

Technical Report # 1304

**An Examination of the Internal Structures of the
Gr. 6-8 easyCBM CCSS Reading Measures:
A Construct Validity Study**

Julie Alonzo

Bitnara Jasmine Park

Gerald Tindal

University of Oregon



behavioral research & teaching

Published by

Behavioral Research and Teaching
University of Oregon • 175 Education
5262 University of Oregon • Eugene, OR 97403-5262
Phone: 541-346-3535 • Fax: 541-346-5689
<http://brt.uoregon.edu>

Note: Funds for this data set used to generate this report come from a federal grant awarded to the UO from Reliability and Validity Evidence for Progress Measures in Reading. U.S. Department of Education, Institute for Education Sciences. R324A100014. June 2010 - June 2014. The opinions expressed are those of the authors and do not represent views of the Institute or the U.S. Department of Education.

Abstract

This technical report presents the results of a confirmatory factor analysis of the internal structures of the easyCBM[®] CCSS reading assessments. These assessments, which include item prompts based on *Read to Perform a Task*, *Informational Text*, and *Short Literary Text* include a series of item prompts followed by five selected response questions targeting literal comprehension. During this study, we randomly sampled from the existing item prompts in our easyCBM[®] database to create one unique 45-item test at each grade level, with 15 items corresponding to each of the three different genre of item prompt. We tested a variety of models and found that across grades three through five, a one-factor model resulted in the best fit, although at least one of the two-factor models at each grade level also produced reasonable model fit statistics. Results support the inclusion of item prompts from all three genre for use as assessments of literal comprehension.

An Examination of the Internal Structures of the easyCBM[®] CCSS Reading Measures

The easyCBM[®] benchmarking and progress monitoring system (Alonzo, Tindal, Ulmer, & Glasgow, 2006) includes a variety of general outcome measures in reading, designed with the dual purposes of screening students at risk for reading difficulties and assessing the progress struggling students make in gaining proficiency as they are provided targeted instruction to address specific areas of need. At the early primary grades, the measures focus on key early literacy skills (phoneme segmenting, letter names, letter sounds, and word reading fluency), expanding to include passage reading fluency in first grade and vocabulary and direct measures of comprehension in grades 2-8.

Two different types of comprehension measures are offered on the system: MCRC and CCSS Reading. The MCRC measures are intended to be quite challenging: Students are presented with fairly lengthy original narrative fiction passages (approximately 700 words long in grade 2; 1500 in all other grades) followed by a series of selected response questions (12 in grade 2; 20 in all other grades). The questions test students' literal, inferential (grades 2-8) and evaluative (grades 3-8) comprehension. Using a variety of text types (informational text, short literary text, and read to perform a task), the CCSS reading measures were designed to be slightly easier than the MCRC measures, with much shorter passages (most no more than 250 words in length), each of which includes 5 items testing students' literal comprehension.

In this technical report, we present the results of a study of the internal structures of the CCSS reading measures in which we use confirmatory factor analysis to evaluate the factor structure of the measures. Specifically, we were interested in testing two competing hypotheses: that the measures would load on a single factor ('reading') regardless of the passage genre or that the measures would load on three different factors, based on genre of the passage used in the

prompt. Detailed information about the development of the CCSS reading measures can be found in Alonzo, Park, and Tindal (2012, a-f).

Methods

This study was conducted in the spring of 2012, with a convenience sample of teachers familiar with the easyCBM[®] assessment system. Teachers administered all the assessments, following standardized protocols, and returned materials to the research team for scoring and analysis.

Setting and Participants

Participants were recruited through a call for research participants posted on two websites: brtprojects.org, the main website for the university research center where easyCBM[®] was developed and through an announcement on the home page of the easyCBM[®] website itself. Participating teachers were given \$50 to be used for classroom supplies. In all, 20 teachers and 482 students participated in this study, with the specific number of students varying by grade (see Table 1). Participants included teachers from Alabama, Arizona, California, Florida, Georgia, Idaho, Illinois, Maine, Michigan, North Carolina, Oregon, Pennsylvania, and Wisconsin. Teachers were instructed to include all their students in the study, including students with disabilities and English language learners.

Table 1

Study participants

Grade Level	# of Teachers	# of Students
3	7	166
4	7	161
5	6	155

Measures

The measures used in this study drew from a variety of the CCSS test forms on the easyCBM[®] assessment system to ensure sufficient numbers of items for robust factor analysis. Although the actual test questions and item prompts varied by grade, the same general approach was used in formatting the test forms for this study. The test forms might be thought of as consisting of nine separate testlets (small ‘sub-tests’ where each of the items was based on the same initial test prompt material, either 200+ words or some sort of graphical display of information). Each of these testlets consisted of a textual or graphical prompt followed by five selected response items, each with three possible answer choices (one correct answer, a ‘near’ distractor, and a ‘far’ distractor). These test forms were organized by text type. Each test form began with three *Read to Perform a Task* text items, each one with a corresponding five selected response questions, for a total of 15 *Read to Perform a Task* items. The next three testlets used *Informational Text* as the item prompt, again followed by five selected response items (for a total of 15 *Informational Text* items). Each test form ended with three testlets that used *Short Literary Text* as the text prompt, followed by five selected response items (for a total of 15 *Short Literary Text* items). Appendix A includes a copy of all the tests that were administered to the third-grade students in this study. Appendix B includes a copy of all the tests that were administered to the fourth-grade students in this study. Appendix C includes a copy of all the tests that were administered to the fourth-grade students in this study.

Teachers were sent paper copies of the tests, along with standardized test administration instructions and answer sheets where students recorded their answers by filling in small bubbles to indicate which items they thought were most correct. Teachers were instructed to administer all 45 items in a single 40-minute test session. All assessments were administered in March of

2012. Teachers mailed back their students' answer sheets, responses were captured using optical scanning technology, and item-level responses were used in all analyses. Neither students nor teachers received feedback on student performance on these assessments.

Analysis

We used Maximum Likelihood estimation technique and confirmatory factor analysis to test the factor structure of the CCSS Reading measures. In this approach, we first tested the model fit for a one-factor model, then clustered the items into different possible factors (based on genre of text prompt) to test for improvements in model fit with a two-factor model (with different combinations of *Informational Text*, *Short Literary Text* and *Read to Perform a Task* paired with one another) and three-factor model (where we constrained the factor structure by genre of item prompt: *Informational Text*, *Short Literary Text*, and *Read to Perform a Task*) model. In addition, we tested for changes in model fit when the items were loaded to specified testlets versus when they were allowed to load freely on the hypothesized factor based on genre. We used a variety of model fit indices, including CFI, TLI, and RMSEA to evaluate model fit and ran chi-square difference tests to evaluate whether the different models specified improved model fit.

Results

We present the results by grade level, beginning with the results of our one-factor analyses, then the results of our two- and three-factor analyses, respectively. For each, we present both standardized and unstandardized regression weights, variance coefficients, and squared multiple correlations. Finally, we provide comparisons of the overall model fit for each of the hypothesized factor structures.

Grade 3

We tested a variety of models related to the internal structures of the measures, including clustering the different measure types into different configurations for testing a variety of two-factor models.

Testing a One-Factor Model. Table 2 presents the regression weights for the one-factor model for the Grade 3 measures.

Table 2
Grade 3 Regression Weights, One-Factor Model

	Unstandardized				Standardized
	Estimate	S.E.	C.R.	P	
T1<---F1	1.00				.69
T2<---F1	0.73	.12	6.35	***	.64
T3<---F1	1.11	.14	8.04	***	.82
T4<---F1	1.35	.17	8.14	***	.83
T5<---F1	1.42	.17	8.35	***	.85
T6<---F1	1.39	.17	8.44	***	.86
T7<---F1	1.34	.17	7.93	***	.81
T8<---F1	1.31	.18	7.35	***	.74
T9<---F1	1.30	.19	6.78	***	.69

Table 3 presents the variances for the one-factor model for the Grade 3 measures.

Table 3
Grade 3 Variances, One-Factor Model

	Estimate	S.E.	C.R.	P
F1	0.62	.15	4.07	***
e1	0.69	.10	7.04	***
e2	0.49	.07	7.15	***
e3	0.38	.06	6.47	***
e4	0.51	.08	6.37	***
e5	0.47	.08	6.14	***
e6	0.41	.07	6.10	***
e7	0.60	.09	6.54	***
e8	0.86	.13	6.85	***
e9	1.20	.17	6.99	***

Table 4 presents the squared multiple correlations for the one-factor model for the Grade 3 CCSS reading measures.

Table 4
Grade 3, Squared Multiple Correlations, One-Factor Model

	Estimate
T9	.47
T8	.55
T7	.65
T6	.75
T5	.73
T4	.69
T3	.67
T2	.40
T1	.47

Table 5 presents the model fit statistics for the one-factor model, for the Grade 3 measures.

