

Missouri Educator Gateway Assessments (MEGA)  
 Alignment of General Education Assessments  
 Missouri General Education Assessment & College Basic Academic Subjects Assessment  
 July 16, 2013

Missouri General Education Assessment (MoGEA)	42 Hour General Education Block	College BASE
Subjects & Competencies		Subjects & Competencies
001: English/Language Arts <ul style="list-style-type: none"> <li>• 0001 – Comprehension &amp; Analysis of Text</li> <li>• 0002 – Informational &amp; Persuasive Text</li> <li>• 0003 – Literacy Text</li> <li>• 0004 – Oral Communication &amp; Public Speaking</li> </ul> 002: Writing <ul style="list-style-type: none"> <li>• 0005 – Writing Assignment</li> </ul>	1a Skills Areas - Communicating 1b Skills Areas – Higher Order Thinking	English <ul style="list-style-type: none"> <li>• Reading &amp; Literature               <ul style="list-style-type: none"> <li>○ Reading Critically &amp; Analytically</li> <li>○ Understanding Literature</li> </ul> </li> <li>• Writing               <ul style="list-style-type: none"> <li>○ Writing as a Process</li> <li>○ Conventions of Written Language</li> <li>○ Writing Exercise</li> </ul> </li> </ul>
003: Mathematics <ul style="list-style-type: none"> <li>• 0006 – Number, Quantity, &amp; Algebra</li> <li>• 0007 – Linear &amp; Non-Linear Functions</li> <li>• 0008 – Geometry, Probability, &amp; Statistics</li> </ul>	2c Knowledge Areas - Mathematics	Mathematics <ul style="list-style-type: none"> <li>• General Mathematics               <ul style="list-style-type: none"> <li>○ Practical Applications</li> <li>○ Properties &amp; Notations</li> <li>○ Using Statistics</li> </ul> </li> <li>• Algebra               <ul style="list-style-type: none"> <li>○ Evaluating Expressions</li> <li>○ Equations &amp; Inequalities</li> </ul> </li> <li>• Geometry               <ul style="list-style-type: none"> <li>○ 2 &amp; 3 Dimensional Figures</li> <li>○ Geometrical Calculations</li> </ul> </li> </ul>
004: Science <ul style="list-style-type: none"> <li>• 0009 – The Nature &amp; Practice of Science</li> <li>• 0010 – Biology and Chemistry</li> <li>• 0011 – Physics, Geology, and Astronomy</li> </ul>	2d Knowledge Areas – Life & Physical Sciences	Science <ul style="list-style-type: none"> <li>• Laboratory &amp; Field Work               <ul style="list-style-type: none"> <li>○ Observation &amp; Experimental Design</li> <li>○ Laboratory &amp; Field Techniques</li> <li>○ Interpreting Results</li> </ul> </li> <li>• Fundamental Concepts               <ul style="list-style-type: none"> <li>○ Life Sciences</li> </ul> </li> </ul>

