

Missouri Educator Gateway Assessments

FIELDS 007–010: ELEMENTARY EDUCATION MULTI-CONTENT TEST FRAMEWORK

January 2014

DRAFT

007: English Language Arts

Competency		Approximate Percentage of Test Score
0011	Foundations of Language and Literacy Development	25%
0012	Text Comprehension and Vocabulary Development	25%
0013	Reading Literature and Informational Texts	25%
0014	Processes, Modes, and Conventions of Written and Oral Communication	25%

008: Mathematics

Competency		Approximate Percentage of Test Score
0021	Numbers and Operations	40%
0022	Algebraic Relationships	25%
0023	Measurement, Geometry, and Data	35%

009: Science

Competency		Approximate Percentage of Test Score
0031	Science and Engineering Practices and Crosscutting Concepts	35%
0032	Biology	30%
0033	Physical Science and Earth Science	35%

010: Social Studies

Competency		Approximate Percentage of Test Score
0041	History	34%
0042	Geography	33%
0043	Government and Economics	33%

Missouri Educator Gateway Assessments
TEST FRAMEWORK
FIELDS 007–010: ELEMENTARY EDUCATION MULTI-CONTENT

ENGLISH LANGUAGE ARTS

0011 Understand foundations of language and literacy development.

For example:

- 11.1 Demonstrate knowledge of language development, factors affecting language development, and the role of oral language development in emergent literacy.
- 11.2 Apply knowledge of phonological awareness, including phonemic awareness; the role of phonemic awareness in emergent literacy; the developmental continuum of phonological and phonemic awareness skills; and strategies for measuring and developing phonological and phonemic awareness skills.
- 11.3 Apply knowledge of print concepts (e.g., functions, organization, and basic features of print) and strategies for promoting the development of print concepts, letter knowledge, letter formation skills, and knowledge of letter-sound correspondence.
- 11.4 Demonstrate knowledge of concepts and terminology related to phonics and word recognition (e.g., the alphabetic principle, reciprocity of encoding and decoding skills, digraph).
- 11.5 Apply knowledge of the development of word recognition and spelling skills and strategies for measuring and promoting development of phonics knowledge, automaticity, and skill in reading high-frequency words and grade-appropriate irregularly spelled words.
- 11.6 Apply knowledge of syllable patterns in English (e.g., open, closed), syllabication guidelines, and strategies for measuring and promoting development of skill in reading multisyllabic words.
- 11.7 Apply knowledge of English morphology (e.g., common inflections, prefixes, suffixes, and word roots; Greek, Latin, and Anglo-Saxon morphemes in English) and historical influences on English morphology and spelling.
- 11.8 Apply knowledge of key indicators of reading fluency, factors that can disrupt fluency, the role of fluency in reading comprehension, and strategies for promoting reading fluency development.

**FIELDS 007–010: ELEMENTARY EDUCATION MULTI-CONTENT
TEST FRAMEWORK**

0012 Understand text comprehension and vocabulary development.

For example:

- 12.1 Demonstrate understanding of how emergent text comprehension in the early elementary grades relates to text comprehension in the later grades and to essential text comprehension skills needed for college and career readiness.
- 12.2 Demonstrate knowledge of the relationship between vocabulary knowledge and text comprehension, factors that affect vocabulary development (e.g., wide reading), the role of repeated exposure to words in a variety of meaningful contexts in deepening understanding of words, and strategies to promote development of robust vocabularies that contain general academic (Tier Two) and domain-specific (Tier Three) words.
- 12.3 Apply knowledge of quantitative tools and measures for evaluating text complexity, qualitative dimensions of text complexity (e.g., levels of meaning, text structure, language conventionality and clarity, knowledge demands), and the role of reader variables (e.g., motivation, knowledge, experiences) and task variables (e.g., purpose, complexity) in matching a reader to text and task.
- 12.4 Apply knowledge of development of vocabulary knowledge and skills, including independent strategies for building vocabulary and for verifying the meaning and pronunciation of unfamiliar words or words with multiple meanings (e.g., using semantic and syntactic clues; consulting a dictionary, glossary, or thesaurus).
- 12.5 Apply knowledge of strategies for facilitating comprehension before, during, and after reading; for integrating, analyzing, and evaluating knowledge and ideas from literary and informational texts; and for using textual evidence to support analysis, reflection, and research.
- 12.6 Apply knowledge of listening skills that support language and literacy development and learning across the curriculum and of strategies that support independent listening to literary and informational text with purpose and understanding (e.g., making and verifying predictions, visualizing, making connections).

