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# **NEW YORK STATE TEACHER CERTIFICATION EXAMINATIONS™**

## **FIELDS 221/222/245: MULTI-SUBJECT: TEACHERS OF CHILDHOOD (GRADE 1–GRADE 6) ASSESSMENT DESIGN AND FRAMEWORK**

**October 2017**

**Authorized for Distribution by the New York State Education Department**

This assessment design and framework document is designed to provide information about the content and format of an assessment for the New York State Teacher Certification Examinations™ (NYSTCE®) program. Education faculty and administrators at teacher preparation institutions may also find the information in this framework useful as they discuss the test with candidates. All test components may differ from those presented here. Furthermore, review of this framework, in whole or in part, does not guarantee an increased likelihood of success on any of the New York State Teacher Certification Examinations. The NYSTCE program is subject to change at the sole discretion of the New York State Education Department, and any changes will fully supersede the information presented in this document. As a reminder, candidates are responsible for contacting their certification officer(s) regarding any changes to the New York State Teacher Certification Examinations.

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## NEW YORK STATE TEACHER CERTIFICATION EXAMINATIONS™

### FIELDS 221/222/245: MULTI-SUBJECT: TEACHERS OF CHILDHOOD (GRADE 1–GRADE 6) ASSESSMENT DESIGN

This assessment consists of three parts, administered as three separate tests. Part One: Literacy and English Language Arts and Part Two: Mathematics are newly developed tests. Part Three: Arts and Sciences is a test using content from the previously administered Multi-Subject Content Specialty Test (CST) (field 002). In order to pass the overall assessment, candidates are required to achieve a score that meets or exceeds a separate performance standard for each part. Part Three is shared by all four Multi-Subject assessments; therefore, candidates seeking Multi-Subject certificates for more than one grade level need to pass Part Three only once.

Parts One and Two each consist of selected-response items and one extended constructed-response item. The constructed-response item, designed to measure candidates' pedagogical content knowledge, is scenario-based and requires an extended written response based on the analysis of multiple samples of student-based evidence. Part Three consists of selected-response items, only.

As indicated in the tables that follow, for Part One, the selected-response items count for 70% of the total test score and the constructed-response item counts for 30% of the total test score. For Part Two, the selected-response items count for 80% of the total test score and the constructed-response item counts for 20% of the total test score. Each selected-response item counts the same toward the total test score. The percentage of the total test score derived from the constructed-response item is also indicated in the tables that follow.

The total testing times are 120 minutes for Part One, 135 minutes for Part Two, and 60 minutes for Part Three. The following estimates were used to determine the total test time:

- Part One: The selected-response items are designed with the expectation of a response time of up to 60 minutes, and the constructed-response item is designed with the expectation of a response time of up to 60 minutes.
- Part Two: The selected-response items are designed with the expectation of a response time of up to 75 minutes, and the constructed-response item is designed with the expectation of a response time of up to 60 minutes.
- Part Three: The selected-response items are designed with the expectation of a response time of up to 60 minutes.

Further information regarding the content of each competency can be found in the assessment framework.

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**Part One: Literacy and English Language Arts**

Competency	Selected-Response		Constructed-Response	
	Approximate Number of Items	Approximate Percentage of Test Score	Number of Items	Approximate Percentage of Test Score
0001 Knowledge of Literacy & Language Arts	17	30%	--	--
0002 Instruction in Foundational Literacy Skills	17	30%	--	--
0003 Instruction in English Language Arts	6	10%	--	--
0004 Analysis, Synthesis, and Application	--	--	1	30%
<b>Total</b>	<b>40</b>	<b>70%</b>	<b>1</b>	<b>30%</b>

**Part Two: Mathematics**

Competency	Selected-Response		Constructed-Response	
	Approximate Number of Items	Approximate Percentage of Test Score	Number of Items	Approximate Percentage of Test Score
0001 Number and Operations	3	5%	--	--
0002 Ratios and Proportional Relationships and Number Systems	15	30%	--	--
0003 Algebra, Measurement, Geometry, and Data	17	35%	--	--
0004 Instruction in Mathematics	5	10%	--	--
0005 Analysis, Synthesis, and Application	--	--	1	20%
<b>Total</b>	<b>40</b>	<b>80%</b>	<b>1</b>	<b>20%</b>

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**Part Three: Arts and Sciences**

<b>Competency</b>	<b>Selected-Response</b>		<b>Constructed-Response</b>	
	Approximate Number of Items	Approximate Percentage of Test Score	Number of Items	Approximate Percentage of Test Score
0001 Science and Technology	16	40%	--	--
0002 Social Studies	16	40%	--	--
0003 Fine Arts, Health and Fitness, Family and Consumer Science, and Career Development	8	20%	--	--
<b>Total</b>	<b>40</b>	<b>100%</b>	<b>0</b>	<b>0%</b>

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**ASSESSMENT FRAMEWORK**

**Part One: Literacy and English Language Arts**

Knowledge of Literacy & Language Arts  
Instruction in Foundational Literacy Skills  
Instruction in English Language Arts  
Analysis, Synthesis, and Application

**Part Two: Mathematics**

Number and Operations  
Ratios and Proportional Relationships and Number Systems  
Algebra, Measurement, Geometry, and Data  
Instruction in Mathematics  
Analysis, Synthesis, and Application

**Part Three: Arts and Sciences**

Science and Technology  
Social Studies  
Fine Arts, Health and Fitness, Family and Consumer Science, and Career Development

The New York State Grade 1–Grade 6 Multi-Subject educator has a high degree of proficiency in the content knowledge and professional skills required for planning and implementing standards-based literacy and English language arts instruction and assessment that effectively promote student achievement of the Grade 1–Grade 6 standards in the New York State P–12 Learning Standards for English Language Arts (NYSLS). The teacher skillfully applies knowledge of language and literacy development and knowledge of developmentally appropriate, effective materials, instruction, and formal and informal assessment in all aspects of literacy and English language arts to meet the literacy-learning needs of students from grade 1 through grade 6 across the content areas.

The New York State Grade 1–Grade 6 Multi-Subject educator has the mathematics knowledge and skills necessary to teach effectively in New York State public schools. The teacher understands mathematics as a coherent set of fundamental principles that is built on precise definitions and logical reasoning. The teacher understands and uses mathematical language. The teacher has a deep understanding of the New York State P–12 Learning Standards for Mathematics (NYSLS) and effectively connects the standards for mathematical practice with the standards for mathematical content to demonstrate a high level of mathematical proficiency and to provide highly effective mathematics instruction.

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The New York State Multi-Subject educator has the knowledge and skills necessary to teach effectively in New York State public schools. The teacher draws on knowledge of principles and relationships in the life and physical sciences for scientific inquiry and understands the interconnectedness of science, engineering, and technology. The teacher uses the perspectives of the social sciences to analyze historical events and the contemporary world; interprets works of art by using knowledge of a variety of forms, techniques, and cultural contexts; understands the principles and practices essential to personal health, fitness, and safety; and can apply skills and concepts related to child development, family and interpersonal relationships, personal resources management, and career development.

As used in this document, the term "research-based" refers to those practices that have been shown to be effective in improving learner outcomes through systematic observation or experiment, rigorous data analysis, ability to replicate results, and publication in a peer-reviewed journal. "Evidence-based" refers to strategies empirically shown to improve learner outcomes, though not necessarily based on systematic experiments or published in a peer-reviewed journal.

