To Become
Effective January 1, 2027

505-3-.19. Middle Grades Education Program

Nature of Amendment(s):

__✓__ Substantive
____ Clarification
____ Further Definition

Discussion:
It is proposed that GaPSC Rule 505-3-.19 Middle Grades Education Program, dated July 1, 2023, be AMENDED to add the requirements set forth in the Math Matters Act (HB1030), passed in the 2026 legislative session, and to change the content concentration requirement for bachelor's degree programs from two to one.

Current/Amended Sections(s):
(Additions are underlined in bold type; deletions are marked through.)

(1) Purpose. This rule states field-specific content standards for approving programs that prepare individuals to teach Middle Grades**,** grades 4-8, and supplements requirements in GaPSC Rule 505-3-.01 REQUIREMENTS AND STANDARDS FOR APPROVING EDUCATOR PREPARATION PROVIDERS AND EDUCATOR PREPARATION PROGRAMs and GaPSC Rule 505-3-.03, FOUNDATIONS OF READING, LITERACY, AND LANGUAGE.

(2) Requirements. To receive approval, GaPSC-approved educator preparation providers shall offer a preparation program described in program planning forms, catalogs, and syllabi addressing the standards delineated below.

(a) Middle Level Teacher Preparation Standards. The program shall prepare candidates who meet the following standards adapted from the standards published by the Association for Middle Level Education (AMLE) for Middle Level Teacher Preparation (2022).

1. Middle Level Philosophy and School Organization. Middle level teacher candidates understand the major concepts, principles, theories, and research underlying the philosophical foundations of developmentally responsive middle level programs and schools, and they work successfully within middle level organizational components as indicated by the following:

   (i) Middle Level Philosophical Foundations: Middle level teacher candidates demonstrate an understanding of the philosophical foundations of developmentally responsive middle level programs and schools.

   (ii) Middle Level Organization and Practices: Middle level teacher candidates use their knowledge of the effective components of middle level programs and schools to foster fair educational practices and to enhance learning for all students. They demonstrate their ability to apply this knowledge and to function successfully, regardless of grade configurations (e.g., grades K-8, 6-8, 7-12). Middle level teacher candidates perform successfully using middle level practices (e.g., interdisciplinary teaming, advisory programs, flexible block schedules, common teacher planning time).

2. Young Adolescent Development. Middle level teacher candidates understand and reflect on the major concepts, principles, theories, and research related to young adolescent development and use that knowledge in their practice. They demonstrate their ability to apply this knowledge when creating healthy, respectful, safe, supportive, and challenging learning environments for each young adolescent they teach. They successfully model middle level practices that affirm the unique differences of all young adolescents as indicated by the following:

(i) Knowledge of Young Adolescent Development: Middle level teacher candidates demonstrate a comprehensive knowledge of young adolescent development. Knowledge of young adolescent development includes the cognitive, physical, social, emotional, and moral characteristics, needs, and interests of young adolescents, inclusive of the central roles technology has in their lives.

(ii) Implications of Young Adolescent Development for Responsive Learning Environments: Middle level teacher candidates use their comprehensive knowledge of young adolescent development to create healthy, respectful, safe, supportive, and technologically rich and challenging learning environments for all young adolescents, including those whose languages, identities, and backgrounds differ from their own or others. Candidates establish relationships with young adolescents in order to understand the uniqueness of each adolescent, especially as it concerns the pervasive role of technology.

(iii) Implications of Individual Differences for Young Adolescent Development: Middle level teacher candidates demonstrate their knowledge that individual differences have implications for the development of young adolescents. They are responsive to young adolescents' individual experiences and identities. They successfully model middle level practices that affirm the individual differences of all young adolescents.

3. Middle Level Curriculum. Middle level teacher candidates use their knowledge of the distinct nature and identities of young adolescents when planning and implementing curriculum and instruction. They understand and use concepts, standards, and research to design, implement, and evaluate curriculum. Candidates' understanding covers the broad scope of content standards within their subjects and reflects a thorough grasp of those standards and major concepts. Middle level teacher candidates demonstrate their ability to assist all young adolescents in understanding the interdisciplinary nature of knowledge and skills as indicated by the following:

(i) Context for Middle Level Curriculum: Middle level teacher candidates use their knowledge of the distinct nature and identities of young adolescents when planning and implementing middle level curriculum and when selecting and using instructional strategies.

(ii) Subject Matter Content Knowledge: Middle level teacher candidates demonstrate a depth and breadth of content knowledge in the subjects they teach. Candidates demonstrate competence with the broad scope of content standards corresponding to the subjects they teach. Candidates also have a sufficiently deep understanding of the major concepts of content standards such that they are equipped to teach in an engaging manner and to guide students in applying knowledge and skills to real-world problems and transferring knowledge and skills across disciplines.

(iii) Middle Level Curriculum Standards: Middle level teacher candidates use their knowledge of local, state, national, and international standards to frame their teaching. These standards include academic content standards as well as other standards that address the holistic needs of young adolescents (e.g., socio-emotional learning, college and career readiness, technology skill development). They draw on their knowledge of these standards to design, implement, and evaluate developmentally responsive, meaningful, challenging, exploratory, integrative, and diverse curriculum for all young adolescents.

(iv) Interdisciplinary Nature of Knowledge and Skills: Middle level teacher candidates demonstrate the interdisciplinary nature of knowledge by helping all young adolescents make connections among subject areas. They facilitate relationships

among content, ideas, interests, and experiences by developing and implementing challenging, exploratory, integrative, and diverse curriculum. They model and develop in young adolescents the skills needed for success across diverse settings. These skills include such things as written and oral communication, collaboration, critical thinking, creativity, problem solving, resiliency, digital literacy, information literacy, and citizenship

4. Middle Level Instruction and Assessment. Middle level teacher candidates successfully use their knowledge of instruction and assessment strategies in the subjects they teach. They employ a wide variety of effective teaching, learning, and assessment strategies. Middle level teacher candidates develop and administer formal and informal assessments that are both formative and summative to create and guide meaningful learning experiences as indicated by the following:

   (i) Content Pedagogy: Middle level teacher candidates use their knowledge of instruction and assessment strategies that are effective in the subjects they teach, and understand that instruction and assessment are interrelated.

