
Middle Grades STEM Teacher Licensure

The Background:

Over the past two years Tennessee has undergone systemic revisions to almost all aspects of the public education system. To help support these changes it is necessary to examine not only the current force of teachers, but teachers coming through the training pipeline as well. Student curriculum standards have been raised so it follows that teacher content knowledge and pedagogical strategies much keep pace.

Middle school is a critical place for students and teachers alike. At present, middle grades teachers are licensed as “generalists.” In other words, these teachers are licensed to teach English Language Arts, Mathematics, Science, and Social Studies. The nature of the license gives flexibility to school leadership and allows them to move teachers across and among subject areas depending on the teacher’s strengths, coupled with the needs of the school. However, given the interdisciplinary nature of the teacher’s training it is a challenge for pre-service teachers to gain enough content knowledge to become an expert on the depth and breadth of the curriculum.

A STEM license for middle grades teachers addresses both of these concerns. These teachers will be licensed to teach in math, science, and technology in grades 5-9. They will be licensed to teach Physical Science and Algebra I along with Exploring Technology (5-6), Inventions and Innovations (7), Technological Systems (8), and Foundations of Technology (9).

The undergraduate training program will focus squarely on math and science thereby giving the candidates the increased content knowledge necessary to meet the demands of an upgraded curriculum. School administrators will still have flexibility within the math and science disciplines. Those teachers currently employed with a generalist license will maintain that status, and this program will not change their employability. Likewise, university teachers training programs are not required to shift away from the programs in operation. The STEM license (5-9) serves as another option universities and teacher candidates have.

The formation of a middle grades STEM license holds the promise of helping create new teachers with the capacity to move more students to the ACT benchmarks in math and science; create new teachers who have a rich content understanding and are able to pass that understanding along to students; and create a curricular system that honors all areas of STEM, not just math and science. The work of Mary Martin, Ph.D., and Dovie Kimmins, Ed.D. (TMSTEC) points to several desired outcomes including improves student learning and engagement, better adaptation to new curriculum standards, improves test scores, improves teacher effectiveness and morale, and an increase in Tennessee’s stature as compared other states.

The work to build this licensure area has been going on over the course of the past two years. Members of the SBE's Advisory Council on Teacher Education and Certification (ACTEC) expressed an interest in creating more subject-specific licensure options for middle grades teachers and after SBE staff consultation with the Tennessee Math, Science, and Technology Education Center (TMSTEC) at MTSU it was decided that they would become the lead organization in the formulation of program recommendations to the SBE. What followed was a series of meetings and conferences including stakeholders statewide. The list of included partners includes TMSTEC, the State Board of Education, the State Department of Education, TBR universities and the associated STEM centers, The University of Tennessee, the SDE's Principal Study Council, TOSS, ETS, and many others.

In addition to the creation of the STEM 5-9 endorsement the ACTEC voted to explore the formation of a Humanities endorsement to parallel the STEM 5-9 endorsement and to also explore the possibility of using a pre-service teacher licensing exam with consequential subtest scores for those seeking the middle grades generalist endorsement.

The Master Plan Connection:

This item supports the Board's *Master Plan* by providing for effective teachers.

First to the Top Connection:

This item supports assurances within First to the Top by providing for the development of both effective teachers.

The Recommendation:

The State Board of Education staff recommends adoption of a STEM 5-9 endorsement on final reading.