



**EMA@SCHOOL**



## Early Math Assessment@School Brief Description

March 2026

The EMA@School is a set of early math tasks for children from kindergarten to grade 5 (Grade 6 under development). It was designed to help teachers identify and address gaps in their students' foundational understanding of number and can be used for Fall, Winter, and Spring assessments. For grades 2 to 6, the EMA@School can be administered to a whole class in under one hour. For Kindergarten, assessments are done individually and require 5-10 minutes per child. In Grade 1, some of the tasks are administered individually in the Fall, but by Winter assessment, tasks can be done in whole class or in small groups. Teachers are free to decide which approach works best for their students.

The EMA@School assesses children's knowledge of numbers and other symbols (e.g., counting and number sequences; links among numerals, quantities and words), relations (e.g., number lines, comparing and ordering digits), and operations (e.g., addition, subtraction, multiplication and division). Additional measures for older children include conceptual knowledge of fractions, decimals, and equations. The measures are based on research conducted over the last 20+ years, as described in the Interpretation Guide.

General descriptions of the tasks are provided in Table 1. The tasks are sensitive to curriculum expectations, however, in some cases they exceed curriculum requirements. They include timed and untimed assessments. Reliabilities (internal) are good to excellent. Construct validity is based on research and the assessment has also been validated in relation to other standardized numeracy assessments and to the Ontario EQAO assessment.

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| <p><a href="http://www.carleton.ca/mathlab">www.carleton.ca/mathlab</a></p>  <p>MATH LAB</p> | <p>The EMA@School was developed by Heather Douglas, Ph.D., B. Ed., and Jo-Anne LeFevre, Ph.D., at Carleton University © 2021, 2022, 2023, 2024, 2025, 2026.</p> <p>Licenses and Service Agreements are through the AIM Research Centre (ARC).</p> | <p><a href="http://www.carleton.ca/arc">www.carleton.ca/arc</a></p>  <p>AIM Research Centre</p> |
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**Table 1.** Assessments Included in the EMA@School

| Name  | Description   | Grade |   |   |   |   |   |   |
|---|---|-------|---|---|---|---|---|---|
|   |   | K     | 1 | 2 | 3 | 4 | 5 | 6 |
| <b>Symbols</b>                                |   |       |   |   |   |   |   |   |
| Dot Counting <sup>1</sup>                     | Count sets of dots (up to 12) and name the sets, that is, “how many dots?”.   | √     |   |   |   |   |   |   |
| Verbal Counting <sup>1</sup>                  | Recite the count sequence up to 100.  | √     | √ |   |   |   |   |   |
| Number Naming <sup>1</sup>                    | Name printed Arabic numbers (e.g., 6, 15, 27).  | √     | √ |   |   |   |   |   |
| Next Numbers <sup>1</sup>                     | Continue number sequences orally.   |       | √ |   |   |   |   |   |
| Number Writing <sup>2</sup>                   | Write down numbers as teachers read them aloud (e.g., 12, 67, 150 etc.).  |       | √ | √ | √ | √ | √ | √ |
| Symbol Knowledge <sup>2</sup>                 | Choose the representation the goes with a verbal description (e.g., less than [ $<$ ]); focus on fractions, decimals, and pre-algebra symbols). |       |   |   |   | √ | √ | √ |
| <b>Relations</b>                              |   |       |   |   |   |   |   |   |
| Number Lines <sup>2</sup>                     | Mark the location of a number on a line.  | √     | √ | √ | √ | √ | √ | √ |
| Number Comparison <sup>3</sup>                | Cross out the larger digit of a pair (e.g., 4 7).   | √     | √ | √ | √ |   |   |   |
| Number Order <sup>3</sup>                     | Check (√) if a sequence of three single-digit numbers is in increasing order.   |       |   | √ | √ |   |   |   |
| Rational Numbers <sup>2,5</sup>               | Decimals and fractions: mapping symbols to quantities, comparing, and ordering.   |       |   |   |   | √ | √ | √ |
| <b>Operations</b>                             |   |       |   |   |   |   |   |   |
| Addition Fluency <sup>3</sup>                 | Solve single-digit whole number addition facts.   |       | √ | √ | √ |   |   |   |
| Subtraction Fluency <sup>3</sup>              | Solve simple whole number subtraction facts.  |       | √ | √ | √ |   |   |   |
| Combined Addition/Subtraction <sup>3</sup>    | Solve single-digit whole number addition and subtraction facts.   |       |   |   |   | √ |   |   |
| Equations <sup>3</sup>                        | Use conceptual knowledge to solve equations (e.g., $3 + 4 = \square + 3$ ).   |       |   |   | √ | √ | √ | √ |
| Combined Multiplication/Division <sup>3</sup> | Solve single-digit whole number multiplication and division facts.  |       |   |   |   | √ | √ | √ |
| Calculation <sup>3</sup>                      | Add double-digit numbers.   |       |   |   |   | √ | √ | √ |
| Total Subtests x grade                        |   | 5     | 8 | 6 | 7 | 8 | 7 | 7 |

<sup>1</sup> Tests are administered one-on-one. <sup>2</sup> Item sets differ based on grade. <sup>3</sup> Tests are timed to assess fluency. <sup>5</sup> Task captures both **Symbol** and **Relations** knowledge for rational numbers.