Table 5
Model Fit Summary, Baseline Comparison, One-Factor Model

	RMSEA				AIC	BCC	Hoelter	
	RMSEA	Lo 90	Hi 90	P Close			.05	.01
Default	.09	.05	.13	.05	104.99	110.28	89	104
Saturated					108.00	118.59		
Independence	.35	.33	.37	.00	637.86	675.63	11	12

Testing Two-Factor Models. Results for three different two-factor models are presented next. In the first two-factor model, we tested the sub-tests written for the *Read to Perform a Task* as a single factor, and the sub-tests written for the *Short Literary Text* and *Informational Text* as a second factor (See Tables 6 -8). These two factors were moderately correlated ($R^2 = .96$), with a covariance of .83.

Table 6 presents the regression weights for this two-factor model.

Table 6
Grade 3 Regression Weights, Two-Factor Model (Read to Perform a Task & Informational Text/Short Literary Text)

		Unstandardized				Standardized
		Estimate	S.E.	C.R.	P	
T1<---	F1	1.00				.69
T2<---	F1	0.73	.12	6.35	***	.64
T3<---	F1	1.12	.14	8.13	***	.83
T4<---	F2	1.00				.83
T5<---	F2	1.06	.07	11.09	***	.85
T6<---	F2	1.03	.09	11.31	***	.87
T7<---	F2	1.00	.10	10.15	***	.81
T8<---	F2	0.98	.11	9.06	***	.75
T9<---	F2	0.97	.12	8.04	***	.67

Table 7 presents the variances for this two-factor model.

Table 7
Grade 3 Variances Two-Factor Model (Read to Perform a Task & Informational Text/Short Literary Text)

	Estimate	S.E.	C.R.	P
F1	0.63	.16	4.05	***
F2	1.13	.21	5.30	***
e1	0.69	.10	6.77	***
e2	0.49	.07	6.97	***
e3	0.35	.07	5.25	***
e4	0.51	.08	6.35	***
e5	0.47	.08	6.10	***
e6	0.41	.07	5.96	***
e7	0.60	.09	6.52	***
e8	0.85	.13	6.83	***
e9	1.20	.17	6.98	***

Table 8 presents the squared multiple correlations for this two-factor model.

Table 8
Grade 3, Squared Multiple Correlations Two-Factor Model (Read to Perform a Task & Informational Text/Short Literary Text)

	Estimate
T9	.47
T8	.56
T7	.65
T6	.75

Table 8
Grade 3, Squared Multiple Correlations Two-Factor Model (Read to Perform a Task & Informational Text/Short Literary Text)

	Estimate
T5	.73
T4	.69
T3	.70
T2	.41
T1	.48

In the second two-factor model, we constrained the 15 items from the three *Short Literary Text* passages on one factor and the remaining 30 items on a second factor. Tables 9-11 present the results of these analyses. These two factors were highly correlated ($R^2=.92$), with a covariance of .82. Table 9 presents the regression weights for the second two-factor model we tested.

Table 9
Grade 3 Regression Weights, Two-Factor Model (Short Literary Text & Read to Perform a Task/Informational Text)

	Unstandardized				Standardized
	Estimate	S.E.	C.R.	P	
T7 <--- F1	1.00				.83
T8 <--- F1	0.98	.11	9.02	***	.76
T9 <--- F1	0.98	.12	8.15	***	.71
T1 <--- F2	1.00				.69
T2 <--- F2	0.74	.12	6.38	***	.64
T3 <--- F2	1.11	.14	8.03	***	.82
T4 <--- F2	1.36	.17	8.13	***	.83
T5 <--- F2	1.43	.17	8.32	***	.86
T6 <--- F2	1.30	.17	8.39	***	.86

Table 10 presents the variances associated with this two-factor model.

Table 10
Grade 3 Variances Two-Factor Model (Short Literary Text & Read to Perform a Task/Informational Text)

	Estimate	S.E.	C.R.	P
F1	1.17	.23	5.14	***
F2	0.62	.15	4.05	***
e1	0.55	.10	5.52	***
e2	0.80	.13	6.29	***
e3	1.12	.17	6.61	***
e4	0.70	.10	7.02	***
e5	0.48	.07	7.12	***
e6	0.37	.06	6.39	***
e7	0.50	.08	6.27	***
e8	0.46	.08	6.03	***
e9	0.41	.07	5.93	***

Table 11 presents the squared multiple correlations for the two-factor model where the *Short Literary Text* items were loaded on the first factor and the *Read to Perform a Task* and *Informational Text* items loaded on the second factor.

Table 11
Grade 3 Squared Multiple Correlations Two-Factor Model (Short Literary Text & Read to Perform a Task/Informational Text)

	Estimate
T6	.75
T5	.73
T4	.70
T3	.68
T2	.41
T1	.47
T9	.50
T8	.58
T7	.68

In the third two-factor model, we tested the sub-tests written for *Read to Perform a Task* and *Short Literary Texts* as one factor and *Informational Texts* as a second factor. Tables 12-13

present the results of these analyses. These two factors were so highly correlated ($R^2=1.00$, covariance = .82) that results suggest a single factor structure may better fit the data. Table 12 presents the regression weights associated with this model.

Table 12

Grade 3 Regression Weights, Two-Factor Model (Informational Text & Read to Perform a Task/Short Literary Text)

	Unstandardized				Standardized
	Estimate	S.E.	C.R.	P	
T4<---F1	1.00				.83
T5<---F1	1.06	.10	11.11	***	.85
T6<---F1	1.03	.09	11.32	***	.86
T1<---F2	1.00				.69
T2<---F2	0.73	.12	6.35	***	.64
T3<---F2	1.11	.14	8.04	***	.82
T7<---F2	1.34	.17	7.93	***	.81
T8<---F2	1.31	.18	7.35	***	.74
T9<---F2	1.30	.19	6.78	***	.69

Table 13 presents the squared multiple correlations for this model.

Table 13

Grade 3 Squared Multiple Correlations Two-Factor Model (Informational Text & Read to Perform a Task/Short Literary Text)

	Estimate	S.E.	C.R.	P
F1	1.13	.21	5.30	***
F2	0.62	.15	4.06	***
e1	0.51	.08	6.29	***
e2	0.47	.08	6.02	***
e3	0.41	.07	5.87	***
e4	0.69	.10	7.02	***
e5	0.49	.07	7.14	***
e6	0.38	.06	6.40	***
e7	0.60	.09	6.48	***
e8	0.86	.13	6.83	***
e9	1.20	.17	6.98	***

Overall, results indicated that the third-grade data supported a one-factor model as well as all three tested two-factor models, with slightly better model fit for the model in which the 15

items from the three *Short Literary Text* passages were loaded on one factor and the 30 items from the *Read to Perform a Task* and *Informational Text* loaded on a second factor ($\chi^2 = 50.68$, $df = 26$, $p = .003$). However, the one-factor model was slightly more warranted based on RMSEA (See Table 14). At grade 3, the three-factor model returned a non-admissible solution, and is therefore not supported.

Table 14
Grade 3, Model Fit Comparisons

	1 factor	2 factor_A (123 & Rest)	2 factor_B (789 & Rest)	2 factor_C (456 & Rest)	3 factor*
CFI	.96	.96	.96	.96	.96
TLI	.94	.93	.94	.93	.93
RMSEA	.05	.09	.09	.09	.09
χ^2/df	50.99/27	50.68/26	48.41/26	50.99/26	47.83/24

* Solution was not admissible, thus the estimates cannot be trusted.

Grade 4

As with Grade 3, we tested a variety of models related to the internal structures of the measures, including clustering the different measure types into different configurations for testing a variety of two-factor models. And, as with Grade 3, the three-factor model returned a non-admissible solution, and is therefore not supported.

Testing a One-Factor Model. Table 15 presents the regression weights for the one-factor model for the Grade 4 measures.

Table 15
Grade 4 Regression Weights, One-Factor Model

	Unstandardized				Standardized
	Estimate	S.E.	C.R.	P	
T1<---F1	1.00				.69
T2<---F1	0.72	.10	7.18	***	.63
T3<---F1	0.71	.10	7.41	***	.65
T4<---F1	0.57	.09	6.26	***	.55
T5<---F1	1.10	.13	8.26	***	.74
T6<---F1	0.86	.11	7.77	***	.69
T7<---F1	0.88	.13	6.89	***	.61

Table 15
Grade 4 Regression Weights, One-Factor Model

	Unstandardized				Standardized
	Estimate	S.E.	C.R.	P	
T8<--- F1	0.83	.12	7.26	***	.65
T9<--- F1	0.99	.13	7.78	***	.71

Table 16 presents the variances for the one-factor model for the Grade 4 measures.

Table 16
Grade 4 Variances, One-Factor Model

	Estimate	S.E.	C.R.	P
F1	.68	.14	4.69	***
e1	.76	.10	7.79	***
e2	.52	.07	8.08	***
e3	.45	.06	7.98	***
e4	.52	.06	8.38	***
e5	.68	.09	7.34	***
e6	.55	.07	7.75	***
e7	.89	.11	8.15	***
e8	.66	.08	7.91	***
e9	.67	.09	7.43	***

Table 17 presents the squared multiple correlations for the one-factor model for the Grade 4 CCSS reading measures.

