH592872 | 0.38 | 0.04 | 0.00 | N/A |
| 14 | VH592878 | 0.29 | 0.05 | 0.00 | N/A |
| 15 | VH592884 | 0.31 | 0.04 | 0.00 | N/A |
| 16 | VH592896 | 0.32 | 0.04 | 0.00 | N/A |
| 17 | VH587161 | 0.44 | 0.05 | 0.00 | N/A |
| 18 | VH587175 | 0.41 | 0.05 | 0.00 | N/A |
| 19 | VH587183 | 0.12 | 0.05 | 0.00 | N/A |
| 20 | VH587222 | 0.44 | 0.05 | 0.00 | N/A |
| 21 | VH587223 | 0.47 | 0.05 | 0.00 | N/A |
| 22 | VH585631 | 0.41 | 0.05 | 0.00 | N/A |
| 23 | VH585653 | 0.31 | 0.04 | 0.00 | N/A |
| 24 | VH585659 | 0.42 | 0.04 | 0.00 | N/A |
| 25 | VH585681 | 0.30 | 0.04 | 0.00 | N/A |
| 26 | VH585683 | 0.23 | 0.04 | 0.00 | N/A |
| 27 | VH574717 | 0.35 | 0.07 | 0.00 | N/A |
| 28 | VH575120 | 0.34 | 0.07 | 0.00 | N/A |
| 29 | VH575122 | 0.34 | 0.07 | 0.00 | N/A |
| 30 | VH575124 | 0.26 | 0.07 | 0.00 | N/A |
| 31 | VH592977 | 0.29 | 0.05 | 0.00 | N/A |
| 32 | VH592984 | 0.08 | 0.05 | 0.00 | N/A |
| 33 | VH593022 | 0.29 | 0.05 | 0.00 | N/A |
| 34 | VH593024 | 0.19 | 0.05 | 0.00 | N/A |
| 35 | VH593029 | 0.09 | 0.05 | 0.00 | N/A |
| 36 | VH585577 | 0.39 | 0.06 | 0.00 | N/A |
| 37 | VH585579 | 0.18 | 0.05 | 0.00 | N/A |
| 38 | VH585583 | 0.48 | 0.05 | 0.00 | N/A |
| 39 | VH585586 | 0.30 | 0.05 | 0.00 | N/A |

Table 1.12 *(continuation one)*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | Accession Number | Lambda 1 | Standard Error | Lambda 2 | Standard Error |
| 40 | VH585597 | 0.30 | 0.05 | 0.00 | N/A |
| 41 | VH575040 | 0.66 | 0.04 | 0.00 | N/A |
| 42 | VH575399 | 0.30 | 0.05 | 0.00 | N/A |
| 43 | VH575067 | 0.58 | 0.11 | 0.00 | N/A |
| 44 | VH575110 | 0.43 | 0.10 | 0.00 | N/A |
| 45 | VH575112 | 0.34 | 0.08 | 0.00 | N/A |
| 46 | VH575114 | 0.42 | 0.10 | 0.00 | N/A |
| 47 | VH586687 | 0.43 | 0.04 | 0.00 | N/A |
| 48 | VH587095 | 0.38 | 0.05 | 0.00 | N/A |
| 49 | VH587018 | 0.59 | 0.05 | 0.00 | N/A |
| 50 | VH587022 | 0.35 | 0.05 | 0.00 | N/A |
| 51 | VH587100 | 0.55 | 0.04 | 0.00 | N/A |
| 52 | VH574708 | 0.48 | 0.09 | 0.00 | N/A |
| 53 | VH586468 | 0.83 | 0.06 | 0.00 | N/A |
| 54 | VH586472 | 0.84 | 0.06 | 0.00 | N/A |
| 55 | VH586476 | 0.70 | 0.06 | 0.00 | N/A |
| 56 | VH586478 | 0.73 | 0.06 | 0.00 | N/A |
| 57 | VH586496 | 0.63 | 0.05 | 0.00 | N/A |
| 58 | VH586500 | 0.60 | 0.05 | 0.00 | N/A |
| 59 | VH573015 | 0.58 | 0.04 | 0.00 | N/A |
| 60 | VH573426 | 0.61 | 0.04 | 0.00 | N/A |
| 61 | VH573022 | 0.68 | 0.04 | 0.00 | N/A |
| 62 | VH573439 | 0.65 | 0.04 | 0.00 | N/A |
| 63 | VH573085 | 0.65 | 0.03 | 0.00 | N/A |
| 64 | VH572824 | 0.67 | 0.03 | 0.00 | N/A |
| 65 | VH570113 | 0.55 | 0.05 | 0.00 | N/A |
| 66 | VH570166 | 0.49 | 0.05 | 0.00 | N/A |
| 67 | VH588064 | 0.60 | 0.04 | 0.00 | N/A |
| 68 | VH586576 | 0.78 | 0.07 | 0.00 | N/A |
| 69 | VH586580 | 0.69 | 0.08 | 0.00 | N/A |
| 70 | VH586583 | 0.70 | 0.06 | 0.00 | N/A |
| 71 | VH586587 | 0.60 | 0.05 | 0.00 | N/A |
| 72 | VH586591 | 0.60 | 0.06 | 0.00 | N/A |
| 73 | VH586593 | 0.58 | 0.06 | 0.00 | N/A |
| 74 | VH573303 | 0.60 | 0.04 | 0.00 | N/A |
| 75 | VH573017 | 0.52 | 0.04 | 0.00 | N/A |
| 76 | VH572624 | 0.61 | 0.03 | 0.00 | N/A |
| 77 | VH574641 | 0.61 | 0.04 | 0.00 | N/A |
| 78 | VH574643 | 0.55 | 0.04 | 0.00 | N/A |