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ASSESSMENT FRAMEWORK**

**FIELD 221: PART ONE: LITERACY AND ENGLISH LANGUAGE ARTS**

**COMPETENCY 0001—KNOWLEDGE OF LITERACY & LANGUAGE ARTS**

Performance Expectations

An effective Grade 1–Grade 6 Multi-Subject teacher has a deep understanding of language and literacy foundations, including an understanding of language and literacy development, individual variation in language and literacy development, principles and practices of literacy assessment and effective instruction, and language structures and processes in literacy. The teacher has a deep understanding of text structures in reading, writing, listening and speaking, including an understanding of characteristics, elements, and features of a range of text types in literature and informational text written for children, writing purposes and text types (e.g., arguments, informative/explanatory texts, narratives), and language and communication skills related to speaking and listening for different purposes in an academic setting.

**1.1 Knowledge of Language and Literacy Development**

Performance Indicators

- a. demonstrates knowledge of language processing involved in proficient reading and writing, including phonological, orthographic, semantic, syntactic, and discourse processing
- b. demonstrates knowledge of language and literacy development, including major components of reading development (e.g., phonemic awareness, phonics, vocabulary, fluency, and text comprehension) and stages of development in oral language, phonological awareness, word reading, spelling, fluency, text comprehension, language structures, and written expression
- c. demonstrates knowledge of individual variation in literacy development, including knowledge of specific reading difficulties, and knowledge of cognitive, behavioral, environmental, social, cultural, technological, and linguistic factors affecting language and literacy development
- d. demonstrates knowledge of principles and practices of literacy assessment (e.g., screening, diagnostic, and progress-monitoring assessments) and essential elements of effective literacy instruction, including systematic, explicit instruction; ongoing assessment; and integrated activities in reading, writing, speaking, and listening to reinforce instruction
- e. demonstrates knowledge of language structures important to decoding, encoding, and recognizing words, including knowledge of phonemes (e.g., vowels and consonants, similar and contrasting features) and orthography (e.g., grapheme-phoneme correspondence, historical influences on English morphology and spelling, common spelling patterns, irregular words, six basic syllable types in English)

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- f. demonstrates knowledge of language structures important to comprehending words and sentences, including knowledge of English morphology (e.g., common inflections, prefixes, and suffixes; Anglo-Saxon, Latin, and Greek morphemes in English), semantic word relationships (e.g., antonyms, multiple-meaning words), and syntactic categories (i.e., parts of speech) and structures (e.g., phrases, sentences)

**1.2 Knowledge of English Language Arts**

Performance Indicators

- a. demonstrates knowledge of characteristics, elements, and features of a range of text types in children's literature from a broad range of cultures and periods, including stories (e.g., folktales, legends, fables, fantasy, realistic fiction, myths), drama, poetry, and multimedia versions of texts
- b. demonstrates knowledge of characteristics, elements, and features of a range of text types in informational text from a broad range of cultures and periods, including literary nonfiction (e.g., biographies and autobiographies), books about history, social studies, science, and the arts; and technical texts (e.g., directions, forms; information displayed in graphs, charts, maps; digital sources)
- c. applies knowledge of visual literacy and effective viewing to analyze, evaluate, and integrate information and ideas presented in diverse media or formats, including print and nonprint
- d. applies knowledge of effective writing to analyze and evaluate opinion pieces and arguments, including knowledge of rhetorical features, stylistic features, organizational structures, and key elements and characteristics of this text type
- e. applies knowledge of effective writing to analyze and evaluate informative/explanatory texts, including knowledge of rhetorical features, stylistic features, organizational structures, and key elements and characteristics of this text type
- f. applies knowledge of effective writing to analyze and evaluate narratives, including knowledge of rhetorical features, stylistic features, organizational structures, and key elements and characteristics of this text type
- g. analyzes and evaluates the elements, characteristics, and features of effective communication and collaboration in academic discussions with diverse partners (e.g., effective preparation and focus, discussion rules and strategies, recognition of diverse perspectives and cultural backgrounds)



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- h. analyzes and evaluates elements of an effective oral presentation that support listener comprehension and analysis (e.g., expressing ideas with clarity and precision, sequencing ideas logically, using multimedia or visual displays), including features of spoken language (e.g., word choice, rate, pitch, tone, volume) and nonverbal cues (e.g., body language, facial expressions) that affect a speaker's ability to communicate effectively
- i. demonstrates knowledge of how language functions in different communicative contexts, including differences in grammar, usage, and meaning in different varieties of English (e.g., academic English, standard English, varieties of vernacular English) and language choices that affect meaning and style in written or spoken discourse

**COMPETENCY 0002—INSTRUCTION IN FOUNDATIONAL LITERACY SKILLS**

Performance Expectations

An effective Grade 1–Grade 6 Multi-Subject teacher is skilled in providing instruction for students from grade 1 through grade 6 that promotes their development of decoding skills, fluency, vocabulary and language knowledge and skills, and independent text comprehension skills. The teacher applies knowledge of effective assessment and data-driven instruction in print concepts, phonological awareness, and phonemic awareness (a particular type of phonological awareness); phonics, word recognition, and reading fluency; vocabulary and language knowledge and skills; and text comprehension skills and strategies. The teacher applies knowledge of dimensions of text complexity and factors affecting text comprehension development to selection of appropriate materials for literacy instruction. The teacher plans developmentally appropriate data-driven instruction in foundational reading skills that meets the learning needs of students from grade 1 through grade 6.

**2.1 Instruction in Print Concepts and Phonological Awareness**

Performance Indicators

- a. applies knowledge of factors affecting students' development of print concepts and phonological awareness
- b. demonstrates understanding of the importance of print concepts and phonemic awareness (a type of phonological awareness) in learning to read English, including their relationship to the development of later reading skills
- c. applies knowledge of the developmental continuum of phonological- and phonemic-awareness skills

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- d. demonstrates understanding of NYSLS grade-specific standards in print concepts for Grade 1–Grade 6 and applies knowledge of developmentally appropriate, research- and evidence-based assessment and instructional practices to promote students' understanding of print concepts, including functions of print, letter knowledge, and the organization and basic features of print
- e. demonstrates understanding of NYSLS grade-specific standards in phonological awareness with respect to words, syllables, and onsets and rimes for Grade 1–Grade 6 and applies knowledge of developmentally appropriate, research- and evidence-based assessment and instructional practices to promote students' understanding of and skills in phonological awareness (e.g., blending onsets and rimes)
- f. demonstrates understanding of NYSLS grade-specific standards in phonological awareness with respect to phonemic awareness for Grade 1–Grade 6 and applies knowledge of developmentally appropriate, research- and evidence-based assessment and instructional practices to promote students' understanding of and skills in phonemic awareness (e.g., segmenting phonemes)

**2.2 Instruction in Phonics, Word Recognition, and Fluency**

Performance Indicators

- a. applies knowledge of factors affecting students' development of decoding skills and reading fluency
- b. demonstrates understanding of the importance of the alphabetic principle in learning to read English and the reciprocity between decoding and encoding skills
- c. demonstrates understanding of fluency development, including the role of automaticity in reading comprehension and fluency development, and key indicators of fluency
- d. demonstrates understanding of NYSLS grade-specific standards in phonics and word recognition pertaining to phonics and syllabication for Grade 1–Grade 6 and applies knowledge of developmentally appropriate, research- and evidence-based assessment and instructional practices to promote students' development of grade-level phonics skills, including knowledge of the continuum of phonics skills from sounding out VC and CVC words letter by letter to decoding regular words of increasing complexity and/or containing less common phonics patterns to decoding multisyllabic words that follow basic syllable patterns

