



Department of  
**Education**

# Math Resources: Assessments to Inform Present Levels

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# Document Use

This document has been designed to provide various math assessments that will inform PLEPs (Present Levels of Educational Performance) for the IEP writing process. The PLEP should provide the foundation for the data-based decisions the IEP team is required to make with regard to a student's goals, supports, accommodations, modifications, and services for the next year. The PLEP also provides information for selecting appropriate interventions and supports and services, including the least restrictive environment (LRE).

This document will assist the educator in choosing appropriate assessments to inform each PLEP (i.e., basic reading, reading fluency, and reading comprehension) and ultimately inform aligned, deficit-based interventions in the area of reading.

*Formatting Note:*

*The notation "4:0-24:11" means 4 years 0 months through 24 years 11 months.*

# Math Areas of Deficit

Math areas of deficit include math calculation and math problem solving. **Math calculation** is the knowledge and retrieval of facts and the application of procedural knowledge in calculation. **Math problem solving** involves using mathematical computation skills, language, reasoning, reading, and visual-spatial skills in solving problems; and applying mathematical knowledge at the conceptual level.

Many of the assessments included in this document include components of both math calculation and math problem solving. In many cases, the distinction between math calculation and math problem solving is determined by how the skill is being used. For example, assessment of fraction operations would fall under math calculation; however, assessment of fractions used in the context of measurement would fall under math problem solving. Therefore, it is crucial that school teams use a variety of assessment information, including diagnostic assessments, to determine the student's most foundational skill deficit and intervene appropriately.

Source: *RTP Implementation Guide*

# Math Areas of Deficit

The following chart is intended as a guide for helping determine a student's deficit. Additional information can be found in the [RTP<sup>2</sup> Implementation Guide](#) (p.217-218) and the [Math Rubric](#).

Area of Deficit	Associated Deficits	Typically Assessed Skills*
<i>Math Calculation</i>	Deficits in number sense and operations, one-to-one correspondence; learning and remembering basic facts	Counting and cardinality Place value Basic facts Multi-digit operations Fraction and decimal operations Ratios and rates Integers and rational numbers Exponents Expressions and equations Algebraic operations
<i>Math Problem Solving</i>	Difficulty identifying important information; filtering out unimportant information and determining necessary steps in problem solving; deficits in math vocabulary and mathematical metacognition (i.e., the inability to monitor one's own learning)	Application of calculation skills Comparing quantities Using place value Time Money Measurement/Geometry Word problems

\*This is not an exhaustive list.

Source: *RTP<sup>2</sup> Implementation Guide*

# Table of Contents

## Math Assessments

[Aimsweb](#)

[Aimsweb Plus](#)

[BASI](#)

[CIBS-II](#)

[CMAT](#)

[CTP](#)

[DAB-4](#)

[DAB-I](#)

[EasyCBM](#)

[HAMAT](#)

[KeyMath-3](#)

[KTEA-2](#)

[PAL-II Math](#)

[Star Math](#)

[TOMA-3](#)

[WIAT-III](#)

[WJ-IV Achievement](#)

[WRAT-4](#)

# Academic Improvement Measurement System (AIMSweb)



## Ages

- Early Numeracy: Grades K-1
  - Math: Grades 2-8

## Administration & Time

- ≈1-25 minutes per subtest
- 1:1 administration for Early Numeracy measures
  - Group administration for Math measures
- May be computer or paper administration

## Purpose

- To screen all students (universal screening tool)
  - To progress monitor broad progress
- To identify skill-level needs (some subtests)

## English Learner (EL) Options

Spanish Options:

- Early Numeracy
  - Math

## Additional Information

High school norms included (see [TDOE guidance document](#) for high school)

## Subtests

### Early Numeracy

- Test of Early Numeracy

### Math

- Math Computation (M-COMP)
- Mathematics Concepts and Applications (M-CAP)

# Academic Improvement Measurement System Plus (AIMSweb Plus)



**Ages**  
Grades K-8

## **Administration & Time**

- ≈ 1-25 minutes per subtest
- Computer or paper administration

## **Purpose**

- Universal screening tool
- Broad outcome progress monitor
- Some subtests identify skill-level needs

## **EL Options**

Spanish Options

## **Additional Information**

High school norms included (see [TDOE guidance document](#) for high school)

## **Subtests**

### *Early Numeracy*

- Number Naming Fluency
- Quantity Total Fluency
- Quantity Difference Fluency
- Concepts and Applications
- Number Comparison Fluency
- Math Facts Fluency – 1 digit
- Math Facts Fluency – Tens

### *Grades 2-8*

- Number Comparison Fluency
- Mental Computation Fluency
- Concepts and Applications

# Basic Achievement Skills Inventory (BASI)



## Ages

- Comprehensive version: 8:0-80:0
- Survey version: Grades 3-12

## Administration & Time

- ≈ 115 minutes for complete battery
- ≈ 20-35 minutes per subtest

## Purpose

Comprehensive version:

- Determine academic strengths and weaknesses
  - Monitor student progress

Survey version:

