

FAQ for Middle School STEM Licensure Standards and their Development

Q. What was the imperative to change these standards?

A. Tennessee student testing scores and teacher professional development raised concerns as did the national data regarding STEM performance at the middle grades level. The State Board of Education saw these concerns and initiated a plan to examine middle school STEM education in Tennessee. The results of the initial study were presented in the minutes for the Tennessee State Advisory Board and include reports on research and data both nationally and within the state. The Board of Education voted to implement a Middle School STEM license (5-9) based on these facts. Additionally, the new math and science curriculum standards for grades 4 – 8 induced a disconnect between the mathematics and science licensure portions of the Middle School (4-8) Teaching Licensure Standards and the training that teachers need to be able to teach the new curriculum.

Q. What process was used to develop these standards?

A. MTSU had a federal grant that could be used to develop a collaborative state-wide process; they invited 43 math/science educators of all levels along with businessmen and individuals from state policy positions to spend two days discussing and directing a direction for middle school STEM education. These discussions produced several planning documents and elaborated philosophies for the direction of middle school STEM education in Tennessee. Once the new licensure was passed, the licensure standards had to be written. The appropriate documents were examined and used to write a focused STEM licensure document for grades 5 -9.

Q. What process was used to write these standards?

A. The current licensure standards were the beginning base document. Reviewing the Tennessee State Curriculum standards for Math and Science grades 4, the material that focused on grades 4 content teaching as well as material for Humanities, Social Sciences, and other non-STEM disciplines was removed. At that point, the Tennessee State Curriculum standards for Math and Science grades 5 -8 as well as Algebra I and Physical Science were reviewed and used to develop up-to-date as well as extended teaching standards (extended so that Algebra I and Physical Science are properly supported by the licensure requirements). Also reviewed were the relevant Praxis exam descriptions. For a complete list of these documents, see the table below.

Tennessee Middle School Licensure Standard Grades 4- 8	www.tennessee.gov/education/lic/doc/accttchlicstds.pdf p. 64 – 81
Tennessee Math Standards grade 5	www.tennessee.gov/education/ci/math/doc/MA_Grade_5.pdf
Tennessee Math Standards grade 6	www.tennessee.gov/education/ci/math/doc/MA_Grade_6.pdf
Tennessee Math Standards grade 7	www.tennessee.gov/education/ci/math/doc/MA_Grade_7.pdf
Tennessee Math Standards grade 8	www.tennessee.gov/education/ci/math/doc/MA_Grade_9.pdf
Tennessee Math Standards Algebra I	www.tennessee.gov/education/ci/math/doc/MA_3102.pdf
Praxis Middle School Math (0069)	www.ets.org/Media/Tests/PRAXIS/pdf/0069.pdf

Tennessee Science Standards grade 5	www.tennessee.gov/education/ci/sci/doc/SCI_Grade_5.pdf
Tennessee Science Standards grade 6	www.tennessee.gov/education/ci/sci/doc/SCI_Grade_6.pdf
Tennessee Science Standards grade 7	www.tennessee.gov/education/ci/sci/doc/SCI_Grade_7.pdf
Tennessee Science Standards grade 8	www.tennessee.gov/education/ci/sci/doc/SCI_Grade_8.pdf
Tennessee Science Standards Physical Science	www.tennessee.gov/education/ci/sci/doc/SCI_3202.pdf
Praxis Middle School Science (0439)	www.ets.org/Media/Tests/PRAXIS/pdf/0439.pdf
Praxis Technical Education (0050)	www.ets.org/Media/Tests/PRAXIS/pdf/0050.pdf

After information from these documents was included, the resulting Middle School (5-9) document was sent out to 20 more individuals to assess and comment. Those comments were all used in refining the Middle School (5-9) document and the result, with editing and organizing, is the document that has been provided.

Q. What types of individuals reviewed these standards during the second review?

The following types of individuals reviewed the document during the production of the document being referred to the State Board of Education.

Individuals with experience at the following level:	
University/Teacher training and content specialists	16
Middle school and high school teachers	7
Central Office and Principals	3
State Policy Officials	4
Science Instructors	9
Mathematics Instructors	11
Education Instructors (University level)	4

Note: There are some individuals who have experience in more than one category.

Q. How do these standards relate to the current Middle School 4-8 standards?

A. These standards began with the current Middle School 4-8 standards. Educational and content material that was focused at a lower grade level or in disciplines other than STEM was removed. The content was then reviewed for coherence with current 4-8 Tennessee Curriculum to ensure it was current with those requirements. Finally, any special material needed to support the Algebra I and Physical Science was included.

Q. Are these standards obtainable?

A. Yes. Because the grade band was narrowed to focus on young adolescent (instead of two bands of childhood/young adult development) and because the content areas are so much more coherent, the focus of training will be ambitious but possible. These standards are closely integrating STEM ideas and therefore the design of training can be written with sufficient overlap to manage the extent of the topics.