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- e. demonstrates understanding of NYSLS grade-specific standards in phonics and word recognition pertaining to structural analysis for Grade 1–Grade 6 and applies knowledge of developmentally appropriate, research- and evidence-based assessment and instructional practices to promote students' development of grade-level word analysis skills for decoding words with inflectional endings and words containing common prefixes and suffixes
- f. demonstrates understanding of NYSLS grade-specific standards in phonics and word recognition pertaining to automaticity and sight words for Grade 1–Grade 6 and applies knowledge of developmentally appropriate, research- and evidence-based assessment and instructional practices to promote students' automaticity and skill in reading high-frequency words and grade-appropriate irregularly spelled words by sight, including principles for selecting regular and irregular words for sight-word instruction
- g. demonstrates understanding of NYSLS grade-specific standards in fluency for Grade 1–Grade 6 and applies knowledge of developmentally appropriate, research- and evidence-based assessment and instructional practices to promote students' reading fluency development with respect to accuracy, appropriate rate, and expression

**2.3 Instruction in Language Knowledge and Vocabulary**

Performance Indicators

- a. demonstrates understanding of how providing children with a broad range of academic experiences in reading, writing, listening, and speaking promotes their command of standard English grammar and conventions and their development of robust vocabularies, including understanding of the importance of incremental, repeated exposures to words in different contexts and opportunities to use new vocabulary and standard English language structures in a variety of modalities
- b. applies knowledge of factors that affect students' developing command of the conventions of standard English grammar and usage when reading, writing, listening, and speaking
- c. applies knowledge of factors that affect students' vocabulary development (e.g., the importance of early oral language and content experiences; the role of exposure to written language through listening to and reading a wide variety of texts) and the importance of vocabulary knowledge to text comprehension and academic achievement
- d. demonstrates understanding of NYSLS grade-specific standards in conventions of standard English and knowledge of language for Grade 1–Grade 6 and the relationship of these standards to the development of college and career readiness in language knowledge and conventions of standard English by the end of grade 12

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- e. applies knowledge of developmentally appropriate assessment and data-driven instructional practices to promote students' command of standard English grammar and usage when writing or speaking
- f. applies knowledge of developmentally appropriate assessment and data-driven instructional practices to promote students' command of standard English capitalization, punctuation, and spelling when writing
- g. applies knowledge of developmentally appropriate assessment and data-driven instructional practices to promote students' knowledge and command of varieties of English and language choices in reading, writing, speaking, and listening
- h. demonstrates understanding of NYSLS grade-specific standards in vocabulary acquisition and use for Grade 1–Grade 6 and the relationship of these standards to the development of college and career readiness in vocabulary by the end of grade 12
- i. applies knowledge of developmentally appropriate, research- and evidence-based instructional practices in word study, including the development of word consciousness; instruction in general academic words (Tier Two) and domain-specific words (Tier Three); building background knowledge as a base for vocabulary development; building students' understanding of figurative language, word relationships, and nuances of word meanings; and building vocabulary knowledge related to specific texts
- j. applies knowledge of developmentally appropriate, research- and evidence-based instructional practices for providing opportunities to hear, read, and use new vocabulary in a variety of meaningful contexts to develop depth of understanding of words
- k. applies knowledge of developmentally appropriate, research- and evidence-based instructional practices in independent word-learning strategies (e.g., using structural analysis, context clues, classroom resources)

**2.4 Text Complexity and Instruction in Text Comprehension**

Performance Indicators

- a. applies knowledge of factors affecting students' development of text comprehension (e.g., vocabulary, background content knowledge, decoding skills, reading fluency)
- b. demonstrates understanding of how emergent text comprehension relates to comprehension skills that are the focus of instruction in later grades and to essential college and career readiness text-comprehension skills

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- c. demonstrates knowledge of the role of background knowledge in text comprehension and strategies for planning a content-rich, text-rich classroom environment and for promoting independent reading of a wide range of text types and genres to support text comprehension through the development of academic background knowledge
- d. demonstrates understanding of how daily teacher read-alouds of a range of text types and genres support development of text comprehension
- e. demonstrates understanding of the role of academic conversations in comprehension development and applies knowledge of strategies for planning and facilitating purposeful academic conversations focused on the meaning and content of texts
- f. demonstrates understanding of the role of asking a range of cognitively complex questions that require students to respond by using text-based evidence
- g. applies knowledge of strategies for scaffolding and extending students' discussions of text content, their responses to a text, and their purposeful engagement in group reading activities
- h. applies knowledge of strategies for using instruction in listening comprehension to support the development of emerging reading comprehension skills and strategies
- i. applies knowledge of quantitative tools and measures for evaluating text complexity
- j. applies knowledge of qualitative dimensions of complexity in texts (e.g., purpose, levels of meaning, clarity, background knowledge demands)
- k. applies knowledge of reader variables (e.g., motivation, background knowledge, experiences) and task variables (e.g., purpose and complexity of the task) when matching reader to the text and task
- l. applies knowledge of text complexity in the selection of texts that are appropriate for supporting student learning goals
- m. applies knowledge of assessments of factors that affect listening and reading comprehension and strategies for applying the results to plan appropriate comprehension instruction and interventions

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**FIELD 221: PART ONE: LITERACY AND ENGLISH LANGUAGE ARTS**

**COMPETENCY 0003—INSTRUCTION IN ENGLISH LANGUAGE ARTS**

Performance Expectations

An effective Grade 1–Grade 6 Multi-Subject teacher is skilled in providing instruction for students from grade 1 through grade 6 that promotes their development of proficient reading, writing, speaking, and listening skills leading to college and career readiness by the end of grade 12. The teacher provides effective assessment and data-driven instruction in analyzing, evaluating, and integrating ideas and information from literature and informational text; in writing different types of text, writing processes, and research skills; and in academic speaking and listening skills. The teacher applies knowledge of factors that affect the development of reading, writing, speaking, and listening skills to plan developmentally appropriate instruction in English language arts that meets the learning needs of students from grade 1 through grade 6.

**3.1 Instruction in Reading Literature and Informational Text**

Performance Indicators

- a. demonstrates understanding of NYSLS grade-specific standards in reading literature and informational text for Grade 1–Grade 6 and the relationship of these standards to the development of college and career readiness in reading by the end of grade 12
- b. applies knowledge of developmentally appropriate, research- and evidence-based assessment and instructional practices to promote students' comprehension and analysis of key ideas and details in literature and informational text
- c. applies knowledge of developmentally appropriate, research- and evidence-based assessment and instructional practices to promote students' understanding and analysis of craft and structure in literature and informational text
- d. applies knowledge of developmentally appropriate, research- and evidence-based assessment and instructional practices to promote students' development of skills for integrating, analyzing, and evaluating knowledge and ideas from literary and informational text
- e. applies knowledge of developmentally appropriate, research- and evidence-based assessment and instructional practices to promote students' development of independent strategies that support reading or listening to literature and informational text with purpose and understanding (e.g., making and verifying predictions, visualizing, making connections)
- f. applies knowledge of developmentally appropriate, research- and evidence-based assessment and instructional practices to promote students' development of skills for responding to literature