		○ Physical Sciences
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<p>005: Social Studies</p> <ul style="list-style-type: none"> <li>● 0012 – Inquiry &amp; Literacy Skills</li> <li>● 0013 – History, Geography, Culture, &amp; Society</li> <li>● 0014 – Government, Civics, &amp; Economics</li> </ul>	<p>2a Knowledge Areas – Social &amp; Behavioral Sciences</p>	<p>Social Studies</p> <ul style="list-style-type: none"> <li>● History <ul style="list-style-type: none"> <li>○ Significance of World Events</li> <li>○ Significance of United States Events</li> </ul> </li> <li>● Social Sciences <ul style="list-style-type: none"> <li>○ Geography</li> <li>○ Political/Economic Structures</li> <li>○ Social Science Procedures</li> </ul> </li> </ul>
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<p><b>ENGLISH LANGUAGE ARTS</b></p> <p><b>0001 Demonstrate the ability to comprehend, interpret, and analyze text from a variety of styles and genres.</b></p> <p>For example:</p> <ul style="list-style-type: none"> <li>Analyze the development of central ideas or themes over the course of a text and evaluate concepts, ideas, and details that support, illustrate, or elaborate the central ideas or themes of a text.</li> <li>Apply knowledge of word structure, context, and syntax to determine the meanings of words and phrases in a text.</li> <li>Demonstrate understanding of figurative language, connotative meanings, and the effect of specific word choices on meaning and tone of a text.</li> <li>Assess how the author develops a point of view or purpose in a text through choices of style and content.</li> <li>Analyze how specific sentences, paragraphs, and larger portions of text relate to each other and to the whole.</li> <li>Draw conclusions or make inferences from stated or implied information in a text.</li> </ul> <p><b>0002 Demonstrate the ability to use critical reasoning skills to evaluate an informational or persuasive text.</b></p> <p>For example:</p> <ul style="list-style-type: none"> <li>Analyze the arguments or claims made in</li> </ul>	<p><b>a. Communicating State-Level Goal:</b> To develop students' effective use of the English language and quantitative and other symbolic systems essential to their success in school and in the world. Students should be able to read and listen critically and to write and speak with thoughtfulness, clarity, coherence, and persuasiveness.</p> <p><b>Suggested Competencies:</b> Students will demonstrate the ability to...</p> <ul style="list-style-type: none"> <li>analyze and evaluate their own and others' speaking and writing.</li> <li>conceive of writing as a recursive process that involves many strategies, including generating material, evaluating sources when used, drafting, revising, and editing.</li> <li>make formal written and oral presentations employing correct diction, syntax, usage, grammar, and mechanics.</li> <li>focus on a purpose (e.g., explaining, problem solving, argument) and vary approaches to writing and speaking based on that purpose.</li> <li>respond to the needs of different venues and audiences and choose words for appropriateness and effect.</li> <li>communicate effectively in groups by listening, reflecting, and responding appropriately and in</li> </ul>	<p><b>100 : ENGLISH – Reading &amp; Literature</b></p> <p><b>101 – Read accurately and critically by asking pertinent questions about a text, by recognizing assumptions and implications, and by evaluating ideas.</b></p> <ul style="list-style-type: none"> <li>Ascertain the meaning of a passage, identifying main ideas, supporting details, and logical or narrative sequences.</li> <li>Recognize the implicit assumptions and values underlying a written work.</li> <li>Evaluate the ideas presented in a text by determining their logical validity, their implications, and their relationships to ideas beyond the text.</li> </ul> <p><b>102 – Read a literary text analytically, seeing relationships between form and content.</b></p> <ul style="list-style-type: none"> <li>Identify and analysis common semantic features such as connotation and figures of speech.</li> <li>Identify conventional literary genres, elements, and devices and relate such formal elements to the content of the passage in which they are found.</li> <li>Identify the tone, mood, and voice of a literary text through as analysis of its linguistic features and literary devices.</li> <li>Identify the theme of a literary text and the ways it is embodied by formal elements.</li> </ul> <p><b>103 – Understand a range of literature, rich in quality and representative of different literary forms and historical contexts.</b></p> <ul style="list-style-type: none"> <li>Identify major authors of British and American</li> </ul>
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<p>a text and the type of appeal (e.g., emotional, ethical, logical) an author uses.</p> <ul style="list-style-type: none"> <li>• Evaluate the validity of the author's reasoning and inferences and assess the relevance and sufficiency of supporting evidence, illustrations, or analogies in a text.</li> <li>• Recognize the assumptions on which a writer's argument is based and evaluate the credibility and accuracy of information presented in a text.</li> <li>• Analyze how two or more texts address similar themes or topics.</li> </ul> <p><b>0003 Demonstrate the ability to use critical reasoning skills to evaluate literary text from a variety of cultures and time periods.</b></p> <p>For example:</p> <ul style="list-style-type: none"> <li>• Recognize the important characteristics and central themes of foundational works of American and world literature.</li> <li>• Recognize important features and distinguishing motifs of major literary movements and periods.</li> <li>• Interpret and compare works of literature from a variety of genres (e.g., fiction, drama, poetry) and/or a range of periods and cultures in terms of form, subject,</li> </ul>	<p>context.</p> <ul style="list-style-type: none"> <li>• use mathematical and statistical models, standard quantitative symbols, and various graphical tactics to present information with clarity, accuracy, and precision.</li> </ul>	<p>literature and describe distinctive features of their works.</p> <ul style="list-style-type: none"> <li>• Recognize the historical sequence of major literary figures, works, movements, and periods of world literature (including British and American) and relate them to their literary and cultural contexts.</li> </ul>
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theme, mood, or technique.