Table 1.12 *(continuation two)*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | Accession Number | Lambda 1 | Standard Error | Lambda 2 | Standard Error |
| 79 | VH587883 | 0.60 | 0.04 | 0.00 | N/A |
| 80 | VH586602 | 0.83 | 0.07 | 0.00 | N/A |
| 81 | VH586605 | 0.73 | 0.13 | 0.00 | N/A |
| 82 | VH586613 | 0.65 | 0.10 | 0.00 | N/A |
| 83 | VH586621 | 0.50 | 0.06 | 0.00 | N/A |
| 84 | VH586625 | 0.69 | 0.05 | 0.00 | N/A |
| 85 | VH586642 | 0.38 | 0.06 | 0.00 | N/A |
| 86 | VH573357 | 0.60 | 0.04 | 0.00 | N/A |
| 87 | VH573363 | 0.58 | 0.04 | 0.00 | N/A |
| 88 | VH587770 | 0.54 | 0.04 | 0.00 | N/A |
| 89 | VH594022 | 0.00 | N/A | 0.55 | 0.04 |
| 90 | VH594026 | 0.00 | N/A | 0.35 | 0.05 |
| 91 | VH594030 | 0.00 | N/A | 0.28 | 0.04 |
| 92 | VH594035 | 0.00 | N/A | 0.37 | 0.04 |
| 93 | VH594085 | 0.00 | N/A | 0.28 | 0.06 |
| 94 | VH594089 | 0.00 | N/A | 0.49 | 0.06 |
| 95 | VH594090 | 0.00 | N/A | 0.37 | 0.06 |
| 96 | VH594091 | 0.00 | N/A | 0.27 | 0.07 |
| 97 | VH584012 | 0.00 | N/A | 0.48 | 0.06 |
| 98 | VH584014 | 0.00 | N/A | 0.54 | 0.06 |
| 99 | VH584015 | 0.00 | N/A | 0.37 | 0.06 |
| 100 | VH584016 | 0.00 | N/A | 0.33 | 0.06 |
| 101 | VH584018 | 0.00 | N/A | 0.29 | 0.06 |
| 102 | VH584019 | 0.00 | N/A | 0.23 | 0.06 |
| 103 | VH584025 | 0.00 | N/A | 0.40 | 0.06 |
| 104 | VH584026 | 0.00 | N/A | 0.38 | 0.06 |
| 105 | VH584028 | 0.00 | N/A | 0.42 | 0.06 |
| 106 | VH592127 | 0.00 | N/A | 0.47 | 0.04 |
| 107 | VH592132 | 0.00 | N/A | 0.26 | 0.04 |
| 108 | VH592142 | 0.00 | N/A | 0.45 | 0.04 |
| 109 | VH592152 | 0.00 | N/A | 0.51 | 0.04 |
| 110 | VH592159 | 0.00 | N/A | 0.51 | 0.04 |
| 111 | VH592161 | 0.00 | N/A | 0.49 | 0.04 |
| 112 | VH592168 | 0.00 | N/A | 0.48 | 0.04 |
| 113 | VH593530 | 0.00 | N/A | 0.18 | 0.05 |
| 114 | VH593538 | 0.00 | N/A | 0.20 | 0.04 |
| 115 | VH593546 | 0.00 | N/A | 0.36 | 0.04 |
| 116 | VH593550 | 0.00 | N/A | 0.28 | 0.04 |
| 117 | VH593560 | 0.00 | N/A | 0.43 | 0.04 |

Table 1.12 *(continuation three)*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | Accession Number | Lambda 1 | Standard Error | Lambda 2 | Standard Error |
| 118 | VH593565 | 0.00 | N/A | 0.12 | 0.05 |
| 119 | VH593574 | 0.00 | N/A | 0.14 | 0.04 |
| 120 | VH593976 | 0.00 | N/A | 0.34 | 0.06 |
| 121 | VH593990 | 0.00 | N/A | 0.36 | 0.06 |
| 122 | VH593996 | 0.00 | N/A | 0.30 | 0.06 |
| 123 | VH594001 | 0.00 | N/A | 0.33 | 0.06 |
| 124 | VH583925 | 0.00 | N/A | 0.52 | 0.04 |
| 125 | VH583931 | 0.00 | N/A | 0.24 | 0.05 |
| 126 | VH583936 | 0.00 | N/A | 0.28 | 0.04 |
| 127 | VH583951 | 0.00 | N/A | 0.36 | 0.04 |
| 128 | VH583960 | 0.00 | N/A | 0.24 | 0.05 |
| 129 | VH584093 | 0.00 | N/A | 0.27 | 0.05 |
| 130 | VH584107 | 0.00 | N/A | 0.35 | 0.04 |
| 131 | VH584120 | 0.00 | N/A | 0.53 | 0.04 |
| 132 | VH614051 | 0.00 | N/A | 0.42 | 0.06 |
| 133 | VH614058 | 0.00 | N/A | 0.45 | 0.06 |
| 134 | VH614059 | 0.00 | N/A | 0.17 | 0.06 |
| 135 | VH614061 | 0.00 | N/A | 0.21 | 0.07 |
| 136 | VH614062 | 0.00 | N/A | 0.14 | 0.07 |
| 137 | VH614067 | 0.00 | N/A | 0.46 | 0.06 |
| 138 | VH614071 | 0.00 | N/A | 0.49 | 0.06 |
| 139 | VH593310 | 0.00 | N/A | 0.16 | 0.05 |
| 140 | VH593323 | 0.00 | N/A | 0.19 | 0.05 |
| 141 | VH593328 | 0.00 | N/A | 0.49 | 0.05 |
| 142 | VH593338 | 0.00 | N/A | 0.26 | 0.04 |
| 143 | VH592766 | 0.00 | N/A | 0.35 | 0.06 |
| 144 | VH592767 | 0.00 | N/A | 0.49 | 0.06 |
| 145 | VH592768 | 0.00 | N/A | 0.38 | 0.06 |
| 146 | VH592770 | 0.00 | N/A | 0.50 | 0.06 |
| 147 | VH592771 | 0.00 | N/A | 0.33 | 0.06 |
| 148 | VH592773 | 0.00 | N/A | 0.40 | 0.06 |
| 149 | VH592774 | 0.00 | N/A | 0.10 | 0.06 |
| 150 | VH583249 | 0.00 | N/A | 0.36 | 0.06 |
| 151 | VH583283 | 0.00 | N/A | 0.54 | 0.05 |
| 152 | VH583296 | 0.00 | N/A | 0.47 | 0.05 |
| 153 | VH583321 | 0.00 | N/A | 0.45 | 0.05 |
| 154 | VH573831 | 0.00 | N/A | 0.50 | 0.03 |
| 155 | VH574196 | 0.00 | N/A | 0.52 | 0.03 |
| 156 | VH577846 | 0.00 | N/A | 0.48 | 0.04 |

