# Reading: Introduction to Minnesota Academic Standards in Mathematics

The current mathematics standards are the 2007 Minnesota Academic Standards in Mathematics. They were fully implemented during the 2010-11 school year for grades K-8 and in 2013-14 for high school. According to current statutes, the next review of mathematics standards is scheduled to occur during the 2021-22 school year.

## Historical Context

The Minnesota Academic Standards in Mathematics (2007) set the expectations for achievement in mathematics for K-12 students in Minnesota. This document is grounded in the belief that all students can and should be mathematically proficient. All students should learn important mathematical concepts, skills, and relationships with understanding. The standards and benchmarks describe a connected body of mathematical knowledge that is acquired through the processes of problem solving, reasoning and proof, communication, connections, and representation. The standards are placed at the grade level where mastery is expected with the recognition that intentional experiences at earlier grades are required to facilitate learning and mastery for other grade levels.

## Foundational Documents for the Mathematics Standards

The foundational documents used in the development of the mathematics standards include:

* Principles and Standards for School Mathematics (2000) and Curriculum Focal Points for Prekindergarten through Grade 8 Mathematics: A Quest for Coherence (2006), both from the National Council of Teachers of Mathematics (www.nctm.org).
* College and Work Readiness Expectations (2006-2007), Minnesota P-20 Education Partnership working group.
* Standards found in the American Diploma Project of Achieve, Inc. (www.achieve.org).
* Recommended Standards for Information and Technology Literacy from the Minnesota Educational Media Organization (MEMO, 2009), now named the Information and Technology Educators of Minnesota (ITEM, www.mnitem.org/Standards).
* Mathematics standards from several states.

## Organization

The Minnesota Academic Standards in Mathematics are organized by grade level into four content strands: 1) Number and Operation, 2) Algebra, 3) Geometry and Measurement, and 4) Data Analysis and Probability. Each strand has one or more standards, and the benchmarks for each standard are designated by a code.

Each benchmark is designated by a four-digit code. Reading from left to right, the first digit indicates the grade level or grade band, the second digit indicates the strand, the third digit indicates the standard, and the fourth digit indicates the benchmark. For example, the code 3.1.3.2 is interpreted as follows:

* The first 3 indicates that this is a third grade benchmark.
* The 1 indicates that this benchmark is in the first strand (Number and Operation).
* The next 3 indicates that this benchmark is for the third standard in that strand (“Understand meanings and uses…”).
* The 2 indicates that this is the second benchmark for that standard (“Understand that the size…”).

| **Grade** | **Strand** | **Standard “Understand that…”** | **Code** | **Benchmark** |
| --- | --- | --- | --- | --- |
| 3 | Number & Operation | Understand meanings and uses of fractions in real-world and mathematical situations. | 3.1.3.2 | Understand that the size of a fractional part is relative to the size of the whole.  For example: One-half of a small pizza is smaller than one-half of a large pizza, but both represent one-half. |

Examples are included for many benchmarks. These examples are intended to clarify terminology, illustrate concepts, give guidance about expectation levels, introduce various contexts for the mathematics, and highlight features of a benchmark that might be easily overlooked. They are not intended to provide sample questions for state tests or to imply limitations on what is covered by a particular benchmark. For example, a particular benchmark might be illustrated by a problem involving money, but many other types of problems will be studied in the classroom and found on state tests.

For more information, please refer to the [Frequently Asked Questions document for the Academic Standards for Mathematics](https://education.mn.gov/mdeprod/idcplg?IdcService=GET_FILE&dDocName=005246&RevisionSelectionMethod=latestReleased&Rendition=primary).

## Supports for Instruction and Curriculum

[The Frameworks for Minnesota Mathematics and Science Standards](https://stemtc.scimathmn.org/) website (SciMathMN & Minnesota Department of Education, 2012) provides resources for instruction, curriculum and assessment related to each standard. Those resources include the standards in lay terms, misconceptions, a vignette of instruction, assessment items, differentiation ideas and resources. The resources are identified for clusters of benchmarks and include instructional activities and links to recommended websites. The Frameworks were written during 2010-11 by a team of 50 math and science teachers

## References

Minnesota Educational Media Organization. (2009). MEMO guidelines for standards in information and technology literacy. Roseville, MN: Information and Technology Educators of Minnesota.

Minnesota P-20 Education Partnership working group. (2006-2007). The road map to college and career readiness for Minnesota students. Minneapolis, MN: Minnesota P-20 Education Partnership.

National Council of Teachers of Mathematics. (2000). Principles and standards for school mathematics. Reston, VA.: Author.

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