Maryland's Associate of Arts in Teaching (AAT) Degrees

Early Childhood/Special Education

and

Elementary Education/Special Education

OUTCOMES AND STANDARDS

DECEMBER 2019

CONTENTS

I.   Introduction and Purpose of this Document

This document is the revision of the 2003 outcomes and standards for implementation of the Associate of Arts in Teaching (AAT) Degrees in Early Childhood Education/Special Education and Elementary Education/Special Education. Both sets of standards were collaboratively developed using representatives from higher education faculty, professional associations, and state agencies, including the Intersegmental Chief Academic Officers (ICAO) Group appointed Teacher Education Articulation Committee (TEAC) and the Maryland Consortium of Early Childhood Faculty and Administrators.

In the Fall of 1999, the ICAO Group appointed a Teacher Education Articulation Committee (TEAC) and charged it with finding a means for establishing a seamless transfer system between two and four-year colleges in the area of teacher education. After many meetings and intense deliberations, TEAC decided to seek a new route to articulation. Rather than designate a set of courses that would transfer, the committee chose to designate a set of outcomes that correspond with the foundational first two years of undergraduate teacher preparation.

During the 2016-17 academic year, the AAT Oversight Council recognized that since the development of the AAT degree over ten years ago (2002-2003), the context in which AAT programs exist has changed. With changes to undergraduate general education requirements, accreditation and program review standards, and the passage of the Maryland *College and Career Readiness and College Completion Act of 2013*, the 2016-17 AAT Oversight Council determined that is was time to conduct a complete review of existing AAT outcomes and standards to ensure alignment with 4-year programs and guarantee a smooth and efficient transfer for AAT degree holders. They established an AAT Review Committee, which was comprised of a broad range of stakeholders including representatives from two-year and four-year institutions from Maryland Association of Community Colleges, University System of Maryland, and Maryland Independent College and University Association. The AAT Review Committee was charged with considering all relevant changes to teacher preparation in Maryland to complete the following tasks:
1. analyze the effectiveness of the AAT in terms of the transfer process, program quality, and production of certified teachers;
2. analyze statewide and institutional policy and practice changes that affect the AAT degree;
3. examine the outcomes for existing AAT degree programs in relation to changes and note disconnects or other inefficiencies;
4. provide a final report with recommendations for any revisions needed to maintain the disciplinary integrity of the degree to the AAT Oversight Council

The Early Childhood A.A.T. degree is not intended to replace the Associate of Applied Science Degree (AAS) in Early Childhood Development/Education that is offered at many of the two-year community colleges in Maryland. The AAS is a valuable, career program associate degree designed for students seeking careers in the early care and education childcare field, while the AAT is designed for students transferring to a four-year institution teacher preparation program leading to a Maryland Teacher Certification or Licensure in Early Childhood Education.

The AAT degree outcomes are based on state and national teacher preparation performance standards which delineate what teacher candidates should know and be able to apply. The characteristic of the first half of teacher preparation programs that distinguishes it from the second half, is a foundational curriculum. During the first 60-64 credit hours of a teacher preparation academic program, a teacher candidate constructs an understanding of educator terms and concepts and applies them through problem solving and reflection. Furthermore, the content of the teacher candidate's general education curriculum is completed during this time. Also, a teacher candidate gains a foundational understanding of schools, the nature of schooling, the meaning of learning, and the social and psychological stages of development. As a result, successful AAT teacher candidates have the knowledge and skills necessary to effectively communicate and to master content supportive of early childhood/special education or elementary/special education.

This document is divided into seven sections. The first three sections are divided in to (I). Introduction, (II). AAT Quick Facts beginning on page 5, and (III). AAT Programs: COMAR Regulations beginning on page 7. The final three sections of the document provide the outcomes associated with the both the Early Childhood/Special Education and the Elementary Education/Special Education AAT degree programs. Section (IV) beginning on page 10 provides the Maryland higher education *General Education* Outcomes & Standards that are common for both the Early Childhood/Special Education and Elementary Education/Special Education AAT degree programs. Section V (page 58) follows with outcomes & standards that are specific to the Early Childhood/Special Education AAT degree programs. Section VI (67) the document by providing the outcomes and standards that are specific to the Elementary Education/Special Education AAT degree programs. The final section addresses outcomes associated with special education and begins on page 83.

The outcomes and standards provided in this document address the components articulated in Maryland State Department of Education's *Preparing educators for high poverty, culturally, and linguistically diverse schools: A manual for teacher educators, teachers, and principals* ([http://www.marylandpublicschools.org/about/Documents/DEE/PreparingEducatorsHighPoverty CulturallyLinguisticallyDiverseSchools070914.pdf](http://www.marylandpublicschools.org/about/Documents/DEE/PreparingEducatorsHighPovertyCulturallyLinguisticallyDiverseSchools070914.pdf)) and are aligned to InTASC and the Model Code of Ethics for educators where applicable. Finally, all outcomes were aligned to the appropriate standards of state and national professional associations including Maryland College and Career Readiness Standards, NAEYC, CEC, and CAEP 2018 K-6 Elementary Standards.

II.   AAT Quick Facts

Program of Quality

1) Outcomes-based standards were developed collaboratively between the two-year and four-year institutions in Maryland for implementation through individually designed community college AAT degree programs.
2) Program outcomes are based on State and National standards[1].
3) Successful completion of the program requires a cumulative 2.75 GPA and qualifying scores as established by the State Superintendent of Schools on the teacher certification tests (e.g., SAT, ACT, PRAXIS) approved by the State Board of Education to be awarded the AAT degree.
4) Students enrolled in the A.A.T. program must earn a C or better in all coursework required for the degree and obtain a cumulative grade point average of 2.75 or better.

Admission and Transfer Requirements

1) Admission to the four-year institution is a "two-step" process and is not guaranteed. Applications to both the institution and to the teacher education program may be required.

2) Due to space limitations at some four-year institutions and/or teacher education programs, students should apply as early as possible and consider applying to alternative institutions. Students should consult with an advisor at the four-year institution to determine the specific admissions requirements and deadlines of the institution to which they wish to transfer.

3) Upon admission to a Maryland public or independent four-year institution teacher education program, up to 64 semester hours, including the lower division teacher education program outcomes, will transfer without further review.

4) The AAT degree holder is considered to have satisfied the following lower division requirements for the education program.

   a) 28 - 36 semester hours of general education requirements for public institutions.

   b) The lower division outcomes for teacher education may be included in courses such as the foundations of education, human growth/child or adolescent development, educational psychology, introductory field experience, and introductory special education. In addition, some students may be required to complete up to two additional lower division teacher education courses. Students should check with

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❖   [1] Institutional performance of program outcomes are based on the standards/criteria of the Maryland State Department of Education (MSDE), the Interstate Teacher Assessment and Support Consortium (InTASC), the National Association for the Education of Young Children (NAEYC), the Head Start Program Performance Standards, Maryland Learning Standards, and the Council for Exceptional Children (CEC).

their community college advisor for specific requirements for the major.

    c) Students in Secondary Education AAT programs must complete specified content courses.

Upon Transfer

1) The student will be required to complete the remaining 10 - 18 semester hours of general education requirements of the public institution. Students planning to attend an independent institution should consult with an advisor at the four-year institution regarding the remaining general education requirements.

2) The student will also be required to complete the remaining teacher education program requirements.

3) Students should indicate that they are receiving the AAT degree for transfer on their application for admission to the 4-year institution.

4) Information regarding upper-division requirements may be obtained by contacting the appropriate four-year institution's advisor, dean, director, or chair of education.

III.   AAT Programs: COMAR Regulations

13B.02.03.24
.24 Degree Programs.
   A. Degree Levels.
      (1) The degree levels described in this regulation are available to institutions in this State, as approved in accordance with COMAR 13B.02.02.10.
      (2) Public community colleges and senior public higher education institutions shall comply with the credit hour standards of COMAR 13B.02.02.16A(1) and B(1).
   D. An institution may award an Associate of Art in Teaching (A.A.T.) degree that:
      (1) Meets the lower-level degree academic content, outcomes, and requirements for teacher education, similar to the first 2 years of a bachelor's program in teacher education;
      (2) Requires evidence of qualifying scores as established by the State Superintendent of Schools on the teacher certification tests approved by the State Board of Education;
      (3) Requires a cumulative grade point average of at least 2.75 on a 4.00 scale; and
      (4) If achieved, transfers up to 64 credit hours, satisfying all lower-division teacher education program outcomes without further review by in-State 4-year public and independent institutions.
13B.06.01.03
.03 General Education Requirements for Public Institutions.
   A. While public institutions have the autonomy to design their general education program to meet their unique needs and mission, that program shall conform to the definitions and common standards in this chapter, and incorporate the general education knowledge and skills required by the Middle States Commission on Higher Education Standards for Accreditation. No later than August 1, 2017, a public institution shall satisfy the general education requirement by:
      (1) Requiring each program leading to the A.A. or A.S. degree to include not less than 28 and not more than 36 semester hours, and each baccalaureate degree program to include not less than 38 and not more than 46 semester hours of required core courses, with the core requiring, at a minimum, course work in each of the following five areas:
         (a) Arts and humanities,
         (b) Social and behavioral sciences,
         (c) Biological and physical sciences,
         (d) Mathematics, and
         (e) English composition; or
      (2) Conforming with COMAR 13B.02.02.16D(2)(b)—(c).
   B. Each core course used to satisfy the distribution requirements of §A(1) of this regulation shall carry at least 3 semester hours.
   C. General education programs of public institutions shall require at least:
      (1) Two courses in arts and humanities;
      (2) Two courses in social and behavioral sciences;
      (3) Two science courses, at least one of which shall be a laboratory course;
      (4) One course in mathematics, having performance expectations demonstrating a level of mathematical maturity beyond the Maryland College and Career Ready Standards in Mathematics (including problem-solving skills, and mathematical concepts and techniques that can be applied in the student's program of study); and
      (5) One course in English composition, completed with a grade of C- or better.

D. Institution-Specific Requirements.

(1) In addition to the five required areas in §A of this regulation, a public institution may include up to 8 semester hours in course work outside the five areas. These courses may be integrated into other general education courses or may be presented as separate courses. Examples include, but are not limited to, Health, Diversity, and Computer Literacy.

(2) Public institutions may not include the courses in this section in a general education program unless they provide academic content and rigor equivalent to the areas in §A(1) of this regulation.

E. General education programs leading to the A.A.S. degree shall include at least 18 semester hours from the same course list designated by the sending institution for the A.A. and A.S. degrees. The A.A.S. degree shall include at least one 3-semester-hour course from each of the five areas listed in §A(1) of this regulation.

F. A course in a discipline listed in more than one of the areas of general education may be applied only to one area of general education.

G. A public institution may allow a speech communication or foreign language course to be part of the arts and humanities category.

H. Composition and literature courses may be placed in the arts and humanities area if literature is included as part of the content of the course.

I. Public institutions may not include physical education skills courses as part of the general education requirements.

J. General education courses shall reflect current scholarship in the discipline and provide reference to theoretical frameworks and methods of inquiry appropriate to academic disciplines.

K. Courses that are theoretical may include applications, but all applications courses shall include theoretical components if they are to be included as meeting general education requirements.

L. Notwithstanding §A(1) of this regulation, a public 4-year institution may require 48 semester hours of required core courses if courses upon which the institution's curriculum is based carry 4 semester hours.

M. Public institutions shall develop systems to ensure that courses approved for inclusion on the list of general education courses are designed and assessed to comply with the requirements of this chapter.

IV.   General Education Outcomes and Standards: Early Childhood/Special Education and Elementary Education/Special Education AAT Degree Programs

Arts and Humanities

Arts and Humanities Standard 1: The teacher candidate will know, understand and use – as appropriate to their own knowledge and skills - the content, functions and achievements of dance, music, theater and the several visual arts as primary media for communication, inquiry and insight among early childhood and elementary students. To enable the teacher candidate to meet this standard, the desired outcomes of the teacher preparation program were identified. For each outcome, indicators (evidence that the outcome had been met), assessment types and assessment tasks were developed. In the first half of the teacher preparation program, the teacher candidate will acquire a basic knowledge of the content of dance, music, theatre and the visual arts and the ability to integrate the four arts. In the second half of the program, the teacher candidate will acquire the knowledge of children's artistic development and the ability to apply content knowledge to the theory and practice of arts education.