Table 1.12 *(continuation four)*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | Accession Number | Lambda 1 | Standard Error | Lambda 2 | Standard Error |
| 157 | VH577860 | 0.00 | N/A | 0.53 | 0.03 |
| 158 | VH576043 | 0.00 | N/A | 0.43 | 0.04 |
| 159 | VH576047 | 0.00 | N/A | 0.49 | 0.03 |
| 160 | VH575169 | 0.00 | N/A | 0.48 | 0.04 |
| 161 | VH582315 | 0.00 | N/A | 0.40 | 0.05 |
| 162 | VH582318 | 0.00 | N/A | 0.58 | 0.05 |
| 163 | VH582321 | 0.00 | N/A | 0.45 | 0.05 |
| 164 | VH582323 | 0.00 | N/A | 0.37 | 0.05 |
| 165 | VH575964 | 0.00 | N/A | 0.56 | 0.04 |
| 166 | VH575973 | 0.00 | N/A | 0.56 | 0.03 |
| 167 | VH575895 | 0.00 | N/A | 0.55 | 0.04 |
| 168 | VH582348 | 0.00 | N/A | 0.31 | 0.06 |
| 169 | VH582350 | 0.00 | N/A | 0.50 | 0.06 |
| 170 | VH582453 | 0.00 | N/A | 0.36 | 0.06 |
| 171 | VH582455 | 0.00 | N/A | 0.47 | 0.06 |
| 172 | VH574768 | 0.00 | N/A | 0.50 | 0.03 |
| 173 | VH575173 | 0.00 | N/A | 0.51 | 0.04 |

Table 1.13 Factor Loadings of Two-Factor Model for Grade Span Nine and Ten

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | Accession Number | Lambda 1 | Standard Error | Lambda 2 | Standard Error |
| 1 | VH575075 | 0.58 | 0.05 | 0.00 | N/A |
| 2 | VH574838 | 0.24 | 0.05 | 0.00 | N/A |
| 3 | VH574410 | 0.07 | 0.04 | 0.00 | N/A |
| 4 | VH575704 | 0.39 | 0.07 | 0.00 | N/A |
| 5 | VH567844 | 0.32 | 0.06 | 0.00 | N/A |
| 6 | VH567891 | 0.19 | 0.06 | 0.00 | N/A |
| 7 | VH567899 | 0.53 | 0.06 | 0.00 | N/A |
| 8 | VH593068 | 0.36 | 0.06 | 0.00 | N/A |
| 9 | VH593083 | 0.35 | 0.06 | 0.00 | N/A |
| 10 | VH593093 | 0.43 | 0.06 | 0.00 | N/A |
| 11 | VH593104 | 0.40 | 0.06 | 0.00 | N/A |
| 12 | VH593114 | 0.37 | 0.06 | 0.00 | N/A |
| 13 | VH593202 | 0.34 | 0.04 | 0.00 | N/A |
| 14 | VH593206 | 0.38 | 0.05 | 0.00 | N/A |
| 15 | VH593218 | 0.45 | 0.04 | 0.00 | N/A |
| 16 | VH593226 | 0.30 | 0.04 | 0.00 | N/A |
| 17 | VH593230 | 0.31 | 0.04 | 0.00 | N/A |
| 18 | VH579170 | 0.18 | 0.04 | 0.00 | N/A |
| 19 | VH579175 | 0.49 | 0.04 | 0.00 | N/A |
| 20 | VH579180 | 0.52 | 0.04 | 0.00 | N/A |
| 21 | VH579185 | 0.34 | 0.04 | 0.00 | N/A |
| 22 | VH579189 | 0.38 | 0.04 | 0.00 | N/A |
| 23 | VH585396 | 0.48 | 0.04 | 0.00 | N/A |
| 24 | VH585397 | 0.39 | 0.05 | 0.00 | N/A |
| 25 | VH585398 | 0.46 | 0.04 | 0.00 | N/A |
| 26 | VH585399 | 0.48 | 0.04 | 0.00 | N/A |
| 27 | VH585400 | 0.52 | 0.05 | 0.00 | N/A |
| 28 | VH574851 | 0.40 | 0.06 | 0.00 | N/A |
| 29 | VH574731 | 0.39 | 0.06 | 0.00 | N/A |
| 30 | VH569142 | 0.50 | 0.04 | 0.00 | N/A |
| 31 | VH569145 | 0.13 | 0.04 | 0.00 | N/A |
| 32 | VH569149 | 0.47 | 0.05 | 0.00 | N/A |
| 33 | VH591571 | 0.34 | 0.07 | 0.00 | N/A |
| 34 | VH592416 | 0.33 | 0.06 | 0.00 | N/A |
| 35 | VH592422 | 0.27 | 0.06 | 0.00 | N/A |
| 36 | VH592429 | 0.33 | 0.06 | 0.00 | N/A |
| 37 | VH592434 | 0.52 | 0.06 | 0.00 | N/A |
| 38 | VH584000 | 0.49 | 0.04 | 0.00 | N/A |
| 39 | VH584037 | 0.46 | 0.05 | 0.00 | N/A |