- Gain quick overview of achievement
  - Screen for giftedness

## Additional Information

- Can choose comprehensive or survey version based on purpose of assessment
  - Publication date is 2004

## Subtests

### *Comprehensive Version*

- Math Computation
- Math Application

### *Survey Version*

- Math

# Brigance Comprehensive Inventory of Basic Skills (CIBS-II)



**Ages**  
Grades Pre-K-9

## Administration & Time

- ≈15-30 minutes per subtest (highly flexible)
  - 1:1 or group administration

## Purpose

- Assess students' strengths and needs in the classroom
  - Inform PLEPs and goals

## EL Options

Brigance ABS-R (Assessment of Basic Skills-Revised, Spanish edition) for grades PK-9

## Additional Information

Many subtests across multiple domains available

## Math Skills Assessed

- Number and operations
- Algebra
- Geometry
- Measurement
- Data analysis and probability

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# Comprehensive Mathematical Abilities Test (CMAT)



## Ages

7:0-18:11

## Administration & Time

- ≈30-120 minutes
- 1:1 administration

## Purpose

Assess individual math strengths and weaknesses, including for higher level math students

## Additional Information

- National age- and grade-based norms available
- Can select 2-12 subtests according to need

## Subtests

### Core Subtests

- Addition
- Subtraction
- Multiplication
- Division
- Problem Solving
- Charts, Tables, and Graphs

### Supplemental Subtests

- Rational Numbers
- Algebra
- Geometry
- Time
- Money
- Measurement

# Comprehensive Testing Program (CTP4/CTP Online by ERB)



## **Ages**

Grades 1-11

(some subtests begin in grade 3)

## **Administration & Time**

- $\approx 2 \frac{1}{2}$ -4 hours
- Group administration (paper or online)
  - Standardized

## **Purpose**

To assess high-achieving students on content and conceptual knowledge

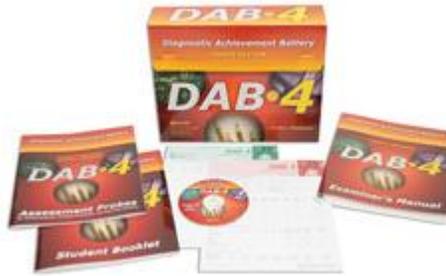
## **Additional Information**

- Gives percentile ranks based on national norms
- Primarily normed on private school students in the northeast

## **Subtests**

- Mathematics (Grades 1-11)
- Quantitative Reasoning (Grades 3-11)

# Diagnostic Achievement Battery, 4th Edition (DAB-4)



## **Ages:**

6:0-14:11

## **Administration & Time**

- ≈ 60-120 minutes
- 1:1 or small group administration, depending on the subtest
  - Standardized

## **Purpose**

- Assess academic abilities
- Determine student strengths and weaknesses
  - Document student progress

## **Additional Information**

Provides standard scores, percentile ranks, and age/grade equivalents

## **Subtests**

- Math Reasoning
- Math Calculation

# Diagnostic Achievement Battery – Intermediate (DAB-I)



## Ages

13:0-17:11

## Administration & Time

- ≈ 60-90 minutes
  - 1:1
- Standardized

## Purpose

- Assess academic abilities
- Inform remediation planning

## Additional Information

Provides standard scores, percentile ranks, and age/grade equivalents

## Subtests

- Math Reasoning
- Math Calculation



## Ages

Grades K-8

## Administration & Time

- ≈8-45 minutes per subtest
- Paper/pencil or online
- Group administration

## Purpose

- Universal screening tool
- Broad outcome progress monitor
- Some subtests identify skill-level needs

## EL Options

Spanish

## Additional Information

- Norms included for K-8 (see [TDOE guidance document](#) for high school)
  - NCTM and CCSS Math universal screening available

## Subtests

### Screening Measures

- NCTM
- CCSS Math

### Progress Monitoring Measures

- Numbers & Operations
- Geometry
- Measurement
- Geometry, Measurement, Algebra
- Numbers, Operations, Algebra, & Geometry
- Numbers, Operations, and Algebra
- Algebra
- Numbers, Operations, and Ratios
- Geometry & Measurement
- Data Analysis, Numbers, Operations, and Algebra
- CCSS Math

# Hammill Multiability Achievement Test (HAMAT)



## **Ages**

7:0-17:11

## **Administration & Time**

- ≈ 30-60 minutes
- 1:1 administration

## **Purpose**

- Assess academic abilities
- Determine student strengths and weaknesses

## **Additional Information**

Normed in 1998

## **Subtests**

- Mathematics (computation)