- Analyze how literary devices and techniques (e.g., personification, metaphor, irony, foreshadowing) are used in a work of fiction, drama, or poetry to develop a point of view, establish a tone, convey a theme, or create a mood.
- Analyze ways in which the content of a given work of literature reflects or is influenced by a specific social or historical context.

**0004 Demonstrate understanding of effective oral communication and public speaking skills.**

For example:

- Demonstrate knowledge of how to identify, use, and create speeches for different types of speaking purposes (e.g., informing, persuading, entertaining, motivating) and the basic process of audience analysis.
- Demonstrate knowledge of how to organize (e.g., introduction, body, conclusion) and structure speeches (e.g., chronological order, cause and effect, climax order, anticlimax order, spatial order), using effective transitions and rhetorical devices.
- Demonstrate knowledge of how to develop and support arguments with appropriate support that is unified, coherent, and fully developed.
- Demonstrate knowledge of the

<p>components of good delivery (e.g., verbal skills, nonverbal components, articulation, speaking persona, self-reflection).</p> <ul style="list-style-type: none"><li>• Demonstrate knowledge of effective listening and analysis skills as they relate to critical evaluation of speech topics and the ability to critique oral presentations (e.g., evaluating a speaker's point of view, reasoning, and use of evidence and rhetoric; assessing the stance, premises, links among ideas, word choice, points of emphasis, and tone).</li><li>• Demonstrate knowledge of communication ethics and the role of public speaking in a democratic society.</li></ul>		
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<p><b>WRITING</b></p> <p><b>0005 Produce a clear and coherent written composition in which the development, organization, and style are appropriate to task, purpose, and audience.</b></p> <p>For example:</p> <ul style="list-style-type: none"> <li>• Demonstrate the ability to support claims in writing using valid reasoning and relevant and sufficient evidence, with an appropriate use of generalizations and adequate, specific, and illustrative details.</li> <li>• Demonstrate the ability to produce focused, coherent, and unified writing, employing a variety of rhetorical strategies in which the development, organization, and style are appropriate to task, purpose, and audience.</li> <li>• Demonstrate the ability to use effectively words, phrases, clauses, transitional devices, and syntax to link sections of the text, create cohesion, and clarify relationships among ideas.</li> <li>• Demonstrate the ability to introduce and develop ideas through the effective use of thesis statements and/or topic sentences and to provide an effective conclusion that follows from the ideas presented in the composition.</li> <li>• Demonstrate command of a variety of sentence structures and the conventions of Standard English grammar and usage.</li> </ul>	<p><b>a. Communicating State-Level Goal:</b> To develop students' effective use of the English language and quantitative and other symbolic systems essential to their success in school and in the world. Students should be able to read and listen critically and to write and speak with thoughtfulness, clarity, coherence, and persuasiveness.</p> <p><b>Suggested Competencies:</b> Students will demonstrate the ability to...</p> <ul style="list-style-type: none"> <li>• analyze and evaluate their own and others' speaking and writing.</li> </ul> <p>conceive of writing as a recursive process that involves many strategies, including generating material, evaluating sources when used, drafting, revising, and editing.</p> <ul style="list-style-type: none"> <li>• make formal written and oral presentations employing correct diction, syntax, usage, grammar, and mechanics.</li> <li>• focus on a purpose (e.g., explaining, problem solving, argument) and vary approaches to writing and speaking based on that purpose.</li> <li>• respond to the needs of different venues and audiences and choose words for appropriateness and effect.</li> <li>• communicate effectively in groups by listening, reflecting, and responding appropriately and in</li> </ul>	<p><b>WRITING</b></p> <p><b>104 – Understand the various elements of the writing process, including collecting information and formulating ideas, determining relationships, arranging sentences and paragraphs, establishing transitions, and revising what has been written.</b></p> <ul style="list-style-type: none"> <li>• Identify and apply appropriate prewriting strategies, organizational methods, and research techniques.</li> <li>• Improve the clarity, coherence, organization, and style of a text through revision.</li> </ul> <p><b>105 – Use the conventions of standard written English.</b></p> <ul style="list-style-type: none"> <li>• Identify the parts of speech and grammatical elements of a sentence.</li> <li>• Recognize and correct common flaws in diction, grammar, mechanics, and punctuation.</li> </ul> <p><b>106 – Write an organized, coherent, and effective essay.</b></p> <ul style="list-style-type: none"> <li>• Formulate a central idea suitable to the occasion for writing, focusing it as required by the work's format and the expectations of the audiences.</li> <li>• Select a rhetorical strategy and pattern of development that effectively organize ideas.</li> <li>• Develop ideas logically and coherently with adequate supporting detail.</li> <li>• Employ unified paragraphs, varied syntax, and precise diction to present ideas clearly and efficiently.</li> <li>• Create a voice and tone appropriate to the</li> </ul>