Table 1.13 *(continuation one)*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | Accession Number | Lambda 1 | Standard Error | Lambda 2 | Standard Error |
| 40 | VH584044 | 0.40 | 0.04 | 0.00 | N/A |
| 41 | VH584047 | 0.45 | 0.04 | 0.00 | N/A |
| 42 | VH584049 | 0.50 | 0.05 | 0.00 | N/A |
| 43 | VH575078 | 0.40 | 0.04 | 0.00 | N/A |
| 44 | VH575081 | 0.38 | 0.05 | 0.00 | N/A |
| 45 | VH574720 | 0.54 | 0.04 | 0.00 | N/A |
| 46 | VH593135 | 0.34 | 0.04 | 0.00 | N/A |
| 47 | VH593142 | 0.50 | 0.04 | 0.00 | N/A |
| 48 | VH593149 | 0.28 | 0.04 | 0.00 | N/A |
| 49 | VH593161 | 0.15 | 0.04 | 0.00 | N/A |
| 50 | VH593182 | 0.35 | 0.04 | 0.00 | N/A |
| 51 | VH585427 | 0.52 | 0.05 | 0.00 | N/A |
| 52 | VH585429 | 0.53 | 0.04 | 0.00 | N/A |
| 53 | VH585431 | 0.31 | 0.04 | 0.00 | N/A |
| 54 | VH585432 | 0.25 | 0.04 | 0.00 | N/A |
| 55 | VH585433 | 0.37 | 0.04 | 0.00 | N/A |
| 56 | VH587524 | 0.79 | 0.07 | 0.00 | N/A |
| 57 | VH587533 | 0.84 | 0.04 | 0.00 | N/A |
| 58 | VH587540 | 0.86 | 0.04 | 0.00 | N/A |
| 59 | VH587546 | 0.75 | 0.04 | 0.00 | N/A |
| 60 | VH587553 | 0.71 | 0.05 | 0.00 | N/A |
| 61 | VH587561 | 0.48 | 0.04 | 0.00 | N/A |
| 62 | VH573248 | 0.72 | 0.03 | 0.00 | N/A |
| 63 | VH573040 | 0.63 | 0.03 | 0.00 | N/A |
| 64 | VH573500 | 0.62 | 0.03 | 0.00 | N/A |
| 65 | VH572682 | 0.77 | 0.03 | 0.00 | N/A |
| 66 | VH574287 | 0.72 | 0.03 | 0.00 | N/A |
| 67 | VH574569 | 0.64 | 0.03 | 0.00 | N/A |
| 68 | VH574653 | 0.71 | 0.03 | 0.00 | N/A |
| 69 | VH574655 | 0.62 | 0.03 | 0.00 | N/A |
| 70 | VH587886 | 0.60 | 0.04 | 0.00 | N/A |
| 71 | VH588901 | 0.78 | 0.04 | 0.00 | N/A |
| 72 | VH588907 | 0.75 | 0.05 | 0.00 | N/A |
| 73 | VH588922 | 0.68 | 0.07 | 0.00 | N/A |
| 74 | VH588923 | 0.52 | 0.05 | 0.00 | N/A |
| 75 | VH588925 | 0.77 | 0.04 | 0.00 | N/A |
| 76 | VH588928 | 0.71 | 0.04 | 0.00 | N/A |
| 77 | VH573250 | 0.66 | 0.03 | 0.00 | N/A |
| 78 | VH572838 | 0.67 | 0.03 | 0.00 | N/A |