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**FIELD 221: PART ONE: LITERACY AND ENGLISH LANGUAGE ARTS**

**3.2 Instruction in Writing**

Performance Indicators

- a. demonstrates understanding of NYSLS grade-specific standards in writing for Grade 1–Grade 6 and the relationship of these standards to the development of writing knowledge and skills leading to college and career readiness in writing by the end of grade 12
- b. demonstrates knowledge of strategies for planning concrete experiences and activities and creating a text-rich classroom environment that promotes understanding and application of writing functions and conventions
- c. applies knowledge of developmentally appropriate assessment and data-driven instructional practices to promote students' skill in composing pieces corresponding to specific text types (e.g., opinion pieces, argument, informative/explanatory writing, narrative writing), using text-based evidence as appropriate
- d. applies knowledge of developmentally appropriate assessment and data-driven instructional practices to promote students' skill in composing and presenting responses to literature, using text-based evidence as appropriate
- e. applies knowledge of developmentally appropriate assessment and data-driven instructional practices to promote students' skill in processes and strategies for producing and distributing writing
- f. applies knowledge of developmentally appropriate assessment and data-driven instructional practices to develop students' skill in conducting research and presenting knowledge
- g. applies knowledge of developmentally appropriate assessment and data-driven instructional practices to promote students' skill in using digital tools in research and in composing and presenting written and multimedia texts

**3.3 Instruction in Speaking and Listening**

Performance Indicators

- a. demonstrates understanding of NYSLS grade-specific standards in speaking and listening for Grade 1–Grade 6 and the relationship of these standards to the development of college and career readiness in speaking and listening skills by the end of grade 12
- b. demonstrates understanding of the importance of providing children with opportunities to express ideas using a variety of media and formats (e.g., songs, drama, illustrations, technology)
- c. demonstrates understanding of the special role of speaking and listening in early literacy development and the importance of providing experiences using oral language purposefully and regularly in the classroom

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- d. applies knowledge of strategies for planning a collegial, literate environment that promotes students' participation and collaboration in classroom conversations (i.e., an environment that reflects and values cultural and language diversity and a variety of perspectives, supports involvement of family and community members in students' language and literacy development, and promotes respect for students at all levels of language and literacy development)
- e. applies knowledge of strategies for promoting students' ability to facilitate mutual understanding and effective communication in collaborative conversations between individuals with different perspectives or cultural backgrounds
- f. applies knowledge of developmentally appropriate assessment and data-driven instructional practices to promote students' development of oral communication skills, nonverbal communication skills, and listening skills that support their comprehension of and participation in collaborative conversations
- g. applies knowledge of developmentally appropriate assessment and data-driven instructional practices to promote students' skill in using listening strategies that are appropriate for given contexts and purposes
- h. applies knowledge of developmentally appropriate assessment and data-driven instructional practices to promote students' skill in presenting knowledge and ideas to various audiences and for various purposes
- i. applies knowledge of developmentally appropriate assessment and data-driven instructional practices to promote students' skill in strategies for integrating and evaluating information presented in diverse media and formats (e.g., visually, quantitatively, orally) and for making strategic use of digital media and visual representations to support their oral presentations of knowledge and ideas

**COMPETENCY 0004—ANALYSIS, SYNTHESIS, AND APPLICATION**

Performance Expectations

An effective Grade 1–Grade 6 Multi-Subject teacher applies relevant knowledge of content and pedagogical content knowledge in reading, writing, listening, speaking, language knowledge and conventions, and vocabulary acquisition to analyze and synthesize literacy assessment data about an individual student that are provided from multiple sources (e.g., a transcript of a student's oral reading performance, a transcript of a conversation about a reading passage between a student and a teacher, a student's writing sample, a teacher's observational notes, standardized test results) and to plan appropriate instruction for the student based on that analysis.

Performance Indicators

- a. analyzes, interprets, synthesizes, and discusses accurately and appropriately the results of literacy assessments for an individual student



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- b. demonstrates the ability to select appropriate examples to support an analysis of a reading performance and/or other literacy assessment data from multiple sources, using sound reasoning and knowledge of content and pedagogical content knowledge
- c. selects and describes accurately and appropriately effective strategies, activities, or interventions to address a student's identified need and/or to build on a student's identified strength in reading, writing, listening, speaking, language knowledge and conventions, and/or vocabulary acquisition
- d. demonstrates the ability to discuss the effectiveness of selected instructional strategies, activities, or interventions in addressing a student's need and/or building on the student's strength using sound reasoning and knowledge of content and pedagogical content knowledge

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**FIELD 222: PART TWO: MATHEMATICS**

**COMPETENCY 0001—NUMBER AND OPERATIONS**

Performance Expectations

The New York State Grade 1–Grade 6 Multi-Subject teacher demonstrates deep knowledge of number and operations and algebraic thinking. The teacher interprets arithmetic as a coherent and logical subject that makes sense and demonstrates understanding of how operations used for whole numbers and fractions form the basis for further work in algebra. The teacher applies operations and algebraic thinking to model and solve problems and works accurately with numbers and algebraic expressions and equations. The teacher interprets numbers and the base-ten system as a coherent and logical set of ideas; extends the properties of whole numbers and number operations to fractions; and analyzes properties of fractions, decimals, and percents. The teacher applies understanding of place value and properties of operations to justify algorithms; works accurately with whole numbers, fractions, decimals, and percents; and uses numbers and operations to model and solve mathematical and real-world problems.

**1.1 Operations and Algebraic Thinking**

Performance Indicators

- a. applies operations and relationships between operations (e.g., division as an unknown factor problem)
- b. analyzes properties of factors and multiples
- c. applies strategies for writing and interpreting numerical expressions
- d. generates and analyzes patterns and relationships and identifies apparent features of patterns that are not explicit in the rule used to generate them
- e. applies and extends principles of arithmetic and the order of operations to algebraic expressions, equations, and inequalities
- f. uses properties of operations to generate equivalent expressions
- g. analyzes and solves linear equations and inequalities and pairs of simultaneous linear equations
- h. solves mathematical and real-world problems using numerical and algebraic expressions and equations

**1.2 Number and Operations—Base Ten and Fractions**

Performance Indicators

- a. demonstrates knowledge of place value
- b. applies understanding of place value and properties of operations to round, add, subtract, multiply, and divide multidigit numbers

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- c. analyzes decimal notation and compares decimals, decimal fractions, and fractions
- d. justifies computational algorithms
- e. analyzes and performs operations with decimals
- f. applies number theory concepts (e.g., primes, divisibility, factors, least common multiple, greatest common factor)
- g. extends number operations to fractions and performs operations on fractions
- h. applies properties of signed rational numbers, ordering, and the absolute value of rational numbers
- i. applies and extends understanding of operations with fractions to add, subtract, multiply, and divide rational numbers
- j. solves mathematical and real-world problems involving the four basic operations with rational numbers, including the use of the distributive law to justify properties of rational numbers

**COMPETENCY 0002—RATIOS AND PROPORTIONAL RELATIONSHIPS AND  
NUMBER SYSTEMS**

Performance Expectations

The New York State Grade 1–Grade 6 Multi-Subject teacher demonstrates deep knowledge of ratios and proportional relationships. The teacher applies connections between multiplication and division and ratios and rates, as well as connections between ratios and proportional reasoning, linear equations, and concepts of measurement and geometry. The teacher analyzes properties of whole, rational, and real numbers and interprets the real number system as an extension of the rational numbers. The teacher works accurately with ratios and proportional relationships and rational numbers and uses them to model and solve mathematical and real-world problems.