**FIELDS 007–010: ELEMENTARY EDUCATION MULTI-CONTENT
TEST FRAMEWORK**

0013 Demonstrate the ability to comprehend, interpret, and analyze literary and informational texts.

For example:

- 13.1 Demonstrate knowledge of key characteristics, elements, and features of various literary genres, including children's literature, from a range of cultures and time periods, including stories (e.g., folktales, fables, myths), drama, poetry, and multimedia texts.
- 13.2 Demonstrate the ability to use textual evidence to support analysis of a literary text's explicit and implicit meanings; its theme or central idea; and the development of character, setting, and plot in a literary text.
- 13.3 Demonstrate knowledge of key characteristics, elements, organizational structures, and textual and graphic features of various types of informational text, including biographies, autobiographies, nonfiction texts on a range of topics, technical texts, and digital sources, as well as information displayed in graphs, charts, or maps.
- 13.4 Demonstrate the ability to use textual evidence to support analysis of an informational text's explicit and implicit meanings and its theme or central ideas and to determine the author's point of view or purpose and how it is conveyed in a text.
- 13.5 Recognize an accurate, objective summary of an informational text.
- 13.6 Delineate and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not.
- 13.7 Determine the meaning of words and phrases as they are used in a literary or informational text, including figurative, connotative, and technical meanings, and analyze the impact of specific word choices on meaning and tone.
- 13.8 Compare and contrast texts in different forms or genres (e.g., stories and poems; historical novels and fantasy stories) in terms of their approaches to similar themes and topics.

**FIELDS 007–010: ELEMENTARY EDUCATION MULTI-CONTENT
TEST FRAMEWORK**

0014 Understand processes, modes, and conventions of written and oral communication.

For example:

- 14.1 Demonstrate knowledge of how language functions in different communicative contexts, including differences in grammar, usage, and meaning in 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.
- 14.2 Apply knowledge of effective writing to evaluate a writer's use of rhetorical and stylistic features, organizational structures, and key elements of opinion pieces, arguments, informative/explanatory texts, and narratives.
- 14.3 Apply knowledge of strategies and techniques for producing clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience and for developing and strengthening writing as needed by planning, revising, editing, rewriting, or trying a new approach.
- 14.4 Demonstrate command of the conventions of standard American English grammar and usage, capitalization, punctuation, and spelling.
- 14.5 Demonstrate knowledge of how to use technology, including the Internet, to produce and publish writing as well as to collaborate with others.
- 14.6 Apply knowledge of strategies for generating a research question, narrowing or broadening inquiry, gathering relevant information from multiple print and digital sources, and assessing the credibility of sources.
- 14.7 Apply knowledge of how to quote and paraphrase information and ideas from sources and how to provide basic source citations.
- 14.8 Apply knowledge of how to present claims and findings in a logical way, using pertinent descriptions, facts, details, and examples to support listener comprehension and analysis.
- 14.9 Demonstrate knowledge of how to adapt speech to a variety of contexts and tasks and how to use vocal features (e.g., pitch, tone, volume) and nonverbal cues (e.g., gestures, eye contact) when presenting information and ideas.
- 14.10 Demonstrate knowledge of how to interpret information presented orally and how to delineate a speaker's argument and specific claims, distinguishing claims that are supported by reasons and evidence from claims that are not.
- 14.11 Demonstrate knowledge of the characteristics, elements, and features of effective communication and collaboration in academic discussions with diverse partners (e.g., preparation and focus, roles and guidelines, reflection and paraphrasing).

**FIELDS 007–010: ELEMENTARY EDUCATION MULTI-CONTENT
TEST FRAMEWORK**

MATHEMATICS

0021 Understand numbers and operations.

For example:

- 21.1 Demonstrate knowledge of properties of numbers and number systems, operations, place value, rounding, comparing and ordering numbers, and equivalent representations of numbers.
- 21.2 Use a variety of models to represent numbers and operations.
- 21.3 Demonstrate knowledge of prime and composite numbers, divisibility rules, least common multiples, and greatest common factors.
- 21.4 Solve problems involving integers, rational numbers, fractions, decimals, ratios, proportions, percentages, exponents, and scientific notation.
- 21.5 Demonstrate computational fluency and knowledge of computation, including the use of mental math and estimation.