Table 17
Grade 4, Squared Multiple Correlations, One-Factor Model

	Estimate
T9	.50
T8	.42
T7	.37
T6	.48
T5	.55
T4	.23
T3	.43
T2	.40
T1	.47

Testing Two-Factor Models. Results for three different two-factor models are presented next. In the first two-factor model, we tested the sub-tests written for the *Read to Perform a Task* as a single factor, and the sub-tests written for the *Short Literary Text* and *Informational Text* as a second factor. These two factors were moderately correlated ($R^2=.79$), with a covariance of .37.

Table 18 presents the regression weights for this model.

Table 18
Grade 4 Regression Weights, Two-Factor Model (Read to Perform a Task & Informational Text/Short Literary Text)

		Unstandardized				Standardized
		Estimate	S.E.	C.R.	P	
T1<---	F1	1.00				.71
T2<---	F1	0.74	.10	7.48	***	.68
T3<---	F1	0.72	.10	7.61	***	.69
T4<---	F2	1.00				.56
T5<---	F2	1.87	.28	6.66	***	.74
T6<---	F2	1.49	.23	6.50	***	.71
T7<---	F2	1.48	.25	5.87	***	.61
T8<---	F2	1.44	.23	6.19	***	.66
T9<---	F2	1.68	.26	6.42	***	.71

Table 19 presents the variances for the first two-factor model we tested, where items for *Read to Perform a Task* were loaded on the first factor and the 30 items for *Informational Text* and *Short Literary Text* were loaded on the second factor.

Table 19
Grade 4 Variances Two-Factor Model (Read to Perform a Task & Informational Text/Short Literary Text)

	Estimate	S.E.	C.R.	P
F1	.73	.15	4.73	***
F2	.24	.07	3.62	***
e1	.71	.10	6.90	***
e2	.50	.07	7.26	***
e3	.41	.06	7.13	***
e4	.51	.06	8.27	***
e5	.68	.10	7.17	***
e6	.52	.07	7.49	***

Table 19
Grade 4 Variances Two-Factor Model (Read to Perform a Task & Informational Text/Short Literary Text)

	Estimate	S.E.	C.R.	P
e7	.90	.11	8.08	***
e8	.64	.08	7.74	***
e9	.66	.09	7.29	***

Table 20 presents the squared multiple correlations for the first two-factor model we tested.

Table 20
Grade 4, Squared Multiple Correlations Two-Factor Model (Read to Perform a Task & Informational Text/Short Literary Text)

	Estimate
T9	.50
T8	.44
T7	.37
T6	.50
T5	.55
T4	.32
T3	.48
T2	.46
T1	.51

In the second two-factor model, we constrained the 15 items from the three *Short Literary Text* passages to load on the first factor and the remaining 30 items to load on the second factor. Tables 21-23 present the results of these analyses. It is worth pointing out, however, that even though this model did run successfully, these two factors were so highly correlated ($R^2=1.00$, covariance of .60) that they suggest a single factor. Table 21 presents the regression rates for this model.

Table 21
Grade 4 Regression Weights, Two-Factor Model (Short Literary Text & Read to Perform a Task/Informational Text)

	Unstandardized				Standardized
	Estimate	S.E.	C.R.	P	
T7 <--- F1	1.00				.61
T8 <--- F1	0.95	.15	6.54	***	.64

Table 21
Grade 4 Regression Weights, Two-Factor Model (Short Literary Text & Read to Perform a Task/Informational Text)

		Unstandardized				Standardized
		Estimate	S.E.	C.R.	P	
T9	<--- F1	1.12	.16	6.92	***	.70
T1	<--- F2	1.00				.69
T2	<--- F2	0.72	.10	7.18	***	.63
T3	<--- F2	0.71	.10	7.41	***	.65
T4	<--- F2	0.57	.09	6.27	***	.55
T5	<--- F2	1.10	.13	8.26	***	.74
T6	<--- F2	0.86	.11	7.77	***	.69

Table 22 presents the squared multiple correlations for the two-factor model where *Short Literary Text* items were loaded on one factor and *Read to Perform a Task* and *Informational Text* items were loaded on the second factor.

Table 22
Grade 4 Variances, Two-Factor Model (Short Literary Text & Read to Perform a Task/Informational Text)

	Estimate
T6	.48
T5	.55
T4	.30
T3	.43
T2	.40
T1	.47
T9	.49
T8	.42
T7	.37

In the third two-factor model, we tested the sub-tests written for *Read to Perform a Task* and *Short Literary Texts* as one factor and *Informational Texts* as a second factor. Tables 23-25 present the results of these analyses. These two factors were highly correlated ($R^2=.92$), with a covariance of .38. Table 23 presents the regression weights for this two-factor model.

Table 23
Grade 4 Regression Weights, Two-Factor Model (Informational Text & Read to Perform a Task/Short Literary Text)

	Unstandardized				Standardized
	Estimate	S.E.	C.R.	P	
T4<---F1	1.00				.56
T5<---F1	1.92	.29	6.56	***	.75
T6<---F1	1.51	.24	6.34	***	.71
T1<---F2	1.00				.70
T2<---F2	0.71	.10	7.28	***	.64
T3<---F2	0.70	.09	7.47	***	.66
T7<---F2	0.87	.13	6.95	***	.61
T8<---F2	0.82	.11	7.27	***	.64
T9<---F2	0.98	.12	7.87	***	.71

Table 24 presents the variances for the two-factor model with the 15 *Informational Text* items loading on the first factor and the remaining 30 items loading on the second factor.

Table 24
Grade 4 Variances, Two-Factor Model (Informational Text & Read to Perform a Task/Short Literary Text)

	Estimate	S.E.	C.R.	P
F1	.23	.07	3.53	***
F2	.70	.15	4.76	***
e1	.52	.06	8.21	***
e2	.65	.10	6.53	***
e3	.52	.07	7.19	***
e4	.74	.10	7.65	***
e5	.52	.07	8.01	***
e6	.45	.06	7.91	***
e7	.89	.11	8.09	***
e8	.66	.08	7.87	***
e9	.66	.09	7.33	***

Table 25 presents the squared multiple correlations for the two-factor model with the 15 *Informational Text* items loading on the first factor and the remaining 30 items loading on the second factor.

Table 25

Grade 4 Squared Multiple Correlations, Two-Factor Model (Informational Text & Read to Perform a Task/Short Literary Text)

	Estimate
T9	.50
T8	.41
T7	.37
T3	.43
T2	.41
T1	.49
T6	.50
T5	.57
T4	.31

Overall, as with Grade 3, results indicated that the data supported a one-factor model as well as all three tested two-factor models. Unlike in Grade 3, however, for the different two-factor models tested at Grade 4, there was slightly better model fit for the model in which the 15 items from the three *Read to Perform a Task* passages were constrained to load on one factor and the 30 items from the *Short Literary Text* and *Informational Text* were loaded on a second factor ($\chi^2 = 53.42$, $df = 26$, $p = .005$) than there was for either a one-factor or the other two-factor models. At neither grade did the data support a three-factor model (see Table 26).

Table 26

Grade 4 Model Fit Comparisons

	1 factor	2 factor_A (123 & Rest)	2 factor_B (789 & Rest)	2 factor_C (456 & Rest)	3 factor*
CFI	.94	.95	.93	.94	.94
TLI	.89	.91	.88	.89	.89
RMSEA	.09	.08	.09	.09	.09
χ^2/df	59.59/27	53.42/26	59.5 /26	58.62/26	52.91/24

* Solution was not admissible, thus the estimates cannot be trusted.

Grade 5

At Grade 5, we once again tested a one-factor, three two-factor, and a three-factor model. Of these models, only the one-factor model and the two-factor model in which the *Short Literary*

Text items loaded on the first factor and the remaining 30 items loaded on the second factor were able to be estimated successfully. Thus, results are presented only for these two models.

Testing a One-Factor Model. Table 27 presents the regression weights for the one-factor model for the Grade 5 measures.

Table 27
Grade 5 Regression Weights, One-Factor Model

	Unstandardized				Standardized
	Estimate	S.E.	C.R.	P	
T1<---F1	1.00				.19
T2<---F1	2.21	1.13	1.96	***	.37
T3<---F1	3.34	1.60	2.09	***	.55
T4<---F1	4.39	2.06	2.13	***	.68
T5<---F1	3.91	1.88	2.08	***	.53
T6<---F1	5.15	2.46	2.10	***	.59
T7<---F1	6.04	2.82	2.14	***	.77
T8<---F1	4.95	2.35	2.11	***	.63
T9<---F1	4.22	2.02	2.09	***	.58

Table 28 presents the variances for the one-factor model for the Grade 5 measures.

Table 28
Grade 5 Variances, One-Factor Model

	Estimate	S.E.	C.R.	P
F1	.02	.02	1.08	.28
e1	.62	.07	8.70	***
e2	.70	.08	8.47	***
e3	.59	.07	7.93	***
e4	.52	.07	7.15	***
e5	.90	.11	8.02	***
e6	1.19	.15	7.71	***
e7	.59	.10	6.06	***
e8	.88	.12	7.41	***
e9	.82	.11	7.62	***

Table 29 presents the squared multiple correlations for the one-factor model for the Grade 5 CCSS reading measures.