   (ii) Middle Level Instructional Strategies: Middle level teacher candidates employ a wide variety of effective, developmentally responsive, and fair teaching, learning, and assessment strategies. They do this in ways that encourage cognitive exploration, creativity, and relevant digital literacy and information literacy skills (e.g., critical thinking, problem solving, evaluation of information gained).

   (iii) Middle Level Assessment that Advances Learning: Middle level teacher candidates develop and administer formal and informal assessments that are both formative and summative to create and guide meaningful learning experiences. They do this by assessing prior learning, monitoring progress with the use of technology and data, implementing effective lessons, collaborating with young adolescents to reflect on their learning, and adjusting instruction based on the knowledge gained. Assessment should be fair.

5. Middle Level Professional Roles. Middle level teacher candidates are successful in their various roles as middle level professionals. They serve as informed advocates for all young adolescents and for responsive schooling practices. They engage with families and community members to form collaborative relationships. Middle level teacher candidates demonstrate positive dispositions and engage in ethical professional behaviors as indicated by the following:

   (i) Professional Roles of Middle Level Teachers: Middle level teacher candidates understand, critically reflect on, and are successful in their various roles as middle level professionals (e.g., members of interdisciplinary teams, advisors to young adolescents).

   (ii) Advocacy for Young Adolescents and Responsive Schooling Practices: Middle level teacher candidates serve as advocates for all young adolescents and for responsive schooling practices. They are informed advocates for effective middle level educational practices and policies, and use their professional leadership responsibilities to create fair and just opportunities for all young adolescents.

   (iii) Engaging with Family and Community Members: Middle level teacher candidates value family and community members as assets. They understand the ways unique structures and backgrounds influence and enrich learning. They enact practices and participate in activities that build positive, collaborative relationships with families and community members, leveraging technological tools to enhance engagement.

(iv) Dispositions and Professional Behaviors: Middle level teacher candidates demonstrate positive dispositions toward teaching young adolescents and model high standards of ethical behavior, including the use of technology, and professional competence. They are continuous, collaborative learners who demonstrate knowledgeable, reflective, critical perspectives on their teaching.

(b) Literacy. The program shall prepare candidates who understand and apply scientific principles of teaching literacy at the middle grades level and who meet the following elements of the Standards for Literacy Professionals—Middle/High School Classroom Teacher, published in 2017 by the International Literacy Association (ILA), as well as the applicable standards delineated in GaPSC Rule 505-3-.03 FOUNDATIONS OF READING, LITERACY, AND LANGUAGE. This requirement may be met in a separate three (3) semester-hour course, or content may be embedded in courses and experiences throughout the preparation program.

1. ILA Standards for Literacy Professionals, Middle/High School Classroom Teacher.

(i) Candidates demonstrate knowledge of the major critical theoretical, conceptual, and evidence-based foundations of adolescent literacy and language development and the ways in which they interrelate;

(ii) Candidates apply foundational knowledge to critically examine, select, and evaluate curriculum; and design, implement, adapt, and evaluate contextualized instruction to meet the discipline-specific literacy needs of middle school learners;

(iii) Candidates understand, select, and use appropriate, dynamic assessments to gather evidence on middle school students' content knowledge and literacy processes within a discipline to understand strengths and differences among learners, inform instruction and ensure student participation;

(iv) Candidates examine their own backgrounds, identities and opinions, set high expectations for their students, and learn about and appreciate the backgrounds of their students, families, and communities to inform instruction;

(v) Candidates apply knowledge of learner development and learning differences to create a welcoming learning environment anchored in digital and print literacies; and

(vi) Candidates are lifelong learners who reflect upon the social, political, and cultural nature of their practice; use ongoing inquiry to improve their professional practice and enhance students' literacy learning; advocate for students and their families to enhance student' literacy learning.

2. GaPSC Rule 505-3-.03 FOUNDATIONS OF READING, LITERACY, AND LANGUAGE Standards for Middle Grades Teachers of English language arts, mathematics, science, and social science.

(i) Knowledge: Literacy Acquisitions.

(I) Candidates demonstrate awareness of language processes required for proficient reading and writing: phonological, orthographic, semantic, syntactic, and discourse.

(II) Candidates demonstrate an awareness that learning to read requires explicit, structured, and cumulative instruction.

(III) Candidates demonstrate awareness of the reciprocal relationships among the foundations of reading (i.e., phonological awareness, phonemic awareness, decoding, word recognition, spelling, and vocabulary knowledge).

(IV) Candidates demonstrate an awareness of how aspects of cognition and behavior can affect reading and writing development.

(V) Candidates demonstrate an awareness of how environmental and social factors can contribute to literacy development.

(VI) Candidates demonstrate an awareness of major research findings on the contribution of linguistic and cognitive factors to literacy outcomes.

(VII) Candidates demonstrate awareness of the most common intrinsic differences between proficient and struggling readers, including linguistic, cognitive, and neurobiological factors.

(VIII) Candidates demonstrate an awareness of the oral language development, phonemic awareness, decoding skills, printed word recognition, spelling, reading fluency, reading comprehension, and written expression.

(IX) Candidates demonstrate awareness of evidence-based instructional approaches that support the development of reading and writing skills, including concepts of print, phonological awareness, phonics, word recognition, fluency, vocabulary, comprehension, and producing writing appropriate to task.

(X) Candidates demonstrate awareness of the integration of literacy skills across different subject areas.