**2.1 Ratios and Proportional Relationships**

Performance Indicators

- a. solves unit rate problems, including those involving unit pricing; constant speed; and ratios of lengths, areas, and other quantities measured in like or unlike units
- b. interprets percents of a quantity as a rate per 100 and solves mathematical and real-world problems involving percents
- c. identifies the constant of proportionality in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships
- d. represents proportional relationships by equations

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- e. explains and analyzes the relationships between graphs of proportional relationships in terms of the situation represented by the relationship
- f. uses proportional relationships to solve multistep ratio and percent problems (e.g., simple interest rates, commissions, percent increase or decrease, percent error)
- g. analyzes the connections between proportional relationships, lines, and linear equations
- h. uses similar triangles to explain why the slope is the same between any two distinct points on a nonvertical line in the coordinate plane and graphs and analyzes linear equations

**2.2 Rational and Real Number Systems**

Performance Indicators

- a. applies knowledge of numbers that are not rational and finds rational approximations of irrational numbers
- b. applies properties of repeating decimal expansions and converts between repeating decimal expansions and rational numbers
- c. analyzes and applies properties of integer exponents and extends them to rational exponents
- d. analyzes how the definition and meaning of rational exponents allows for extending the properties of integer exponents
- e. rewrites expressions involving radicals and rational exponents by using the properties of exponents
- f. uses square roots and cube roots to represent solutions to problems and equations
- g. performs operations with numbers expressed in scientific notation
- h. uses properties of rational and irrational numbers
- i. uses units as a way to understand problems and to guide the solution of multistep problems and chooses and interprets units consistently in formulas

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**COMPETENCY 0003—ALGEBRA, MEASUREMENT, GEOMETRY, AND DATA**

Performance Expectations

The New York State Grade 1–Grade 6 Multi-Subject teacher demonstrates knowledge of the structure of algebraic expressions, how algebraic manipulations are governed by properties of operations and exponents, the nature of solutions to equations, and reasoning processes for manipulating expressions and solving equations. The teacher analyzes functions, uses expressions to define functions, applies properties of functions, and analyzes graphs. The teacher uses algebra to model and solve problems and demonstrates skill and accuracy in working with algebraic expressions, equations, and functions. The teacher demonstrates deep knowledge of measurement and geometry and interprets geometry as a system based on precise definitions and mathematical reasoning. The teacher works with and interprets data, uses measures of center and variability, and draws inferences from data distributions. The teacher applies knowledge of probability to analyze chance events and understands how statistics and chance processes are used to make inferences. The teacher applies measurement, geometry, and data concepts to model and solve mathematical and real-world problems.

**3.1 Algebra**

Performance Indicators

- a. understands the vocabulary of mathematical expressions (e.g., terms, factors, coefficients) and interprets their structures
- b. writes expressions in equivalent forms to solve problems (e.g., factor quadratic expressions, complete the square, use properties of exponents)
- c. performs arithmetic of polynomials and understands the relationship between zeros and factors of polynomials
- d. creates equations and inequalities in one variable and uses them to solve mathematical and real-world problems (e.g., based on verbal descriptions, tables, graphs), including equations that arise from linear, quadratic, and simple rational and exponential functions
- e. creates equations in two or more variables to represent relationships between quantities and analyzes graphs of equations on coordinate axes
- f. uses systems of equations or inequalities to represent situations, including constraints (e.g., uses inequalities to represent nutritional and cost constraints on combinations of different foods)
- g. analyzes solving equations as a process of reasoning, explains the reasoning, solves equations and inequalities in one variable, and solves systems of equations in two variables

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- h. applies the concept of a function, identifies the range and domain of a function, and uses function notation appropriately
- i. interprets functions that arise in applications in terms of the context and analyzes key features of functions (e.g., intercepts, intervals where the function is increasing, relative maximums or minimums, zeros, asymptotes, end behavior)
- j. analyzes functions (e.g., linear, quadratic, square root, piecewise, polynomial, exponential, logarithmic) using different representations, such as graphs, verbal descriptions, equivalent algebraic forms, and numeric tables
- k. constructs and compares linear, quadratic, and exponential models and distinguishes between those situations (mathematical and real-world) that can be modeled with linear functions and those that can be modeled with exponential functions

**3.2 Measurement and Geometry**

Performance Indicators

- a. analyzes attributes of shapes, including symmetry and properties of their lines and angles
- b. solves problems involving measurement and conversions of measurement units
- c. solves mathematical and real-world problems involving angle measure, perimeter, area, surface area, and volume
- d. solves problems involving congruence and analyzes congruence in terms of a sequence of transformations (e.g., rotations, reflections, and translations)
- e. graphs points and shapes on the coordinate plane to solve mathematical and real-world problems
- f. applies the Pythagorean theorem to solve a variety of problems, including distance problems in the coordinate plane
- g. solves problems involving similarity and analyzes similarity in terms of scale factors and similarity transformations

**3.3 Data, Statistics, and Probability**

Performance Indicators

- a. represents, analyzes, and solves problems with data presented in various forms (e.g., line plots, bar graphs, picture graphs)
- b. demonstrates knowledge of statistical variability and measures and summarizes and describes data distributions (e.g., number lines, dot plots, histograms, box plots)

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- c. demonstrates knowledge of the use of random sampling to draw inferences about a population
- d. draws informal or comparative inferences about two populations using data distributions and measures of center (e.g., mean, median) and variability (e.g., interquartile range, mean absolute deviation, standard deviation)
- e. investigates chance processes and develops, uses, and evaluates probability models (e.g., independent and dependent events)
- f. investigates patterns of association in bivariate data using scatter plots, linear models, and two-way tables

**COMPETENCY 0004—INSTRUCTION IN MATHEMATICS**

Performance Expectations

The New York State Grade 1–Grade 6 Multi-Subject teacher applies knowledge of how students learn number concepts, operations, and algebraic thinking; fractions and ratios; and proportional relationships. The teacher applies knowledge of how students develop measurement and spatial reasoning concepts and skills related to data collection and interpretation. The teacher provides a rich variety of focused strategies (e.g., moving from concrete to abstract; using multiple representations; explaining, connecting, and critiquing ideas) for promoting students' understanding, confidence, perseverance, and fluency in these areas. The focused strategies include explicitly teaching mathematical language that students need for mathematical practice, performance, and success. The teacher uses assessment data to differentiate instruction.

