

Curriculum and Instruction – Mathematics

Alignment of Austin Peay State University Professional Educational Standards, National Board Mathematics Standards, and NCATE Standards

Austin Peay State University Professional Educational Standards	National Board Mathematics Standards	NCATE Standards
<p>STANDARD ONE: PROFESSIONAL GROWTH AND DEVELOPMENT Candidates are reflective practitioners who continually evaluate the effects of their choices and actions on others, who actively seek out opportunities to grow professionally, and who effectively communicate with students, parents, colleagues, and others.</p> <p>1.1 Candidates reflect on effective teaching practices as demonstrated by mentor teachers and colleagues</p> <p>1.2 Candidates consistently reflect on their teaching practices by continually evaluating the effect their instruction has on all students</p> <p>1.3 Candidates monitor their teaching strategies and behavior in relation to student success and use the information to modify and revise instruction accordingly.</p> <p>1.4 Candidates seek professional literature, engage colleagues, participate in professional organizations, and use other resources to support their continuing professional development</p> <p>1.5 Candidates demonstrate a broad knowledge of legal and ethical responsibilities, educational policy, and organizational, historical, and professional dimensions of</p>	<p>Standard 6: Reflection and Growth Accomplished mathematics teachers regularly reflect on teaching and learning. They keep abreast of changes in mathematics and in mathematical pedagogy, continually increasing their knowledge and improving their practice.</p>	<p>1.c. Candidates in advanced programs for teachers reflect on their practice and are able to identify their strengths and areas of needed improvement</p> <p>1.c They are aware of current research and policies related to schooling, teaching, learning, and best practices.</p> <p>1.c They are able to analyze educational research and policies and can explain the implications for their own practice and for the profession.</p> <p>1.d. They analyze student, classroom, and school performance data and make data-driven decisions about strategies for teaching and learning so that all students learn.</p> <p>1.c. They engage in professional activities.</p> <p>1.c They have a thorough understanding of the school, family, and community contexts in which they work, and they collaborate with the professional community to create meaningful learning experiences for all students.</p> <p>1.d</p>

<p>classrooms and schools.</p> <p>1.6 Candidates effectively communicate with families and teachers, and collaborate with other professionals within the school and within community agencies to foster student learning.</p> <p>1.7 Candidates understand schools as organizations within the larger community and effectively communicate school goals and accomplishments to the community and general public.</p> <p>1.8 Candidates use knowledge of effective verbal, and nonverbal communication techniques to foster active inquiry, collaboration and supportive interaction in the classroom</p> <p>1.9 Candidates use media to foster active inquiry, collaboration and supportive interaction in the classroom.</p> <p>1.10 Candidates write at a professional level, using proper grammar and writing techniques and appropriately referencing research.</p>		<p>They are aware of and utilize school and community resources that support student learning</p>
<p>STANDARD TWO: KNOWLEDGE OF INSTRUCTION Candidates plan instruction based upon knowledge of subject matter, students, the community, and curriculum goals and use a variety of instructional strategies to encourage development of critical thinking, problem solving and performance skills in students.</p> <p>2.1 Candidates understand and use the principles and techniques associated with various instructional strategies that reflect best practice (such as cooperative learning, direct instruction, whole group instruction,</p>	<p>Standard 2: Knowledge of Teaching Practice Accomplished mathematics teachers rely on their extensive pedagogical knowledge to make curricular decisions, select instructional strategies, develop instructional plans, and formulate assessment plans.</p> <p>Standard 3: Using Mathematics Accomplished mathematics teachers help students develop a positive disposition for mathematics and foster the development of all students' abilities to use mathematics as a way to understand the world</p>	<p>1.d. They analyze student, classroom, and school performance data and make data-driven decisions about strategies for teaching and learning so that all students learn.</p>