Outcome	Indicator	Assessment Type	Standard Match
1. The teacher candidate will demonstrate the ability to communicate at a basic level in the four arts: dance, music, theater and the visual arts, to enhance self-expression and to better understand human experiences.	a. Describe the basic types, elements and skills of the four arts using an appropriate arts vocabulary. b. Discuss and interpret the visual and performing arts both orally and in writing using an appropriate arts vocabulary. c. Discuss of traditional and new technologies in the arts and arts education. d. Discuss personal reactions to works of art and identify the artistic elements that elicit those reactions.	• Field trips to performances of dance, theatre and music. • Field trips to art exhibitions. • Rating scales. • Journal of personal reflections regarding art experiences • Discussion • Videotape analyses of artworks.	

	e. Compare how ideas, emotions and experiences are expressed in the visual and performing arts.	• Essays	

Arts and Humanities Standard 2: The teacher candidate will know, understand and use – as appropriate to their own knowledge and skills – the content, functions and achievements of dance, music, theatre and the several visual arts as primary media for communication, inquiry and insight among elementary students.

Outcome	Indicator	Assessment	Standard Match
2. The teacher candidate will interpret and evaluate exemplary artworks from a variety of cultures and historical periods.	a. Evaluate different artworks using appropriate criteria. b. Identify specific artworks belonging to a particular culture, time period and place. c. Discuss stylistic trends and technological innovations of artworks from a selected historical period. d. Describe how an individual culture at a given time expressed its beliefs, values and ideas using the four arts. e. Compare the meaning and function of the visual and performing arts across cultures.	• Criterion checklist • Videotape analyses • Pictorial timeline • Artist biography • Field trips • Critiques – written and oral • Rating scales • Rubrics • Group discussion	

Outcome	Indicator	Assessment	Standard Match

English Composition

Pre-service teachers demonstrate a high level of competence in use of the English language arts and they know, understand and use concepts from reading, language and child development, to teach reading, writing, speaking, viewing, listening, and thinking skills and to help students successfully apply their developing skills to many different situations, materials, and ideas.

Standards for a "C" Paper:

All written and/or oral products must meet the minimum language proficiencies as determined by the Statewide English Discipline Group's "Standards for C Paper" and the Statewide Speech Communications Group's "Standards for General Education Speech Communication Courses."

English Composition Standard 1: Model the Appropriate Attitudes and Knowledge for Effective Use of English Language

Outcome	Indicators	Assessment Types	Standard Match
1. Develop a knowledge and understanding of the English language.	a. Discuss and give examples of how reading, writing, speaking, listening, viewing, and thinking are interrelated. b. Recognize the impact of cultural, economic, political, and social environments upon language. c. Recognize and respect diversity in language use, patterns, and dialects across cultures, ethnic groups, geographic regions, and social roles. d. Use correct English grammar. e. Use correct semantics, syntax, morphology, and phonology.	• Oral, visual, and written products of the following nature: • Critical Analysis • Standardized Test • Restricted Response • Portfolio • Reflections on Observation • Multimedia Application • Journal • Essay • Discussion	

	f. Explain the various purposes for which language is used.		

| 2. Teacher candidates will develop the ability to speak and write as a professional educator. | a. Identify and discuss the influence of language and visual images on thinking and composing.

b. Use writing, speaking and observing as major forms of inquiry, reflection, and expression.

c. Use the processes of composing to create various forms of oral, visual, and written literacy.

d. Use writing, visual images, and speaking for a variety of purposes and audiences.

e. Apply knowledge of language structure and conventions to creating and critiquing print and non-print texts.

f. Apply knowledge of information literacy to the writing and speaking task. | • Oral, visual, and written products of the following nature:
• Critical Analysis
• Selected Response
• Restricted Response
• Portfolio
• Demonstration
• Observation
• Reflections on Observation
• Multimedia Application
• Journal
• Interview
• Documented essay
• Discussion
• Presentation
• Role Pay
• PRAXIS I | |

| 3. Teacher candidates will develop an effective application of the reading process. | a. Interpret what is read and respond through different modalities (visual, auditory, kinesthetic, and tactile).

b. Discover and create meaning from texts.

c. Use a wide range of strategies to comprehend, interpret, evaluate, and appreciate texts. | Oral, visual, and written products of the following nature: Critical Analysis Standardized Test Selected Response Restricted Response Multimedia Application Journal Essay | |

| 4. Teacher candidates will develop an effective application of the writing process, pre-service teachers will be able to perform the following indicators: | a. Use a wide range of writing strategies to generate meaning and to clarify understanding.

b. Produce different forms of written discourse.

c. Explain how written discourse can influence thought and action. | Oral, visual, and written products of the following nature: Critical Analysis Standardized Test Selected Response Restricted Response Portfolio Reflection Demonstration Observation Reflection on a Observation Multimedia Application Journal Interview Essay | |

English Composition Standard 2: Understand how elementary children develop and learn to read, write, speak, and listen effectively.

Outcome	Indicators	Assessment Types*	Standard Match
1. Teacher candidates will develop a knowledge and understanding of child development and language acquisition.	a. Understand and discuss brain research (historical and current) as it relates to reading. b. Define and discuss understanding of language acquisition and development, including semantics, syntax, morphology and phonology. c. Understand and differentiate the effects of phonemic awareness and phonics on developing readers and writers. d. Recognize and understand the interactive nature of the reading process. e. Recognize and understand the impact of cultural, economic, political, and social environments upon language use, patterns, and dialects f. Reflect how children integrate reading, writing, speaking, listening, viewing, and thinking processes to learn within a classroom setting.	• Oral, visual, and written products of the following nature: • Critical Analysis • Standardized Test • Selected Response • Restricted Response • Portfolio • Reflection • Demonstrations • Analysis of Children's Work Samples • Reflection on a Observation • Multimedia Application • Journal • Interview • Essay • Discussion	

Outcome	Indicators	Assessment Types*	Standard Match
	g. Reflect on the use of a wide range of strategies used in reading and writing lessons in an elementary classroom.		

Science

The outcomes in the following charts are derived from the National Science Teachers Association (NSTA) and Next Generation Science Standards (NGSS). They are intended as a guide for the development of courses for pre-service early childhood and elementary teachers.

Area: **Physical Science** Grades K-4 Properties of objects and materials. Position and motion of objects. Light, heat, electricity, magnetism. Grades 5-8 Properties and changes of properties in matter; Motion and force; Transfer of energy.

Outcomes	Indicators	Assessment Type	Standards Match
1. As a result of investigative activities, the teacher candidate must construct the meaning of the terms and concepts associated with the main content areas as outlined in the national science standards for physical science.	a. Know terms and concepts: to select, define, recall, use them in another context, describe and classify them.	• Higher order multiple choice	
2. As a result of investigative activities the teacher candidate will understand the concepts and relationships associated with the national science standards for physical science.	b. Understand terms and concepts: explain, compare and contrast them, analyze them, employ them in synthesis of more complex ideas, evaluate them, and use them to evaluate other concepts.	• Restricted/extended response question	
3. Based on their learning of the terms, concepts, and relationships, the teacher candidate will be able to use	c. Use terms and concepts: solve problems involving	• Performance Assessments	

Outcomes	Indicators	Assessment Type	Standards Match
concepts and relationships related to the content area designated in the national science standards for physical science.	target terms and concepts. and design and carry out scientific investigations.		

Area: **Life Science** Grades K-4 Characteristics of Organisms, Life Cycles of Organisms, Organisms and Environments. Grades 5-8 Structure and function in living systems, Reproduction and heredity, Regulation and behavior, Population and ecosystems, Diversity and adaptations of organism.

Outcomes	Indicators	Assessment Type	Standard Match
1. As a result of investigative activities the teacher candidate must construct the meaning of the terms and concepts associated with the main content areas as outlined in the national science standards for life science.	a. Know terms and concepts: select, define, recall, use them in another context, describe and classify them.	• Higher order multiple choice	
2. As a result of investigative activities the teacher candidate will understand the concepts and relationships associated with the national science standards for life science	b. Understand terms and concepts: explain compare and contrast them, analyze them, employ them in synthesis of more complex ideas, evaluate them, and use them to evaluate other concepts.	• Restricted/extended response	
3. Based on their learning of the terms, concepts, and relationships, the teacher candidate will be able to use concepts and relationships related to the content area designated in the national science standards for life science.	c. Use terms and concepts: solve problems involving target terms and concepts and design and carry out scientific investigations.	• Performance Assessment	

Area**: Earth and Space Science** Grades K-4 Properties of earth materials, Objects in the sky, Changes in earth and sky. Grades 5-8 Structure of the earth system, Earth's history, Earth in the solar system.

Outcomes	Indicators	Assessment Type	Standard Match
1. As a result of investigative activities the teacher candidate must construct the meaning of the terms and concepts associated with the main content areas as outlined in the national science standards for earth and space science.	a. Know terms and concepts: select, define, recall, use them in another context, describe and classify them.	• Higher order multiple choice	
2. As a result of investigative activities the teacher candidate will understand the concepts and relationships associated with the national science standards for earth and space science.	b. Understand terms and concepts: explain, compare and contrast them, analyze them, employ them in synthesis of more complex ideas, evaluate them, and use them to evaluate other concepts.	• Restricted response, essay	
3. Based on their learning of the terms, concepts, and relationships, the teacher candidate will be able to use concepts and relationships related to the content area designated in the national science standards for earth and space science.	c. Use terms and concepts: solve problems involving them, and design and carry out scientific investigations.	• Performance Assessment	

Area: **Science and Technology** Grades K-4 Abilities to distinguish between natural objects and objects made by humans, Abilities of technological design, Understanding about science and technology Grades 5-8 Abilities of technological design, Understanding about science and technology.

Outcomes	Indicators	Assessment Type	Standard Match
1. As a result of investigative activities the teacher candidate must construct the meaning of the terms and concepts associated with the main content areas as outlined in the national science standards for science and technology.	a. <u>Know</u> terms and concepts, they ought to be able to select, define, recall, use them in another context, describe and classify them.	• Higher order multiple choice	.
2. As a result of investigative activities the teacher candidate will understand the concepts and relationships associated with the national science standards for science and technology.	b. <u>Understand</u> terms and concepts: explain, compare and contrast them, analyze them, employ them in synthesis of more complex ideas, evaluate them, and use them to evaluate other concepts.	• Restricted/extended response	
3. Based on their learning of the terms, concepts, and relationships, the teacher candidate will be able to use concepts and relationships related to the content area designated in the national science standards for science and technology.	c. <u>Use</u> terms and concepts: solve problems involving them, and design and carry out scientific investigations.	• Performance Assessment	

Area: **Personal and Social Perspective** Grades K-4 Personal health, Characteristics and changes in populations, Types of resources, Changes in environments, Science and technology in local challenges, Grades 5-8 Personal health, Populations, resources and environments, Natural hazards Risks and benefits.

Outcomes	Indicators	Assessment Type	Standard Match
1. As a result of investigative activities the teacher candidate must construct the meaning of the terms and concepts associated with the main content areas as outlined in the national science standards for science in personal and social perspectives.	a. <u>Know</u> terms and concepts: select, define, recall, use them in another context, describe and classify them.	• Higher order multiple choice	
2. As a result of investigative activities the teacher candidate will understand the concepts and relationships associated with the national science standards for science in personal and social perspectives. 3. Based on their learning of the terms, concepts, and relationships, the teacher candidate will be able to use concepts and relationships related to the content area designated in the national science standards for personal and social perspectives	b. <u>Understand</u> terms and concepts: explain, compare and contrast them, analyze them, employ them in synthesis of more complex ideas, evaluate them, and use them to evaluate other concepts. c. <u>Use</u> terms and concepts: solve problems involving them, and design and carry out scientific investigations.	• Restricted /extended response, essay • Performance Assessment	

Area: **History and Nature of Science** Grade K-4 Science as a human endeavor, Grade 5-8 Science as a human endeavor, Nature of science, History of science.