0022 Understand algebraic relationships.

For example:

- 22.1 Identify and extend patterns in numbers, shapes, and data.
- 22.2 Use variables, expressions, equations, and inequalities to communicate quantitative relationships.
- 22.3 Apply properties of arithmetic to generate and identify equivalent algebraic expressions.
- 22.4 Apply knowledge of patterns to model real-world situations and make predictions.
- 22.5 Use algebraic concepts to solve equations and real-world problems.

**FIELDS 007–010: ELEMENTARY EDUCATION MULTI-CONTENT
TEST FRAMEWORK**

0023 Understand measurement, geometry, and data.

For example:

- 23.1 Convert measurements within the metric and customary systems and use appropriate measurement units, tools, and techniques in various situations.
- 23.2 Identify types and properties of lines, angles, and two- and three-dimensional shapes, and use geometric concepts (e.g., symmetry, congruence, Pythagorean theorem) to solve real-world problems.
- 23.3 Solve problems involving perimeter, area, volume, geometric transformations, measurement, scale, and coordinate systems.
- 23.4 Apply knowledge of statistical measures (e.g., mean, median, mode, range, frequency distribution) to describe and analyze data.
- 23.5 Apply knowledge of data interpretation and of methods for displaying data in a variety of formats.
- 23.6 Apply knowledge of basic concepts of probability, including the use counting procedures, to estimate probabilities.

**FIELDS 007–010: ELEMENTARY EDUCATION MULTI-CONTENT
TEST FRAMEWORK**

SCIENCE

0031 Understand science and engineering practices and crosscutting concepts.

For example:

- 31.1 Apply knowledge of the principles of and procedures for designing and carrying out scientific investigations and maintaining safety in the classroom.
- 31.2 Demonstrate understanding of the evidential basis of scientific claims and apply knowledge of the methods and criteria for collecting, recording, analyzing, modeling, and presenting scientific data.
- 31.3 Apply knowledge of engineering design practices to solve a problem or address a need (e.g., defining problems, designing and evaluating solutions, optimizing solutions).
- 31.4 Demonstrate knowledge of the crosscutting concepts that unite core ideas across the sciences and engineering (e.g., patterns, cause and effect, structure and function).
- 31.5 Demonstrate knowledge of the development of major scientific discoveries and technological innovations, including contributions made by people of diverse backgrounds.
- 31.6 Analyze the relationships between science, technology, and society (e.g., how society affects scientific progress, the benefits and drawbacks of technological advances).
- 31.7 Apply literacy skills to the interpretation, synthesis, and analysis of information from scientific and technical sources (e.g., explaining central ideas, interpreting domain-specific terminology, recognizing how texts structure information into categories and hierarchies).

**FIELDS 007–010: ELEMENTARY EDUCATION MULTI-CONTENT
TEST FRAMEWORK**

0032 Understand fundamental concepts of biology.

For example:

- 32.1 Apply knowledge of the characteristics and life processes of plants, animals, and other living organisms (e.g., cell structure, respiration, photosynthesis).
- 32.2 Demonstrate knowledge of the major organ systems of different classes of vertebrates.
- 32.3 Demonstrate knowledge of the multiple ways in which organisms are ordered and classified.
- 32.4 Demonstrate knowledge of the principles of biological evolution, including evidence used to explain how species change over time (e.g., fossil records, adaptations).
- 32.5 Demonstrate knowledge of the life cycles and reproductive patterns of common organisms.
- 32.6 Apply knowledge of the basic principles of heredity governing the transmission of traits from one generation to the next.
- 32.7 Analyze the flow of energy through ecosystems and the interactions between organisms and their environment.
- 32.8 Apply knowledge of the characteristics of and interactions between populations of organisms in an ecological community.

**FIELDS 007–010: ELEMENTARY EDUCATION MULTI-CONTENT
TEST FRAMEWORK**

0033 Understand fundamental concepts of physical science and Earth science.

For example:

- 33.1 Demonstrate knowledge of the composition, structure, and properties of elements, compounds, and mixtures, including solutions; physical and chemical changes in matter; and the law of conservation of mass.
- 33.2 Recognize forms of energy, energy sources, and processes of energy transfer and transformations.
- 33.3 Demonstrate knowledge of Newton's laws of motion, the effects of various types of forces on objects in given situations, the principles of work, and the properties and uses of simple machines and tools.
- 33.4 Apply knowledge of the properties of light, sound, electricity, and magnetism.
- 33.5 Recognize types and characteristics of objects in the solar system and universe and the effects of the relative positions and motions of the sun, Earth, and the moon (e.g., seasons, tides, eclipses).
- 33.6 Apply knowledge of the composition, structure, and landforms of Earth's geosphere; the geologic processes that shape Earth's surface; and how the geosphere interacts with other Earth systems.
- 33.7 Apply knowledge of the composition, structure, and processes of Earth's hydrologic and atmospheric systems, including weather and climate, and how these systems interact with each other.
- 33.8 Identify types and characteristics of renewable and nonrenewable natural resources, their uses, and the effect of human activity on their availability and quality.