<p>independent study and interdisciplinary instruction) and that foster high expectations for all students.</p> <p>2.2 Candidates organize instruction to create learning experiences that content to real life experiences and enable students to apply learning to future careers.</p> <p>2.3 Candidates vary their role in the instructional process (e.g. instructor, facilitator, coach, audience) to achieve different instructional purposes and to meet individual student needs.</p> <p>2.4 Candidates use a wide variety of resources and methods, including technology and assessment data, teacher-created materials, textbooks, technology, community and business resources to develop and use clear, accurate presentations of concepts to promote student learning.</p> <p>2.5 Candidates use reading comprehension and writing strategies in the content area and assist students in applying mathematics concepts to subject content.</p> <p>2.6 Candidates support acquisition of English necessary for continuous learning in the content area of students whose first language is not English.</p> <p>2.7 Candidates use their knowledge of subject matter, learning theory, curriculum and student development, assessment measures, and assessed student needs in planning instruction for all students.</p> <p>2.8 Candidates evaluate, select and create learning experiences that are developmentally appropriate,</p>	<p>around them. They focus instruction on developing students' mathematical power by providing opportunities for students to understand and apply mathematical concepts; investigate, explore, and discover structures and relationships; demonstrate flexibility and perseverance in solving problems; create and use mathematical models; formulate problems of their own; and justify and communicate their conclusions.</p>	
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<p>aligned with Tennessee curriculum standards, relevant to students and based upon the principles of effective teaching.</p> <p>2.9 Candidates identify long-range instructional goals, sequence short-range instructional objectives, and develop units and daily lessons that target these goals and objectives.</p> <p>2.10 Candidates work with others in developing individualized plans, adjust goals, teaching strategies or supports to help students with disabilities succeed in the general curriculum and plan for students who require an expanded curriculum.</p> <p>2.11 Candidates use multiple teaching and learning strategies in active learning opportunities to promote the development of critical thinking, problem solving and performance capabilities in the content areas.</p> <p>2.12 Candidates model effective communication strategies in conveying ideas and information, asking questions, listening, giving directions, probing for student understanding, and helping students express their ideas.</p>		
<p>Standard Three: Knowledge of Assessment and Evaluation. Candidates know, understand and use formal and informal assessment strategies to evaluate and ensure the continuing, intellectual, social and physical development of the learner.</p> <p>3.1 Candidates understand the characteristics, uses, advantages and limitations of different types of assessments for evaluating</p>	<p>Standard 5: Assessment Accomplished mathematics teachers integrate assessment into their instruction to promote the learning of all students. They design, select, and employ a range of formal and informal assessment tools to match their educational purposes. They help students develop self-assessment skills, encouraging them to reflect</p>	<p>1.d. They analyze student, classroom, and school performance data and make data-driven decisions about strategies for teaching and learning so that all students learn.</p>

<p>student learning.</p> <p>3.2 Candidates understand state and federal accountability requirements.</p> <p>3.3 Candidates select, construct and use formal and informal assessment strategies and instruments appropriate to the learning expectations being evaluated to make instructional decisions based on student performance information.</p> <p>3.4 Candidates actively solicit and use information about students' learning needs and progress from parents, other colleagues and the students themselves.</p> <p>3.5 Candidates develop and maintain useful records of student work and progress and responsibly communicate student progress to students, parents and other colleagues.</p> <p>3.6 Candidates collaborate with special education teachers and others to plan and design accommodations, modifications, adaptations or alternate assessments, based on the results of recommended individual assessments</p>	<p>on their performance.</p>	
<p>STANDARD FOUR: KNOWLEDGE OF STUDENTS</p> <p>Candidates understand the diverse needs of students and that students differ in their approaches to learning. Candidates can create learning opportunities that meet the needs of all students. Candidates support students' intellectual, social and personal development.</p> <p>4.1 Candidates understand how learning occurs—how all students construct knowledge and acquire skills—and are</p>	<p>Standard 3: Using Mathematics</p> <p>Accomplished mathematics teachers help students develop a positive disposition for mathematics and foster the development of all students' abilities to use mathematics as a way to understand the world around them. They focus instruction on developing students' mathematical power by providing opportunities for students to understand and apply mathematical concepts; investigate, explore, and discover</p>	<p>1.d. Candidates in advanced programs for teachers have a thorough understanding of the major concepts and theories related to assessing student learning and regularly apply these in their practice.</p>

<p>able to provide learning opportunities that support their intellectual, social and personal development</p> <p>4.2. Candidates draw upon an in-depth knowledge of developmental progression in student physical, social, emotional, moral, and cognitive domains when making instructional decisions.</p> <p>4.3 Candidates recognize that students with disabilities may exhibit greater individual variation and that a disability often influences development and functioning in more than one area</p> <p>4.4 Candidates use this knowledge of students to optimize learning opportunities for each student</p> <p>4.5 Candidates understand and identify differences in student approaches to learning and performance</p> <p>4.6 Candidates design instruction and adapt instructional techniques for all students within the broader context of their families, cultural backgrounds, socioeconomic classes, languages, communities, peer/social groups and exceptional learning needs.</p> <p>4.7 Candidates create a learning community which is inclusive and in which individual differences are respected</p> <p>4.8 Candidates demonstrate an understanding of the implications of disability legislation and special education policies and procedures and Candidates provide equitable access to and participation in the</p>	<p>structures and relationships; demonstrate flexibility and perseverance in solving problems; create and use mathematical models; formulate problems of their own; and justify and communicate their conclusions.</p>	
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<p>general curriculum for students with disabilities.</p> <p>4.9 Candidates understand language development, the role of language in learning and how culture, gender, and exceptional learning needs affect communication in the classroom.</p> <p>4.10 Candidates act as advocates for all students, advise them, recognize student problems, and seek additional help as needed and appropriate.</p>		
<p>STANDARD FIVE: CLASSROOM MANAGEMENT</p> <p>Candidates use an understanding of individual and group motivation and behavior to create a learning environment that encourages positive social interaction, active engagement in learning and self-motivation.</p> <p>5.1 Candidates understand human motivation and behavior and create a learning environment that is inclusive and supports positive social interaction, active engagement in learning and self-motivation for all students.</p> <p>5.2 Candidates organize and manage resources such as time, space, facilities, technology, activities, instructional assistants and volunteers to engage all students in productive tasks and maximize the amount of class time spent in learning.</p> <p>5.3 Candidates develop shared expectations for all students and create and maintain a positive, inclusive classroom climate of mutual respect, support and inquiry.</p> <p>5.4 Candidates understand and use a wide variety of classroom management</p>	<p>Standard 3: Using Mathematics</p> <p>Accomplished mathematics teachers help students develop a positive disposition for mathematics and foster the development of all students' abilities to use mathematics as a way to understand the world around them. They focus instruction on developing students' mathematical power by providing opportunities for students to understand and apply mathematical concepts; investigate, explore, and discover structures and relationships; demonstrate flexibility and perseverance in solving problems; create and use mathematical models; formulate problems of their own; and justify and communicate their conclusions.</p>	<p>1.c</p> <p>They have a thorough understanding of the school, family, and community contexts in which they work, and they collaborate with the professional community to create meaningful learning experiences for all students.</p>