(XI) Candidates demonstrate an awareness of the typical developmental progression of oral language, phoneme awareness, decoding skills, printed word recognition, spelling, reading fluency, reading comprehension, and written expression.

(XII) Candidates demonstrate awareness of the reciprocal relationships between decoding, word recognition, spelling, morphology, and vocabulary knowledge.

(XIII) Candidates demonstrate awareness of evidence-based instructional approaches that support the development of listening, speaking, viewing, and visually representing, and their centrality to literacy learning.

(XIV) Candidates demonstrate an awareness of the most common intrinsic differences between strong and striving readers, including linguistic, cognitive, and neurobiological factors.

(ii) Application: Curriculum and Instruction.

(I) Candidates demonstrate an awareness of the principles and practices of scientific reading instruction and apply this knowledge to critically examine literacy curricula; select high-quality literary, multimedia, and informational texts; and provide a coherent, integrated, and motivating literacy program for all learners.

(II) Candidates apply adolescent literacy in reading and writing for vocabulary development, word recognition reading comprehension and fluency. Key terms or concepts related to this area include:

I. Reading grade-level texts from a variety of genres with greater focus on higher-order skills such as analyzing texts and developing perspective

II. Reading comprehension for text complexity

III. Writing for a range of authentic purposes and genres

IV. Morphology for understanding multisyllabic words

V. Oral and silent reading fluency

VI. Systematically teach the decoding of multisyllabic words

(III) Candidates apply adolescent literacy development to develop disciplinary literacy and content area literacy; developing academic vocabulary and writing for research. Key terms or concepts related to this area include:

I. Demonstrate skill in integrating literacy into specific disciplinary studies

II. Develop awareness and skill in utilizing a range of content area literacy strategies across the curriculum.

(iii) Assessment and Evaluation.

(I) Candidates understand the purposes, strengths, limitations, reliability/validity, and appropriateness of various types of informal and formal assessments, including screening, progress monitoring, diagnostic, and outcome assessments, for gathering evidence on students' language acquisition and literacy development.

(II) Candidates utilize results of various assessment measures to inform and modify instruction and understand and apply basic principles of test construction and formats, including reliability, validity, criterion, and normed.

(III) Candidates use assessment data in an ethical manner, interpret data to explain student progress, and inform families and colleagues about the function and purpose of assessments.

(IV) Candidates integrate, summarize, and communicate (orally and in writing) the meaning of educational assessment data for sharing with students, parents, and other teachers.

(c) Areas of Concentration. **Middle Grades Education programs at the baccalaureate and post-baccalaureate levels** ~~Baccalaureate degree programs~~ shall require preparation of candidates in at least ~~two~~ **one** of the following areas of concentration: reading, language arts, mathematics, science, or social science. ~~Post-baccalaureate programs shall require preparation of candidates in at least one of the following areas of concentration: reading, language arts, mathematics, science, or social science.~~

1. An area of concentration shall be defined as a minimum of fifteen semester hours of content that meet the standards of the appropriate national specialized professional association, as described below.

2. A course taken to meet the requirements of paragraph (b) Literacy, may be counted toward the fifteen semester hours required for the reading concentration.

3. A course taken to meet the requirements of paragraph (b) Literacy, may be counted toward the fifteen semester hours required for the language arts concentration.

4. Reading Concentration. Programs that prepare middle grades teachers in the concentration area of reading shall meet the following standards from Rule 505-3-.03, FOUNDATIONS OF READING, LITERACY, AND LANGUAGE.

(i) Knowledge: Literacy Acquisition.

(I) Candidates demonstrate knowledge of language processes required for proficient reading and writing: phonological, orthographic, semantic, syntactic, and discourse.

(II) Candidates demonstrate an understanding that learning to read requires explicit, structured, and cumulative instruction.

(III) Candidates demonstrate knowledge of the reciprocal relationships among the foundations of reading (i.e., phonological awareness, phonemic awareness, decoding, word recognition, spelling, and vocabulary knowledge).

(IV) Candidates demonstrate the ability to identify and explain how aspects of cognition and behavior can affect reading and writing development.

(V) Candidates demonstrate an understanding of how environmental and social factors can contribute to literacy development.

(VI) Candidates demonstrate an understanding of major research findings on the contribution of linguistic and cognitive factors to literacy outcomes.

(VII) Candidates demonstrate knowledge of the most common intrinsic differences between proficient and struggling readers, including linguistic, cognitive, and neurobiological factors.

(VIII) Candidates demonstrate an understanding of the oral language development, phonemic awareness, decoding skills, printed word recognition, spelling, reading fluency, reading comprehension, and written expression.

(IX) Candidates demonstrate knowledge of evidence-based instructional approaches that support the development of reading and writing skills, including concepts of print, phonological awareness, phonics, word recognition, fluency, vocabulary, comprehension, and producing writing appropriate to task.

(X) Candidates demonstrate knowledge of the integration of literacy skills across different subject areas.

(ii) Application: Methods and Assessment.

(I) Curriculum and Instruction.

I. Candidates demonstrate an understanding of the principles and practices of scientific reading instruction and apply this knowledge to critically examine literacy curricula; select high-quality literary, multimedia, and informational texts; and provide a coherent, integrated, and motivating literacy program for all learners.

II. Candidates design, adapt, implement, and evaluate instructional approaches and materials that are evidence-based, developmentally appropriate, and integrated across literacy domains related to the following areas: phonological and phonemic awareness, phonics, word

recognition, reading fluency, vocabulary, listening and reading comprehension, and written expression.