FIELDS 007–010: ELEMENTARY EDUCATION MULTI-CONTENT TEST FRAMEWORK

SOCIAL STUDIES

0041 Understand basic historical concepts and major developments in Missouri, U.S., and world history.

For example:

- 41.1 Apply knowledge of basic historical terms and concepts, such as nation-state, feudalism, modernization, and chronology.
- 41.2 Demonstrate knowledge of major eras, themes, cultures, and chronological relationships in Missouri, U.S., and world history.
- 41.3 Recognize change and continuity in historical eras and examine the significance and lasting influence of events, issues, people, and developments in Missouri, U.S., and world history.
- 41.4 Analyze cause-and-effect relationships between historical events and developments and assess the influence of geographic, social, economic, and cultural factors on the perspectives of people and major developments in different historical eras.
- 41.5 Apply skills and procedures used in historical research, such as formulating research questions, distinguishing between primary and secondary sources, assessing the appropriateness of various sources for specific inquiries, interpreting information represented in diverse visual formats, and demonstrating historical literacy, including identifying purpose and main ideas, distinguishing between fact and opinion, and recognizing assumptions in historical texts.

**FIELDS 007–010: ELEMENTARY EDUCATION MULTI-CONTENT
TEST FRAMEWORK**

0042 Understand the fundamental principles and concepts of geography.

For example:

- 42.1 Apply knowledge of basic geographic terms, the five fundamental themes of location, place, human-environment interaction, movement, and region, and the six essential elements of geography (i.e., the world in spatial terms, places and regions, physical systems, human systems, environment and society, and the uses of geography).
- 42.2 Recognize the basic characteristics of maps and globes and the advantages and disadvantages of standard map projections.
- 42.3 Demonstrate knowledge of physical systems, including the characteristics and location of major landforms and bodies of water, the principal elements of climate, and ways in which physical processes shape the physical features of the earth.
- 42.4 Demonstrate knowledge of human systems, including distinguishing characteristics of diverse cultures, major settlement and demographic patterns, and factors that influence conflict and cooperation within and among countries.
- 42.5 Examine the interaction between the environment and human societies, including ways in which human societies modify the physical environment and adapt to environmental change, the effects of physical factors on the development of societies, and the causes and effects of current environmental problems.
- 42.6 Apply skills and procedures used in geographic research, such as formulating research questions; assessing the appropriateness of various geographic reference sources, tools, and technologies for specific inquiries; interpreting information represented in diverse visual formats; and demonstrating geographic literacy, including identifying purpose and main ideas, distinguishing between fact and opinion, and recognizing assumptions in geographic texts.

**FIELDS 007–010: ELEMENTARY EDUCATION MULTI-CONTENT
TEST FRAMEWORK**

0043 Understand the fundamental principles and concepts of government and economics.

For example:

- 43.1 Apply knowledge of basic political science concepts and the foundations of government, including ideas contained in key historical documents; developments related to the emergence of democratic government; and ways in which societies enact civic virtues, promote the common good, and protect the rights of citizens.
- 43.2 Demonstrate knowledge of the fundamental principles and key articles of the U.S. and Missouri constitutions; the operation of the U.S. political system; and the rights and responsibilities of citizenship, including the skills needed for effective participation in public affairs.
- 43.3 Recognize the functions, structure, and operation of government in the United States and Missouri, including ways in which federal, state, and local governments divide and share power and responsibility.
- 43.4 Demonstrate knowledge of basic economic concepts and the operation of the U.S. and international economies, including the organization and characteristics of market economies, the role of government in the U.S. economy, and the principles of international economics.
- 43.5 Apply knowledge of the basic principles of consumer economics and personal finance, including strategies for personal and family resource management.
- 43.6 Apply skills and procedures used in political science and economic research, such as formulating research questions, assessing the appropriateness of various sources and research tools for specific inquiries, interpreting information represented in diverse visual formats, and demonstrating political science and economic literacy, including identifying purpose and main ideas, distinguishing between fact and opinion, and recognizing assumptions in political science and economics texts.