<p>strategies that foster self-control and self-discipline.</p> <p>5.5 Candidates can defuse potential conflict and use conflict resolution strategies to maintain a smoothly functioning learning community.</p>		
<p>Standard Six: Knowledge of Technology Candidates promote the equitable, ethical and legal use of technology resources and use technology and technology based resources to facilitate developmentally appropriate student learning, and to enhance their professional growth and productivity</p> <p>6.1 Candidates integrate instructional technology to facilitate learning in their classrooms, to supplement instructional strategies, to design instructional materials, and to enhance hands-on experiences and problem solving</p> <p>6.2 Candidates select and use grade-level and content-specific technology resources, including assistive technology, to increase student participation in the total curriculum.</p> <p>Candidates apply technology to analyze assessment data and to guide classroom decisions regarding student learning</p> <p>6.4 Candidates use technology in their own learning process and to change their current educational practice.</p> <p>Candidates use technology to gather, sort, and analyze information needed for their own research projects</p> <p>6.6 Candidates use technology to effectively communicate with students, parents, and colleagues.</p>	<p>Standard 4: Technology and Instructional Resources Accomplished mathematics teachers are knowledgeable about and, where available, use current technologies and other resources to promote student learning in mathematics. They select, adapt, and create engaging instructional materials and draw on human resources from the school and the community to enhance and extend students' understanding and use of mathematics.</p>	<p>1.a Candidates in advanced programs for teachers have an in-depth knowledge of the content that they teach.</p> <p>1.b Candidates in advanced programs for teachers demonstrate an in-depth understanding of the content of their field and of the theories related to pedagogy and learning.</p> <p>1.b They are able to select and use a broad range of instructional strategies and technologies that promote student learning and are able to clearly explain the choices they make in their practice</p>

<p>6.8 Candidates effectively use and manage all technology available to them and explore uses of emerging resources.</p> <p>6.7 Candidates use tools such as databases and spreadsheets for sorting, compiling, and analyzing data gathered from a variety of sources.</p> <p>6.9 Candidates model the legal and ethical use of technology resources</p>		
<p>Standard 7. Knowledge of Content Candidates know, understand, and use the central concepts, tools of inquiry and structures of the discipline(s) Candidates teach and can create learning experiences that develop student competence in the subject matter.</p> <p>7.1 Candidates demonstrate a broad general understanding of the major concepts of the discipline Candidates teach, including those addressed in the licensure standards for the teaching endorsement(s) Candidates seek</p> <p>7.2 Candidates understand and are able to use assumptions and the processes of inquiry for the discipline being taught.</p> <p>7.3 Candidates create interdisciplinary learning experiences that allow students to integrate knowledge, skills and methods of inquiry from several related subject areas.</p> <p>7.4 Candidates use connections in instruction across disciplines and draw on their knowledge to build understanding and motivate students.</p>	<p>Standard 1: Knowledge of Mathematics Accomplished mathematics teachers draw on their broad knowledge of mathematics to shape their teaching and set curricular goals. They understand significant connections among mathematical ideas and the application of those ideas not only within mathematics but also to other disciplines and the world outside of school.</p>	<p>1.a Candidates in advanced programs for teachers have an in-depth knowledge of the content that they teach.</p> <p>1.b Candidates in advanced programs for teachers demonstrate an in-depth understanding of the content of their field and of the theories related to pedagogy and learning.</p> <p>1.b They are able to select and use a broad range of instructional strategies and technologies that promote student learning and are able to clearly explain the choices they make in their practice</p>