Outcomes	Indicators	Assessment Type	Standard Match
1. As a result of investigative activities the teacher candidate must construct the meaning of the terms and concepts associated with the main content areas as outlined in the national science standards for the history and nature of science. 2. As a result of investigative activities the teacher candidate will understand the concepts and relationships associated with the national science standards for the history and nature of science. 3. Based on their learning of the terms, concepts, and relationships, the teacher candidates will be able to use concepts and relationships related to the content area designated in the national science standards for the history and nature of science.	a. Know terms and concepts: select, define, recall, use them in another context, describe and classify them. b. Understand terms and concepts: explain, compare and contrast them, analyze them, employ them in synthesis of more complex ideas, evaluate them, and use them to evaluate other concepts. c. Use terms and concepts: solve problems involving them, and design and carry out scientific investigations.	• Higher order multiple choice • Restricted / Extended response • Performance Assessment	

MATHEMATICS

The domains and outcomes which form the basis for this section are those contained in the Council for the Accreditation of Educator Preparation (CAEP) 2018 K-6 Elementary Teacher Preparation Standards, Standard 2b: "Candidates demonstrate and apply understandings of major mathematics concepts, algorithms, procedures, applications and mathematical practices in varied contexts, and connections within and among mathematical domains." Although CAEP is not currently the required accrediting body for teacher education programs in Maryland, these standards are an adaptation of the recommendations for elementary teachers provided within The Mathematical Education of Teachers II (2012) by the Conference Board of the Mathematical Sciences, and, for the data content domain, The Statistical Education of Teachers (SET) (2015) from the American Statistical Association.

The focus for the indicators below is on the MINIMUM set of math outcomes that should be reached in order to prepare an effective teacher in grades one to six. Programs may choose to include additional content as appropriate to clarify the progression of the content standards through higher grade levels or to meet other local needs. Emphasized throughout these outcomes are the development of deep understanding, active engagement in mathematics, flexibility of thinking, use of technology to enhance learning, effective communication, and reflective work. The domain describing Mathematical Practices, while listed as a separate domain, is intended to be integrated throughout the teaching and learning of the remaining outcomes as the Standards for Mathematical Practice flow through the Maryland College and Career Ready Standards.

From the Common Core State Standards' introduction: "….asking a student to understand something also means asking a teacher to assess whether the student has understood it. But what does mathematical understanding look like? One way for teachers to do that is to ask the student to justify, in a way that is appropriate to the student's mathematical maturity, why a particular mathematical statement is true or where a mathematical rule comes from. Mathematical understanding and procedural skill are equally important, and both are assessable using mathematical tasks of sufficient richness."

The indicators for the outcomes within each domain rely heavily on performance based, alternative assessments. Candidates need to do math in meaningful settings, not simply parrot procedures and algorithms. All assessments, with the exception of selected response items, will be evaluated for evidence of mathematical understanding, use of examples and diagrams when appropriate, depth of thought, clarity and organization, conciseness, and grammatical and mechanical integrity.

In the Standards Match column provided below, outcomes have been cross-matched with the Maryland College and Career Ready Standards (MCCRS) for mathematics as well as the mathematics content objectives for the Praxis Subject Assessment Elementary Education: Content Knowledge for Teaching (CKT).

Note: This document owes much of its origin to the work of the MSDE Workgroup which created the draft Framework for the Mathematics Coursework required for MSDE Approved Elementary Education Programs. This workgroup, which did its initial work in 2015-2016, included a variety of stakeholders including Maryland county mathematics supervisors, mathematics educators and teacher educators from higher education institutions across Maryland.

Domain: Mathematical Practices

NOTE: Although this is listed as a stand-alone domain, it MUST be embedded in ALL mathematics content courses for teachers; mathematical practices most readily integrated in each domain are noted throughout this document with specific content applications recommended (SMP).

Teacher Candidates will…

Outcomes	Indicators	Assessment Type/ Sample Assessment	Standard Match
1. Understand that the mathematical practices define processes in which students must engage everyday as their mathematical maturity develops and attend to the connection between the mathematical practices and mathematics content within mathematics instruction.	1.a. Be able to identify and describe the eight 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; and 8. Look for and express regularity in repeated reasoning. 1.b. Implement the use of practices in multiple applications.	Assessment embedded throughout remaining domains.	MCCRS Mathematical Practices

Domain: Basic Procedural Fluency

Teacher Candidates will…

Outcomes	Indicators	Assessment Type/ Sample Assessment	Standard Match
1. Perform basic arithmetic procedures without the use of a calculator.	1.a. Add, subtract, multiply and divide multidigit whole numbers. 1.b. Add, subtract, multiply and divide proper fractions as well as mixed numbers. 1.c. Add, subtract, multiply and divide decimal numbers. 1.d. Convert fractions to decimals and decimals to fractions. 1.e. Solve simple percent problems.	It is suggested that students be administered a gateway assessment in these fluency items as part of their mathematics coursework for the AAT outcomes. A sample assessment is available.	

Domain: Number and Operations in Base Ten (NBT)

Teacher Candidates will…

Outcomes	Indicators	Assessment Type/ Sample Assessment	Standard Match

1. Understand the intricacy of counting, including the distinction between counting as a list of numbers in order and counting to determine a number of objects.	1.a. Differentiate amongst digits (0, 1, 2, 3, 4, 5, 6, 7, 8, 9), numerals (symbolic ways of representing quantities), and numbers (quantities).
	
	1.b Recognize when students are displaying understanding of various components of the learning path for counting:
	● Ability to perceptually subitize regular patterns up to 5 and irregular patterns up to 4, transitioning to conceptual subitizing up to 10.
	● Ability to demonstrate principles of counting :
	   ○ Stable Order Principle
	   ○ One-to-one Correspondence
	   ○ Cardinality
	   ○ Order Irrelevance Principle
	   ○ Abstraction
	   ○ Conservation of number
		Oral, visual, and written products of the following nature:
		
		Selected response
		
		Constructed response
		
		Analysis of children's work samples; for example,
		
		● Distinguish between
		   ○ conservation of quantity
		   ○ one-to-one correspondence
		   ○ understanding of cardinality
			MCCRS
			K.CC.1 - 5
			K.NBT.1
			K.OA.1 - 5
			1.NBT.1-6
			1.OA.1 - 8
			2.OA.1 - 4
			2.NBT.1 - 9
			3.OA.1 - 9
			3.NBT.1 - 3
			4.OA.1 – 3
			4.NF.5 - 6
			4.NBT. 1 - 6
			5.NBT.5 - 7
			6.NS.2-3

	• Ability to apply conservation of number to counting on and identifying which number comes before or after • Ability to demonstrate understanding of the Hierarchical Principle of Numbers. (Understanding that all numbers preceding a number can be or are systematically included in the value of another selected number. For example, knowing that within a group of 5 items, there is also a group of 4 items within that group; 3 items within that group, etc.) 1.c. Identify the relationship between counting and the concept of larger and smaller numbers.	• Identify typical counting errors Constructed response Demonstration of using different number systems and/or different number bases to represent quantities	CKT I.A.1-6 I.B.1 II.A.1-5 IV.A. 5 SMP 6(vocabulary) 2(analyze student understanding)
2. Understand how the base-ten place value system relies on repeated bundling in groups of ten and how to use varied representations including objects, drawings, layered place value cards, and numerical expressions to help reveal base-ten structure.	2.a. Recognize equivalence between place values; e.g., 10 ones equal 1 ten and 10 tens is equivalent to 1 hundred. Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. 2.b. Represent a quantity for multi-digit numbers in multiple ways; e.g., number names, expanded forms. 2.c. Contrast base-ten with examples of at least one other number system such as Roman, Babylonian, Chinese, Egyptian, Mayan, and/or a different number base (e.g., two, five, eight, twelve); units of time could also be used as a contrasting example. 2.d. Describe advantages and disadvantages of groupable (snap cubes, digi blocks), and pre-grouped (base-ten blocks) physical models, and non-proportional models (money). 2.e. Compare multi-digit whole numbers and record the comparisons using the symbols <, =, >. Use place value understanding to round multi-digit whole numbers to any place.	Demonstration of representing a quantity in multiple ways. For example, 200 can be thought of as two hundreds, twenty tens, two hundred ones, one hundred and ten tens, etc. Explanation of why representing quantities in multiple ways is useful. For example, $357 = 300 + 50 + 7$ $= 3 \times 100 + 5 \times 10 + 7 \times 1$ $= 3 \times (10 \times 10) + 5 \times 10 + 7 \times 1$ $= 3 \times 10^2 + 5 \times 10^1 + 7 \times 10^0$ Demonstration of operations in multiple ways. For example, physical manipulatives, number lines, area models, symbols, and algorithms [alternative and standard]	SMP 7,8 (structure of number bases; contrast with non-place-value) SMP 2, 3(evaluate algorithms)
3. Explain how efficient base-ten computation methods for addition, subtraction,	3.a. Add, subtract, multiply, and divide in multiple ways. Compare	Reflection on different methods	SMP 4,5(connect concrete, iconic, and

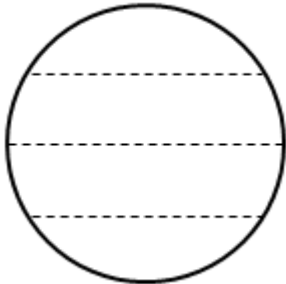|			
multiplication, and division rely on decomposing numbers represented in base ten according to the base-ten units represented by their digits and applying (often informally) properties of operations to decompose a calculation into parts. 4. Know how to use drawings or manipulative materials to reveal, discuss, and explain the rationale behind computation methods. 5. Extend the base-ten system to decimals and view decimals as address systems on number lines. Explain the rationale for decimal computation methods.	advantages and disadvantages of each method. 3.b. Examine hypothetical or actual student calculation methods and decide if the methods are valid or not. 3.c. Explain how to use properties of operations to make some calculations such as 24 x 25 easy to carry out mentally and write strings of equations, such as 24 x 25 = (6 x 4) x 25 = 6 x (4 x 25) = 6 x 100 = 600, to show how properties of operations support the "mental math." 4.a. Describe advantages and disadvantages of different concrete, pictorial, and abstract representations. Make connections amongst these representations and make connections between the representations and the numerical written methods, including the standard algorithm. 5.a. Use base-ten blocks to represent ones, tenths, hundredths, thousandths. 5.b. Represent decimals in word and expanded forms and make connections to the fractional representations of these numbers, e.g. 1/10 = 0.1, 1/100 = 0.01, etc. 5.c. Understand the density of the number line (there is a decimal between any two given decimals). 5.d. Add, subtract, multiply, and divide decimals to hundredths place, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between operations; relate the strategy to a written method and explain the reasoning used. 5.e. Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.	for computing. For example: How are the methods connected? What is the reasoning behind each method? How are properties of operations used? Identification of properties of addition and multiplication. Analysis of children's work samples to determine validity of solution strategies. If the methods are valid, explain why. If the methods are not valid, explain why and describe how the method could be modified to become valid. For example, recognize that if a student calculates 23 x 45 by calculating 20 x 40 and 3 x 5 and adding the results, the method is not legitimate but can be modified to become correct by adding the two missing products that arise from applying the distributive property, which can also be seen in an area or array model. Demonstration of decimal operations using models and strategies	equations and mental math approaches) SMP 7,8(extending place value to decimals)

	5.f. Compare decimals and record the comparisons using the symbols $<, =, >$. 5.g. Use place value understanding to round decimals to any requested place value.		

