

Mathematics Intervention Toolkit: Glossary

Use this glossary with the modules in the professional development course. It contains relevant terms and definitions from the WWC Guide, [Assisting Students Struggling with Mathematics](#).¹

Abstract representations – mathematical notations that include numbers, operations, relational symbols, expressions, and equations.

Academic language – the language or words used in school, which could be discipline-specific like *perimeter* or *polygon* or more general words like *explain*, *compare*, or *justify*.

Addend – any number or term used to get the sum or total in an addition problem.

Example: $\frac{3}{4} + \frac{1}{8}$
 addend addend

Automaticity – the ability to produce answers quickly without much mental energy.

Benchmark fractions – common fractions used as a comparison point to help students order or evaluate the magnitude of other fractions.

Benchmark number – a number that serves as a standard or reference point for making estimates and comparisons. Examples of whole-number benchmark numbers are 0, 5, 10, 25, 50, and 100. Benchmark numbers can also be fractions such as $\frac{1}{2}$ or decimals such as 0.5. Benchmark numbers are also called “landmark numbers.”

Benchmark strategy – an approach for reasoning about the magnitude of a number, such as $\frac{2}{5}$ by comparing it with a benchmark number, such as $\frac{1}{2}$. For example, one might reason that $\frac{2}{5}$ is close to but less than $\frac{1}{2}$.

Concrete representations – dimensional (3D), physical materials or actions that students can organize, act upon, or manipulate to better understand mathematics content (e.g., regrouping with base ten blocks, using fraction tiles to compare two fractions, or role playing).

Cuisenaire Rods® – a collection of rectangular rods of 10 colors, each color corresponding to a different length. Cuisenaire rods® are flexible because they can be used to represent whole numbers, decimals, or fractions. They can be used to compare numbers and model operations.



Curricular materials – educational tools and resources that teachers use to provide curriculum and instructional experiences.

Estimation – reasoning to determine an approximate value or quantity without making exact calculations.

Fluency – the ability to perform mathematics accurately and with ease.

¹ WWC Practice Guide (pages 56–57) and with minor adaptations and additions of words by Toolkit Authors.

Graphic organizer – a visual display of the structural relationships between concepts, facts, quantities, or ideas. For example, an organizer for a mathematical vocabulary term might include a definition, examples, and visual representations.

Guiding questions – open-ended questions asked of students to direct their attention to key details without telling students the answer to help move their thinking forward.

Instructional design – the architecture of learning experiences and curricular materials.

Intervention – focused, often more intense, instruction provided to students who are falling behind in core instruction, usually provided in small groups or one-on-one.

Irrelevant information – information provided in a word problem that is not related to the solution approach.

Learning outcomes – a clear statement of what the student is expected to learn or be able to do.

Linear representations – representations of mathematical concepts that are arranged along a straight or nearly straight line.

Manipulatives – concrete objects that students and teachers can use to represent and solve math problems, helping to build understanding of mathematical concepts and processes. Examples include counters, connecting cubes, base ten blocks, fraction tiles, and algebra tiles.

Mathematical concepts – abstract ideas of why the mathematics you are doing works.

Mathematical ideas – content that is central to the learning of mathematics such as whole numbers, even and odd numbers, addition, fractions, and decimals.

Mathematical language – academic language that conveys mathematical ideas. This includes vocabulary terms, such as *numerator*, *regrouping*, or *equation*, used when thinking about, talking about, and writing about mathematics. Mathematical language conveys a more precise understanding of mathematics than the conversational or informal language used every day to communicate ideas to others.

Mathematical procedures – the steps for performing mathematical tasks.

Minuend – a quantity or number from which another is to be subtracted.

Example: $12 - 5 = ?$ 12 is the minuend.

Multi-component intervention – an intervention that includes a bundle of instructional practices that are not disentangled when evaluating the impact of the intervention in a study.

Multi-Tiered Systems of Support (MTSS) (also referred to as Response to Intervention [RTI]) – a data-driven, systemic, problem-solving framework that helps educators provide academic and behavioral support for students with various needs.

Problem type – a problem type includes all problems with the same set of salient features. Identifying a problem type is different from determining the operation used to solve the problem. Even though the two can be related, the same operation may be used in different problem types, or the same problem type may require students to use a different operation. Consequently, it is not useful to associate a problem type with a single operation.

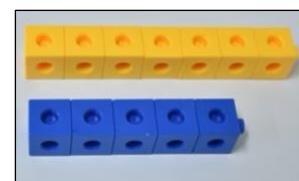
Prompts – open-ended statements that teachers tell students to direct their attention to key details without telling students the answer.

Proportional – concrete representations are proportional if the size of the pieces has a consistent relationship that reflects their value. For example, base ten blocks represent the place value for ones, tens, and hundreds proportionally. The single-unit cubes, when grouped into a set of ten, match the size, shape, and length of the tens unit. Ten of the tens units match the size and shape of the hundreds unit.

Semi-concrete representations – two-dimensional (2D) visual depictions such as strip diagrams, simple drawings, tables, arrays, graphs, and number lines that may help students organize information.

Sentence starters – prompts that begin a sentence for students to complete.

Snap cubes – interlocking cubes that can be connected together and taken apart. These concrete materials can be used to model and compare numbers and build understanding of operations. **Unifix cubes®** are one type of snap cubes.



Solution approach (also referred to as a solution strategy) – the general approach or strategy used to solve a mathematical problem, including the steps taken to solve the problem.

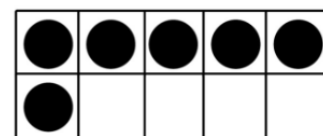
Student-friendly definition – mathematically accurate definitions designed with the needs and interests of students in mind and at an appropriate reading level.

Subtrahend – a number that is subtracted from another number.

Example: $12 - 5 = ?$ 5 is the subtrahend.

Systematic instruction – the term systematic indicates that instructional elements intentionally build students' knowledge over time toward an identified learning outcome(s). Systematic intervention materials are designed to provide instruction on topics in an incremental and intentional way. Systematically designed interventions most often include a collection of practices used to build and support student learning strategically.

Ten frame – a template that has ten adjoining squares in two rows. Students can draw or place counters or other objects in the squares to represent numbers less than or equal to 10. These representations can be used to build understanding of place value, counting and calculating.



Underlying mathematical structure (also referred to as the mathematical structure or underlying quantitative relationship) – the way quantities are set up and relate to one another in a problem that align with one of the four mathematical operations (addition, subtraction, multiplication, division).

Unknown – the quantity that is not shown in a mathematics equation or word problem.

Word wall – a collection of mathematical words, along with definitions, examples, and visual representations, which are displayed with large lettering on a wall.

Worked-out examples – examples that depict how a problem is solved with one solution.