III. Candidates plan, modify, and implement explicit, systematic, cumulative, and teacher-directed instruction in the foundational skills of reading, including phonological and phonemic awareness, phonics, word recognition, reading fluency, and listening and reading comprehension. Candidates scaffold instruction to support all learners in reading, including those with different learning needs. Concepts related to this area include:

A. Phonological and phonemic awareness

(A) Consonant and vowel phonemes

(B) Phonological sensitivity
(C) Phonemic-awareness difficulties

(D) Progression of phonemic-awareness skill development across age and grade

(E) Rhyming

(F) Segmenting, deleting, manipulating phonemes

(G) Syllabication

B. Phonics and word recognition

(A) Alphabetic principle

(B) Phoneme-grapheme correspondence

(C) English orthography

(D) Systematic, cumulative, and explicit teaching of basic decoding and encoding rules and letter patterns (digraphs, diphthongs, blends, onset-rime, etc.)

(E) Teaching regular and irregular words

(F) Teaching decoding of multisyllabic words

(G) Decodable texts and sound walls in teaching beginning readers

C. Reading fluency

(A) Automatic word reading

(B) Oral reading fluency including accuracy, automaticity, and prosody

(C) Varied techniques and methods for building reading fluency

(D) Appropriate uses of assistive technology

(E) Repeated and echo readings

D. Listening and reading comprehension

(A) Background knowledge

(B) Inferencing

(C) Factors that contribute to deep comprehension

(D) Instructional routines appropriate for each major genre: informational text, narrative text, and argumentation

(E) Role of sentence comprehension in listening and reading comprehension

(F) Teacher's role as an active mediator of text-comprehension processes

IV. Candidates design, adapt, implement, and evaluate evidence-based and developmentally appropriate instruction and materials to develop writing processes and orthographic knowledge for all learners. They use a structured approach to explicitly teach skills related to written expression. Key terms or concepts related to this area include:

A. Written expression

(A) Handwriting skills in print and cursive

(B) Motor skills and letter/word formation

(C) Transcription and writing fluency

(D) Major skill domains that contribute to written expression

(E) Planning, translating (drafting), reviewing, and revising

(F) Genre

(G) Research-based principles for teaching letter formation, both manuscript and cursive

(H) Research-based principles for teaching written spelling and punctuation

(I) Developmental phases of the writing process

(J) Appropriate uses of assistive technology in written expression.

V. Candidates plan, modify, and implement evidence-based and integrated instruction and materials to develop vocabulary knowledge for all learners. They use a range of instructional approaches, including direct instruction, context-based instruction, and word-learning strategies. Key terms or concepts related to this area include:

A. Vocabulary

(A) Role of vocabulary development and vocabulary knowledge in oral and written language comprehension

(B) Sources of wide differences in students' vocabularies

(C) Indirect (contextual) methods of vocabulary instruction and their role and characteristics

(D) Direct, explicit methods of vocabulary instruction and their role and characteristics

(E) Morphological awareness

VI. Candidates apply knowledge of learner development and learning differences to create a positive, literacy-rich learning environment anchored in digital and print literacies.

(II) Assessment and Evaluation.

I. Candidates understand the purposes, strengths, limitations, reliability/validity, and appropriateness of various types of informal and formal assessments, including screening, progress monitoring, diagnostic, and outcome assessments, for gathering evidence on students' language acquisition and literacy development.

II. Candidates use observational skills and results of student work to determine students' reading, literacy, and language strengths and needs, and select and administer other appropriate formal and informal assessments for assessing students' language and literacy development.

III. Candidates utilize results of various assessment measures to inform and modify instruction and understand and apply basic principles of test construction and formats, including reliability, validity, criterion, and normed.

IV. Candidates use assessment data in an ethical manner, interpret data to explain student progress, and inform families and colleagues about the function and purpose of assessments.

V. Candidates understand and utilize well-validated screening tests designed to identify students at risk for reading difficulties and characteristics of dyslexia and understand and apply the principles of progress monitoring and reporting with Curriculum-Based Measures (CBMs), including graphing techniques.

VI. Candidates understand and utilize informal diagnostic surveys of phonological and phonemic awareness, decoding skills, oral reading fluency, comprehension, spelling, and writing.

VII. Candidates read and interpret the most common diagnostic tests used by psychologists, speech-language professionals, and educational evaluators.

VIII. Candidates integrate, summarize, and communicate (orally and in

writing) the meaning of educational assessment data for sharing with students, parents, and other teachers.

(iii) Literacy Professional Dispositions and Practices.

(I) Candidates promote high-quality literacy learning for all students by using responsive practices and engaging in ethical and effective practices that honor all students' linguistic backgrounds.

(II) Candidates act in the best interests of struggling readers and maintain the public trust by providing accurate and scientifically supported best practices in the field.

(III) Candidates continuously reflect on their practices, engage in ongoing inquiry, and advocate for students and their families to enhance literacy learning.

5. Language Arts Concentration. Programs that prepare middle grades teachers in the concentration area of language arts shall meet the following standards adapted from the standards published by the National Council of Teachers of English (2021).

(i) Learners and Learning in English Language Arts. Candidates apply and demonstrate knowledge of learners and learning to foster learning environments that support coherent, relevant, 6-12 standards-aligned, and differentiated instruction to engage all 6-12 learners in ELA.

(I) Candidates gather and interpret comprehensive data on learners' individual differences, identities, and funds of knowledge to foster learning environments that actively engage all learners in ELA;

(II) Candidates apply and demonstrate knowledge of how the constructs of adolescence/adolescents and learners' identities affect learning experiences to foster coherent, relevant instruction that critically engages all learners in ELA; and

(III) Candidates apply and demonstrate knowledge of learning processes that involve individually, collaboratively, and critically accessing, consuming, curating, and creating texts (e.g., print, non-print, digital, media).

(ii) English Language Arts Content Knowledge. Candidates apply and demonstrate knowledge and theoretical perspectives pertaining to texts (e.g., print, non-print, digital, media), composition, language, and languaging practices, and crosscutting concepts to develop deep understandings of the core disciplinary ideas in their instructional planning.