Domain: Number and Operations--Fractions

Teacher Candidates will…

Outcomes	Indicators	Assessment Type/ Sample Assessment	Standard Match
1. Understand fractions as numbers, which can be represented by area and set models and by lengths and on a number line. Attend closely to the whole (referent unit) while solving problems and explaining solutions.	1.a. Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words halves, thirds, half of, a third of, etc. and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shapes. 1.b. Understand a fraction 1/b as the quantity formed by 1 part when a whole is partitioned into b EQUAL parts. Understand a fraction a/b as the quantity formed by a parts of size 1/b. 1.c. Understand that a fraction is a rational and real number. Understand that the numerator and denominator are not separate parts but represent a quantity that can be represented as a position on the number line. 1.d. Give rationales underlying methods for comparing fractions, including comparing fractions with common denominators or common numerators and explain how to compare fractions by relating them to benchmarks such as ½ or 1.	Oral, visual, and written products of the following nature: Constructed response, for example: Write 4 fractions that are equivalent to 5/6. Show how you know the fractions are equivalent. Demonstration of problem solving strategies	MCCRS 1.G.3 2.G.3 3.NF.1 - 3 4.NF.1 – 5 5.NF.1 - 7 6.NS.1 6.RP.1 - 3 CKT III.A.1-7 SMP 4(connect models and notation) 3(justify comparison strategies)
2. Recognize that addition, subtraction, multiplication,	2.a. Use concrete (set, area and length models) and pictorial (set, area and	Explain how to use pattern blocks to solve ½ +⅓; use the result to	

and division problem types and associated meanings for the operations extend from whole numbers to fractions.	length models) to represent problems involving the addition, subtraction, multiplication, or division of fractions. Compare and contrast the different models.	see why the answer is NOT ⅖. Explain how a student might arrive at this wrong answer.	
3. Explain the rationale for defining and representing equivalent fractions and procedures for adding, subtracting, multiplying, and dividing fractions.	2.b. Recognize common student errors involving fraction operations. 3.a. Understand two fractions are equivalent if they are the same size or the same point on a number line. Explain why a fraction a/b is equivalent to a fraction (n x a) / (n x b) by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. 3.b. Express whole numbers as fractions and recognize fractions that are equivalent to whole numbers. Recognize that comparisons are only valid when the two fractions refer to the same whole. 3.c. Understand a fraction a/b (where a is a whole number) as a sum of a fractions of size 1/b. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. Add and subtract fractions (including mixed numbers) by replacing given fractions with equivalent fractions to produce an equivalent sum or difference of fractions with like denominators. Solve word problems involving the addition and subtraction of fractions referring to the same whole. 3.d. Understand a fraction a/b as a multiple of 1/b, and use this understanding to multiply a fraction by a whole number. Apply and extend this understanding to multiply a fraction (or mixed number) by a fraction (or mixed number). Solve word problems involving multiplication of fractions. 3.e. Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions.	Analysis of children's work samples, for example: When asked to split a cake into 4 equal pieces, a student gave the solution shown below. Explain whether or not this is a fair share. 	SMP 3,4 (use models to help justify rules for fraction equivalence and fraction algorithms)
4. Understand the connection between fractions and division, a/b = a÷b, and how	4.a. Interpret a fraction as division of the numerator by the denominator. (a/b = a ÷ b) Explain why b cannot be 0. Extend this understanding to divide a fraction (or mixed number) by a fraction (or mixed number). Solve word problems involving the division of fractions.		SMP 1,3

fractions, ratios, and rates are connected via unit rates. 5. Reason about how quantities vary together in a proportional relationship, using tables, double number lines, and tape diagrams as supports. 6. Distinguish proportional relationships from other relationships, such as additive relationships and inversely proportional relationships.	4.b. Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. 5.a. Examine different ways to solve proportion problems with tables, double number lines, and tape diagrams. 5.b. Examine common errors students make when solving problems involving ratio and proportion. 6.a. Compare and contrast different ways to find values in proportional relationships and in inversely proportional relationships. For example, explain why linear interpolation can be used with proportional relationships but not with inversely proportional relationships.	Constructed response, for example: Mary is making punch for a party. The recipe calls for mixing 2 cups of tropical fruit concentrate and 5 cups of water. If Mary wants to make 28 cups of punch, how much concentrate will she need to use? Use a visual representation (table, double number line, or tape diagram) to answer the question.	(pose challenging problems; have students explain their reasoning, strategies)
7. Use unit rates to solve problems and to formulate equations for proportional relationships.	7.a. Use unit rates to solve problems and to formulate equations for proportional relationships. 7.b. Graph proportional relationships, interpreting the unit rate as the slope of the graph.	Constructed response, such as: If a person walks ½ mile in each ¼ hour, find the unit rate and then write an equation representing the number of miles walked M for each number of hours T.	

Domain: Operations and Algebraic Thinking: Operations
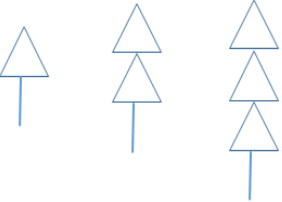
Teacher Candidates will…

Outcomes	Indicators	Assessment Type/ Sample Assessment	Standard Match
1. Understand the different types of problems solved by addition, subtraction, multiplication, and division, and meanings of the operations illustrated by these problem types.	1.a. Identify the operation(s) needed to solve specific word problems. Reinforce reasoning and meaning making for problem interpretation and reduce reliance on keywords. Use appropriate vocabulary. 1.b. Use all of the different problem types for addition and subtraction (Add To, Take From, Put Together/Take Apart, Comparison) to develop meaning for these operations. 1.c. Use all of the different problem types for multiplication and division (Equal Groups, Arrays, Area, Multiplicative Comparison) to develop meaning for these operations. 1.d. Explore and discuss the different ways remainders can be interpreted when solving division problems. In particular, identify the different meanings of the remainder in a partitive vs. a measurement context.	Oral, visual, and written products of the following nature: Identify the problem type: Erika has 28 candies. She puts the candies into 4 goody bags with the same number of candies in each bag. How many candies are in each bag? Analysis of children's work samples	MCCRS K.CC.1 - 5 1.NBT.1 1.OA.1 2.OA.1 2.MD.10 3.OA.3 4.OA.2-4 6.EE.2 - 4 6.EE.5 - 9 6.NS.4 7.EE.3 - 4 CKT I.A.1-6 I.B.2 IV.A.1-4

2. Understand teaching/learning paths for single-digit addition and associated subtraction as well as single-digit multiplication and associated division, including the use of properties of operations (i.e., the field axioms).	2.a. Make sense of models for addition, subtraction, multiplication and division that progress from concrete through pictorial to abstract. Justify the choice of model for the context of a problem. Write and solve equations with the unknown in each location.
	
	 2.b. State, recognize and apply:
	    Associative property of addition
	    Associative property of multiplication
	    Closure of addition
	    Closure of multiplication
	    Commutative property of addition
	    Commutative property of multiplication
	    Distributive property
	    Identity property of addition
		
		Name the property being illustrated. $(3+5)9=3\cdot9+5\cdot9$
			SMP 7 (Make use of structure)
			
			SMP 2,3(apply properties to calculate; solve equations

	Identity property of multiplication Zero property of multiplication Additive inverse property Multiplicative inverse property 2.c. Identify arithmetic patterns; explain them using properties of operations. 2.d. Use the terms "multiple, factor, prime, composite" accurately; find the greatest common factor of two whole numbers and the least common multiple of two natural numbers. 2.e. Extend operations on whole numbers into operations on integers, including a variety of real-world contexts to represent integers and emphasizing that the properties of operations continue to apply to integers to explain various results, such as why the product of two negatives is positive.		relationally; justify 0 cannot be divisor) SMP 8(look for and express regularity)

Doman: Operations and Algebraic Thinking: Algebraic Thinking

Teacher Candidates will…

Outcome	Indicators	Assessment Type/ Sample Assessment	Standard Match
1. Know and understand the foundations of algebra within elementary mathematics, including understanding the equal sign as meaning "the same amount as" rather than a "calculate the answer" symbol.	1.a. Explain how to solve equations such as 283 + 19 = x + 18 by "thinking relationally" (e.g., by recognizing that because 19 is 1 more than 18, x should be 1 more than 283 to make both sides equal) rather than by applying standard algebraic methods. 1.b. Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols by applying the order of operations conventions. 1.c. Write, read, and evaluate expressions that include letters for quantities, recognize and produce equivalent expressions, and understand the difference between an expression and an equation. 1.d. Recognize a "run-on equation" as an invalid equation. For example, 12 – 4 = 8 + 5 = 13 – 6 = 7 is not a correct equation. 1.e. Represent and analyze quantitative relationships between dependent and independent variables.	Oral, visual, and written products of the following nature: Selected response Constructed response, for example: Given a growing pattern made with toothpicks like the one below, describe the number of toothpicks in the nth figure. Relate the formula to the shape. [Note that the nth figure will have n triangles with 3 toothpicks each, plus 1 "stem": 3n + 1.]	MCCRS 1.OA.1 2.OA.1 3.OA.3 4.OA.2 6.EE.2 - 9 7.EE.3 - 4 8.EE.7 - 8 CKT I.B.2 IV.A.1-4 SMP 4(models for operations; including equations)
2. Understand numerical and algebraic expressions by describing them in words, parsing them into their component parts, and interpreting the components in terms of a context.	2.a. Identify the reasoning behind using a particular expression to describe a given operation or calculation, connect the expression to the context, and identify the steps required to complete the process.		SMP 2,3(apply properties to calculate; solve equations relationally; justify 0 cannot be divisor)
3. Understand and apply lines of reasoning used to solve	3.a. Understand solving an equation as a process of answering a question:	Given a rectangular pool with	

| equations and systems of equations. | which values from a specified set, if any, make the equation true?

3.b. Solve linear equations by successively transforming the given equation into simpler forms by applying the same operation to each part of the equation; use physical or pictorial models where appropriate.

3.c. Solve systems of linear equations graphically (finding point of intersection) and algebraically (substitution, elimination). | dimensions m x n, how many 1x1 border tiles are needed to surround the pool? [Possible expressions with ways of thinking include:
$2m + 2n + 4$ (two pool lengths, two pool widths, and four corners)
$2(m + 2) + 2n$ (two border lengths, two pool widths)] | <u>SMP</u> 6(expressions vs equations; invalid equations; meaning of notation) |

Domain: Measurement and Data /Measurement

Teacher Candidates will…

Outcomes	Indicators	Assessment Type/ Sample Assessment	Standard Match
1. Understand the general principles of measurement, the process of iterations, and the central role of units: that measurement requires a choice of measurable attribute, that measurement is comparison with a unit, and how the size of a unit affects measurements, and the iteration, additivity, and invariance used in determining measurements.	1.a. Describe several measurable attributes of a single object. Include various quantities such as time, temperature, money, and angle measure. 1.b. Compare the lengths of two objects indirectly by using a third object. 2.a. Know basic unit conversions such as 1 yard = 3 feet, 1 foot = 12 inches, 10 mm = 1 cm, 100 cm = 1 meter, 1000 meters = 1 kilometer.	Oral, visual, and written products of the following nature: Constructed response, for example: For each of the following items, state which U.S. customary units and which metric units in common use would be most appropriate for describing the size of the item. Explain your choices. a) The volume of water in a full bathtub b) The length of a swimming pool c) The weight of a slice of	MCCRS K.MD.1 2.MD.1-6 3.MD.4 3.MD.8 4.MD.1 4.MD.3 5.MD.1-5 6.G.1 - 4 7.G.4 - 6 8.G.9 CKT IV.B.1-5 SMP 5,6 (use various tools;

2. Know how the number line connects measurement with number through length.	2.b. Choose appropriate measurement tools and use the tools to take measurements; understand that the same object (size) can have many different measurements (depending on the units used).	bread d) The volume of a slice of bread e) The weight of a ship f) The length of an ant	discuss permissible precision)
3. Understand what area and volume are and give rationales for area and volume formulas that can be obtained by finitely many compositions and decompositions of unit squares or unit cubes, including formulas for the areas of rectangles, triangles, and parallelograms, and volumes of rectangular prisms.	3.a. Derive the formula for area of rectangles, parallelograms, triangles, and trapezoids and justify via partitioning arguments. 3.b. Determine area and volume of composite shapes by decomposing them into familiar shapes. 3.c. Investigate whether the area of a parallelogram is determined by the lengths of its sides. Realize that all parallelograms and triangles with a certain height and base have the same area. 3.d. Explore the distinction and relationship between perimeter and area, such as by fixing a perimeter and finding the range of areas possible or by fixing an area and finding the range of perimeters possible. Similarly explore the distinction and relationship between surface area and volume of a rectangular prism. 3.e. Determine surface area of polyhedra and cylinders by decomposing them into nets. 3.f. Derive the formulas for the volume of prisms, cylinders, cones and pyramids.		SMP 3 (justify area formulas for triangles, parallelograms, trapezoids, circles) SMP 1,3 (pose challenging area problems, students justify strategy)

Domain: Measurement and Data: Data
[NOTE: The outcomes in this section are taken from The Statistical Education of Teachers (SET) but are also aligned to the CAEP standards for Data.]

