

# Classworks Progress Monitoring Reliability & Validity - Reading and Math



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# Classworks Progress Monitoring Reliability & Validity - Math

## Descriptive Information

Classworks Progress Monitoring is a web-based assessment and reporting system that includes both easy-to-administer progress monitoring assessments and real-time data and reports. Classworks Progress Monitoring assessments are formal assessments used to monitor student performance and measure growth on key strands. This will allow teachers to track progress and retention of gains with assessments for grades 1-8, given online for immediate and automatic scoring and reporting. Administered weekly, the assessments monitor progress throughout the intervention period and indicate student rate of improvement.

## Key Features

- Designed to measure progress towards an end of year goal
- Administration time of 20 minutes
- 20 alternate forms
- Automatic scoring
- Computer or tablet and internet required for administration

## Scoring Data

- Performance level scores
- Age norms
- Scaled scores
- Raw scores
- Norm-referenced percentile ranks
- Grade level equivalency

## Student Application

- Intended for use with grades K-8
- To be used in general education, students with disabilities, and English Language Learners
- Dimensions assessed:
  - » Algebra
  - » Geometry
  - » Mathematical Processes
  - » Measurement
  - » Numeration
  - » Operations
  - » Patterns
  - » Statistics and Probability

## Special Accommodations for Students with Disabilities

Classworks assessments and instruction are designed to be accessible for most students. Accessible design features included should aid most students who typically require testing accommodations such as large print, audio support, or extra time. Accommodations included are as follows:

- **Extra Time** - The assessment may be stopped and started to allow extra time to finish, it can be administered in multiple test sessions, and is untimed.

- **Presentation** - Classworks diagnostic items are presented in a large, easily legible format specifically chosen for its readability. With HTML5, you have the ability to change the screen size and font size.
- **Audio Support** - Audio support is available for all grades.
- **Setting** - Classworks assessments are web-based. They can be completed on any device with internet access that meets technical requirements. Students may use headphones to benefit from audio support.
- **Response** - Classworks assessments are easily completed on a computer using point and click or on a tablet device using touch screens for those with motor impairments.

## Rates of Improvement and End-of-Year Benchmarks

The Rate of Improvement is calculated for each student. This target line is used to monitor the progress of the intervention. The student's trend line is a prediction of how a student will progress during the intervention period, based on their CBM results. This is initially calculated after three probes have been completed. Classworks calculates the trend line, also known as the rate of improvement/slope, using an ordinary least squares regression equation. In essence, it comes down to the number of points the student is expected to improve on each week which varies depending on what each student needs to make appropriate progress.

## Reliability

The Classworks assessment affords the means to screen students on multiple occasions (e.g., Fall, Winter, Spring, or weekly) during the school year. Thus, test-retest reliability is necessary, and we estimate test-retest reliability via the Pearson correlation between Classworks Screener scores of students taking tests in two terms within the school year (Fall/Winter, and Winter/Spring).

The second reliability test is Cronbach's Alpha, a measure of internal consistency. This analysis was conducted on a sample of students who had posted scores for three sets of Classworks Screener questions, all of which aimed to measure a single construct - student's proficiency in mathematics.

Type of Reliability	Subscale	Age/Grade	n (sample/ examinees)	Median Coefficient	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Test-Retest (Fall/ Winter)	Math	Grade 2	1237	0.6	0.56	0.63
Test-Retest (Winter/ Spring)	Math	Grade 2	967	0.7	0.67	0.74
Cronbach's Alpha (internal consistency)	Math	Grade 2	851	0.83	0.81	0.85
Test-Retest (Fall/ Winter)	Math	Grade 3	1212	0.67	0.63	0.7
Test-Retest (Winter/ Spring)	Math	Grade 3	908	0.76	0.73	0.79
Cronbach's Alpha (internal consistency)	Math	Grade 3	802	0.86	0.84	0.88