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<ul style="list-style-type: none"> <li>• Demonstrate command of the conventions of English capitalization, punctuation, and spelling.</li> </ul>	<p>context.</p> <ul style="list-style-type: none"> <li>• use mathematical and statistical models, standard quantitative symbols, and various graphical tactics to present information with clarity, accuracy, and precision.</li> </ul> <p><b>b. Higher-Order Thinking</b>  State-Level Goal: To develop students' ability to distinguish among opinions, facts, and inferences; to identify underlying or implicit assumptions; to make informed judgments; and to solve problems by applying evaluative standards.  <b>Suggested Competencies:</b> Students will demonstrate the ability to...</p> <ul style="list-style-type: none"> <li>• recognize the problematic elements of presentations of information and argument and to formulate diagnostic questions for resolving issues and solving problems.</li> <li>• use linguistic, mathematical or other symbolic approaches to describe problems, identify alternative solutions, and make reasoned choices among those solutions.</li> <li>• analyze and synthesize information from a variety of sources and apply the results to resolving complex situations and problems.</li> <li>• defend conclusions using relevant</li> </ul>	<p>audience and purpose.</p> <ul style="list-style-type: none"> <li>• Observe the conventions of standard written English.</li> </ul>
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	evidence and reasoned argument. • reflect on and evaluate their critical-thinking processes.	
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<p><b>MATHEMATICS</b></p> <p><b>0006 Understand number, quantity, and algebra.</b> For example:</p> <ul style="list-style-type: none"> <li>Identify equivalent expressions involving radicals and rational exponents using the properties of irrational numbers and exponents.</li> <li>Perform arithmetic operations with complex numbers.</li> <li>Apply dimensional analysis to reason quantitatively and use units to solve problems.</li> <li>Perform arithmetic operations on polynomials.</li> <li>Justify steps in an algebraic solution by applying the properties of numbers and their operations.</li> <li>Rewrite equations that solve a formula for a given variable.</li> <li>Represent and solve mathematical and real-world problems using numeric and algebraic expressions and equations, including arithmetic and geometric sequences.</li> </ul> <p><b>0007 Understand linear &amp; non-linear functions.</b> For example:</p> <ul style="list-style-type: none"> <li>Demonstrate knowledge of functions and their characteristics and properties, using</li> </ul>	<p>State-Level Goal: To develop students' understanding of fundamental mathematical concepts and their applications. Students should develop a level of quantitative literacy that would enable them to make decisions and solve problems and which could serve as a basis for continued learning. <b>(The mathematics requirement for general education should have the same prerequisite(s) and level of rigor as college algebra.)</b></p> <p><b>Suggested Competencies:</b> Students will demonstrate the ability to...</p> <ul style="list-style-type: none"> <li>describe contributions to society from the discipline of mathematics.</li> <li>recognize and use connections within mathematics and between mathematics and other disciplines.</li> <li>read, interpret, analyze, and synthesize quantitative data (e.g., graphs, tables, statistics, survey data) and make reasoned estimates.</li> <li>formulate and use generalizations based upon pattern recognition.</li> <li>apply and use mathematical models (e.g., algebraic, geometric, statistical) to solve problems.</li> </ul>	<p><b>200: MATHEMATICS – General Mathematics Proficiency</b></p> <p><b>201 – Use mathematical techniques in the solution of real-life problems.</b></p> <ul style="list-style-type: none"> <li>Solve word problems requiring computation of base, rate, or percentage, including problems related to interest, discount, taxes, and paycheck deductions.</li> <li>Solve word problems involving time, distance, and velocity.</li> <li>Solve word problems involving ratio and proportion.</li> </ul> <p><b>202 – Use the language, notation, and deductive nature of mathematics to express quantitative ideas with precision.</b></p> <ul style="list-style-type: none"> <li>Use and interpret such set concepts as union and intersection, and identify finite, infinite, and empty sets.</li> <li>Convert a verbal description of a mathematical relationship to a symbolic mathematical statement.</li> <li>Identify integers, real numbers, rational numbers, and irrational numbers.</li> <li>Identify applications of the identity, inverse, associative, commutative, distributive, and transitive properties of real numbers.</li> <li>Identify patterns in numerical progressiveness and predict further sequential elements.</li> </ul> <p><b>203 – Use the techniques of statistical</b></p>
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different representations (e.g., tabular, algebraic, graphic)

