



Michigan Merit Curriculum

Mathematics Course/Credit Requirements

A Career and College Ready Agenda

With the passage of the Michigan Merit Curriculum legislation in 2006, no longer is it acceptable to graduate high school with credit based on seat time. Instead, all Michigan students are required to demonstrate proficiency with the required academic standards in order to receive a diploma. [Section 1278\(1\)\(a\)](#) of the legislation states that the graduation requirements for mathematics are “at least 4 credits in mathematics that are aligned with subject area content expectations developed by the department and approved by the state board”. The [Michigan Mathematics Standards](#) for high school represent 3 credits with the additional credit determined by the district. More information is available in the FAQ posted at the [Michigan Merit Curriculum website](#).

According to the [MiSTEM Advisory Council](#) “since 2010, STEM employment opportunities have continued to grow and have outpaced overall occupational growth in the state. STEM job opportunities are expected to grow by 11.8% through 2020 compared with 8.5% for

all occupations.” With an increased focus on [flexible learning options and competency-based recognition](#) of student learning, districts must consider options to traditional course-taking pathways so that students are better prepared for career and college.

Credit Vs. Courses

The State of Michigan doesn’t require end-of-course exams; the only state-required high-school assessment is the M-STEP and the SAT which are administered at the end of a student’s junior year. This allows for various pathways to help students successfully demonstrate proficiency in meeting the content defined by the [Michigan Mathematics Standards](#) for high school. Districts have flexibility in designing credit-earning options that meet the needs of their student population and takes full advantage of the individual expertise of their staff. Texts and other curriculum materials may serve as course models; other models might be available through your ISD/RESA or [Math/Science Center](#).



Course Design Considerations

There are varied pathways to help students successfully demonstrate proficiency in meeting the content defined by Michigan's Mathematics Standards for high school. These standards constitute the minimum content for earning 3 of the 4 required mathematics credits. The 4th credit is district-determined as to content and structure. Districts also determine how students may fulfill the final year mathematics or mathematics-related course/experience requirement. More information is available in the FAQ posted at www.michigan.gov/highschool.

Career & College Ready Instruction

Arranging the content represented by the standards into courses is just one step in implementing the new standards. The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students.

These practices rest on important "processes and proficiencies" with longstanding importance in mathematics education: the National Council of Teachers of Mathematics (NCTM) process standards of problem solving, reasoning and proof, communication, representation, and connections; and the strands of mathematical proficiency specified in the National Research Council's report *Adding It Up*. Mathematics learning opportunities should be carefully designed so that students have plenty of opportunities to engage in these practices.

Mathematical Practices

- 1 Make sense of problems and persevere in solving them
- 2 Reason abstractly and quantitatively
- 3 Construct viable arguments and critique the reasoning of others
- 4 Model with mathematics
- 5 Use appropriate tools strategically
- 6 Attend to precision
- 7 Look for and make use of structure
- 8 Look for and express regularity in repeated reasoning