**4.1 Instruction in Number and Operations and Algebraic Thinking**

Performance Indicators

- a. applies strategies for teaching properties of whole numbers, counting, methods for composing and decomposing numbers, and multiple ways of representing numbers
- b. demonstrates knowledge of strategies for teaching place value concepts
- c. demonstrates knowledge of strategies that build understanding of the equal sign and the meaning of equations
- d. applies strategies for developing students' fluency with number operations
- e. applies strategies for teaching operations and the relationship between operations (e.g., division as an unknown factor problem)
- f. applies methods for teaching how to represent and solve one- and two-step problems involving addition, subtraction, multiplication, and division

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- g. applies methods for teaching how to round, add, subtract, multiply, and divide multidigit numbers
- h. applies strategies for teaching and justifying computational algorithms
- i. applies methods for extending students' understanding of numbers to the system of rational numbers, including concepts associated with ordering, absolute value, and negative numbers
- j. applies strategies for extending students' understanding of arithmetic and the order of operations to algebraic expressions
- k. applies strategies for teaching the meaning of equations and inequalities and how to solve them
- l. applies strategies for teaching how to use variables to represent and analyze relationships between dependent and independent variables

**4.2 Instruction in Fractions and Ratios and Proportional Relationships**

Performance Indicators

- a. applies methods for teaching how to develop understanding of fractions as numbers
- b. applies strategies for extending understanding of fraction equivalence and ordering
- c. demonstrates knowledge of strategies for teaching how to build fractions from unit fractions by applying and extending understanding of operations of whole numbers
- d. demonstrates knowledge of strategies for teaching decimal notation for fractions and for performing operations with decimals
- e. demonstrates knowledge of strategies for teaching the use of equivalent fractions as a strategy to add and subtract fractions
- f. applies strategies for teaching concepts of rate, ratio, unit rates, ratio language, and ratio relationships and for teaching connections between multiplication, division, ratio, rates, and fractions
- g. analyzes strategies for teaching the use of ratio and rate reasoning to solve real-world and mathematical problems (e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, equations, pairs of values plotted in the coordinate plane)
- h. demonstrates knowledge of strategies for teaching how to use ratio reasoning to convert measurement units
- i. applies techniques for teaching unit rate problems, including those involving unit pricing and constant speed, and for teaching ratios of lengths, areas, and other quantities measured in like or unlike units



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**4.3 Instruction in Measurement and Data**

Performance Indicators

- a. applies strategies for teaching how to describe and compare measurable attributes
- b. applies strategies for teaching how to classify and count objects in categories
- c. demonstrates knowledge of strategies for teaching how to measure indirectly by iterating length units and how to measure and estimate lengths in standard units
- d. applies strategies for relating addition and subtraction to length and for relating multiplication and addition to area
- e. applies strategies for teaching how to compare, create, and compose shapes and how to analyze attributes of shapes, including symmetry and properties of their lines and angles
- f. selects strategies for teaching how to tell and write time and work with money
- g. applies strategies for teaching how to classify objects and generate and represent measurement data
- h. applies strategies for teaching concepts of perimeter, area, and volume and their relationships to number operations
- i. applies strategies for teaching how to generate and represent measurement data and to solve problems with data (e.g., using line plots, bar graphs, or picture graphs)
- j. applies strategies for developing understanding of statistical concepts (e.g., statistical variability, data collection, measures of center, shapes of data distributions)

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**COMPETENCY 0005—ANALYSIS, SYNTHESIS, AND APPLICATION**

Performance Expectations

The New York State Grade 1–Grade 6 Multi-Subject teacher accurately and effectively applies relevant content knowledge and pedagogical content knowledge in number and operations, operations and algebraic thinking, fractions, ratios and proportional reasoning, and measurement and data to analyze and synthesize assessment data about an individual student, identify conceptual or procedural errors, and provide a well-reasoned and accurate analysis of the student's mathematical knowledge. The teacher uses the assessment results and knowledge of how students learn to present an appropriate instructional approach that meets the needs of the student.

Performance Indicators

- a. analyzes and interprets samples of a student's work and other assessment data to monitor student progress and determine a student's strengths and areas of need in mathematics
- b. demonstrates knowledge of the content by identifying and analyzing any errors or misconceptions in work samples
- c. describes appropriate and effective content-specific instructional strategies, activities, or interventions to address a student's identified needs
- d. demonstrates the ability to generate real-world scenarios that illustrate specific mathematical concepts
- e. demonstrates the ability to justify the effectiveness of selected instructional strategies, activities, or interventions for promoting a student's mathematical understanding

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**FIELD 245: PART THREE: ARTS AND SCIENCES**

**COMPETENCY 0001—SCIENCE AND TECHNOLOGY**

Performance Expectations

The New York State Multi-Subject teacher demonstrates knowledge of the processes of scientific inquiry and investigations; concepts, principles, and theories pertaining to the physical setting and the living environment; technology and engineering design; and common themes that connect mathematics, science, and technology.

**1.1 Understand and apply the principles and processes of scientific inquiry and investigation.**

Performance Indicators

- a. formulates hypotheses based on reasoning and preliminary results or information
- b. evaluates the soundness and feasibility of a proposed scientific investigation
- c. applies mathematical rules or formulas (including basic statistics) to analyze given experimental or observational data
- d. interprets data presented in one or more graphs, charts, or tables to determine patterns or relationships
- e. evaluates the validity of a scientific conclusion in a given situation
- f. applies procedures for the safe and appropriate use of equipment and the care and humane treatment of animals in the laboratory

**1.2 Understand and apply concepts, principles, and theories pertaining to the physical setting (including Earth science, chemistry, and physics).**

Performance Indicators

- a. analyzes interactions between the Earth, the Moon, and the Sun (e.g., seasonal changes, the phases of the Moon)
- b. analyzes the effects of interactions between components of air, water, and land (e.g., weather, volcanism, erosion)
- c. distinguishes between physical and chemical properties of matter and between physical and chemical changes in matter
- d. distinguishes between forms of energy and identifies the transformations of energy observed in everyday life
- e. analyzes the effects of forces on objects in given situations
- f. infers the physical science principle (e.g., effects of common forces, conservation of energy) illustrated in a given situation

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**1.3 Understand and apply concepts, principles, and theories pertaining to the living environment.**

Performance Indicators

- a. recognizes the characteristics of living things and common life processes
- b. analyzes processes that contribute to the continuity of life (e.g., reproduction and development, inheritance of genetic information)
- c. analyzes the factors that contribute to change in organisms and species over time
- d. compares the ways in which a variety of organisms carry out basic life functions and maintain dynamic equilibrium (e.g., obtaining nutrients, maintaining water balance)
- e. analyzes the effects of environmental conditions (e.g., temperature, availability of water and sunlight) on living organisms and the relationships between plants and animals within a community
- f. infers the life science principle (e.g., adaptation, homeostasis) illustrated in a given situation

**1.4 Apply knowledge of technology and the principles of engineering design.**

Performance Indicators

- a. demonstrates an understanding of technological systems (e.g., transportation system) and the principles on which technological systems are constructed (e.g., the use of component subsystems)
- b. analyzes the roles of modeling and optimization in the engineering design process
- c. evaluates a proposed technological solution to a given problem or need
- d. applies criteria for selecting tools, materials, and other resources to design and construct a technological product or service
- e. recognizes appropriate tests of a given technological solution
- f. analyzes the positive and negative effects of technology on individuals, society, and the environment

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**1.5 Understand the relationships between and the common themes that connect mathematics, science, and technology, and the application of knowledge and skills in these disciplines to other areas of learning.**

Performance Indicators

- a. makes connections between the common themes of mathematics, science, and technology (e.g., systems, models, magnitude and scale, equilibrium and stability, patterns of change)
- b. applies principles of mathematics, science, and technology to model a given situation (e.g., the movement of energy and nutrients between a food chain and the physical environment)
- c. applies principles of mathematics, science, and technology to explore phenomena from other areas of learning (e.g., applying statistical methodologies to examine census data)
- d. designs solutions to problems in the physical and social worlds, using mathematical, scientific, and technological reasoning and procedures
- e. analyzes the effects of human activities (e.g., burning fossil fuels, clear-cutting forests) on the environment and evaluates the use of science and technology in solving problems related to these effects

**COMPETENCY 0002—SOCIAL STUDIES**

Performance Expectations

The New York State Multi-Subject teacher demonstrates understanding of major ideas, eras, themes, developments, and turning points in the history of New York State, the United States, and the world; geographic concepts and phenomena and the interrelationships of geography, society, and culture; human development and interactions; economic and political principles and systems; the roles, rights, and responsibilities of citizenship in the United States; and skills related to social studies, including gathering, organizing, mapping, evaluating, interpreting, and displaying information.