- Build functions by combining different functions arithmetically, transforming functions algebraically and graphically, and finding their inverses.
- Apply laws and properties of exponents.
- Analyze the relationship between linear equations inequalities and their graphs, and between non-linear equations, inequalities and their graphs.
- Solve linear and non-linear equations and inequalities using a variety of methods, including graphically.
- Solve systems of linear equations using a variety of methods.
- Identify equations or inequalities, or systems of equations and inequalities, that represent constraints in a modeling context.
- Model and solve mathematical and real-world problems using linear and non-linear equations and inequalities, and systems of equations and inequalities in one, two, or more variables.

**0008 Understand geometry, probability, and statistics.**

For example:

- Solve mathematical and real-world problems involving angle measure, perimeter, circumference, area, surface area, and volume of two- and three-dimensional figures.

**reasoning and recognize common misuses of statistics.**

- Calculate and interpret probability, including that of independent and mutually exclusive events.
- Recognize inappropriate statistical reasoning and incorrect or misleading displays of statistical data.
- Calculate and interpret mean, median, mode, and range.

**ALGEBRA**

**204 – Evaluate algebraic and numerical expressions.**

- Simplify algebraic expressions by substituting given values.
- Simplify numerical and algebraic expressions, using the hierarchy of operations and grouping symbols.

**205 – Solve equations and inequalities.**

- Solve linear equations.
- Solve linear inequalities.
- Use the quadratic formula to solve quadratic expressions.

**GEOMETRY**

**206 – Recognize two and three dimensional figures and their properties.**

- Identify parallel, perpendicular, and intersecting lines and determine the angle