Table 29
Grade 5, Squared Multiple Correlations, One-Factor Model

	Estimate
T9	.33
T8	.39
T7	.59
T6	.34
T5	.28
T4	.46
T3	.31
T2	.14
T1	.04

Testing Two-Factor Models. At Grade 5, only one of the two-factor models was supported: the model in which the 15 items written for the *Short Literary Text* item prompts loaded on the first factor and the remaining 30 items written for *Read to Perform a Task* and *Informational Text* loaded on the second factor. The two factors were highly correlated ($R^2 = .89$), with a covariance of .14. Table 30 presents the regression weights for this model.

Table 30
Grade 5 Regression Weights, Two-Factor Model (Literary Text & Read to Perform a Task/Informational Text)

		Unstandardized				Standardized
		Estimate	S.E.	C.R.	P	
T1<---	F1	1.00				.78
T2<---	F1	.82	.12	7.01	***	.64
T3<---	F1	.70	.11	6.46	***	.59
T4<---	F2	1.00				.19
T5<---	F2	2.24	1.14	1.97	.05	.38
T6<---	F2	3.38	1.62	2.10	.04	.57
T7<---	F2	4.38	2.05	2.13	.03	.69
T8<---	F2	3.92	1.88	2.08	.04	.54
T9<---	F2	5.14	2.45	2.10	.04	.59

Table 31 presents the variances for the two-factor model where the 15 items for *Short Literary Text* prompts were loaded on the first factor and the 30 items for *Informational Text* and *Read to Perform a Task* were loaded on the second factor.

Table 31
Grade 5 Variances Two-Factor Model (Short Literary Task & Read to Perform a Task /Informational Text)

	Estimate	S.E.	C.R.	P
F1	.88	.18	4.99	***
F2	.02	.02	1.08	.28
e1	.57	.11	5.30	***
e2	.86	.12	7.18	***
e3	.81	.11	7.46	***
e4	.62	.07	8.69	***
e5	.70	.08	8.41	***
e6	.58	.07	7.75	***
e7	.51	.08	6.82	***
e8	.89	.11	7.88	***
e9	1.17	.16	7.54	***

Table 32 presents the squared multiple correlations for this two-factor model.

Table 32
Grade 5, Squared Multiple Correlations Two-Factor Model (Short Literary Text & Read to Perform a Task/Informational Text)

	Estimate
T6	.35
T5	.29
T4	.47
T3	.32
T2	.15
T1	.04
T9	.35
T8	.41
T7	.61

Overall, as with Grade 3 and 4, results indicated that a one-factor model fit the data well.

Unlike the two earlier grades, however, at Grade 5 only one of the two-factor models also fit the

data (See Table 33). Equally good model fit was found for both a one-factor and one of the two-factor models at Grade 5.

Table 33
Grade 5 Model Fit Comparisons

	1 factor	2 factor_A* (123 & Rest)	2 factor_B (789 & Rest)	2 factor_C* (456 & Rest)	3 factor*
CFI	.95	.95	.95	.96	.98
TLI	.92	.91	.92	.93	.96
RMSEA	.06	.06	.06	.05	.04
χ^2/df	40.42/27	40.14/26	39.34/26	37.06/26**	30.21/24**

* Solution was not admissible, thus the estimates cannot be trusted.

** $p > .05$

Conclusion

Results from this study provide evidence in support of the claim that items on the easyCBM CCSS reading assessments are unidimensional, loading on a single factor, which we will refer to as the broad construct of *literal reading comprehension*, regardless of the genre of the item prompt. This finding is in keeping with the intention of the measurement developers, to create a broad measure of students' ability to comprehend at a literal level material from *literary*, *informational*, and *graphics-based* text.

Although at least one of the two-factor models offered a plausible alternative interpretation at each grade level, the correlations between the factors were so high and the difference in model fit so slight in each case, a single-factor model is likely the more defensible interpretation.

References

- Alonzo, J., Park, B. J., & Tindal, G. (2012a). The development of reading measures designed for use with persistently low-performing students: Grade 3. (Technical Report No. 1221). Eugene, OR: Behavioral Research and Teaching, University of Oregon.
- Alonzo, J., Park, B. J., & Tindal, G. (2012b). The development of reading measures designed for use with persistently low-performing students: Grade 4. (Technical Report No. 1222). Eugene, OR: Behavioral Research and Teaching, University of Oregon.
- Alonzo, J., Park, B. J., & Tindal, G. (2012c). The development of reading measures designed for use with persistently low-performing students: Grade 5. (Technical Report No. 1223). Eugene, OR: Behavioral Research and Teaching, University of Oregon.
- Alonzo, J., Tindal, G., Ulmer, K., & Glasgow, A. (2006). easyCBM online progress monitoring assessment system. <http://easycbm.com>. Eugene, OR: Behavioral Research and Teaching.

Appendix A

INSTRUCTIONS: Please select the best answer for each question.

Item 35471_35475

FLIGHT HEIGHTS

Height	Birds	Planes
Sea Level	Swifts and swallows	
3000 feet	Songbirds	
4000 feet	Ducks and geese	
9000 feet	Eagles and hawks	Small airplanes
28,000 feet	Bar-headed Geese	Jet airplanes

1. Which fly the highest?
 - a. Bar-headed geese
 - b. Small airplanes
 - c. Songbirds

2. Which birds fly at 4000 feet?
 - a. Ducks and geese
 - b. Swifts and swallows
 - c. Eagles and hawks

3. A small airplane flies at the same height as:
 - a. Bar-headed geese
 - b. Songbirds
 - c. Eagles

4. Ducks and geese fly lower than:
 - a. Hawks
 - b. Songbirds
 - c. Swifts

5. How high do swallows fly?
 - a. 3000 feet
 - b. Sea level
 - c. 9000 feet

Item 35561_35565

Here is part of a page from a glossary.

B band-bird

band - a stripe of color.

barn - a large farm building where hay and animals are kept.

bat - a flying animal that only comes out at night.

bay - a horse with a brown coat and black mane and tail.

band - a ceramic thing made for use

6. Which word means “a stripe of color”?
 - a. Bat
 - b. Barn
 - c. Band

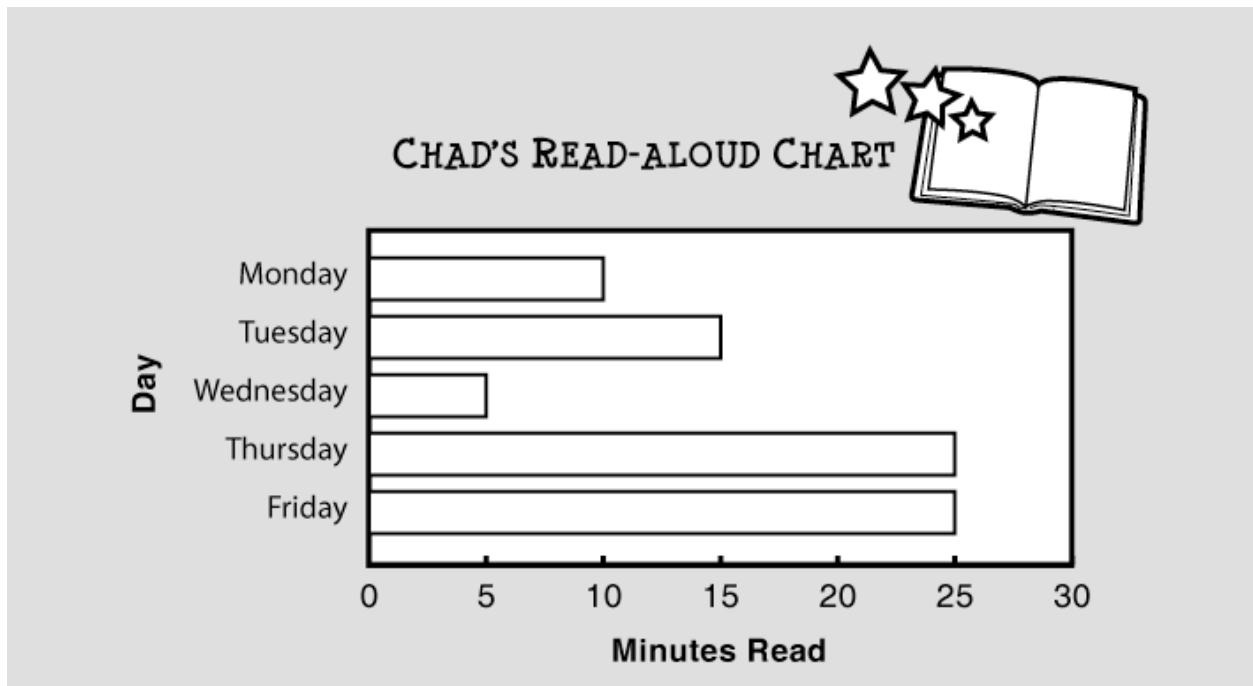
7. Which word means “a large farm building”?
 - a. Bat
 - b. Barn
 - c. Band

8. A flying animal could be a _____ .
 - a. Bat
 - b. Barn
 - c. Band

9. Which other word could be found on this page?
 - a. Dog
 - b. Bin
 - c. Brick

10. Which word tells about the color of a horse?
 - a. Barn
 - b. Bay c.
 - Bat

Item 35831_35835



11. This chart shows how much time:
- Chad reads aloud.
 - Monday to Friday.
 - Chad plays each day.
12. On Monday, Chad reads for:
- 25 minutes
 - 15 minutes
 - 10 minutes
13. Chad reads aloud for 25 minutes on:
- Monday and Thursday
 - Thursday and Friday
 - Tuesday and Friday
14. When does Chad read for 15 minutes?
- Wednesday
 - Tuesday
 - Thursday
15. How many days does Chad read aloud?
- Four
 - Three
 - Five

Item 35211_35215

Boats

There are many kinds of boats. Some boats move with the wind. Some boats move with the help of a motor. Others move along the water with the help of people.