Teacher Candidates will…

Outcomes	Indicators	Assessment Type/ Sample Assessment	Standard Match
1. Know how to formulate a statistical question (anticipate variability in the data that will be collected) and understand how a statistical question differs from a mathematical question. 2. Design a strategy for collecting data to address the question posed (acknowledge variability). 3. Analyze the data (account for variability).	1.a. Understand a statistical question is asked within a context that anticipates variability in data. 1.b. Understand measuring the same variable (or characteristic) on several entities results in data that vary. 1.c. Understand that answers to statistical questions should take variability into account. 2.a. Understand data are classified as either categorical or numerical. 2.b. Understand a sample is used to predict (or estimate) characteristics of the population from which it was taken (including distinction between population, census, and sample). 2.c. Understand experiments are conducted to compare and measure the effectiveness of treatments. Random allocation is a fair way to assign treatments to experimental units. 3.a. Understand distributions describe key features of data such as variability. 3.b. Recognize and use tables with counts and percentages as well as appropriate graphs (picture graph, bar graph, pie graph for categorical data, line plots, stem and leaf plots, histograms and boxplots for numerical data). 3.c. Recognize and use appropriate numerical summaries to describe characteristics of the distribution of quantitative data (mean or median to describe center; range, interquartile range or mean absolute deviation to describe variability).	Oral, visual, and written products of the following nature: Selected response, for example: A company database contains the following information about each employee: age, date hired, gender, ethnic group, job category (clerical, management, technical, etc.), yearly salary. Which of the following lists of variables are all numerical? a) age, gender, ethnic group b) gender, ethnic group, job category c) ethnic group, job category, yearly salary d) yearly salary, age Constructed response, for example: Which of the following questions are statistical	MCCRS 6.SP. 1 - 5 7.SP. 1 - 5 CAEP Standard 2b Data (Statistics and Probability) SMP 4,5 (choose best graph to represent data; use software to calculate statistics and make graphs; use simulation procedures and apps)

	3.d. Understand distributions can be used to compare two groups of data with respect to similarities and differences in center, variability (spread) and shape. 3.e. Explore patterns of association by using values of one variable to predict values of another variable. 4.a. Recognize the difference between a parameter (numerical summary from the population) and a statistic (numerical summary from a sample). 4.b. Recognize that a simple random sample is a 'fair' or unbiased way to select a sample for describing the population and is the basis for inference from a sample to a population. 4.c. Recognize the limitations of scope of inference to a population depending on how samples are obtained. 4.d. Recognize sample statistics will vary from one sample to the next for samples drawn from a population. 5.a. Understand that probability provides a way to describe the 'long-run' random behavior of an outcome occurring and recognize how to use simulation to approximate probabilities and distributions. 5.b. Explain why theoretical and experimental probabilities may differ for a given event in a particular experimental situation. 6.a. Interpret student test results (percentiles, normal distribution, standard deviations, stanine). 6.b. Understand data and analysis presented in journal articles.	questions? What makes them statistical? a) How heavy is Damon's backpack? b) How heavy are the backpacks of students in this class? Analysis of children's work samples

4. Make conclusions from the analysis (taking variability into account) and connect back to the statistical question. 5. Determine and understand theoretical and experimental probabilities of simple and compound events. 6. Interpret and use data in professional work.			

Domain: Geometry (G)

Teacher Candidates will…

Outcomes	Indicators	Assessment Type/ Sample Assessment	Standard Match
1. Understand geometric concepts of angle, parallel, and perpendicular, and use them in describing and defining shapes and describing and reasoning about spatial locations (including the coordinate plane). 2. Classify shapes into categories and reason to explain relationships among the categories.	1.a. Identify angle relationships: supplementary, complementary, vertical, adjacent, alternate interior, alternate exterior. Use a ruler and protractor, as well as dynamic graphing tools (such as Geometer's Sketchpad or Geogebra), to construct figures with given conditions. 1.b. Find missing angles in arrangements of intersecting lines with parallel lines and transversal or in n-gons. 1.c. Given a set of coordinates as vertices, plot the points and identify what shape is represented by referencing lengths of segments, parallel and perpendicular properties of segments (be as specific as possible). Include examples where the sides of the shape are not parallel to the axes, and where the Pythagorean Theorem is used to determine the length. 1.d. Use deductive reasoning to verify angle relationships; for example, determine that vertical angles are congruent; that the angles of a triangle total 180 degrees. 1.e. Identify and draw lines of symmetry and identify rotational symmetry in various shapes and designs (e.g. rectangles have two lines of symmetry, parallelograms have 180-degree rotational symmetry). 2.a. List specific characteristics of squares, rectangles, rhombi, different types of triangles by using appropriate language including perpendicular, parallel, right, obtuse, and acute angles, congruent segments and angles. 2.b. List specific characteristics of prisms, pyramids, cylinders, cones, spheres by using appropriate language including perpendicular and parallel, height, slant height, base(s), apex. 2.c. Explore how collections of attributes are related to categories of shapes. Sometimes, removing one attribute from a collection of attributes does not change the set of shapes the attributes apply to and sometimes it does. 2.d. Identify shared attributes of shapes in different categories (squares, rectangles, rhombi) and that they shared attributes can define a larger category	Oral, visual, and written products of the following nature: Selected response Constructed response Reason about scaling in several ways: If an 18-inch by 72-inch rectangular banner is scaled down so that the 18-inch side becomes 6 inches, then what should the length of the adjacent sides become? Explain how to reason by: 1) Comparing the 18-inch and 6-inch sides, 2) Comparing the 18-inch and 72-inch sides.	MCCRS K.G.1 - 6 1.G.1 - 3 2.G.1 - 3 3.G.1 4.MD.5 - 7 4.G.1 - 2 5.G.3 - 4 7.G.1 7.G.5 CKT III.A.7 IV.C.1-5 SMP 6 (vocab) 2 (analyze characteristics of shapes and classify)

	(quadrilaterals).		
	2.e. Demonstrate the relationships among categories via Venn diagrams.		
	2.f. Using triangle congruence properties and deductive reasoning, derive some properties of isosceles triangles, parallelograms and trapezoids (e.g. opposite sides of a parallelogram are congruent; diagonals of a rectangle are congruent).		SMP 2,4 (Model similar figures and their quantitative relationships; solve for missing values in multiple ways)
	2.g. Informally derive the formulas for circumference (by measuring diameter and circumference of circles) and area of a circle (by decomposing into a parallelogram-like shape).		
3. Reason about proportional relationships in scaling shapes up and down.	3.a. Define, find, and be able to use a scale factor.		
	3.b. Determine if two shapes are similar. If a pair of shapes is known to be similar, find missing lengths and angles. Focus especially on triangles.		
	3.c. Identify congruent and similar shapes. Explain why, referring to specific properties of side lengths and angles. Identify congruent as a subset of similar.		

Educator Program Providers should also consider the more complete set of elementary teacher recommendations provided within:

- The Mathematics Education of Teachers II http://cbmsweb.org/MET2/
- Progression Documents for the Common Core Math Standards, located at http://ime.math.arizona.edu/progressions/#products
- The Statistical Education of Teachers http://www.amstat.org/education/SET/SET.pdf
- Principles to Actions http://www.nctm.org/principlestoactions/
- Elementary and Middle School Mathematics: Teaching Developmentally, 10th Edition (2019) by Van de Walle, Karp, Bay-Williams.

Social and Behavioral Sciences

Based on NCSS National Standards for the Preparation of Social Studies Teachers & C3 Framework

Area: Civics

Outcome (NCSS 2017, C3 Framework)	Indicators (NCSS 2004)	Assessment Types*	Standard Match
Area: Civics Teacher candidates will be knowledgeable about the concepts, facts and tools of civics. 1. Analyze and explain the important institutions of our society and the principles that these institutions are intended to reflect 2. Examine and apply civic virtues and democratic principles which support civic participation and deliberation 3. Analyze the processes and rules by which groups of people make decisions, govern themselves, and address public problems	**Standard 8: Civic Ideals and Practices:** **1. Teacher candidates will discuss how the meaning of citizenship has evolved.** **2. Teacher candidates will understand the balance between rights and responsibilities.** **3. Teacher candidates will discuss the role of the citizen in the community and the nation, and as a member of the world community.** a. Explain the origins and interpret the continuing influence of key ideals of the democratic republican form of government, such as individual human dignity, liberty, justice, equality, and the rule of law. b. Identify, analyze, interpret, and evaluate sources and examples of citizens' rights and responsibilities. c. Locate, access, analyze, organize, synthesize, evaluate, and apply information about selected public	• Debate • Discussion • Surveys • Projects • Brief and extended constructed responses • Selected responses	NCSS Standard 1, Element 1a MSDE Social Studies Standard 1.0

issues-- identifying, describing, and evaluating multiple points of view. d. Practice forms of civic discussion and participation consistent with the ideals of citizens in a democratic republic. e. Analyze and evaluate the influence of various forms of citizen action on public policy. f. Evaluate the effectiveness of public opinion in influencing and shaping public policy development and decision-making. g. Participate in activities to strengthen the "common good," based upon careful evaluation of possible options for citizen action. **Standard 6: Power, Authority and Governance:** **1. Teacher candidates will understand the historical development of structures of power, authority and governance and their evolving functions in the United States and other parts of the world.** **2. Teacher candidates will understand how and why governments are created, structured, maintained and changed.** a. Examine persistent issues involving the rights, roles, and status of the	• Debate • Research paper • Role play • Brief and extended constructed responses • Presentation	

	individual in relation to the general welfare. b. Explain the purpose of government and analyze how its powers are acquired, used, and justified. c. Analyze and explain ideas and mechanisms to meet needs and wants of citizens, regulate territory, manage conflict, establish order and security, and balance competing conceptions of a just society. d. Compare different political systems (their ideologies, structure, institutions, processes, and political cultures) with that of the United States, and identify representative political leaders from selected historical and contemporary settings.	