Table 1.13 *(continuation two)*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | Accession Number | Lambda 1 | Standard Error | Lambda 2 | Standard Error |
| 79 | VH573602 | 0.61 | 0.03 | 0.00 | N/A |
| 80 | VH573615 | 0.63 | 0.03 | 0.00 | N/A |
| 81 | VH588228 | 0.51 | 0.04 | 0.00 | N/A |
| 82 | VH573042 | 0.73 | 0.03 | 0.00 | N/A |
| 83 | VH588078 | 0.59 | 0.04 | 0.00 | N/A |
| 84 | VH587594 | 0.85 | 0.03 | 0.00 | N/A |
| 85 | VH587603 | 0.70 | 0.05 | 0.00 | N/A |
| 86 | VH587610 | 0.86 | 0.03 | 0.00 | N/A |
| 87 | VH587619 | 0.67 | 0.04 | 0.00 | N/A |
| 88 | VH587625 | 0.85 | 0.03 | 0.00 | N/A |
| 89 | VH587631 | 0.74 | 0.04 | 0.00 | N/A |
| 90 | VH594048 | 0.00 | N/A | 0.46 | 0.06 |
| 91 | VH594052 | 0.00 | N/A | 0.28 | 0.06 |
| 92 | VH594065 | 0.00 | N/A | 0.55 | 0.05 |
| 93 | VH594068 | 0.00 | N/A | 0.49 | 0.06 |
| 94 | VH593411 | 0.00 | N/A | 0.43 | 0.04 |
| 95 | VH593413 | 0.00 | N/A | 0.35 | 0.04 |
| 96 | VH593417 | 0.00 | N/A | 0.51 | 0.04 |
| 97 | VH593422 | 0.00 | N/A | 0.42 | 0.04 |
| 98 | VH583418 | 0.00 | N/A | 0.51 | 0.04 |
| 99 | VH583439 | 0.00 | N/A | 0.38 | 0.04 |
| 100 | VH583446 | 0.00 | N/A | 0.51 | 0.04 |
| 101 | VH583451 | 0.00 | N/A | 0.52 | 0.04 |
| 102 | VH583454 | 0.00 | N/A | 0.32 | 0.04 |
| 103 | VH583458 | 0.00 | N/A | 0.38 | 0.04 |
| 104 | VH583948 | 0.00 | N/A | 0.46 | 0.04 |
| 105 | VH583462 | 0.00 | N/A | 0.11 | 0.05 |
| 106 | VH583474 | 0.00 | N/A | 0.33 | 0.04 |
| 107 | VH592780 | 0.00 | N/A | 0.42 | 0.04 |
| 108 | VH592781 | 0.00 | N/A | 0.63 | 0.03 |
| 109 | VH592782 | 0.00 | N/A | 0.35 | 0.04 |
| 110 | VH592784 | 0.00 | N/A | 0.16 | 0.05 |
| 111 | VH592786 | 0.00 | N/A | 0.28 | 0.04 |
| 112 | VH592788 | 0.00 | N/A | 0.53 | 0.04 |
| 113 | VH592789 | 0.00 | N/A | 0.55 | 0.04 |
| 114 | VH594110 | 0.00 | N/A | 0.32 | 0.06 |
| 115 | VH594114 | 0.00 | N/A | 0.44 | 0.05 |
| 116 | VH594124 | 0.00 | N/A | 0.36 | 0.06 |
| 117 | VH594128 | 0.00 | N/A | 0.52 | 0.05 |

Table 1.13 *(continuation three)*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | Accession Number | Lambda 1 | Standard Error | Lambda 2 | Standard Error |
| 118 | VH594135 | 0.00 | N/A | 0.37 | 0.06 |
| 119 | VH594142 | 0.00 | N/A | 0.49 | 0.05 |
| 120 | VH594149 | 0.00 | N/A | 0.61 | 0.05 |
| 121 | VH593308 | 0.00 | N/A | 0.38 | 0.06 |
| 122 | VH593312 | 0.00 | N/A | 0.17 | 0.06 |
| 123 | VH593315 | 0.00 | N/A | 0.48 | 0.06 |
| 124 | VH593318 | 0.00 | N/A | 0.47 | 0.05 |
| 125 | VH584145 | 0.00 | N/A | 0.56 | 0.05 |
| 126 | VH584203 | 0.00 | N/A | 0.55 | 0.05 |
| 127 | VH585289 | 0.00 | N/A | 0.30 | 0.06 |
| 128 | VH585294 | 0.00 | N/A | 0.33 | 0.06 |
| 129 | VH585291 | 0.00 | N/A | 0.22 | 0.06 |
| 130 | VH585309 | 0.00 | N/A | 0.20 | 0.06 |
| 131 | VH585314 | 0.00 | N/A | 0.36 | 0.06 |
| 132 | VH613961 | 0.00 | N/A | 0.64 | 0.04 |
| 133 | VH613990 | 0.00 | N/A | 0.45 | 0.04 |
| 134 | VH613994 | 0.00 | N/A | 0.37 | 0.04 |
| 135 | VH614007 | 0.00 | N/A | 0.53 | 0.04 |
| 136 | VH614015 | 0.00 | N/A | 0.54 | 0.04 |
| 137 | VH614027 | 0.00 | N/A | 0.39 | 0.04 |
| 138 | VH614039 | 0.00 | N/A | 0.49 | 0.04 |
| 139 | VH593586 | 0.00 | N/A | 0.48 | 0.04 |
| 140 | VH593592 | 0.00 | N/A | 0.09 | 0.04 |
| 141 | VH593598 | 0.00 | N/A | 0.48 | 0.04 |
| 142 | VH593604 | 0.00 | N/A | 0.60 | 0.03 |
| 143 | VH592017 | 0.00 | N/A | 0.54 | 0.05 |
| 144 | VH592095 | 0.00 | N/A | 0.56 | 0.05 |
| 145 | VH592114 | 0.00 | N/A | 0.51 | 0.05 |
| 146 | VH592119 | 0.00 | N/A | 0.67 | 0.04 |
| 147 | VH592126 | 0.00 | N/A | 0.68 | 0.05 |
| 148 | VH592134 | 0.00 | N/A | 0.70 | 0.04 |
| 149 | VH592144 | 0.00 | N/A | 0.55 | 0.05 |
| 150 | VH583485 | 0.00 | N/A | 0.40 | 0.05 |
| 151 | VH583487 | 0.00 | N/A | 0.55 | 0.05 |
| 152 | VH583491 | 0.00 | N/A | 0.53 | 0.05 |
| 153 | VH583496 | 0.00 | N/A | 0.52 | 0.05 |
| 154 | VH574232 | 0.00 | N/A | 0.60 | 0.03 |
| 155 | VH574247 | 0.00 | N/A | 0.54 | 0.03 |
| 156 | VH576013 | 0.00 | N/A | 0.52 | 0.03 |