(I) Candidates apply and demonstrate knowledge and theoretical perspectives about a variety of literary and informational texts (e.g., young adult, classic, contemporary, and media) representing a range of world literatures, historical traditions, genres, and lived experiences;

(II) Candidates apply and demonstrate knowledge and theoretical perspectives of the relationships among form, audience, context, and purpose by composing and critically curating a range of texts (e.g., print, non-print, digital, media); and

(III) Candidates apply and demonstrate knowledge and theoretical perspectives of language and languaging, including language acquisition, conventions, dialect, grammar systems, and the impact of languages on society as they

relate to various rhetorical situations (e.g., journalism, social media, popular culture) and audiences.

(iii) Instructional Practice and Planning for Instruction in ELA. Candidates apply and demonstrate knowledge of theories, research, and ELA to plan coherent, relevant, 6-12 standards-aligned, differentiated instruction and assessment.

(I) Candidates use a variety of resources and technologies to plan coherent, relevant, standards-aligned, and differentiated instruction that incorporates theories, research, and knowledge of ELA to support and engage all learners in meeting learning goals; and

(II) Candidates identify and/or design formative and summative assessments that reflect ELA research, align with intended learning outcomes, and engage all learners in monitoring their progress toward established goals.

(iv) Instructional Practice and Planning for Assessment in ELA. Candidates implement coherent, relevant, 6-12 standards-aligned, and differentiated ELA instruction and assessment to motivate and engage all learners.

(I) Candidates implement coherent, relevant, 6-12 standards-aligned, and differentiated instruction that uses a variety of resources and technologies and incorporates theories, research, and knowledge of ELA to support and engage all learners in meeting learning goals;

(II) Candidates implement formative and summative assessments that reflect ELA research, align with intended learning outcomes, engage all learners in monitoring their progress toward established goals, and guide the next steps of ELA instruction; and

(III) Candidates communicate with learners about their performance in ELA in multiple ways that actively involve them in their own learning (e.g., learning management systems, digital communication tools, conferencing, and written feedback).

(v) Professional Responsibility for ELA teachers. Candidates reflect on their ELA practice, use knowledge and theoretical perspectives to collaborate with educational community members, and demonstrate readiness for leadership, professional learning, and advocacy.

(I) Candidates reflect on their own identities and experiences and how they frame their practices and impact their teaching of ELA;

(II) Candidates use feedback and evidence from a range of sources to reflect upon and inform their practice;

(III) Candidates apply and demonstrate knowledge in collaboration with learners, families, colleagues, and ELA-related learning communities; and

(IV) Candidates demonstrate readiness for leadership, professional learning, and advocacy for learners, themselves, and ELA.

6. Mathematics Concentration. Programs that prepare middle level teachers in the concentration area of mathematics **shall know and understand the four strands of mathematical proficiency (real world problem solving skills, procedural fluency, conceptual understanding, and productive dispositions [National Research Council,**

2001]), and demonstrate the ability to implement evidence-based math instruction, provide effective instruction and interventions for students who need intervention, and understand and use student data to make instructional decisions. Candidates shall **also** meet the following standards adapted from the standards published by the National Council of Teachers of Mathematics (NCTM) (2020).

(i) Knowing and Understanding Mathematics. Candidates demonstrate and apply understandings of major mathematics concepts, procedures, knowledge, and applications within and among mathematical domains of Number and Operations; Algebra and Functions; Statistics and Probability; Geometry, Trigonometry, and Measurement.

(I) Essential Concepts in Number and Operations. Candidates demonstrate and apply understandings of major mathematics concepts, procedures, knowledge, and applications of number including flexibly applying procedures, using real and rational numbers in contexts, developing solution strategies, and evaluating the correctness of conclusions. Major mathematical concepts in Number include number theory; ratio, rate, and proportion; and structure, relationships, operations, and representations.

(II) Essential Concepts in Algebra and Functions. Candidates demonstrate and apply understandings of major mathematics concepts, procedures, knowledge, and applications of algebra and functions including how mathematics can be used systematically to represent patterns and relationships including proportional reasoning, to analyze change, and to model everyday events and problems of life and society. Essential Concepts in Algebra and Functions include algebra that connects mathematical structure to symbolic, graphical, and tabular descriptions; connecting algebra to functions; and developing families of functions as a fundamental concept of mathematics.

(III) Essential Concepts in Statistics and Probability. Candidates demonstrate and apply understandings of major mathematics concepts, procedures, knowledge, and applications of statistics and probability, including how statistical problem solving and decision making depend on understanding, explaining, and quantifying the variability in a set of data to make decisions. They understand the role of randomization and chance in determining the probability of events. Essential Concepts in Statistics and Probability include quantitative literacy, visualizing and summarizing data, statistical inference, probability, exploratory data analysis, and applied problems and modeling.

(IV) Essential Concepts in Geometry, Trigonometry, and Measurement. Candidates demonstrate and apply understandings of major mathematics concepts, procedures, knowledge, and applications of geometry, including using visual representations for numerical functions and relations, data and statistics, and networks, to provide a lens for solving problems in the physical world. Essential Concepts in Geometry, Trigonometry, and Measurement include measurement, transformations, scale, graph theory, geometric arguments, reasoning and proof, applied problems and modeling, development of axiomatic proof, and the Pythagorean Theorem.

(ii) Knowing and Using Mathematical Processes. Candidates demonstrate, within or across mathematical domains, their knowledge of and ability to apply the mathematical processes of problem solving; reason and communicate mathematically; and engage in mathematical modeling. Candidates apply technology appropriately within these mathematical processes.

(I) Problem Solving. Candidates demonstrate a range of mathematical problem-solving strategies to make sense of and solve non-routine problems (both contextual and non-contextual) across mathematical domains.

(II) Reasoning and Communicating. Candidates organize their mathematical reasoning and use the language of mathematics to express their mathematical reasoning precisely, both orally and in writing, to multiple audiences.