Sailboats move with the wind. A person steers the boat. That person is called a sailor. The sailors set the sail and rudder so the boat moves smoothly.

Some boats move with a motor. These boats are called motorboats. People who catch fish use motorboats to reach deep water. Some motorboats are huge and carry cargo. They are called cargo boats.

Rowboats move with the help of people using oars. Oars are long sticks that drop into the water. The oars work like paddles, making the boat move.

Some boats are small, and some boats are big. Some boats move slowly, and others move quickly. All boats are alike in one way. They all move on water!

16. What moves sailboats?
 - a. Motors
 - b. Paddles
 - c. The wind

17. A rowboat moves with:
 - a. Oars
 - b. Cargo
 - c. Motor

18. Cargo boats have:
 - a. Sails
 - b. Motors
 - c. Oars

19. Rowboats move when:
 - a. People move the oars.
 - b. The sail fills with wind.
 - c. The motor pushes them.

20. Which is a fact?
 - a. Sailboats are best.
 - b. Cargo boats are too slow.
 - c. Boats move on water.

Item 35296_35300

Of Mice and Voles

How is a mouse different from a vole? Telling the difference is not easily done! Mice and voles look almost exactly alike.

Both mice and voles are small animals with short hair. They are from the same family. That makes them relatives.

One difference is the mouse's tail. It is longer than a vole's. Also, the ears on a mouse are larger than a vole's.

Mice live everywhere. They gather in the city and the country. Voles do not have as many places they call home. They enjoy living in the wild. Voles live in forests and farms. They also live in mountains and grasslands.

Hear a little squeak in the house? Wonder who it is? It is probably a mouse!

21. Mice and voles are alike because they:
 - a. Have big ears.
 - b. Are in the same family.
 - c. Enjoy the wild.

22. A difference between mice and voles is:
 - a. How long their hair is.
 - b. The size of their tails.
 - c. The kind of food they eat.

23. What is this story mostly about?
 - a. Mice and voles are similar but different.
 - b. Mice have longer tails than voles do.
 - c. Both mice and voles have short hair.

24. Voles live in:
 - a. Cities and towns.
 - b. Squeaky houses.
 - c. Forests and farms.

25. Which is more likely to be in a city house?
 - a. Vole
 - b. Mole
 - c. Mouse

Item 35391_35395

Mars

Mars is a planet in outer space. It is the fourth planet away from the sun. It is just past Earth. Mars is named after a Roman god of war. It has a reddish color, so it is also called the "Red Planet."

Mars is about half the size of Earth. It has two moons. They are named Phobos and Deimos.

Scientists can study Mars more easily than other planets because it is the closest planet to Earth. Scientists want to know if Mars had water and living things on it in the past.

26. Mars is the _____ planet from the sun.
- Fourth
 - Third
 - Fifth
27. Mars is _____ Earth.
- larger than
 - smaller than
 - the same size as
28. The moons of Mars are named:
- Phoebe and Dan
 - Phobos and Deimos
 - Phrase and Darek
29. It is easy to study Mars because it is:
- Close to Earth.
 - Far from the sun.
 - Reddish colored.
30. Which is a fact?
- Mars is a beautiful planet.
 - Studying Mars is interesting.
 - Mars is named after a Roman god.

Item 35126_35130

Bella the Bus Driver

Bella is a bus driver. She works for a school. The bus she drives is big and yellow. Each morning at 6:00 Bella gets to school. She opens the bus and starts the engine. Then she picks up girls and boys and takes them to school.

One day Bella opens the bus and tries to start the engine. It won't start! Bella thinks fast. How can she get the boys and girls to school today? She calls the bus garage. She asks for a new bus. The new bus comes to the school, and Bella drives it away. She picks up all the boys and girls and gets them to school on time.

31. Who is Bella?
 - a. A schoolgirl.
 - b. A bus driver.
 - c. A school bus.

32. What does Bella do after she opens the bus?
 - a. Starts the engine.
 - b. Opens a window.
 - c. Reads a book.

33. Bella thinks fast when the:
 - a. Bus is opened.
 - b. Day is over.
 - c. Engine won't start.

34. What does Bella do when the bus does not start?
 - a. Calls the garage.
 - b. Calls her mom.
 - c. Goes back home.

35. What happens when the bus starts?
 - a. Bella picks up girls and boys.
 - b. Bella takes girls and boys home.
 - c. Bella drives the bus to the garage.

Item 35171_35175

The Apron

Today I am wearing an apron. I am not excited about wearing this awful, cloth thing. I'd like to lose this dumb apron, but that is not part of the plan.

The plan is this: I am helping the cooks at school today. It was not my idea. The cooks decided for me.

It all began last Friday. The cooks served mix-up vegetables and meat with melted cheese on top. They said it was healthy. I said it was nasty. They sent me to the office and made this plan for me.

They think I deserve to be a cook for a day. They want me to be at fault. They want me to feel upset when kids don't like the taste of my efforts.

Well, now I know. It is not a fancy job. It is a thankless job. You do your best to make things taste good. You try to make meals healthy.

At the end of today, I plan to throw my apron away. No more complaints from me!

36. Who tells the story?

- a. Cook
- b. Student
- c. Teacher

37. The person telling the story needs to:

- a. Clean the stove.
- b. Eat vegetables.
- c. Cook for a day.

38. The plan to help the cooks begins:

- a. At work.
- b. At home.
- c. On Friday

39. The cooks did not like it when the person telling the story called the food:

- a. Healthy
- b. Nasty
- c. Cheesy

40. After today, the narrator will not:

- a. Complain about food.
- b. Eat meat and cheese.
- c. Go to school.

Item 35216_35220

Max, the Talking Cat

Imagine a cat that talks! Lucy's friend has a big, furry cat named Max. Max purrs with vigor and makes a variety of sounds. His sounds remind Lucy of words.

Lucy goes to her friend's house for a visit. Max greets her at the door. He nuzzles against her leg to say, "Hello." Lucy bends down and pets Max. He purrs loudly. It seems like he is saying, "Nice!" She walks into the house. First, Max follows her. Then, he runs ahead, like he is saying, "Hurry!"

Lucy likes to visit her friend and Max. She thinks Max is a very unusual cat. She likes to think about Max learning new words. Maybe someday Max will say her name "Lucy." That will be a great day!

41. Who says, "Hello," "Nice!" and "Hurry!" ?
 - a. Lucy
 - b. Max
 - c. Friend

42. What does Lucy hope Max will say someday?
 - a. Max
 - b. Bye
 - c. Lucy

43. What does Max do after Lucy pets him?
 - a. Purrs
 - b. Hurries
 - c. Nuzzles

44. First, Max follows. Then, he:
 - a. Plays dead.
 - b. Runs ahead.
 - c. Says, "Bye"

45. What does Lucy think about?
 - a. Max living a long time.
 - b. Max learning new words.
 - c. Max becoming famous.

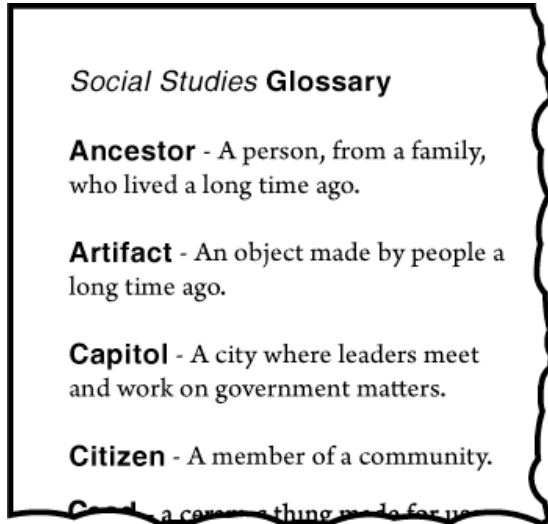
THANK YOU!

Please make sure you have filled in all the answer bubbles completely before giving your test paper to your teacher.

Appendix B

INSTRUCTIONS: Please select the best answer for each question.