Test-Retest (Fall/ Winter)	Math	Grade 4	1350	0.65	0.62	0.68
Test-Retest (Winter/ Spring)	Math	Grade 4	1140	0.72	0.69	0.75
Cronbach's Alpha (internal consistency)	Math	Grade 4	916	0.86	0.85	0.88
Test-Retest (Fall/ Winter)	Math	Grade 5	1421	0.71	0.68	0.73
Test-Retest (Winter/ Spring)	Math	Grade 5	1245	0.72	0.69	0.75
Cronbach's Alpha (internal consistency)	Math	Grade 5	1072	0.88	0.87	0.89
Test-Retest (Fall/ Winter)	Math	Grade 6	1771	0.7	0.68	0.73
Test-Retest (Winter/ Spring)	Math	Grade 6	1264	0.71	0.68	0.74
Cronbach's Alpha (internal consistency)	Math	Grade 6	1016	0.88	0.86	0.89
Test-Retest (Fall/ Winter)	Math	Grade 7	1286	0.65	0.62	0.68
Test-Retest (Winter/ Spring)	Math	Grade 7	922	0.66	0.62	0.69
Cronbach's Alpha (internal consistency)	Math	Grade 7	791	0.84	0.82	0.86

## Validity

The validity evidence for the Classworks assessments comes from the relationships of Classworks test scores to NWEA MAP Growth test scores. These relationships include:

- The concurrent performance of students on Classworks tests with their performance on MAP Growth tests.
- The predictive relationship between students' performance on Classworks tests with their performance, two testing terms later, on MAP Growth tests.

The Measures of Academic Progress (MAP) is used as the outcome measure. Published by the NWEA the MAP Growth is regarded as a highly valid and reliable measure of broad reading ability. The NWEA website states, "Our tools are trusted by educators in 140 countries and more than half the schools in the US" which indicates it can be considered an excellent outcome measure for classification studies.

For the validity analysis conducted, we used concurrent and predictive validity. Concurrent validity was estimated as the Pearson correlation coefficient between student scores from fall 2017 and the same students' total scale score on the Map Growth assessment (also administered in fall 2017). Predictive validity was estimated as the Pearson correlation coefficient between student scores from a given term (fall 2017) and the same students' total scale score on the MAP Growth assessment administered in winter 2017-2018.

Concurrent and predictive validity coefficients, for each grade and each time of year, were consistently in the mid to high 0.60s to 0.70s. This validity evidence demonstrates a strong relationship between the Classworks math assessment and the MAP Growth assessments across the grades and times of year reported.

Type of Validity	Subscale	Age/Grade	Test or Criterion	n (sample/ examinees)	Median Coefficient	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Concurrent (Fall/ Fall)	Math	Grade 2	Map Growth	262	0.63	0.55	0.7
Predictive (Fall/ Winter)	Math	Grade 2	Map Growth	263	0.66	0.59	0.72
Concurrent (Fall/ Fall)	Math	Grade 3	Map Growth	273	0.77	0.71	0.81
Predictive (Fall/ Winter)	Math	Grade 3	Map Growth	269	0.78	0.72	0.82
Concurrent (Fall/ Fall)	Math	Grade 4	Map Growth	310	0.67	0.6	0.72
Predictive (Fall/ Winter)	Math	Grade 4	Map Growth	309	0.64	0.57	0.71
Concurrent (Fall/ Fall)	Math	Grade 5	Map Growth	295	0.74	0.69	0.79
Predictive (Fall/ Winter)	Math	Grade 5	Map Growth	292	0.73	0.67	0.78
Concurrent (Fall/ Fall)	Math	Grade 6	Map Growth	192	0.71	0.63	0.77
Predictive (Fall/ Winter)	Math	Grade 6	Map Growth	191	0.71	0.63	0.77
Concurrent (Fall/ Fall)	Math	Grade 7	Map Growth	95	0.66	0.53	0.76
Predictive (Fall/ Winter)	Math	Grade 7	Map Growth	94	0.68	0.56	0.78

# Classworks Progress Monitoring Reliability & Validity - Reading

## Descriptive Information

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## Key Features

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## Scoring Data

- Performance level scores
- Age norms
- Scaled scores
- Raw scores
- Norm-referenced percentile ranks
- Grade level equivalency
- Rate of improvement

## Student Application

- Intended for use with grades K-8
- To be used in general education, students with disabilities, and English Language Learners
- Dimensions assessed:
  - » Grammar Usage/Mechanics
  - » Reading
  - » Study Skills