(III) Mathematical Modeling and Use of Mathematical Models. Candidates understand the difference between the mathematical modeling process and models in mathematics. Candidates engage in the mathematical modeling process and demonstrate their ability to model mathematics.

(iii) Knowing Students and Planning for Mathematical Learning. Candidates use knowledge of students and mathematics to plan rigorous and engaging mathematics instruction supporting students' access and learning. The mathematics instruction developed provides fair, developmentally responsive opportunities for all students to learn and apply mathematics concepts, skills, and practices.

(I) Student Differences. Candidates identify and use students' individual and group differences when planning rigorous and engaging mathematics instruction that supports students' meaningful participation and learning.

(II) Students' Mathematical Strengths. Candidates identify and use students' mathematical strengths to plan rigorous and engaging mathematics instruction that supports students' meaningful participation and learning.

(III) Positive Mathematical Identities. Candidates understand that teachers' interactions impact individual students by influencing and reinforcing students' mathematical identities, positive or negative, and plan experiences and instruction to develop and foster positive mathematical identities.

(iv) Teaching Meaningful Mathematics. Candidates implement effective and equitable teaching practices to support rigorous mathematical learning for a full range of students. Candidates establish rigorous mathematics learning goals, engage students in high cognitive demand learning, use mathematics-specific tools and representations, elicit and use student responses, develop conceptual understanding and procedural fluency, and pose purposeful questions to facilitate student discourse.

(I) Establish Rigorous Mathematics Learning Goals. Candidates establish rigorous mathematics learning goals for students based on mathematics standards and practices.

(II) Engage Students in High Cognitive Demand Learning. Candidates select or develop and implement high cognitive demand tasks to engage students in mathematical learning experiences that promote reasoning and sense making.

(III) Incorporate Mathematics-Specific Tools. Candidates select mathematics-specific tools, including technology, to support students' learning, understanding, and application of mathematics and to integrate tools into instruction.

(IV) Use Mathematical Representations. Candidates select and use mathematical

representations to engage students in examining understandings of mathematics concepts and the connections to other representations.

(V) Elicit and Use Student Responses. Candidates use multiple student responses, potential challenges, and misconceptions, and they highlight students' thinking as a central aspect of mathematics teaching and learning.

(VI) Develop Conceptual Understanding and Procedural Fluency. Candidates use conceptual understanding to build procedural fluency for students through instruction that includes explicit connections between concepts and procedures.

(VII) Facilitate Discourse. Candidates pose purposeful questions to facilitate discourse among students that ensures each student learns rigorous mathematics and builds a shared understanding of mathematical ideas.

(v) Assessing Impact on Student Learning. Candidates assess and use evidence of students' learning of rigorous mathematics to improve instruction and subsequent student learning. Candidates analyze learning gains from formal and informal assessments for individual students, the class as a whole, and subgroups of students disaggregated by demographic categories, and they use this information to inform planning and teaching.

(I) Assessing for Learning. Candidates select, modify, or create both informal and formal assessments to elicit information on students' progress toward rigorous mathematics learning goals.

(II) Analyze Assessment Data. Candidates collect information on students' progress and use data from informal and formal assessments to analyze progress of individual students, the class as a whole, and subgroups of students disaggregated by demographic categories toward rigorous mathematics learning goals.

(III) Modify Instruction. Candidates use the evidence of student learning of individual students, the class as a whole, and subgroups of students disaggregated by demographic categories to analyze the effectiveness of their instruction with respect to these groups. Candidates propose adjustments to instruction to improve student learning for each and every student based on the analysis.

(vi) Social and Professional Context of Mathematics Teaching and Learning. Candidates are reflective mathematics educators who collaborate with colleagues and other stakeholders to grow professionally, to support student learning, and to create more equitable mathematics learning environments.

(I) Promote Equitable Learning Environments. Candidates seek to create more equitable learning environments by identifying beliefs about teaching and learning mathematics, and associated classroom practices that produce equitable or inequitable mathematical learning for students.

(II) Promote Positive Mathematical Identities. Candidates reflect on their impact on students' mathematical identities and develop professional learning goals that promote students' positive mathematical identities.

(III) Engage Families and Community. Candidates communicate with families to

share and discuss strategies for ensuring the mathematical success of their children.

(IV) Collaborate with Colleagues. Candidates collaborate with colleagues to grow professionally and support student learning of mathematics.

7. Science Concentration. Programs that prepare middle grades teachers in the concentration area of science shall meet the following standards adapted from the National Science Teaching Association (NSTA) and American Science Teachers Association (ASTA) (2020) and Framework for K-12 Science Education (2012).

(i) Content Knowledge. Effective teachers of science understand and articulate the knowledge and practices of contemporary science and engineering. They connect important disciplinary core ideas, crosscutting concepts, and science and engineering practices for their fields of certification. Preservice teachers will:

(I) Use and apply the major concepts, principles, theories, laws, and interrelationships of their fields of licensure and supporting fields. Explain the nature of science and the norms and values inherent to the current and historical development of scientific knowledge;

(II) Demonstrate knowledge of how to implement science standards, learning progressions, and sequencing of science content for teaching their certificate 4-8 students; and

(III) Demonstrate knowledge of crosscutting concepts, disciplinary core ideas, practices of science and engineering, the supporting role of science-specific technologies, and contributions of diverse populations to science.

(ii) Content Pedagogy. Effective teachers of science plan learning units of study and equitable, developmentally responsive opportunities for all students based upon their understandings of how students learn and develop science knowledge, skills, and habits of mind. Effective teachers also include appropriate connections to science and engineering practices and crosscutting concepts in their instructional planning. Preservice teachers will:

(I) Use science standards and a variety of appropriate, student-centered, and relevant science disciplinary-based instructional approaches that follow safety procedures and incorporate science and engineering practices, disciplinary core ideas, and crosscutting concepts;

(II) Incorporate appropriate differentiation strategies, wherein all students develop conceptual knowledge and an understanding of the nature of science. Lessons should engage students in applying science practices, clarifying relationships, and identifying natural patterns from scientific phenomena and empirical experiences;

(III) Use engineering practices in support of science learning wherein all students design, construct, test and optimize possible solutions to a problem;

(IV) Align instruction and assessment strategies to support instructional decision making that identifies and addresses student misunderstandings, prior knowledge, and naïve conceptions; and

(V) Integrate science-specific technologies to support all students' conceptual understanding and application of science and engineering.