Item 45291_45295



1. This Glossary comes from a:
 - a. textbook
 - b. dictionary
 - c. newspaper
2. A family member who lived long ago is:
 - a. an ancestor
 - b. an artifact
 - c. a citizen
3. Native Americans made arrows thousands of years ago. Today the arrows are:
 - a. capitols
 - b. ancestors
 - c. artifacts
4. Government leaders work at the:
 - a. capitol
 - b. artifact
 - c. community
5. Which word means, "a member of a community"?
 - a. artifact
 - b. citizen
 - c. capitol

Favorite Music

The Akan family is going on a long car trip and can't decide what kind of music to listen to. Read the chart below to find what kind of music each person in the family likes (+) and dislikes (-).



	Rock and Roll	Jazz	Classical
Kiden (mother)	+	+	+
Neo (father)	+	+	-
Baye (brother)	+	-	-
Ada (sister)	+	-	+

6. Everyone in the family likes ____ music.
 - a. classical
 - b. jazz
 - c. rock and roll

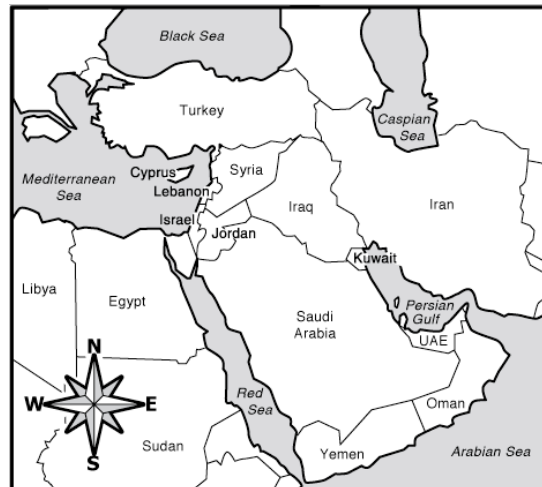
7. Only Kiden and Ada like ____ music.
 - a. jazz
 - b. classical
 - c. rock and roll

8. The person who likes all kinds of music is:
 - a. Kiden
 - b. Ada
 - c. Neo

9. Who likes jazz?
 - a. Kiden and Baye
 - b. Kiden and Neo
 - c. Baye and Ada

10. Who likes only rock and roll?
 - a. Neo
 - b. Baye
 - c. Ada

Middle East Atlas



11. Which seas surround Turkey?
 - a. Mediterranean and Black
 - b. Mediterranean and Red
 - c. Caspian, Black, and Red

12. Where is Yemen on the Arabian Peninsula?
 - a. east
 - b. middle
 - c. south

13. Which small country sits on the Persian Gulf?
 - a. Jordan
 - b. Kuwait
 - c. Saudi Arabia

14. The Caspian Sea is nearest to:
 - a. Yemen
 - b. Iran
 - c. Syria

15. Which sea is between Egypt and Saudi Arabia?
 - a. Black Sea
 - b. Caspian Sea
 - c. Red Sea

Item 45166_45170

Wash Your Hands

- (1) Ever wonder why adults always say, "Wash your hands"?
- (2) It is a simple fact: clean hands keep you healthy. Washing your hands is the best way to stop germs from spreading. Think of all the things you touch each day. You hold pencils, open and close doors, and blow your nose. Maybe you tie your shoes and play basketball on the playground. Everything you touch is full of germs.
- (3) It is very easy for germs on your hands to end up in your mouth. Germs that reach your mouth can easily cause illness. The best way to avoid germs is just to wash your hands. Then, the germs go down the drain. They cannot make you or anyone else sick.
- (4) The most important times to wash your hands are: before eating, after using the bathroom, and after blowing your nose. It is also a good idea to wash your hands after touching a pet, playing outside, or being close to a sick person.
- (5) To get your hands clean, you must rinse your hands with warm water. Next, lather your hands with soap. Work the soap up and down your fingers and on both sides of your hands and wrists. Do not forget to clean under your nails, too. To wash for the right amount of time, sing the "Happy Birthday" song slowly. When you finish the song, rinse and dry your hands with a clean towel.

16. Which place most likely has germs?
- hand soap
 - a clean towel
 - the playground
17. This story is mostly about how:
- washing hands fights germs
 - touching pets makes you sick
 - singing helps avoid illness
18. The purpose of paragraph (5) is to describe how to:
- clean your nails
 - wash your hands
 - sing a song
19. Which is a fact?
- Everything you touch is full of germs.
 - Washing your hands is easy.
 - "Happy Birthday" is a good song.
20. The command, "Wash your hands" is an example of:
- question
 - information
 - persuasion

Item 45526_45530

Pole Bending

Pole bending is a sport event on horseback. The event has six stakes or poles. The poles stand up in a line.

The horse and rider must gallop or run as fast as they can. They try to go through the poles. As the rider gets close to each pole, she must tuck in her elbows and knees. She has to try not to knock over the pole. It is harder than it looks!

Pole bending is lightning fast and exciting. Everyone should try it! You could even become a champion. If a horse and rider practice every week, they have a chance to be the best. When riders win pole bending events, they can win big prizes. Think of the prizes you could win with pole bending.

21. What is this story mostly about?
 - a. Only people who practice like pole bending.
 - b. Pole bending is a fun horse riding event.
 - c. Some horses and riders are champions

22. The purpose of this passage is to:
 - a. teach you to ride a horse
 - b. get you to try pole bending
 - c. tell you to practice horse riding

23. What does the author think is the hardest part about pole bending?
 - a. not knocking over poles
 - b. standing up in a line
 - c. practicing every week

24. Which is an opinion?
 - a. Pole bending is a sport.
 - b. The event has six stakes or poles.
 - c. It is harder than it looks!

25. Which shows the author is trying to persuade?
 - a. The poles stand up in a line.
 - b. Pole bending is a speed event.
 - c. Pole bending is super fun.

Item 45621_45625

Seat Belts

Have you ever wondered why it is so important to wear a seat belt when you're riding in the car? It's because seat belts can save lives. Each year, 40,000 people die in car accidents. In many of those accidents, people could have survived if they had been wearing seat belts.

A properly worn seat belt helps prevent serious injury or death. What happens when a car going 15 miles an hour hits something? The car stops in a tenth of a second, but a passenger not wearing a seatbelt keeps on moving until he or she hits something. Hitting the windshield or dashboard at 15 miles an hour can do great harm. Many accidents happen at much higher speeds.

A person wearing a seat belt can avoid many injuries. Properly worn seat belts fit snugly. They transfer the impact of the crash to the hips and shoulder bones. These bones are strong, and can take the shock.

Seat belts are an easy way to keep people from getting hurt. It's no surprise that many states have laws requiring people to wear seat belts. Be safe! Wear your seat belt!

26. What is the most important thing a seatbelt does?
 - a. prevents injury or death
 - b. fits snugly to your body
 - c. forces a crash

27. What is this story mostly about?
 - a. the safest types of cars
 - b. the importance of seat belts
 - c. people getting hurt in cars

28. What type of writing is this?
 - a. narrative
 - b. persuasive
 - c. fictional

29. Which is a fact?
 - a. Each year, 40,000 people die in car accidents.
 - b. Seat belts are very comfortable to wear.
 - c. You don't have to wear a seat belt at night.

30. What does the author want you to do?
 - a. drive slowly
 - b. drive a car
 - c. wear a seat belt

Item 45176_45180

Brianna

Brianna's hospital room was filled with laughter. Her mother, father and doctors exchanged glances of relief. All rejoiced at Brianna's success. The experimental treatments had worked. Brianna could finally go home.

The next morning, Brianna would leave the hospital. She would return to her home after three long months in treatment.

Brianna was excited to see all of her friends. She had not been near them since the doctors discovered her disease. Now, finally, she could feel like a normal nine-year-old girl.

"What will my friends do when they see me?" Brianna wondered. "Will they avoid eye contact? Will they even recognize me?"

Looking in a mirror, Brianna explored her new looks. She no longer had eyebrows or eyelashes. Furthermore, she had no hair on her head. Brianna put her favorite baseball cap on her bald head. She did not want her appearance to frighten her friends.

Moments later, a wise smile crossed Brianna's face. She knew exactly what to tell her friends. "It's weird to have no hair, but I feel so much better. I can't wait to get outside and play. This is the best day I've had in months!"

31. From now on, Brianna will probably:
- never have hair again
 - be healthy and happy
 - always wear her cap
32. Brianna wonders if her friends will recognize her because she:
- looks different
 - smiles broadly
 - wears a cap
33. This story is mostly about how Brianna:
- is grateful for her friendships
 - has lost some hair on her head
 - has just survived a bad illness
34. During her treatments, Brianna felt:
- sick and tired
 - normal and happy
 - scared but proud
35. Brianna wears a baseball cap to:
- cover her baldness
 - go outside and play
 - discover her disease

Item 45491_45495

Math Problems

Jake is frustrated. He is great at reading and writing, but he can never understand his math. No matter how hard he tries, he always has trouble with math homework.

Jake's classmate Bryan is great at math. One day, when Jake is feeling very frustrated, he thinks about asking Bryan for help. He decides to wait until recess because he feels embarrassed about asking in class.