Area 2: Geography

Outcome (NCSS 2017, C3 Framework)	Indicators (NCSS 2004)	Assessment Types*	Standard Match
Area: Geography Teacher candidates will be knowledgeable about the concepts, facts and tools of geography. 1. Construct and use a variety of geographic representations 2. Examine interactions between humans and the environment in various regions 3. Examine spatial patterns and movements of human population 4. Analyze changing spatial patterns and global interconnections	**Standard 3: People, Places and Environments:** **1. Teacher candidates will understand why things are located where they are.** **2. Teacher candidates will understand how and why landforms change and how that impacts the people living there.** **3. Teacher candidates will understand how where we live determines how we live.** a. Refine mental maps of locales, regions and the world that demonstrate understanding of relative location, direction, size, and shape. b. Create, interpret, use, and synthesize information from various representations of the earth, such as maps, globes, and photographs. c. Calculate distance, scale, area, and density, and distinguish spatial distribution patterns. d. Describe, differentiate, and explain the relationships among various regional and global patterns of geographic phenomena such as landforms, soils, climate, vegetation, natural resources, and population.	• Projects • Model making • Presentations • Brief and extended constructed responses	NCSS Standard 1, Element 1a MSDE Social Studies Standard 3.0

Area: History

Outcome (NCSS 2017, C3 Framework)	Indicators (NCSS 2004)	Assessment Types*	Standard Match
Area: History Teacher candidates will be knowledgeable about the concepts, facts and tools of history. 1. Examine processes of change and continuity over time and analyze the impact of particular contexts on patterns of change 2. Demonstrate an understanding of the role of perspective in examining historical events and sources 3. Evaluate historical sources as evidence to support historical interpretations 4. Evaluate complex relationships of causation and create effective historical arguments	**Standard 2: Time, Continuity, and Change:** **1. Teacher candidates will develop and use chronological thinking.** **2. Teacher candidates will understand historical thinking and how historians study history.** a. Demonstrate an understanding that different scholars may describe the same event or situation in different ways but must provide reasons or evidence for their views b. Identify and use key concepts such as chronology, causality, change, conflict and complexity to explain, analyze and show connections among patterns of historical change and continuity c. Identify and describe selected historical periods and patterns of change within and across cultures, such as the rise of civilizations, the development of transportation systems, the growth and break-down of colonial systems, etc. d. Identify and use processes important to reconstructing and reinterpreting the past, such as using a variety of sources, providing, validating and weighing evidence for claims, checking credibility of sources, and searching for causality	• Selected responses • Projects • Brief and extended constructed responses • Debate • Models	NCSS Standard 1, Element 1a MSDE Social Studies Standard 5.0

Outcome (NCSS 2017, C3 Framework)	Indicators (NCSS 2004)	Assessment Types*	Standard Match
	e. Use knowledge of facts and concepts drawn from history, along with methods of historical inquiry, to inform decision-making about and action-taking on public issues		

Area: Social/Behavioral Science

Outcomes (NCSS 2017, C3 Framework)	Indicators (NCSS 2004)	Assessment Type	Standard Match
Area: Social/Behavioral Science Teacher candidates will be knowledgeable about the concepts, facts and tools of social/behavioral sciences. a. Explore concepts related to the study of human behavior and mental processes examined in the field of psychology b. Explore concepts related to the study of groups, organizations, societies, and social interactions examined in the field of sociology c. Explore concepts related to the study of human beings and their cultures examined in the field of anthropology	**Standard 4: Individual Development and Identity** *(Psychology)***:** **1. Teacher candidates will understand how one's culture, groups and institutions shape personal identity.** **2. Teacher candidates will explicate what influences how people learn, perceive and grow.** **3. Teacher candidates will understand the developmental stages that people go through from birth through adulthood.** a. Articulate personal connections to time, place, and social/cultural systems. b. Identify, describe, and express appreciation for the influences of various historical and contemporary cultures on an individual's daily life. c. Describe the ways family, religion, gender, ethnicity, nationality, socioeconomic status, and other group and cultural influences contribute to the development of a sense of self. d. Examine the interactions of ethnic, national, or cultural influences in specific situations or events. e. Analyze the role of perceptions,	• Role play • Brief and extended constructed responses • Selected responses	NCSS Standard 1, Element 1a MSDE Social Studies Standard 2.0

Outcomes (NCSS 2017, C3 Framework)	Indicators (NCSS 2004)	Assessment Type	Standard Match
	attitudes, values, and beliefs in the development of personal identity. f. Compare and evaluate the impact of stereotyping, conformity, acts of altruism, and other behaviors on individuals and groups. g. Work independently and cooperatively within groups and institutions to accomplish goals. **Standard 5: Individuals, Groups, and Institutions** *(Sociology)***:** **1. Teacher candidates will understand the integral role that institutions play in peoples' lives.** **2. Teacher candidates will understand the role of institutions in their society and other societies.** **3. Teacher candidates will understand how institutions change.** **4. Teacher candidates will understand how and why institutions form, what controls and influences them and how they influence people and culture.** a. Apply concepts such as role, status, and social class in describing the connections and interactions of individuals, groups, and institutions in society. b. Analyze group and institutional influences on people, events, and elements of culture in both historical	• Model making/projects • Brief and extended constructed responses • Debate • Role play	

Outcomes (NCSS 2017, C3 Framework)	Indicators (NCSS 2004)	Assessment Type	Standard Match
	and contemporary settings. c. Describe the various forms institutions take and explain how they develop and change over time. d. Identify and analyze examples of tensions between expressions of individuality and efforts used to promote social conformity by groups and institutions. e. Evaluate the role of institutions in furthering both continuity and change. f. Analyze the extent to which groups and institutions meet individual needs and promote the common good in contemporary and historical settings. g. Explain and apply ideas and modes of inquiry drawn from behavioral science and social theory in the examination of persistent issues and social problems. **Standard 1: Culture:** **1. Teacher candidates will understand the common characteristics of different cultures.** **2. Teacher candidates will understand how cultures change to accommodate different ideas and beliefs.** **3. Teacher candidates will be able to discuss the relationship between belief systems and culture.**	 • Brief and extended constructed responses • Selected responses • Creation of replica artifacts • Role play and demonstration	

Outcomes (NCSS 2017, C3 Framework)	Indicators (NCSS 2004)	Assessment Type	Standard Match
	a. Analyze and explain the ways groups, societies, and cultures address human needs and concerns. b. Apply an understanding of culture as an integrated whole that explains the functions and interactions of language, literature, the arts, traditions, beliefs and values, and behavior patterns. c. Compare and analyze societal patterns for preserving and transmitting culture while adapting to environmental or social change. d. Demonstrate the value of cultural diversity, as well as cohesion, within and across groups. e. Interpret patterns of behavior reflecting values and attitudes that contribute or pose obstacles to cross-cultural understanding.		

Area: Disciplined Inquiry

Outcomes (NCSS 2017, C3 Framework)	Indicators	Assessment Type	Standard Match
Area: Disciplinary Inquiry Teacher candidates will be knowledgeable about disciplinary inquiry in social studies disciplines. 1. Develop compelling and supporting questions, and plan inquiries into those questions 2. Gather and evaluate sources 3. Develop claims using evidence 4. Critique conclusions in order to take informed action		• Research paper • Projects • Debate • Brief and extended constructed responses • Selected responses	NCSS Standard 1, Element 1b MSDE Social Studies Standard 6.0

Outcomes (NCSS 2017, C3 Framework)	Indicators	Assessment Type	Standard Match
Area: Disciplinary Forms of Representation Teacher candidates will be knowledgeable about disciplinary forms of representation in social studies disciplines 1. Apply norms of sharing information within various disciplines of the Social Studies 2. Communicate conclusions in a manner appropriate to various Social Studies disciplines		• Debate • Discussion • Surveys • Projects • Brief and extended constructed responses • Selected responses	NCSS Standard 1, Element 1c MSDE Social Studies Standard 6.0

IV. Outcomes and Standards: Early Childhood/Special Education

This section of the document is the revision of the 2003 *OUTCOMES and STANDARDS for Implementation of the Associate of Arts in Teaching (AAT) Degree in Early Childhood Education*. The Early Childhood AAT degree is not intended to replace the Associate of Applied Science Degree (A.A.S.) in Early Childhood Development/Education that is offered at many of the two-year community colleges in the State of Maryland. The AAS is a valuable, career program associate degree designed for students seeking careers in the early care and education childcare field. The AAT is designed for students transferring to a four-year institution teacher preparation program leading to Maryland Teacher Certification or Licensure in Early Childhood Education.

Standard 1. Early Childhood Development and Learning

Outcomes	Indicators	Assessment Type	Standard Match
1. The Early Childhood teacher candidate will describe a developmentally appropriate educational program for children from birth to eight years of age		Oral, visual, and written products of the following nature: • Critical analysis • Standardized Test • Selected Response	NAEYC: 4 INTASC:1 1304.52(d) (1)
2. The Early Childhood teacher candidate will explain the major research methods and assessment techniques used to study children from birth to eight years of age	•	• Restricted Response • Portfolio • Reflection • Demonstrations • Journal	NAEYC: 3 INTASC: 6 MCEE: Principle II, B4
3. The Early Childhood teacher candidate will discuss the physical development of children from birth through 8 years of age	•	• Analysis of children's Work Samples • Reflection on an Observation • Multimedia Application	NAEYC: 1 INTASC: 1
4. The Early Childhood teacher candidate will describe the social-emotional development and emotional development of children from birth through eight years of	•	• Interview • Essay • Discussion	NAEYC: 1 INTASC: 1

age			
5. The Early Childhood teacher candidate will describe the cognitive development of children from birth through 8 years of age			NAEYC: 1 INTASC: 1
6. The Early Childhood teacher candidate will demonstrate knowledge of key federal, state, and local legislation and court rulings affecting children and at-risk across a range of factors, and their families, and the implications of practice.		Oral, visual, and written products of the following nature: • Critical analysis • Standardized Test • Selected Response	NAEYC: 6 INTASC: 9 MCEE: Principle I, A2
7. The Early Childhood teacher will discuss the effects of bias (e.g., gender, race, ethnicity, culture, socio-economic status, ability levels) on development.		• Restricted Response • Portfolio • Reflection • Demonstrations • Journal	NAEYC: 1 and 2 INTASC: 2 MCEE: Principle III, B2
8. The Early Childhood candidate will reflect on the experiences of being with children in a learning environment		• Interview • Essay • Discussion	NAEYC: 6 INTASC: 9 MCEE: Principle II, A5
9. The Early Childhood teacher candidate will demonstrate an understanding of significant issues and current trends in Early Childhood Education		Oral, visual, and written products of the following nature: • Critical analysis • Standardized Test • Selected Response	NAEYC: 6 INTASC: 9 MCEE: Principle I, C3
11. The Early Childhood teacher candidate will		• Restricted Response	NAEYC: 6 INTASC: 9

demonstrate knowledge of Early Childhood Professional Code of Ethics by NAEYC		• Portfolio • Reflection • Demonstrations • Journal	MCEE: Principle I, C3
12. The Early Childhood teacher candidate will compare and contrast the variety of curriculum models and programs in Early Childhood		• Analysis of children's Work Samples • Reflection on an Observation • Multimedia Application	NAEYC: 4 and 5 INTASC: 4, 5, 7, and 8
13. The Early Childhood teacher candidate will articulate their own philosophy of Early childhood Education		• Interview • Essay • Discussion	NAEYC: 6 INTASC: 9
14. The Early Childhood teacher candidate will demonstrate an understanding of diverse populations in Early Childhood Education			NAEYC: 3, 4, and 6 INTASC: 2 and 9 MCEE: Principle III, B2
15. The Early Childhood teacher candidate will identify the principles of Developmentally Appropriate Practice in Early Childhood Education			NAEYC: 4 INTASC: 1, 2, 3, 7, 8, 9 MCEE: Principle II, A1
16. The Early Childhood teacher candidate will discuss the major roles and responsibilities of an Early childhood educator			NAEYC: 6 INTASC: 9 and 10
17. The Early Childhood			NAEYC: 1

Education teacher candidate will demonstrate knowledge of current and emerging research on early brain development and the implications for practice in early childhood programs.			MCEE: Principle II, B4
18. The Early Childhood teacher candidate will demonstrate an understanding of the impact of significant relationships on early brain development, subsequent development across domains, and linkages with later school readiness.			NAEYC: 1

Standard 2. Language Development, Literacy, and Processes and Acquisition of Reading

Outcomes	Indicators	Assessment Type	Standard Match
1. The Early Childhood teacher candidate will discuss current and emerging research on brain development, and the relationship to language development, emergent literacy, and reading acquisition		Oral, visual, and written products of the following nature: • Critical analysis • Standardized Test • Selected Response	NAEYC Standard: 1, 4C, 5 INTASC Standard: 1, 4, and 5 MCEE: Principle II, B4
2. The Early Childhood teacher candidate will explain the relationship and role of each component of language acquisition to reading development	•	• Restricted Response • Portfolio • Reflection • Demonstrations • Journal	NAEYC Standard: 1, 5 INTASC Standard: 1, 4, and 5
3. The Early Childhood teacher candidate will discuss the interactive nature of the reading process.	•	• Analysis of children's Work Samples • Reflection on an Observation • Multimedia Application	NAEYC Standard: 5 INTASC Standard: 1, 4, and 5
4. The Early Childhood teacher candidate will analyze the effects of phonemic awareness and phonics on developing readers	•	• Interview • Essay • Discussion	NAEYC Standard: 5 INTASC Standard: 1, 4, and 5
5. The Early Childhood teacher candidate will analyze the essential connection of language development, reading acquisition, and writing.			NAEYC Standard: 1, 4C, and 5 INTASC Standard: 1, 4, and 5

Standard 3. Inclusion of Diverse Populations (Introduction to Special Education)