**2.1 Understand major ideas, eras, themes, developments, and turning points in the history of New York State, the United States, and the world.**

Performance Indicators

- a. defines important conceptual terms (e.g., racism, nation-state, nationalism, feudalism) and uses them to analyze general historical phenomena and specific historical events

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- b. analyzes the social effects of major developments in human history (e.g., the agricultural revolution, the scientific revolution, the industrial revolution, the information revolution)
- c. understands major political, social, economic, and geographic characteristics of ancient civilizations and the connections and interactions between these civilizations
- d. examines reasons for organizing periods of history in different ways and compares alternative interpretations of key events and issues in New York State, United States, and world history
- e. analyzes the effects of European contact with indigenous cultures and the effects of European settlement on New York State and the Northeast
- f. analyzes how the roles and contributions of individuals and groups helped shape United States social, political, economic, cultural, and religious life

**2.2 Understand geographic concepts and phenomena and analyze the interrelationships of geography, society, and culture in the development of New York State, the United States, and the world.**

Performance Indicators

- a. defines important geographic terms and concepts (e.g., habitat, resource, cultural diffusion, ecology) and uses them to analyze various geographic issues, problems, and phenomena
- b. demonstrates an understanding of the six essential elements of geography: the world in spatial terms, places and regions, physical settings, human systems, environment and society, and the use of geography
- c. recognizes physical characteristics of the Earth's surface and the continual reshaping of it by physical processes (e.g., how weather, climate, and the water cycle influence different regions)
- d. analyzes the development and interaction of social, political, cultural, and religious systems in different regions of New York State, the United States, and the world
- e. examines ways in which economic, environmental, and cultural factors influence demographic change and interprets geographic relationships, such as population density and spatial distribution patterns
- f. analyzes the impact of human activity on the physical environment (e.g., industrial development, population growth, deforestation)

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**2.3 Understand concepts and phenomena related to human development and interactions (including anthropological, psychological, and sociological concepts).**

Performance Indicators

- a. uses concepts, theories, and modes of inquiry drawn from anthropology, psychology, and sociology to examine general social phenomena and issues related to intercultural understanding
- b. evaluates factors that contribute to personal identity (e.g., family, group affiliations, socialization processes)
- c. recognizes how language, literature, the arts, media, architecture, traditions, beliefs, values, and behaviors influence and/or reflect the development and transmission of culture
- d. analyzes the roles and functions of social groups and institutions in the United States (e.g., ethnic groups, schools, religions) and their influence on individual and group interactions
- e. analyzes why individuals and groups hold different or competing points of view on issues, events, or historical developments
- f. understands the processes of social and cultural change

**2.4 Understand economic and political principles, concepts, and systems, and relate this knowledge to historical and contemporary developments in New York State, the United States, and the world.**

Performance Indicators

- a. defines important economic and political terms and concepts (e.g., scarcity, opportunity cost, supply and demand, productivity, power, natural rights, checks and balances) and uses them to analyze general phenomena and specific issues
- b. analyzes the basic structure, fundamental ideas, accomplishments, and problems of the United States economic system
- c. recognizes and compares basic characteristics of major models of economic organization (e.g., traditional, market, command) and various governmental systems (e.g., democratic, authoritarian)
- d. analyzes values, principles, concepts, and key features of American constitutional democracy (e.g., individual freedom, separation of powers, due process, federalism)
- e. compares different perspectives regarding economic and political issues and policies in New York State and the United States (e.g., taxing and spending decisions)

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- f. analyzes ways in which the United States has influenced other nations (e.g., in the development of democratic principles and human rights) and how other nations have influenced United States politics and culture

**2.5 Understand the roles, rights, and responsibilities of citizenship in the United States and the skills, knowledge, and attitudes necessary for successful participation in civic life.**

Performance Indicators

- a. analyzes the personal and political rights guaranteed in the Declaration of Independence, the United States Constitution, the Constitution of the State of New York, and major civil rights legislation
- b. recognizes the core values of the United States democratic system (e.g., justice, honesty, the rule of law, self-discipline, due process, equality, majority rule, respect for minority rights)
- c. demonstrates an understanding of the United States election process and the roles of political parties, pressure groups, and special interests in the United States political system
- d. explains what citizenship means in a democratic society and analyzes the ways in which citizens participate in and influence the political process in the United States (e.g., the role of public opinion and citizen action groups in shaping public policy)
- e. examines the rights, responsibilities, and privileges of individuals in relation to family, social group, career, community, and nation
- f. analyzes factors that have expanded or limited the role of the individual in United States political life during the twentieth century (e.g., female suffrage, Jim Crow laws, growth of presidential primaries, role of the media in political elections)

**2.6 Understand and apply skills related to social studies, including gathering, organizing, mapping, evaluating, interpreting, and displaying information.**

Performance Indicators

- a. evaluates the appropriateness of various resources and research methods for meeting specified information needs (e.g., atlas, bibliography, almanac, database, survey, poll) and applies procedures for retrieving information using traditional resources and current technologies (e.g., CD-ROM, the Internet)
- b. demonstrates an understanding of concepts, tools, and technologies for mapping information about the spatial distribution of people, places, and environments (e.g., mapping grids, latitude and longitude, the advantages and limitations of different types of maps and map projections)



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- c. analyzes information in social studies materials (e.g., identifying central themes in important historical speeches or documents, distinguishing fact from opinion, evaluating multiple points of view in policy debates)
- d. interprets information presented in one or more graphic representations (e.g., graph, table, map) and translates written or graphic information from one form to the other
- e. summarizes the purpose or point of view of a historical narrative

**COMPETENCY 0003—FINE ARTS, HEALTH AND FITNESS, FAMILY AND  
CONSUMER SCIENCE, AND CAREER DEVELOPMENT**

Performance Expectations

The New York State Multi-Subject teacher demonstrates understanding of the concepts, techniques, and materials of visual arts, music, theater, and dance, including cultural dimensions; principles and practices of health and safety; concepts and practices of physical education and health-related fitness; concepts and practices related to child development and care and knowledge of family and interpersonal relationships; skills and procedures related to consumer economics and resource management; and knowledge of career development and workplace skills, behaviors, and responsibilities.