## Special Accommodations for Students with Disabilities

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## Reliability

The Classworks reading assessment affords the means to screen students on multiple occasions (e.g., Fall, Winter, Spring) during the school year. Thus, test-retest reliability is necessary, and we estimate test-retest reliability via the Pearson correlation between Classworks Screener scores of students taking tests in two terms within the school year (Fall/Winter, and Winter/Spring). The second reliability test is Cronbach's Alpha, a measure of internal consistency. This analysis was conducted on a sample of students who had posted scores for three sets of Classworks Screener questions, all of which aimed to measure a single construct--student's proficiency in reading.

Type of Reliability	Subscale	Age/Grade	n (sample/ examinees)	Median Coefficient	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Test-Retest (Fall/ Winter)	Reading	Grade 2	1283	0.61	0.57	0.64
Test-Retest (Winter/ Spring)	Reading	Grade 2	1038	0.72	0.68	0.74
Cronbach's Alpha (internal consistency)	Reading	Grade 2	927	0.85	0.83	0.86
Test-Retest (Fall/ Winter)	Reading	Grade 3	1202	0.74	0.71	0.76
Test-Retest (Winter/ Spring)	Reading	Grade 3	978	0.75	0.72	0.78
Cronbach's Alpha (internal consistency)	Reading	Grade 3	849	0.89	0.87	0.9



Test-Retest (Fall/ Winter)	Reading	Grade 4	1339	0.72	0.7	0.75
Test-Retest (Winter/ Spring)	Reading	Grade 4	1144	0.75	0.73	0.78
Cronbach's Alpha (internal consistency)	Reading	Grade 4	928	0.89	0.88	0.9
Test-Retest (Fall/ Winter)	Reading	Grade 5	1482	0.79	0.77	0.81
Test-Retest (Winter/ Spring)	Reading	Grade 5	1290	0.77	0.75	0.79
Cronbach's Alpha (internal consistency)	Reading	Grade 5	1126	0.91	0.9	0.92
Test-Retest (Fall/ Winter)	Reading	Grade 6	1733	0.76	0.74	0.78
Test-Retest (Winter/ Spring)	Reading	Grade 6	1484	0.76	0.74	0.79
Cronbach's Alpha (internal consistency)	Reading	Grade 6	1155	0.89	0.88	0.91
Test-Retest (Fall/ Winter)	Reading	Grade 7	1376	0.78	0.76	0.8
Test-Retest (Winter/ Spring)	Reading	Grade 7	1032	0.71	0.67	0.74
Cronbach's Alpha (internal consistency)	Reading	Grade 7	893	0.89	0.88	0.9

## Validity

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Concurrent (Fall/Fall)	Reading	Grade 2	Map Growth	150	0.69	0.6	0.77
Predictive (Fall/Winter)	Reading	Grade 2	Map Growth	150	0.76	0.68	0.82
Concurrent (Fall/Fall)	Reading	Grade 3	Map Growth	139	0.72	0.62	0.79
Predictive (Fall/Winter)	Reading	Grade 3	Map Growth	138	0.72	0.63	0.79
Concurrent (Fall/Fall)	Reading	Grade 4	Map Growth	189	0.79	0.73	0.84
Predictive (Fall/Winter)	Reading	Grade 4	Map Growth	190	0.72	0.64	0.78
Concurrent (Fall/Fall)	Reading	Grade 5	Map Growth	198	0.74	0.66	0.79
Predictive (Fall/Winter)	Reading	Grade 5	Map Growth	196	0.71	0.63	0.77
Concurrent (Fall/Fall)	Reading	Grade 6	Map Growth	153	0.72	0.64	0.79
Predictive (Fall/Winter)	Reading	Grade 6	Map Growth	153	0.7	0.61	0.77
Concurrent (Fall/Fall)	Reading	Grade 7	Map Growth	57	0.84	0.74	0.9
Predictive (Fall/Winter)	Reading	Grade 7	Map Growth	57	0.8	0.68	0.88



To learn more, go to [www.classworks.com](http://www.classworks.com)  
or email [hello@classworks.com](mailto:hello@classworks.com)