Outcomes	Indicators	Assessment Type	Standard Match
1. The Early Childhood teacher candidate will articulate the historical, philosophical, and legal basis of services for young children with special needs		Oral, visual, and written products of the following nature: • Critical analysis • Standardized Test • Selected Response	NAEYC Standard: 2, CEC Standard: 1 INTASC 2 and 9
2. The Early Childhood teacher candidate will explain the similarities and differences among typical and atypical human growth and development	•	• Restricted Response • Portfolio • Reflection • Demonstrations • Journal	NAEYC Standard: 1, 4B, 4C CEC Standard: 5 INTASC Standard: 1 and 2
3. The Early Childhood teacher candidate will identify current trends that affect children, families, and programs for children.	•	• Analysis of children's Work Samples • Reflection on an Observation • Multimedia Application	NAEYC Standard: 1, 2, 4A CEC Standard: 4 INTASC Standard: 10 MCEE: Principle I, C3
4. The Early Childhood teacher candidate will apply knowledge of cultural and linguistic diversity and the significance of socio-cultural and political contexts for development and learning, and recognize that children are best understood in the contexts of family, culture, and society	•	• Interview • Essay • Discussion	NAEYC Standard: 1, 2, 4A, 4B CEC Standard: 8 INTASC Standard: 2 and 3 MCEE: Principle III, B1
5. The Early Childhood teacher candidate will identify specific disabilities, including the etiology, characteristics, and classification of common			NAEYC Standard: 1, 4, 4A, 4B, 4C 4B

disabilities in young children, and describe specific implications for development and learning from birth.			INTASC Standard: 1 and 2 CEC Standard: 7 MCEE: Principle III, B1

Standard 4. Materials and Methods

Outcomes	Indicators	Assessment Types	Standard Match
1. The early educator will gain basic understanding of the concepts, inquiry tools, and structure of content areas to create meaningful, challenging learning experiences and environment for all children.	•	• Restricted response • Extended response • Oral presentation • Field work • Observation • Demonstration • Field placement w/supervisor's evaluation • Peer review	INTASC: 4, 5, 7, and 8
2. The early educator will know the major and current approaches to theories of child development and learning.	•	• Extended response question • Case study • Observation • Written journal • Oral presentation • Case study/simulation	INTASC: 1
3. The early educator will identify the approaches to learning.	•	• Fieldwork • Guided observation • Journals • Research paper	INTASC: 1, 2, 3, 7, and 8
4. The early educator will understand how culture and diversity influence growth and development.		Extended response questions	INTASC: 1, 2 and 3 MCEE: Principle III -- B1, B2
5. The early educator will understand how culture and diversity impact learning and school readiness.		Participate in a cultural sensitivity exercise	INTASC: 2 and 3 MCEE: Principle III -- B1, B2
6. The early educator will understand the important role of family and community in development and the variety of ways individuals can organize to fulfill these roles.		Scenario	INTASC: 3 and 10 MCEE: Principle IV, C2

V. Outcomes and Standards: Elementary Education/Special Education AAT

Diversity and Behavioral Foundations

It is understood that diversity is a concept that is infused across courses particularly in the teacher education and social sciences areas. Therefore, many of the standards cited here will be addressed in content areas as well as in education courses.

Upon completion of the Associate of Arts in Teaching Degree with an emphasis on Elementary Education/Special Education, the candidate will have successfully completed a college curriculum based upon the following standards related to diversity and behavioral foundations:

1. Development, learning, and motivation – Candidates know, understand, and use the major concepts, principles, theories, and research related to development of children and young adolescents to construct learning opportunities that support individual students' development, acquisition of knowledge and motivation.

2. Central concepts, tools of inquiry, and structures of content – Candidates know, understand, and use the central concepts, tools of inquiry, and structures of content for students across the K-6 grades and can create meaningful learning experiences that develop students' competence in subject matter and skills for various developmental levels.

3. Adaptation to diverse students – Candidates understand how elementary students differ in their development and approaches to learning, and create instructional opportunities that are adapted to diverse students.

4. Development of critical thinking, problem solving and performance skills – Candidates understand and use a variety of teaching strategies that encourage elementary students' development of critical thinking, problem solving, and performance skills.

5. Collaboration with families – Candidates know the importance of establishing and maintaining a positive collaborative relationship with families to promote the intellectual, social, emotional, and physical growth of children.

Standard 1: Development, learning, and motivation—Candidates know, understand, and use the major concepts, principles, theories, and research related to the development of children and young adolescents to construct learning opportunities that support individual students' development, acquisition of knowledge and motivation.

Outcomes	Indicators	Assessment Types	Standard Match
1. Teacher candidates will understand the full significance of diversity in a democratic society and how diversity bears on instruction	Recognize diversity as a positive component of the instructional environment and value students (i.e., students with exceptionalities and from different ethnic, racial, gender, language, religious, socioeconomic, and regional/geographic backgrounds)	• Field Work: • Guided observations • Journals	INTASC: 2, 3, 9 and 10 MCEE: Principle III, B2
2. Teacher candidates will know the various school personnel who will be collaboratively involved in lesson construction.	a. Name the personnel who should collaborate in instructional design for students b. Define the basic roles of these individuals		MCEE: Principle IV, B4
2. Teacher candidates will know the history of education.	a. Identify major figures in the history of education b. Identify major events in the history of education		

Standard 2: Central concepts, tools of inquiry, and structures of content—Candidates know, understand, and use the central concepts, tools of inquiry, and structures of content for students across the K-6 grades and can create meaningful learning experiences that develop students' competence in subject matter and skills for various developmental levels.

Outcomes	Indicators	Assessment Types	Standard Match
1. The teacher candidate will know, understand, and be able to apply current research related to: • Teaching and learning styles • Effective teaching and best practice • Dimensions of learning • Models of assessment of elementary students	a. Compare and contrast a variety of teaching and learning styles b. Reflect on best practice, relate knowledge of effective teaching to guided observations.	• Reading/Research • Field Work: • Guided observation • Reflection/Journal	INTASC: 1, 2, 3, 6, 7, 8, and 9 MCEE: Principle II, B4

Standard 3: Adaptation to diverse students—Candidates understand how elementary students differ in their development and approaches to learning and create instructional opportunities that are adapted to diverse students.

Outcomes	Indicators	Assessment Types	Standard Match
1. The teacher candidate will know, understand, and be able to apply current research findings about students' prenatal to adolescent development	a. Identify cognitive, personal-social, and emotional developmental stages b. Understand how diversity impacts developmental processes c. Identify the "typical" vs "atypical" developmental pattern and characteristics of children	• Reflection paper/Journal • Research paper • Field Work: • Guided observation • Journals	INTASC: 1 and 2 MCEE: Principle II, B4

Standard 4: Development of critical thinking, problem solving and performance skills—Candidates understand and use a variety of teaching strategies that encourage elementary students' development of critical thinking, problem solving, and performance skills.

Outcomes	Indicators	Assessment Types	Standard Match
1. The teacher candidate will understand cognitive development in elementary students and how it relates to learning and behavior in classroom settings	a. Identify categories of exceptional students. d. Understand how exceptionalities affect teaching/learning processes	• Research paper • Field Work: • Guided classroom observation • Journals	INTASC: 1, 3, 7, and 8

Standard 5: Collaboration with families—Candidates know the importance of establishing and maintaining a positive collaborative relationship with families to promote the intellectual, social, emotional, and physical growth of children.

Outcomes	Indicators	Assessment Types	Standard Match
1. The teacher candidate will recognize and value the collaborative relationship between home and school	a. Understand the importance of a positive parent-teacher collaboration b. Identify strategies which enhance communication with families c. Recognition of diverse family structures	• Role play • Field Work • Guided observations • Journals	INTASC: 10 MCEE: Principle IV, A

Social and Psychological Foundation

The outcomes that follow address social and psychological foundations of education. In constructing the outcomes, indicators, and assessments presented here, material from the following documents MSDE's *Preparing educators for high poverty/culturally and linguistically Diverse Schools: A manual for teacher educators, teachers, and principals*, InTASC Standards, Model Code of Ethics for Educators, and other seminal teacher preparation research and framework documents.

1. Knowledge and understanding of ALL concepts related to the foundations of teaching must be introduced during the first two years of a four-year program leading to teacher certification. Though in many cases students= ability to work with these concepts will be rudimentary, it is incumbent on faculty to introduce foundation material early and to provide opportunities for students to demonstrate proficiency before they enter formal candidacy for teacher certification. The level of knowledge and understanding required and the demand for application of that knowledge and understanding will distinguish pre-professional from professional courses.

2. Many knowledge bases and foundational skills are prerequisites for competent demonstration of the knowledge and understanding identified as foundational to the profession of teaching. While these prerequisites will be fulfilled in students= general education curricula, teacher educators shall demonstrate to the education community and to the public that prerequisite performance standards are met by persons recommended for candidacy for teacher education programs.

3. Knowledge and understanding foundational to the profession of teaching will be addressed in students= general education curricula and appropriate introductory teacher education courses. Teacher education programs may find a variety of academic and experiential configurations that convey and test the outcomes delineated here.

4. Though many modes of instruction are possible, one is essential. Teacher candidates must be given early, sequential exposure to the practice of teaching. Fieldwork shall begin as early as involvement in education courses begins and will be an ongoing and progressively demanding part of aspiring teachers= course of study.

Standards in this section include:
- **Standard 1:** Understanding and addressing each child's developmental and learning needs.
- **Standard 2**: Assessing, Planning, and Designing Contexts for Learning.
- **Standard 3:** PROFESSIONALISM Reflection and evaluation -- Candidates are aware of and reflect on their practice in light of research on teaching and resources available for professional learning; they continually evaluate the effects of their professional decisions and actions on students, parents, and other professionals in the learning community and actively seek out opportunities to grow professionally.
- **Standard 4:** PROFESSIONALISM Collaboration with families -- Candidates know the importance of establishing and maintaining a positive collaborative relationship with families school colleagues, and agencies in the larger community to promote the intellectual, social, emotional, and physical growth of children and well-being of children.

Standard 1: Understanding and addressing each child's developmental and learning needs.

Outcomes	Indicators	Assessment Types	Standard Match
1.Teacher candidates will know and understand the social, physical, emotional, and cognitive stages of development from infancy through adolescence.	a. Identify indicators of development through observation. b. Recognize developmental level of child based on observing child behavior, and recognize importance of this issue in curriculum and instructional materials.	• Restricted response questions • Extended response questions • Written journal • Oral presentation • Case study/ simulation Fieldwork: • Guided observations • Journals Research pape	INTASC: 1
2.Teacher candidates will know the major approaches to (theories of) human learning.	a. Identify and explain the major components of the major approaches to learning.	• Restricted response questions • Extended response questions • Written journal • Oral presentation • Case study/ simulation Fieldwork: • Guided observations • Journals • Research paper	INTASC: 1

3. Teacher candidates will reflect on the approaches to learning/teaching.	a. Write and speak on how learning occurs in students and in themselves b. Recognize behaviors that enhance and impede learning c. Recognize behaviors that indicate that learning has occurred.	• Written journal • Oral presentation • Case study/ simulation Fieldwork: • Guided observations • Journals • Research paper	INTASC: 1 and 7 MCEE: Principle II, A5
4.Teacher candidates will understand the impact of (high Poverty/Culturally and Linguistically) culture, privilege, and oppression, as they influence personal growth and development.	a. Define and explain culture, privilege and oppression b. Discuss how culture, privilege and oppression influence growth and development.		INTASC: 2 and 3 MCEE: Principle III, A1, B1, B2
5. Teacher candidates will relate culture, privilege and oppression to their impact on schooling, student performance and success	Discuss culture, privilege and oppression in relation to schooling, student performance and success	• Participate in a cultural sensitivity exercise.	INTASC: 3 MCEE: Principle III, A1, B1, B2
6. Teacher candidates will understand the important role of family in human development and the variety of ways individuals can organize to fulfill these roles.	a. Discuss the role of family in society. b. Discuss how individuals fulfill family roles.		INTASC: 10 MCEE: Principle IV, A

Outcomes	Indicators	Assessment Types	Standard Match
7. Reflect on personal motivational patterns in relation to basic theories of motivation	a. Reflect on personal motivational patterns in relation to basic theories.		INTASC: 3

Standard 2: Assessing, Planning, and Designing Contexts for Learning

Outcomes	Indicators	Assessment Types	Standard Match
1. Teacher candidates will know what curriculum is and identify the social, cultural, historical, and philosophical influences that effect the development and change of curriculum.	a. Define curriculum b. Explain the social, cultural, historical, and philosophical factors and how they influence curriculum	• Multiple choice tests • Restricted response questions • Extended response questions • Web research • Research papers Fieldwork: • Guided observations • Journals	
2. Teacher candidates will understand the construction of curriculum as responsive to developmental, cultural, and social needs of children.	a. Construct appropriate objectives for given specific students. b. Identify and explain the different domains of development c. Write objectives specific to the cognitive, affective, and behavioral domains.		