Table 1.13 *(continuation four)*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | Accession Number | Lambda 1 | Standard Error | Lambda 2 | Standard Error |
| 157 | VH576020 | 0.00 | N/A | 0.55 | 0.03 |
| 158 | VH579215 | 0.00 | N/A | 0.59 | 0.03 |
| 159 | VH579227 | 0.00 | N/A | 0.59 | 0.03 |
| 160 | VH576280 | 0.00 | N/A | 0.63 | 0.04 |
| 161 | VH582495 | 0.00 | N/A | 0.42 | 0.05 |
| 162 | VH582502 | 0.00 | N/A | 0.52 | 0.05 |
| 163 | VH582506 | 0.00 | N/A | 0.44 | 0.05 |
| 164 | VH582523 | 0.00 | N/A | 0.47 | 0.05 |
| 165 | VH574782 | 0.00 | N/A | 0.55 | 0.04 |
| 166 | VH576197 | 0.00 | N/A | 0.57 | 0.03 |
| 167 | VH576200 | 0.00 | N/A | 0.55 | 0.03 |
| 168 | VH575919 | 0.00 | N/A | 0.59 | 0.04 |
| 169 | VH583459 | 0.00 | N/A | 0.38 | 0.05 |
| 170 | VH583467 | 0.00 | N/A | 0.41 | 0.06 |
| 171 | VH583471 | 0.00 | N/A | 0.37 | 0.05 |
| 172 | VH583476 | 0.00 | N/A | 0.39 | 0.06 |
| 173 | VH573880 | 0.00 | N/A | 0.56 | 0.03 |
| 174 | VH575185 | 0.00 | N/A | 0.53 | 0.04 |

Table 1.14 Factor Loadings of Two-Factor Model for Grade Span Eleven and Twelve

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | Accession Number | Lambda 1 | Standard Error | Lambda 2 | Standard Error |
| 1 | VH575718 | 0.37 | 0.08 | 0.00 | N/A |
| 2 | VH574943 | 0.53 | 0.07 | 0.00 | N/A |
| 3 | VH574959 | 0.61 | 0.05 | 0.00 | N/A |
| 4 | VH575726 | 0.10 | 0.05 | 0.00 | N/A |
| 5 | VH569169 | 0.66 | 0.08 | 0.00 | N/A |
| 6 | VH569174 | 0.44 | 0.07 | 0.00 | N/A |
| 7 | VH569178 | 0.21 | 0.07 | 0.00 | N/A |
| 8 | VH593252 | 0.38 | 0.06 | 0.00 | N/A |
| 9 | VH593264 | 0.23 | 0.07 | 0.00 | N/A |
| 10 | VH593286 | 0.33 | 0.06 | 0.00 | N/A |
| 11 | VH593268 | 0.50 | 0.06 | 0.00 | N/A |
| 12 | VH593291 | 0.39 | 0.06 | 0.00 | N/A |
| 13 | VH593368 | 0.41 | 0.05 | 0.00 | N/A |
| 14 | VH593369 | 0.46 | 0.05 | 0.00 | N/A |
| 15 | VH593370 | 0.27 | 0.05 | 0.00 | N/A |
| 16 | VH593372 | 0.09 | 0.05 | 0.00 | N/A |
| 17 | VH593375 | 0.17 | 0.05 | 0.00 | N/A |
| 18 | VH585445 | 0.46 | 0.05 | 0.00 | N/A |
| 19 | VH585447 | 0.39 | 0.04 | 0.00 | N/A |
| 20 | VH585450 | 0.48 | 0.04 | 0.00 | N/A |
| 21 | VH585451 | 0.24 | 0.05 | 0.00 | N/A |
| 22 | VH585448 | 0.31 | 0.05 | 0.00 | N/A |
| 23 | VH585456 | 0.50 | 0.05 | 0.00 | N/A |
| 24 | VH585457 | 0.47 | 0.05 | 0.00 | N/A |
| 25 | VH585458 | 0.31 | 0.05 | 0.00 | N/A |
| 26 | VH585459 | 0.30 | 0.05 | 0.00 | N/A |
| 27 | VH585460 | 0.46 | 0.04 | 0.00 | N/A |
| 28 | VH574948 | 0.39 | 0.08 | 0.00 | N/A |
| 29 | VH574951 | 0.28 | 0.07 | 0.00 | N/A |
| 30 | VH570664 | 0.29 | 0.05 | 0.00 | N/A |
| 31 | VH570700 | 0.18 | 0.05 | 0.00 | N/A |
| 32 | VH570707 | 0.38 | 0.05 | 0.00 | N/A |
| 33 | VH593346 | 0.32 | 0.07 | 0.00 | N/A |
| 34 | VH593347 | 0.33 | 0.06 | 0.00 | N/A |
| 35 | VH593348 | 0.29 | 0.07 | 0.00 | N/A |
| 36 | VH593350 | 0.30 | 0.07 | 0.00 | N/A |
| 37 | VH593352 | 0.37 | 0.07 | 0.00 | N/A |
| 38 | VH584148 | 0.44 | 0.05 | 0.00 | N/A |
| 39 | VH584152 | 0.42 | 0.06 | 0.00 | N/A |