**3.1 Understand the concepts, techniques, and materials of the visual arts; analyze works of visual art; and understand the cultural dimensions and contributions of the visual arts.**

Performance Indicators

- a. identifies basic elements (e.g., line, color) and principles (e.g., unity, balance) of art and recognizes how they are used to communicate meaning in works of art
- b. analyzes two-dimensional and three-dimensional works of art in terms of their visual and sensory characteristics
- c. applies knowledge of the characteristics of various art media (e.g., two-dimensional, three-dimensional, electronic) to select a medium appropriate for a given artistic purpose or intent
- d. applies knowledge of basic tools and techniques for working with various materials (e.g., clay, textiles, wood)
- e. analyzes how works of art reflect the cultures in which they were produced (e.g., materials or techniques used, subject matter, style)
- f. compares works of art of different cultures, eras, and artists in terms of characteristics such as theme, imagery, and style

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**3.2 Understand concepts, techniques, and materials for producing, listening to, and responding to music; analyze works of music; and understand the cultural dimensions and contributions of music.**

Performance Indicators

- a. compares various types of instruments (e.g., strings, percussion, woodwind, brass, electronic) in terms of the sounds they produce
- b. defines and applies common musical terms (e.g., pitch, tempo)
- c. uses basic scientific concepts to explain how music-related sound is produced, transmitted through air, and received by listeners
- d. relates characteristics of music (e.g., rhythm, beat) to musical effects produced
- e. recognizes basic technical skills that musicians must develop to produce an aesthetically acceptable performance (e.g., manual dexterity, breathing techniques, knowledge of musical notation)
- f. analyzes how different cultures have created music reflective of their histories and societies (e.g., call-and-response songs, ballads, work songs, folk songs)

**3.3 Understand concepts, techniques, and materials related to theater and dance; analyze works of drama and dance; and understand the cultural dimensions and contributions of drama and dance.**

Performance Indicators

- a. compares dramatic and theatrical forms and their characteristics (e.g., pantomime, improvisation)
- b. relates types of dance (e.g., ballet, folk, modern) to their characteristic forms of movement, expressive qualities, and cultural origins
- c. analyzes how technical aspects of performance (e.g., costumes, props, lighting) affect the message or overall impression created by a performance
- d. recognizes how language, voice, gesture, and movement are used to develop character and create interaction between performers in theatrical productions
- e. analyzes ways in which different cultures have used drama and dance (e.g., to teach moral lessons, to preserve cultural traditions, to affirm the sense of community, to entertain)

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**3.4 Understand basic principles and practices of personal, interpersonal, and community health and safety; and apply related knowledge and skills (e.g., decision making, problem solving) to promote personal well-being.**

Performance Indicators

- a. identifies common health problems and explains how they can be prevented, detected, and treated
- b. recognizes the basic knowledge and skills necessary to support positive health choices and behaviors
- c. applies decision-making and problem-solving skills and procedures in individual and group situations (e.g., situations related to personal well-being, self-esteem, and interpersonal relationships)
- d. recognizes basic principles of good nutrition and uses them to plan a diet that accommodates nutritional needs, activity level, and optimal weight
- e. analyzes contemporary health-related issues (e.g., HIV, teenage pregnancy, suicide, substance abuse) in terms of their causes, effects, and significance for individuals, families, and society and evaluates strategies for their prevention
- f. interprets advertising claims for health-care products and services and distinguishes between valid and invalid health information
- g. analyzes environmental conditions and their impact upon personal and community health and safety

**3.5 Understand physical education concepts and practices related to the development of personal living skills.**

Performance Indicators

- a. recognizes sequences and characteristics of physical development throughout the various developmental levels
- b. demonstrates knowledge of activities that promote the development of motor skills (e.g., locomotor, manipulative, body mechanics) and perceptual awareness skills (e.g., body awareness, spatial and directional awareness)
- c. applies safety concepts and practices associated with physical activities (e.g., doing warm-up exercises, wearing protective equipment)
- d. understands skills necessary for successful participation in given sports and activities (e.g., spatial orientation, eye-hand coordination, movement)
- e. analyzes ways in which participation in individual or group sports or physical activities can promote personal living skills (e.g., self-discipline, respect for self and others, resource management) and interpersonal skills (e.g., cooperation, sportsmanship, leadership, teamwork, communication)

**FIELDS 221/222/245: MULTI-SUBJECT: TEACHERS OF  
CHILDHOOD (GRADE 1–GRADE 6)  
ASSESSMENT FRAMEWORK**

**FIELD 245: PART THREE: ARTS AND SCIENCES**

**3.6 Understand health-related physical fitness concepts and practices.**

Performance Indicators

- a. recognizes components, functions, and common disorders of the major body systems
- b. demonstrates knowledge of basic components of physical fitness (e.g., strength, endurance, flexibility) and applies principles of training
- c. applies strategies for developing a personal fitness plan based on self-assessment, goal setting, and an understanding of physiological changes that result from training
- d. analyzes the relationship between lifelong physical activity and the prevention of illness, disease, and premature death
- e. applies knowledge of principles and activities for developing and maintaining cardiorespiratory endurance, muscular strength, flexibility, and levels of body composition that promote good health

**3.7 Understand concepts and practices related to child development and care and apply knowledge of family and interpersonal relationships.**

Performance Indicators

- a. recognizes stages and characteristics of physical, cognitive, social, and emotional development during infancy, childhood, and adolescence
- b. demonstrates knowledge of children's physical, dietary, and hygienic needs (e.g., nutritional guidelines, dental care, proper washing procedures) and applies developmentally appropriate methods for promoting self-care during childhood
- c. identifies causes of common childhood accidents and health-care emergencies and applies physical care and safety guidelines for caregivers of infants, toddlers, and preschool and school-age children
- d. analyzes factors that affect decisions about whether and when to have children and recognizes ways to prepare for the responsibilities of parenthood
- e. demonstrates knowledge of family structure (e.g., extended, blended, single parent, dual career), roles and responsibilities of family members, and the functions of families in society
- f. recognizes the types and characteristics of interpersonal relationships and analyzes decision-making processes related to interpersonal relationships
- g. examines social and cultural influences on interpersonal communication and analyzes factors affecting the formation of positive relationships in the family, workplace, and community

**FIELDS 221/222/245: MULTI-SUBJECT: TEACHERS OF  
CHILDHOOD (GRADE 1–GRADE 6)  
ASSESSMENT FRAMEWORK**

**FIELD 245: PART THREE: ARTS AND SCIENCES**

**3.8 Understand skills and procedures related to consumer economics and personal resource management.**

Performance Indicators

- a. recognizes rights and responsibilities of consumers in various purchasing situations (e.g., rights in relation to product and service warranties and guarantees)
- b. demonstrates knowledge of types and characteristics of consumer fraud and applies procedures for seeking redress and registering consumer complaints
- c. applies knowledge of procedures for making major purchases (e.g., comparison shopping, negotiating, interpreting labels or contract terminology)
- d. analyzes considerations involved in selecting and maintaining housing and motor vehicles, obtaining credit and insurance, and making investments
- e. examines steps and considerations involved in planning and maintaining a personal or family budget and applies money management guidelines appropriate for various situations
- f. demonstrates knowledge of personal and family resources (e.g., time, skills, energy) and applies decision-making and goal-setting procedures for managing personal and family resources in various situations

**3.9 Understand basic principles of career development; apply processes and skills for seeking and maintaining employment; and demonstrate knowledge of workplace skills, behaviors, and responsibilities.**

Performance Indicators

- a. demonstrates knowledge of the relationship of personal interests, skills, and abilities to successful employment and recognizes the relationship between the changing nature of work and educational requirements
- b. recognizes factors to consider when evaluating careers and applies procedures for conducting career research
- c. demonstrates knowledge of steps involved in searching for a job and recognizes factors affecting the success of a job search (e.g., writing an effective letter of application, résumé preparation)
- d. applies skills and procedures for job interviews (e.g., personal appearance and demeanor, communicating effectively during an interview)
- e. applies knowledge of effective communication principles, work etiquette, interpersonal skills, and techniques for handling stress or conflict in the workplace
- f. recognizes rights and responsibilities in relation to employment (e.g., protection from harassment and discrimination, employer's performance expectations)