(iii) Learning Environments. Effective teachers of science are able to plan for engaging all students in science learning by identifying appropriate learning goals that are consistent with knowledge of how students learn science and are aligned with standards. Plans reflect the selection of phenomena appropriate to the social context of the classroom and community, and safety considerations, to engage students in the nature of science and science and engineering practices. Effective teachers create a learning environment to achieve these goals. Preservice teachers will:

(I) Plan a variety of lessons based on science standards that employ strategies that demonstrate their knowledge and understanding of how to select appropriate teaching and motivating learning activities that foster a fair and welcoming learning environment;

(II) Plan learning experiences for all students in a variety of environments (e.g., the laboratory, field, virtual, and community) within their fields of certification;

(III) Plan lessons in which all students have a variety of opportunities to obtain information, evaluate, communicate, investigate, collaborate, learn from mistakes, and defend their own explanations of scientific phenomena, observations, and data. This includes the proposal and defense of potential solutions to real-world, authentic, scientific and engineering problems; and

(V) Plan and implement instruction incorporating universal technologies that support and enhance virtual learning either in person or digitally to include all students in investigation and application of science content, engineering practices, and crosscutting concepts.

(iv) Safety. Effective teachers of science demonstrate biological, chemical, and physical safety protocols in their classrooms and workspace. They also implement ethical treatment of living organisms and maintain equipment and chemicals as relevant to their fields of certification. Preservice teachers will:

(I) Implement activities appropriate for the abilities of all students that demonstrate safe techniques for the procurement, preparation, use, storage, dispensing, supervision, and disposal of all chemicals/materials/equipment used within their fields of certification;

(II) Demonstrate an ability to: recognize hazardous situations including overcrowding; implement emergency procedures; maintain safety equipment; provide adequate student instruction and supervision; and follow policies and procedures that comply with established state and national guidelines, appropriate legal state and national safety standards (e.g., Occupational Safety and Health Administration, National Fire Protection Association, Environmental Protection Agency), and best professional practices (e.g., National Science Teaching Association, Georgia Science Teachers Association, National Science Education Leadership Association). This would include awareness of personal liability, duty of care as it relates to students (face-to-face and remote), fellow staff, and visitors to the classroom;

(III) Demonstrate ethical decision-making with respect to safe and humane treatment of all living organisms in and out of the classroom, and comply with the legal restrictions and best professional practices on the collection, care, and use of living organisms as relevant to their fields of certification; and

(IV) Demonstrate an awareness of safety-implications associated with remote-

learning. This would include awareness of personal responsibility for instructing students on safety precautions for remote learning.

(v) Impact on Student Learning. Effective teachers of science provide evidence that students have learned and can apply disciplinary core ideas, crosscutting concepts, and science and engineering practices as a result of instruction. Effective teachers analyze learning gains for individual students, the class as a whole, and subgroups of students disaggregated by demographic categories, and use these to inform planning and teaching. Preservice teachers will:

(I) Design and implement diverse and balanced assessments that allow all students to demonstrate their knowledge and ability to apply, synthesize, evaluate, and communicate their understanding of disciplinary knowledge, nature of science, science and engineering practices, and crosscutting concepts in practical, authentic, and real-world situations;

(II) Collect, organize, analyze, evaluate and reflect on a variety of formative and summative evidence and use those data to inform future planning and teaching; and

(III) Analyze science-specific assessment data based upon student demographics, categorizing the levels of learner knowledge, and reflect on results for subsequent lesson plans.

(vi) Professional Knowledge and Skills. Effective teachers of science strive to continuously improve their knowledge of both science content and pedagogy, including approaches for ensuring fairness for all students in science. Teachers will also possess a deeper understanding of how to apply science and engineering practices for their discipline. They identify with and conduct themselves as part of the science education community. Preservice teachers will:

(I) Engage in critical reflection on their own science teaching to continually improve their instructional effectiveness;

(II) Participate in professional learning opportunities to deepen their science content knowledge, and knowledge of science and engineering practices; and

(III) Participate in professional learning opportunities to expand their science-specific pedagogical knowledge.

(vii) Commitment to Three-dimensional Learning. Effective teachers of K-12 science and engineering should focus on a limited number of disciplinary core ideas and crosscutting concepts that are designed so that students continually build on and revise their knowledge and abilities over multiple years while supporting the integration of such knowledge and abilities with the practices needed to engage in scientific inquiry and engineering design. There are three major dimensions, Scientific and Engineering Practices, Disciplinary Core Ideas, and Crosscutting Concepts. All three dimensions need to be integrated into standards, curriculum, instruction, and assessment. Preservice teachers will:

(I) Emphasize Science and Engineering Practices in their planning and implementation of lessons and units for all science students.

I. Asking questions (for science) and defining problems (for engineering);

II. Developing and using models;

III. Planning and carrying out investigations;

IV. Analyzing and interpreting data;

V. Using mathematics and computational thinking;

VI. Constructing explanations (for science) and designing solutions (for engineering);

VII. Engaging in argument from evidence; and

VIII. Obtaining, evaluating, and communicating information.

(II) Focus deeply on a limited number of Disciplinary Core Ideas within each major category of science disciplines.