At recess, Jake walks up to Bryan, still feeling nervous. "Hey, Bryan, can you help me with math?" he stammers.

"Yeah!" Bryan answers. "The homework is hard, isn't it? It took me a long time to figure it out."

Bryan shows Jake how he did the problem and helps Jake to finish it. Jake feels much better and thanks Bryan for his help.

The next day at recess, Bryan approaches Jake. "I always have a hard time with my writing homework," he says. "Do you think you could help me with it? I know you're a great writer." Jake is excited. He knows that he and Bryan will be great friends and continue to help each other

36. If Jake has trouble with math again, he will most likely:
- get angry
 - ask Bryan
 - just quit
37. Jake asks Bryan for help because:
- Bryan has trouble with writing
 - he and Bryan both like math
 - he knows Bryan is good at math
38. Bryan and Jake become friends because:
- they play together at recess
 - Bryan is very good at math
 - they can help each other out
39. Bryan is a good friend to Jake because he:
- gets good grades
 - helps Jake out
 - likes to work
40. Bryan understands Jake because Bryan:
- has a similar problem
 - enjoys doing math work
 - tries hard in writing

Item 45806_45810

The Missing Coins

Anna's grandmother had traveled all over the world. Every time she went to a new country, she would bring back a coin for Anna. Anna had a huge collection of money from all over the world. She liked to look through her collection and dream about the day when she could travel to exciting places.

One day, Anna was having a party at her house with several of her friends. She was telling her friend, Peter, about her coin collection. Peter asked if he could see it. Anna went into her room and grabbed her bag. She couldn't wait to show Peter her coins. But when she got to her room, all she saw was an empty spot on her bookshelf. Someone had stolen her coin collection!

Anna couldn't believe that one of her friends would steal her favorite possession. She started to look around the living room and try to figure out who the thief was. Maybe it was Laura. She didn't know Laura very well, so she wasn't sure if she could trust her. Or maybe it was Alex. She had only known Alex for a few weeks. And he was a trouble maker in class sometimes.

As Anna continued to scan the room, she felt a tap on her shoulder. Her little sister, Becca was standing behind her, holding a big plastic bag. "I borrowed your coin collection," she said. "I hope you don't mind. I think it's really cool. I hope I can have one someday." Anna gave Becca a hug and put her collection back in its place. Then, she went back to the living room to play with her friends. She couldn't believe she had thought they would steal from her.

41. What will Anna probably do the next time something is missing?
 - a. assume that someone stole it
 - b. ask her sister if she borrowed it
 - c. look all over her room for it

42. Why did Anna suspect some of her friends?
 - a. She didn't know them very well.
 - b. She knew they would want her coins.
 - c. She didn't know them very well.

43. Why was Anna so upset when her coin collection was missing?
 - a. It was her most special possession.
 - b. Her grandma would be mad if she lost it.
 - c. She was mad at her friends for stealing.

44. This story is mostly about:
 - a. Anna getting mad at her sister
 - b. Anna learning to trust her friends
 - c. Anna learning about different countries

45. How did Anna feel when she found out that Becca had her coins?
 - a. annoyed
 - b. relieved
 - c. suspicious

Appendix C

INSTRUCTIONS: Please select the best answer for each question.

Item 55111_55115

University Directory

Mrs. Stone takes her 5th graders on a field trip to the university. They will work in pairs to find the answers on their worksheet, "Where Would You Find." Use the chart to answer the questions.

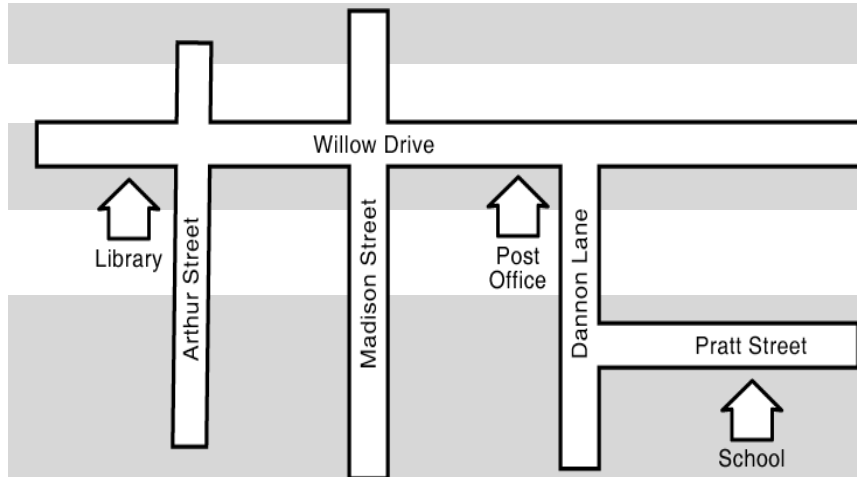
UNIVERSITY DIRECTORY	
LIBRARY	1ST FLOOR
LANGUAGES	2ND FLOOR
SOCIAL STUDIES	3RD FLOOR
SCIENCE	4TH FLOOR
SCIENCE LABS	5TH FLOOR
MATH	6TH FLOOR
ART	7TH FLOOR

- Where would you go to ask about polygons?
 - 6th floor
 - 4th floor
 - 1st floor
- Where would you go to learn to speak French?
 - 2nd floor
 - 3rd floor
 - 1st floor
- Where would you most likely see an experiment?
 - 3rd floor
 - 4th floor
 - 5st floor
- Where would you go to find a magazine?
 - 1st floor
 - 2nd floor
 - 3rd floor
- Where would you go to make something with clay?
 - 6th floor
 - 7th floor
 - 5th floor

Item 55381_55385

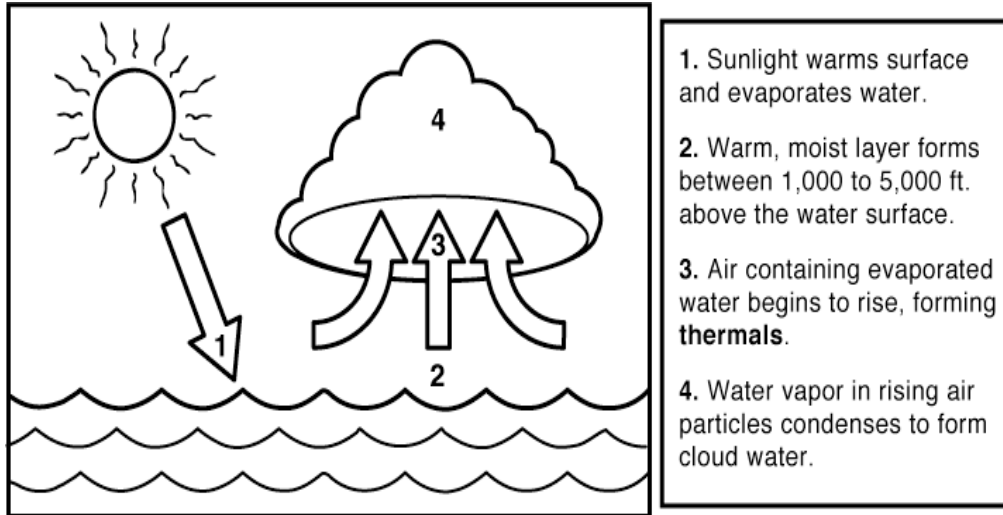
Getting To the School

Below are directions from the library to the school.



6. The directions begin at the:
 - a. post office
 - b. school
 - c. library
7. The post office is:
 - a. further from the school than the library
 - b. closer to the school than the library
 - c. between Arthur Street and Madison Street
8. What street is the school on?
 - a. Pratt Street
 - b. Willow Drive
 - c. Arthur Street
9. The library is on the corner of:
 - a. Dannon Lane and Willow Drive
 - b. Arthur Street and Willow Drive
 - c. Dannon Lane and Pratt Street
10. From the library to the school, turn right on:
 - a. Pratt Street
 - b. Dannon Lane
 - c. Madison Street

How Clouds Form



11. What causes water to evaporate?
 - a. sunlight
 - b. thermals
 - c. vapor

12. What happens to the water vapor in Step 4?
 - a. evaporates air
 - b. organizes into thermals
 - c. forms cloud water

13. What is a rising air current called?
 - a. cloud
 - b. thermal
 - c. vapor

14. The "warm, moist layer" forms ___ feet above the water surface.
 - a. 100-500
 - b. 1,000-5,000
 - c. 10,000-50,000

15. When are thermals formed?
 - a. Before the water evaporates.
 - b. After air particles condense.
 - c. After the warm, moist layer forms.

Item 55211_55215

Shark Teeth

TV shows sometimes report the horrors of sharks biting people. They tell of people who lose arms and legs after an encounter with a terrifying shark. The great white shark is the largest predator shark.

Just how many teeth does a great white shark have? There are twenty-six sharp teeth on the top, and a row of twenty-four on the bottom. When they open their great mouths it's a terrifying sight!