3. Teacher candidates will know that there are different approaches to and methods of teaching.	a. Identify approaches to teaching such as cooperative learning, direct instruction, etc.		
4. Teacher candidates will recognize that there are different approaches to teaching and that materials and objectives are specific to the approach selected.	a. Identify the type of teaching being employed in a field experience b. Identify materials that are specific to a particular approach.		
5. Teacher candidates will be able to conduct basic educational research	a. Use tools of fundamental research b. Engage in a research activity		MCEE: Principle II, B4
6. Teacher candidates will recognize valid sources of educational information	a. Discriminate among various educational sources.		
7. Teacher candidates will know and understand the roles of elementary school teachers	a. Name and explain the roles of teachers b. Identify and evaluate the appropriateness of those roles	Multiple choice tests • Restricted and Extended response questions Fieldwork: • Responses to guided observations • Responses to case studies, simulations	

8. Teacher candidates will relate principles and practices of group dynamics to educational practices	a. Name and explain major principles and practices used in group dynamics b. Recognize similarities and differences in uses of group dynamic principles and practices to those of educational principles and practices c. Demonstrate use of group dynamics principles.		
9. Teacher candidates will specify how issues such as justice, social equality, concentrations of power, class differences, poverty, cultural and linguistic diversity, race and ethnic relations, language and literacy, and family and community organization relate to teaching and schools.	a. Define justice, social equality, etc. b. Explain how class differences, race, and language impact learning c. Describe accommodations teachers may make for differences in language and culture	Analysis of case studies Discussion Role playing Debates Interviews	MCEE: Principle III, A1, B1, B2

		Fieldwork:	MCEE: Principle I, C3
10. Teacher candidates will identify and analyze contemporary education issues.	a. Explain educational issues portrayed in the media	• observe in schools with contrasting philosophies or with student bodies with different societal challenges • Extended constructed responses • Reflective journals	
11. Teacher candidates will possess knowledge of disabilities and understand how culture and experience affect these.	a. Name major categories of exceptionalities (special needs) in learning- including learning disabilities, visual and perceptual difficulties, and special physical or mental challenges b. Recognize the multiplicity of individual differences among students- including learning styles, strengths, needs, and worldview. c. Recognize research and/or theories on how culture and experience affect responses to exceptionalities and individual differences among students d. List current standardized instruments that determine exceptionalities and individual differences.	• Restricted response questions • Extended response questions • Multiple choice tests • Research reviews • Class discussion • Presentations • Research papers Field Work • Guided observations • Reflection papers	MCEE: Principle III, A1, B1, B2

10. Teacher candidates know, understand, and use formal and informal assessment strategies to plan, evaluate and strengthen	a. Candidates understand the characteristics, uses, advantages, and limitations of different types of assessment appropriate for evaluating how K-6 students.	portfolio entries	MCEE: Principle II, B2

Standard 3: PROFESSIONALISM: Reflection and evaluation -- Candidates are aware of and reflect on their practice in light of research on teaching and resources available for professional learning; they continually evaluate the effects of their professional decisions and actions on students, parents, and other professionals in the learning community and actively seek out opportunities to grow professionally.

Outcomes	Indicators	Assessment Type	Standard Match
1. Teacher candidates will reflect on their developing schema of the teaching profession, including the disposition, knowledge and attitudes of successful teachers.	a. Recognize how learning occurs in students and in themselves. b. Identify behaviors of students and of professionals, which enhance learning and impede learning. c. Identify behaviors that indicate that learning has occurred and justify behaviors identified.	Check lists • Role playing • Restricted response questions • Extended response questions Field Work • Guided observation • Journals	MCEE: Principle II, A5
2. Teacher candidates will know fundamental/basic rudiments of school law.	a. Articulate laws that have shaped basic educational policy. b. Reference outstanding cases of school law		MCEE: Principle I, A2
3. Teacher candidates will know, understand, and give reason for the ethical standards of the teaching profession.	a. Name and explain principles of ethics in teaching		MCEE: Principle I, C3

	b. Identify ethical and unethical teacher behaviors		
	c. Explain consequences of unethical teacher behaviors		
4. Teacher candidates will specify how issues such as justice, social equality, concentrations of power, class differences, poverty, cultural and linguistic diversity, race and ethnic relations, language and literacy, and family and community organization relate to teaching and schools.	a. Define justice, social equality, etc. b. Explain how class differences, race, and language impact learning c. Describe accommodations teachers may make for differences in language and culture		MCEE: Principle III, A1, B1, B2
5. Teacher candidates will identify and analyze contemporary education issues.	a. Explain educational issues portrayed in the media b. Explain how Dewey, Piaget, Vygotsky, Skinner, and Bandura would react to a current issue in education	Fieldwork: • observe in schools with contrasting philosophies or with student bodies with different societal challenges • Extended constructed responses • Reflective journals	MCEE: Principle I, C3
6. Teacher candidates will engage successfully in critical thinking and problem solving in a variety			

Outcomes	Indicators	Assessment Type	Standard Match
of content areas.			
7.Teacher candidates will recognize instructional practices that enhance, or impede critical thinking and problem solving.			
8.Teacher candidates will engage in small group learning environments in a variety of content areas.	Reports of group work and products of group work.		
9. Teacher candidates know, understand, and use formal and informal assessment strategies to plan, evaluate and strengthen	a. Candidates understand the characteristics, uses, advantages, and limitations of different types of assessment appropriate for evaluating how K-6 students.		MCEE: Principle II, B2

Standard 4: PROFESSIONALISM: Collaboration with families -- Candidates know the importance of establishing and maintaining a positive collaborative relationship with families school colleagues, and agencies in the larger community to promote the intellectual, social, emotional, and physical growth of children and well-being of children.

Outcomes	Indicators	Assessment Type	Standard Match
Teacher candidates will understand the important role of family in learning and will recognize teachers= vital role in creating a partnership with families.	a. Explain the influence of family on learning. b. Articulate culturally competent strategies for involving families in enhancing student learning.		MCEE: Principle IV, A

Outcomes	Indicators	Sample Assessment	Standard Match
1.Special education teacher candidates will articulate principles, theories, and laws that have and continue to influence the field of special education and the education and treatment of individuals with exceptional needs both in school and society.		Selected response questions Extended response question Performance tasks Oral presentation Case study/ simulation Class discussion Presentations Portfolio Entry Fieldwork • Guided observation • Reflection papers/journals	ICC1K1; ICC1K2; ICC1K4; ICC1K5; ICC1K6; ICC1K7 IGC1K1; IGC1K4; IGC1K5; IGC1K6; IGC1K7; IGC1K8; IGC1K9 MCEE: Principle I, A2
2.Special education teacher candidates will demonstrate an understanding of similarities and differences in human development, etiologies of various disabilities, characteristics of diverse learners, and educational implications of diverse cultural and learning differences.		Selected response questions Extended response question Performance tasks Oral presentation Case study/ simulation Class discussion Presentations Portfolio Entry Fieldwork	ICC2K1; ICC2K2; ICC2K3; ICC2K4; ICC2K5,ICC2K6 IGC2K2; IGC2K3; IGC2K4; IGC2K5 MCEE: Principle III, A1, B1, B2

		• Guided observation • Reflection papers/journals	
3.Special education teacher candidates will demonstrate an understanding of the effects an exceptional condition can have on an individual's learning in school and throughout life. Special education teacher candidates will demonstrate an understanding of how primary language, culture and familial backgrounds interact with the individual's exceptional condition to impact on the individual's academic and social abilities, attitudes, values and interests**.**		Selected response questions Extended response question Performance tasks Oral presentation Case study/ simulation Class discussion Presentations Portfolio Entry Fieldwork • Guided observation • Reflection papers/journals	CC3K1; CC3K2; CC3K3 IGC3K2; IGC3K3 MCEE: Principle III, A1, B1, B2
4.Special education teacher candidates will be introduced to based- instructional strategies to individualize instruction for students with exceptional learning needs.		Selected response questions Extended response question Performance tasks Oral presentation Case study/ simulation Class discussion Presentations Portfolio Entry	ICC4K1; IGC4K1; IGC4K4

		Fieldwork • Guided observation • Reflection papers/journals	
5. Special education teacher candidates will be introduced to strategies to create learning environments that foster cultural understanding, safety and emotional well-being, positive social interactions and active engagement of individuals with exceptional learning needs and in which diversity is valued.		Selected response questions Extended response question Performance tasks Oral presentation Case study/ simulation Class discussion Presentations Portfolio Entry Fieldwork • Guided observation • Reflection papers/journals	ICC5K1; ICC5K2; ICC5K3; ICC5 K4; ICC5K5; ICC5K7; ICC5K9; ICC5K10 IGC5K1; IGC5K2 MCEE: Principle III, B
6. Special education teacher candidates will be introduced to typical and atypical language development across diverse cultures and familiarity with augmentative, alternative, and assistive technologies to support and enhance communication of individuals with disabilities.		Selected response questions Extended response question Performance tasks Oral presentation Case study/ simulation Class discussion Presentations Portfolio Entry Fieldwork	ICC6K1; ICC6K2; ICC6K3; ICC6K4 IGC6K1; IGC6K2; IGC6K3 MCEE: Principle III, A1, B1, B2

		• Guided observation • Reflection papers/journals	
7.Special education teacher candidates will be introduced to the planning process and its components for students with disabilities based on local, state, and national curriculum.		Selected response questions Extended response question Performance tasks Oral presentation Case study/ simulation Class discussion Presentations Portfolio Entry Fieldwork • Guided observation • Reflection papers/journals	CC7 K3; CC7K5 GC7K3; GC7K4 MCEE: Principle II, A1
8.Special education teacher candidates will be introduced to multiple types of assessment information and how it is used for a variety of educational decisions. Special education teacher candidates will be introduced to legal policies and ethical principles of measurement and assessment related to referral, eligibility, program planning, instruction and placement of individuals with exceptional learning needs,		Selected response questions Extended response question Performance tasks Oral presentation Case study/ simulation Class discussion Presentations Portfolio Entry Fieldwork • Guided observation	ICC8K1; ICC8K2; ICC8K3; ICC8K4; ICC8K5 IGC8K1; IGC8K2; IGC8K3; IGC8K4 MCEE: Principle II, B2

including those from culturally and linguistically diverse backgrounds.		• Reflection papers/journals	
9.Special education teacher candidates will be introduced to best practices, with attention to legal matters, ethical considerations, sensitivity to the many aspects of diversity, and a view of themselves as lifelong learners.		Selected response questions Extended response question Performance tasks Oral presentation Case study/ simulation Class discussion Presentations Portfolio Entry Fieldwork • Guided observation • Reflection papers/journals	ICC9K1; ICC9K2; ICC9K3; ICC9K4 IGC9K1; IGC9K2 MCEE: Principle I, A2, C3; Principle II, A6 ICC9S1; ICC9S4; ICC9S6; ICC9S7; ICC9S8; ICC9S10
10.Special education teacher candidates will understand the importance of collaborating with families, other educators, related service providers, and personnel from community agencies in culturally responsive ways.		Selected response questions Extended response question Performance tasks Oral presentation Case study/ simulation Class discussion Presentations Portfolio Entry	ICC10K2 ICC10K4 IGC10K3 ICC10S1 MCEE: Principle IV, A-C

		Fieldwork • Guided observation • Reflection papers/journals	