Table 1.14 *(continuation one)*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | Accession Number | Lambda 1 | Standard Error | Lambda 2 | Standard Error |
| 40 | VH584157 | 0.35 | 0.05 | 0.00 | N/A |
| 41 | VH584158 | 0.43 | 0.04 | 0.00 | N/A |
| 42 | VH584163 | 0.34 | 0.05 | 0.00 | N/A |
| 43 | VH575731 | 0.15 | 0.05 | 0.00 | N/A |
| 44 | VH574936 | 0.14 | 0.05 | 0.00 | N/A |
| 45 | VH575869 | 0.57 | 0.04 | 0.00 | N/A |
| 46 | VH593349 | 0.20 | 0.05 | 0.00 | N/A |
| 47 | VH593354 | 0.25 | 0.05 | 0.00 | N/A |
| 48 | VH593355 | 0.50 | 0.04 | 0.00 | N/A |
| 49 | VH593361 | 0.38 | 0.04 | 0.00 | N/A |
| 50 | VH593365 | 0.32 | 0.05 | 0.00 | N/A |
| 51 | VH584191 | 0.46 | 0.05 | 0.00 | N/A |
| 52 | VH584193 | 0.36 | 0.05 | 0.00 | N/A |
| 53 | VH584196 | 0.34 | 0.05 | 0.00 | N/A |
| 54 | VH584197 | 0.48 | 0.05 | 0.00 | N/A |
| 55 | VH584201 | 0.49 | 0.05 | 0.00 | N/A |
| 56 | VH587667 | 0.71 | 0.06 | 0.00 | N/A |
| 57 | VH587673 | 0.72 | 0.06 | 0.00 | N/A |
| 58 | VH587690 | 0.53 | 0.06 | 0.00 | N/A |
| 59 | VH587699 | 0.55 | 0.05 | 0.00 | N/A |
| 60 | VH587706 | 0.65 | 0.05 | 0.00 | N/A |
| 61 | VH587711 | 0.74 | 0.05 | 0.00 | N/A |
| 62 | VH573283 | 0.66 | 0.04 | 0.00 | N/A |
| 63 | VH573046 | 0.69 | 0.03 | 0.00 | N/A |
| 64 | VH573627 | 0.68 | 0.03 | 0.00 | N/A |
| 65 | VH573092 | 0.74 | 0.04 | 0.00 | N/A |
| 66 | VH574874 | 0.62 | 0.03 | 0.00 | N/A |
| 67 | VH574885 | 0.65 | 0.03 | 0.00 | N/A |
| 68 | VH574659 | 0.63 | 0.03 | 0.00 | N/A |
| 69 | VH574660 | 0.61 | 0.04 | 0.00 | N/A |
| 70 | VH587927 | 0.55 | 0.04 | 0.00 | N/A |
| 71 | VH588954 | 0.74 | 0.08 | 0.00 | N/A |
| 72 | VH588957 | 0.59 | 0.06 | 0.00 | N/A |
| 73 | VH588958 | 0.78 | 0.05 | 0.00 | N/A |
| 74 | VH588961 | 0.74 | 0.05 | 0.00 | N/A |
| 75 | VH588972 | 0.50 | 0.05 | 0.00 | N/A |
| 76 | VH588976 | 0.59 | 0.05 | 0.00 | N/A |
| 77 | VH573658 | 0.68 | 0.03 | 0.00 | N/A |
| 78 | VH572648 | 0.66 | 0.03 | 0.00 | N/A |

Table 1.14 *(continuation two)*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | Accession Number | Lambda 1 | Standard Error | Lambda 2 | Standard Error |
| 79 | VH573795 | 0.70 | 0.03 | 0.00 | N/A |
| 80 | VH573801 | 0.64 | 0.03 | 0.00 | N/A |
| 81 | VH588090 | 0.71 | 0.04 | 0.00 | N/A |
| 82 | VH573534 | 0.69 | 0.04 | 0.00 | N/A |
| 83 | VH588283 | 0.68 | 0.04 | 0.00 | N/A |
| 84 | VH588983 | 0.78 | 0.07 | 0.00 | N/A |
| 85 | VH588987 | 0.85 | 0.04 | 0.00 | N/A |
| 86 | VH588998 | 0.73 | 0.07 | 0.00 | N/A |
| 87 | VH589000 | 0.69 | 0.05 | 0.00 | N/A |
| 88 | VH589002 | 0.61 | 0.05 | 0.00 | N/A |
| 89 | VH589003 | 0.56 | 0.06 | 0.00 | N/A |
| 90 | VH593631 | 0.00 | N/A | 0.47 | 0.04 |
| 91 | VH593637 | 0.00 | N/A | 0.37 | 0.04 |
| 92 | VH593643 | 0.00 | N/A | 0.65 | 0.04 |
| 93 | VH594523 | 0.00 | N/A | 0.33 | 0.04 |
| 94 | VH594080 | 0.00 | N/A | 0.39 | 0.06 |
| 95 | VH594082 | 0.00 | N/A | 0.35 | 0.06 |
| 96 | VH594084 | 0.00 | N/A | 0.21 | 0.07 |
| 97 | VH594087 | 0.00 | N/A | 0.38 | 0.06 |
| 98 | VH585340 | 0.00 | N/A | 0.42 | 0.04 |
| 99 | VH585351 | 0.00 | N/A | 0.42 | 0.04 |
| 100 | VH585354 | 0.00 | N/A | 0.17 | 0.05 |
| 101 | VH585357 | 0.00 | N/A | 0.58 | 0.04 |
| 102 | VH585359 | 0.00 | N/A | 0.27 | 0.04 |
| 103 | VH585361 | 0.00 | N/A | 0.36 | 0.04 |
| 104 | VH585366 | 0.00 | N/A | 0.49 | 0.04 |
| 105 | VH585379 | 0.00 | N/A | 0.54 | 0.04 |
| 106 | VH585380 | 0.00 | N/A | 0.57 | 0.05 |
| 107 | VH592791 | 0.00 | N/A | 0.37 | 0.04 |
| 108 | VH592792 | 0.00 | N/A | 0.50 | 0.04 |
| 109 | VH592793 | 0.00 | N/A | 0.40 | 0.04 |
| 110 | VH592794 | 0.00 | N/A | 0.41 | 0.04 |
| 111 | VH592798 | 0.00 | N/A | 0.28 | 0.05 |
| 112 | VH592799 | 0.00 | N/A | 0.54 | 0.04 |
| 113 | VH594164 | 0.00 | N/A | 0.41 | 0.06 |
| 114 | VH594219 | 0.00 | N/A | 0.53 | 0.06 |
| 115 | VH594220 | 0.00 | N/A | 0.40 | 0.06 |
| 116 | VH594221 | 0.00 | N/A | 0.38 | 0.06 |
| 117 | VH594222 | 0.00 | N/A | 0.46 | 0.06 |