# KeyMath-3 Diagnostic



## Ages

- 4:6-21:11
- Grades K-12

## Administration & Time

- $\approx$  30-90 minutes
- 1:1 administration
- Paper/pencil

## Purpose

- To diagnose mathematical weaknesses
  - To monitor growth and progress

## Additional Information

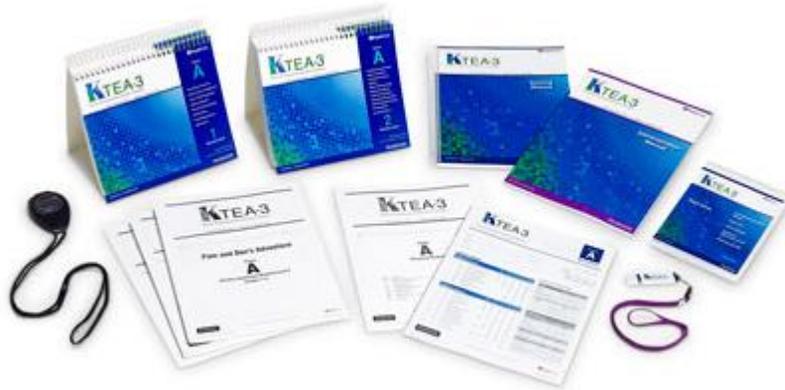
- Nationally normed
- Composite provides standard scores, age/grade equivalents, percentile ranks, and growth scale values

## Subtests

- Numeration
- Algebra
- Geometry
- Measurement
- Data Analysis & Probability
- Mental Computation and Estimation
- Written Computation: Addition and Subtraction
- Written Computation: Multiplication and Division
- Foundations of Problem Solving
- Applied Problem Solving

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# Kaufman Test of Educational Achievement, Second Edition (KTEA-II)



## Ages

4:0-25:11

## Administration & Time

- ≈15-85 minutes
- Paper/pencil or online

## Purpose

- In-depth assessment of key academic skills
- Identifying and remediating learning gaps
  - Measuring student progress

## Additional Information

Web-based or manual scoring

## Subtests

- Math Concepts and Applications
- Math Computation

# Process Assessment of the Learner- Second Edition: Diagnostics for Math (PAL-II)



## Ages

Grades K-6

## Administration & Time

- Time varies depending on subtests used
  - Paper/pencil

## Purpose

- Investigate cognitive processes related to math
- Provide diagnostics of math weaknesses
  - Inform PLEPs and goals

## Additional Information

Can be used briefly or comprehensively

## Subtests

- Oral Counting
- Place Value
- Part-Whole Relationships (Time)
- Fact Retrieval
- Computation Operations
- Multi-Step Problem Solving
- Quantitative Working Memory
- Part-Whole Fractions and Mixed Numbers

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# Star Math (Renaissance)



## **Ages:**

Grades 1-12

## **Administration & Time**

- ≈ 20 minutes
- Computer-administered
- Computer-adaptive

## **Purpose**

To screen/monitor students for math achievement levels

## **EL Options**

Spanish Option: Grades 1-8

## **Additional Info**

Provides percentile rank, normal curve equivalent, and student growth percentile

## **Math Skills Assessed**

- Numeration Concepts
- Computation Processes
- Estimation
- Geometry
- Measurement
- Data Analysis and Statistics
- Word Problems
- Algebra

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# Test of Mathematical Abilities – 3rd Edition (TOMA-3)



## Ages

8:0-18:11

## Administration Time

- 60-90 minutes
- Group or individual administration

## Purpose

Identify, describe, and quantify math deficits

## Subtests

- Mathematical Symbols and Concepts
- Computation
- Mathematics in Everyday Life
- Word Problems
- Attitude Toward Math (supplemental)

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# Weschler Individual Achievement Test (WIAT-III)



**Age**  
4:0-Adult

## **Administration & Time**

- Varies by grade level and number of subtests
  - 1:1
  - Paper/pencil or online

## **Purpose**

- To identify academic strengths and weaknesses
  - To inform instructional decisions

## **Additional Information**

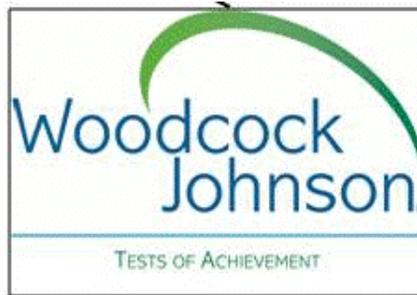
Provides standard scores, percentile ranks, stanines, NCEs, and age/grade equivalents

## **Subtests**

- Math Problem Solving
- Numerical Operations
- Math Fluency – Addition
- Math Fluency – Subtraction
- Math Fluency – Multiplication

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# Woodcock-Johnson IV Tests of Achievement (WJ Ach IV)



## **Age**

Grades Pre-K-12

## **Administration & Time**

- Time varies by grade level and number of subtests
  - 1:1
  - Standardized

## **Purpose**

- To identify and describe patterns of performance across achievement
  - To determine academic strengths and weaknesses

## **Subtests**

### *Standard Battery*

- Calculation
- Math Facts Fluency
- Applied Problems

### *Extended Battery*

- Number Matrices

# Wide Range Achievement Test (WRAT-4)



## Age

Grades Pre-K-12 (5:0-Adult)

## Administration & Time

- ≈ 15-45 minutes
- 1:1 or small group
- Paper/pencil

## Purpose

- To assess academic skills
- To screen for further evaluation

## Additional Information

Addresses math calculation

## Subtests

- Math Computation



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