Great white sharks may try to bite anything that appears to be food. Their teeth can cut through bones and sever limbs. Sometimes, however, they make mistakes. They may bite things like the motors on boats. When they bite something hard, they often lose several teeth.

Losing teeth does not alarm a great white. Sharks have extra teeth in their mouths. When an old tooth falls out, a new tooth moves forward. It joins the other teeth in the row. A shark may use up to 30,000 teeth in its lifetime! It is natural for sharks to lose their teeth.

Should a person assume an animal with that many teeth chews its food? Great white sharks do not! They rip their food into pieces the size of their mouth. Then, they swallow the entire piece whole.

A great white shark is a rude guest if you enjoy proper table manners!

16. Great white sharks are:
 - a. slender and quick
 - b. harmless big fish
 - c. fearsome predators

17. A shark may lose a full set of teeth:
 - a. many times
 - b. just once
 - c. only twice

18. The author wants to:
 - a. share shark stories
 - b. tell about shark teeth
 - c. save shark teeth

19. Which is an opinion?
 - a. shark mouths are terrifying
 - b. sharks use thousands of teeth
 - c. sharks swallow their food whole

20. What does "sever" mean here: "Their teeth can cut through bone and sever limbs."
 - a. fall out
 - b. taste
 - c. cut off

Item 55526_55530

Generalist Raccoon

(1) Many animals fit into groups called generalists and specialists. A generalist animal is one that can live in many different places, eat different foods, and adapt to change well. The raccoon is a perfect generalist.

(2) Raccoons first lived only in the forest. But they spread to the mountains, swamps, and even cities and towns. You may have even seen a raccoon family cross the street at night!

(3) One thing that helps raccoons move to new places is that they are omnivores. An omnivore can eat plants or other animals. This means that they can live off of almost any food they find.

(4) Another thing that helps raccoons live in a variety of places is the raccoon brain. Raccoons can solve problems and remember the answer for years. This may be why they can learn to live in complex places like cities.

(5) Many other animals fit into the generalist group. Roaches, possums, and even humans are generalists. But since roaches are gross, and possums are rare, the most interesting generalist animal for humans to study is the raccoon.

21. A specialist animal probably:
- eats a variety of food
 - lives in only one place
 - adapts to change well
22. What is the purpose of this story?
- help raccoons live
 - tell about raccoons
 - explain specialists
23. What does the author most want you to know?
- Raccoons are generalists.
 - Most animals are specialists.
 - Omnivores eat anything.
24. Which is an opinion?
- Raccoons can live in a variety of places.
 - Raccoons can eat both plants and animals.
 - Raccoons are the most interesting generalists.
25. Which paragraph is the most persuasive?
- (1)
 - (2)
 - (5)

Item 55071_55075

Yurts

What kind of house is round, easy to build, and lightweight? It's a yurt! A yurt is an ancient type of portable dwelling that was used for many different activities. It was adapted to many different climates and was comfortable, strong and easy to move.

Yurts originated in eastern Asia and are still used extensively today. They were used by hunters, herders and nomads. Wherever they traveled, their round house could easily be set up and taken down. The sides were made of animal skins or canvas that was stretched over poles. The round shape allowed the wind to flow around instead of beating at the flat sides of a structure. The hole in the center of the roof allowed the smoke to escape. The yurt was also used as a shelter for traveling armies.

Nowadays, the yurt has become a familiar sight at campgrounds and in forests. This dependable, eco-friendly structure has many additional features that make it a comfortable and affordable place to stay. It's cozy, comfortable and heated. The weather never is a problem because campers are always protected and dry in a yurt. The best part is being able to look up at the stars, just like those nomadic wanderers, soldiers and hunters did so many centuries ago, telling their stories around the campfire.

26. Yurts are primarily used for:
- shelter
 - hunting
 - herding
27. Many different groups used yurts because:
- animal skins were very common
 - yurts work well in any climate
 - people like to look up at stars
28. Yurts are strong because they:
- have a hole in the center
 - are round in shape
 - are an ancient dwelling
29. Yurts are a popular shelter today because they are:
- dependable and eco-friendly
 - a familiar sight in forests
 - dwellings from eastern Asia
30. Traveling armies probably used yurts because:
- they are used extensively
 - they were inexpensive to buy
 - they are portable and provide shelter

Item 55446_55450

Noah's Lesson

Noah is in middle school. He is a solid student who gets good grades. He hopes to be able to go to a good college someday, just like his older brothers.

Noah is also very responsible with his money. He likes to babysit for his neighbors and save the money in his bank account. He hopes to be able to use his money for his education.

Noah has just started babysitting for a new family in his neighborhood. They have three boys who are very energetic, so the parents pay Noah very well. They like Noah because he is good at thinking of creative activities to do with the boys.

One day when Noah is at their house, he sees a room that he has never entered before. He opens the door and sees shelves that are bursting with all kinds of electronics. Noah realizes that this is an opportunity. He doesn't think the family will notice if he steals a few items from the shelves.

First, he steals a few DVDs. "These don't cost much," he thinks. "What's the big deal?"

Next, he grabs a cell phone and an MP3 player. All of these items are small, so they fit nicely in his backpack. Before long, Noah begins to take a new item with him every time he babysits for the family.

After a few weeks, the boys' father begins to notice that something is fishy. His shelves look emptier every day. One day, he comes home early and sees Noah stealing his electronics. Noah is caught red-handed.

Noah begins to cry and confesses to his crimes. The next day, he returns all of the stolen electronics. He realizes that he has lost his job and his reputation in the neighborhood.

31. When Noah steals, he shows:
 - a. creativity
 - b. dishonesty
 - c. reliability

32. Why does Noah think he has lost his reputation?
 - a. Word might spread about him stealing.
 - b. He is not good at playing with kids.
 - c. He did not make good choices about money.

33. What does "caught red-handed" mean?
 - a. angry
 - b. rosy
 - c. guilty

34. The father notices something fishy. Here, "fishy" means:
 - a. suspicious
 - b. edible
 - c. dishonest

35. This story is a:
 - a. moral tale
 - b. fairy tale
 - c. fantasy

Item 55581_55585

The New House

Margo was excited. Today was the day she was moving into her new house. Margo had spent all summer looking for just the right place to move. The new house had to be just the right size, not too big and not too small. It was also important that the neighbors be quiet as mice. Margo liked to sleep like a log all winter long. If there were noisy neighbors, she wouldn't be able to. Margo also wanted a house that would stay dry all winter long. She did not like to wake up wet and cold. The most important thing was that the new house was safe. Her new cubs would be born in spring and they would need to be kept warm and cozy. Margo found the perfect spot in the woods. She made a bed with soft leaves and pine branches that would keep her toasty warm and lay down to sleep.

36. Margo is most likely a:
- person
 - bear
 - tree
37. What sort of house might Margo live in?
- an igloo
 - an apartment
 - a cave
38. What does "toasty warm" mean?
- crunchy
 - put in the toaster
 - warm and dry
39. What does "sleep like a log" mean?
- grow moss and ferns
 - sleep very deeply
 - to lay on the ground
40. "Quiet as mice" is an example of what?
- simile
 - metaphor
 - effect

Item 55671_55675

Bear Scare

(1) Nate looked out at the snowy Alaskan landscape around him as he floated down the mighty Copper River. Nate's heart soared when he was out alone in the wilderness. He loved the peaceful quiet of nature.

(2) Nate paddled his kayak to the shore. It had been a long day, and he was ready for bed. The temperature dropped like a stone as the sun set. Nate ate his dinner quickly and got into bed.

(3) He had just drifted off to sleep, when he awoke to a low rumbling noise outside his tent. At first Nate thought he was dreaming, but then he heard it again, closer this time.

(4) Nate looked outside the tent and saw who his mysterious visitor was: a grizzly bear! Nate was scared. He knew that grizzly bears were one of the most dangerous animals in the world!

(5) Just then, Nate noticed his backpack beside him in the tent. He had accidentally left a bag of snacks inside it, and the bear had smelled the food and had come to explore! Nate thought fast.

(6) Quickly, he unzipped the tent, and threw the backpack as far as he could. The bear looked up, surprised, and began walking towards the backpack. As soon as its back was turned, Nate crept from the tent and walked very slowly towards his kayak, which was resting close to the river. The bear looked up, growled, and began walking in Nate's direction.

(7) Nate put the kayak in the water, jumped in and paddled off. The bear stopped at the edge of the river and watched him go. Nate's heart felt like it would explode in his chest, he was so scared. As he paddled down the moonlit river, he began to relax, realizing he was safe. He knew this was a kayak trip he would never forget!

41. The lesson of this story is:
- Grizzly bears are dangerous.
 - Plan ahead to be safe.
 - Don't carry a backpack.
42. Nate will probably always ___ his camping adventure.
- regret
 - recommend
 - remember
43. In paragraph (6), "Nate crept from the tent" means Nate moved:
- slowly
 - quickly
 - clumsily
44. In paragraph (2), "dropped like a stone" is an example of a(n):
- metaphor
 - simile
 - idiom
45. In a bookstore, this story would be in the ___ section.
- fantasy
 - adventure
 - mystery