I. Life Sciences

A. From Molecules to organisms: Structures and processes

(A) Structure and function

(B) Growth and development of organisms

(C) Organization for matter and energy flow in organisms

(D) Information processing

B. Ecosystems: Interactions, energy, and dynamics

(A) Interdependent relationships in ecosystems

(B) Cycles of matter and energy transfer in ecosystems

(C) Ecosystem dynamics, functioning, and resilience

(D) Social interactions and group behavior

C. Heredity: inheritance and variation of traits

(A) Inheritance of traits

(B) Variation of traits

D. Biological Evolution: Unity and diversity

(A) Evidence of common ancestry and diversity

(B) Natural selection

(C) Adaptation

(D) Biodiversity and humans

II. Chemistry

A. Matter and its interaction

(A) Structure and properties of matter

(B) Chemical reactions

(C) Nuclear processes

B. Energy

(A) Definitions of energy

(B) Conservation of energy and energy transfer

(C) Electromagnetic radiation

III. Earth Space Science

A. Earth's place in the Universe

(A) The universe and its stars

(B) Earth and the solar system

(C) History of planet earth

B. Earth's systems

(A) Earth materials and systems

(B) Plate tectonics and large system interactions

(C) The roles of water in Earth's surface processes

(D) Weather and climate

(E) Biogeology

C. Earth and Human Activity

(A) Natural resources

(B) Natural hazards

(C) Human impacts on earth's systems

(D) Global climate change

IV. Physics

A. Matter and its interactions

(A) Nuclear processes

B. Motion and stability

(A) Forces and motion

(B) Types of interactions

(C) Stability and instability in physical systems

C. Energy

(A) Definitions of energy

(B) Conservation of energy and energy transfer

(C) Relationship between energy and forces

(D) Energy in chemical processes and everyday life

D. Waves and their applications in technologies for information transfer

(A) Wave properties
(B) Electromagnetic radiation

(C) Information technologies and instrumentation

(III) Consistently bear in mind crosscutting concepts as a means to provide linkages between science disciplines across multiple grades

I. Patterns

II. Cause and effect: mechanism and explanation

III. Systems and system models

IV. Energy and matter; flows, cycles and conservation

V. Structure and function

VI. Stability and change

8. Social Studies Concentration. Programs that prepare middle grades teachers in the concentration area of social studies shall meet the following standards adapted from the standards published by the National Council for the Social Studies (2018):

(i) Content Knowledge. Candidates demonstrate knowledge of social studies disciplines. Candidates are knowledgeable of disciplinary concepts, facts, and tools; structure of inquiry; and forms of representation.

(I) Candidates are knowledgeable about the concepts, facts, and tools in civics, economics, geography, and history;

(II) Candidates are knowledgeable about disciplinary inquiry in civics, economics, geography, and history.

(III) Candidates are knowledgeable about disciplinary forms of representation in civics, economics, geography, and history.

(ii) Application of Content Through Planning. Candidates plan learning sequences that leverage social studies knowledge and literacies, technology, and theory and research to support the civic competence of learners.

(I) Candidates plan learning sequences that demonstrate social studies knowledge aligned with the C3 (College, Career and Civic Life) Framework, state-required content standards, and theory and research;

(II) Candidates plan learning sequences that engage learners with disciplinary concepts, facts and tools from the social studies disciplines to facilitate social studies literacies for civic life. Learning sequences should involve experiences that engage students in evaluating accuracy of print and electronic resources, discerning fact vs. opinion and drawing evidence-based conclusions;

(III) Candidates plan learning sequences that engage learners in disciplinary inquiry to develop social studies literacies for civic life;

(IV) Candidates plan learning sequences where learners create disciplinary forms of representation that convey social studies knowledge and civic competence;

(V) Candidates plan learning sequences that use technology to foster civic competence.

(iii) Design and Implementation of Instruction and Assessment. Candidates design and implement instruction and authentic assessments, informed by data literacy and learners self-assessment, that promote civic competence.

(I) Candidates design and implement a range of authentic assessments that measure learners' master of disciplinary knowledge, inquiry, and forms of representation for civic competence and demonstrate alignment with state-required content standards.

(II) Candidates design and implement learning experiences that engage learners in disciplinary knowledge, inquiry, and forms of representation for civic competence and demonstrate alignment with state required content standards.

(III) Candidates use theory and research to implement a variety of instructional practices and authentic assessments featuring disciplinary knowledge, inquiry, and forms of representation for civic competence.

(IV) Candidates exhibit data literacy by using assessment data to guide instructional decision-making and reflect on student learning outcomes related to disciplinary knowledge, inquiry, and forms of representation for civic competence.

(iv) Social Studies Learners and Learning**.** Candidates use knowledge of learners to plan and implement developmentally relevant and responsive pedagogy, create collaborative and interdisciplinary learning environments, and prepare learners to be informed advocates for a fair and welcoming society.

(I) Candidates use knowledge of learners' socio-cultural assets, learning demands, and individual identities to plan and implement relevant and responsive pedagogy that ensures learning opportunities for all students in social studies.

(II) Candidates facilitate collaborative, interdisciplinary learning environments in which learners use disciplinary facts, concepts, and tools, engage in disciplinary inquiry, and create disciplinary forms of representation.

(III) Candidates engage learners in ethical reasoning to deliberate social, political, and economic issues, communicate conclusions, and take informed action toward achieving a more fair and welcoming society.

(v) Professional Responsibility and Informed Action. Candidates reflect and expand upon their social studies knowledge, inquiry skills, and civic dispositions to advance social justice and promote human rights through informed action in schools and/or communities.

(I) Candidates use theory and research to continually improve their social studies knowledge, inquiry skills, and civic dispositions, and adapt practice to meet the needs of each learner.

(II) Candidates explore, interrogate, and reflect upon their own backgrounds to attend to issues of fairness, access, power, and human rights within their schools and/or communities.

(III) Candidates take informed action in schools and/or communities and serve as advocates for learners, the teaching profession, and/or social studies.

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