Table 1.14 *(continuation three)*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | Accession Number | Lambda 1 | Standard Error | Lambda 2 | Standard Error |
| 118 | VH594223 | 0.00 | N/A | 0.25 | 0.07 |
| 119 | VH594224 | 0.00 | N/A | 0.45 | 0.06 |
| 120 | VH593655 | 0.00 | N/A | 0.43 | 0.06 |
| 121 | VH593659 | 0.00 | N/A | 0.49 | 0.06 |
| 122 | VH593661 | 0.00 | N/A | 0.39 | 0.06 |
| 123 | VH593663 | 0.00 | N/A | 0.36 | 0.06 |
| 124 | VH575525 | 0.00 | N/A | 0.53 | 0.05 |
| 125 | VH575534 | 0.00 | N/A | 0.64 | 0.05 |
| 126 | VH575541 | 0.00 | N/A | 0.47 | 0.06 |
| 127 | VH575550 | 0.00 | N/A | 0.61 | 0.05 |
| 128 | VH575552 | 0.00 | N/A | 0.61 | 0.06 |
| 129 | VH575590 | 0.00 | N/A | 0.57 | 0.06 |
| 130 | VH575595 | 0.00 | N/A | 0.51 | 0.07 |
| 131 | VH575602 | 0.00 | N/A | 0.27 | 0.06 |
| 132 | VH575612 | 0.00 | N/A | 0.14 | 0.07 |
| 133 | VH594027 | 0.00 | N/A | 0.27 | 0.05 |
| 134 | VH594031 | 0.00 | N/A | 0.31 | 0.04 |
| 135 | VH594041 | 0.00 | N/A | 0.04 | 0.05 |
| 136 | VH594045 | 0.00 | N/A | 0.19 | 0.05 |
| 137 | VH594049 | 0.00 | N/A | 0.24 | 0.05 |
| 138 | VH594054 | 0.00 | N/A | 0.05 | 0.05 |
| 139 | VH594409 | 0.00 | N/A | 0.23 | 0.05 |
| 140 | VH594413 | 0.00 | N/A | 0.41 | 0.04 |
| 141 | VH594412 | 0.00 | N/A | 0.39 | 0.04 |
| 142 | VH594407 | 0.00 | N/A | 0.64 | 0.04 |
| 143 | VH592466 | 0.00 | N/A | 0.46 | 0.06 |
| 144 | VH592469 | 0.00 | N/A | 0.53 | 0.06 |
| 145 | VH592479 | 0.00 | N/A | 0.56 | 0.06 |
| 146 | VH592484 | 0.00 | N/A | 0.20 | 0.07 |
| 147 | VH592489 | 0.00 | N/A | 0.54 | 0.06 |
| 148 | VH592492 | 0.00 | N/A | 0.39 | 0.06 |
| 149 | VH592497 | 0.00 | N/A | 0.47 | 0.06 |
| 150 | VH583503 | 0.00 | N/A | 0.45 | 0.06 |
| 151 | VH583504 | 0.00 | N/A | 0.47 | 0.06 |
| 152 | VH583505 | 0.00 | N/A | 0.38 | 0.06 |
| 153 | VH583507 | 0.00 | N/A | 0.43 | 0.06 |
| 154 | VH574846 | 0.00 | N/A | 0.57 | 0.03 |
| 155 | VH573892 | 0.00 | N/A | 0.53 | 0.03 |
| 156 | VH579418 | 0.00 | N/A | 0.43 | 0.04 |

Table 1.14 *(continuation four)*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | Accession Number | Lambda 1 | Standard Error | Lambda 2 | Standard Error |
| 157 | VH579430 | 0.00 | N/A | 0.52 | 0.03 |
| 158 | VH574580 | 0.00 | N/A | 0.50 | 0.04 |
| 159 | VH574583 | 0.00 | N/A | 0.58 | 0.03 |
| 160 | VH576320 | 0.00 | N/A | 0.61 | 0.04 |
| 161 | VH582599 | 0.00 | N/A | 0.37 | 0.06 |
| 162 | VH582602 | 0.00 | N/A | 0.60 | 0.05 |
| 163 | VH582605 | 0.00 | N/A | 0.37 | 0.06 |
| 164 | VH582607 | 0.00 | N/A | 0.44 | 0.06 |
| 165 | VH574264 | 0.00 | N/A | 0.60 | 0.04 |
| 166 | VH576208 | 0.00 | N/A | 0.48 | 0.04 |
| 167 | VH576213 | 0.00 | N/A | 0.54 | 0.03 |
| 168 | VH576308 | 0.00 | N/A | 0.55 | 0.04 |
| 169 | VH582552 | 0.00 | N/A | 0.40 | 0.06 |
| 170 | VH582560 | 0.00 | N/A | 0.57 | 0.06 |
| 171 | VH582570 | 0.00 | N/A | 0.56 | 0.06 |
| 172 | VH582576 | 0.00 | N/A | 0.46 | 0.05 |
| 173 | VH574271 | 0.00 | N/A | 0.60 | 0.03 |
| 174 | VH575258 | 0.00 | N/A | 0.62 | 0.04 |

1. The Summative ELPAC field test sample roster was selected from among students having a limited English proficiency status of “Yes” and obtained from CALPADS data on January 4, 2017. [↑](#footnote-ref-2)