<ul style="list-style-type: none"> <li>• Apply geometric concepts (e.g., similarity, congruence, the Pythagorean theorem) to solve mathematical and real-world problems.</li> <li>• Solve problems involving right triangles.</li> <li>• Analyze formal and informal geometric proofs.</li> <li>• Apply techniques of coordinate geometry to analyze characteristics of basic geometric figures and their transformations, and prove geometric theorems algebraically.</li> <li>• Analyze information presented in tables, line graphs, pictographs, bar graphs, histograms, circle graphs, and scatter plots.</li> <li>• Demonstrate knowledge of the use of sampling to draw inferences about a population.</li> <li>• Apply knowledge of the rules of probability to compute probabilities and to solve problems in a variety of situations.</li> <li>• Find probabilities of compound events using organized lists, tables, tree diagrams, and simulations.</li> </ul>		<p><b>relationships they create by recognizing acute, obtuse, vertical, right, adjacent, supplementary, and complementary angles.</b></p> <ul style="list-style-type: none"> <li>• <b>Identify two and three dimensional geometrical figures.</b></li> <li>• <b>Identify similar and congruent polygons.</b></li> </ul> <p><b>207 – Use the properties of two and three dimensional figures to perform geometrical calculations</b></p> <ul style="list-style-type: none"> <li>• Calculate the perimeter and area of two dimensional geometrical figures.</li> <li>• Calculate the area and volume of three dimensional geometrical figures.</li> <li>• Use the Pythagorean Theorem to solve problems involving right triangles.</li> </ul>
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<p><b>SCIENCE</b>  <b>0009 – Understand the nature and practice of science.</b>  For example:</p> <ul style="list-style-type: none"> <li>• Demonstrate knowledge of the principles and methods of scientific inquiry, including the formulation of testable hypotheses, the design and conduct of valid investigations, and the selection and use of appropriate tools and procedures.</li> <li>• Demonstrate knowledge of measurement principles and methods; and procedures for gathering, analyzing, and presenting scientific information and numeric data from laboratory and field investigations, including the use of mathematical analysis.</li> <li>• Analyze scientific and technical texts, including summarizing complex information presented in multiple formats, explaining central ideas and hypotheses, and citing and evaluating evidence used to support conclusions.</li> <li>• Analyze an author's purpose in providing specific information in a scientific or technical text and recognize how scientific and technical texts structure information into categories and hierarchies.</li> <li>• Demonstrate knowledge of mathematical and physical models used to represent scientific relationships and interpret the symbols and domain-specific terminology used in undergraduate-level scientific and technical texts.</li> </ul>	<p><b>d. Life and Physical Sciences</b>  State-Level Goal: To develop students' understanding of the principles and laboratory procedures of life and physical sciences and to cultivate their abilities to apply the empirical methods of scientific inquiry. Students should understand how scientific discovery changes theoretical views of the world, informs our imaginations, and shapes human history. Students should also understand that science is shaped by historical and social contexts.  <b>Suggested Competencies:</b> Students will demonstrate the ability to...</p> <ul style="list-style-type: none"> <li>• explain how to use the scientific method and how to develop and test hypotheses in order to draw defensible conclusions.</li> <li>• evaluate scientific evidence and argument.</li> <li>• describe the basic principles of the physical universe.</li> <li>• describe concepts of the nature, organization, and evolution of living systems.</li> <li>• explain how human choices affect the earth and living systems.</li> </ul>	<p><b>300: SCIENCE – Laboratory &amp; Field Work</b>  <b>301 – Recognizes the role of observation and experimentation in the development of scientific theories.</b></p> <ul style="list-style-type: none"> <li>• Isolate and define a scientific problem or area for scientific study.</li> <li>• Recognize the principal elements in an experimental design, including the hypothesis, independent and dependent variables, and controls.</li> <li>• Evaluate an experimental design by analyzing its ability to test the hypothesis, identifying weaknesses and improvements, and discerning inherent limitations and assumptions.</li> </ul> <p><b>302 – Recognize appropriate procedures for gathering scientific information through laboratory and field work.</b></p> <ul style="list-style-type: none"> <li>• Identify effective laboratory and field techniques for observation, measurement, and other information gathering procedures.</li> <li>• Select the scientific apparatus or instrument appropriate to a specified laboratory or field task and identify proper operations of such equipment.</li> <li>• Use the metric system of measurement, recognizing equivalents within that system and selecting units appropriate to a given laboratory or field task.</li> <li>• Convert between scientific notation and</li> </ul>
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<ul style="list-style-type: none"> <li>• Demonstrate knowledge of how science is conducted and how scientific explanations and theories are developed over time; the difference between scientific theories and laws; and the relationships between science, technology, and society, including the social, personal, and cultural contexts of science.</li> </ul> <p><b>0010 – Understand the fundamental concepts, principles, and theories of biology and chemistry.</b></p> <ul style="list-style-type: none"> <li>• Demonstrate knowledge of the structure and function of biomolecules, the characteristics of cells from various types of organisms, and physiological processes, including cellular respiration and photosynthesis.</li> <li>• Demonstrate knowledge of the characteristics of major groups of organisms and the ways that plants and animals obtain, store, and use energy and nutrients.</li> <li>• Demonstrate knowledge of the basic principles of genetics, including common applications of biotechnology; the patterns and processes of inheritance; and the theory of evolution, including the tools and evidence used to determine relationships among organisms.</li> <li>• Recognize the characteristics of</li> </ul>		<p>conventional numerals and use scientific notation to perform calculations.</p> <p><b>303: Interpret and express the results of observation and experimentation.</b></p> <ul style="list-style-type: none"> <li>• Identify accurate verbal, graphic, and tabular expressions of data derived from observation and experimentation.</li> <li>• Draw conclusions and make inferences from observations or experimental results presented in verbal, graphic, or tabular form.</li> <li>• Describe a scientific relationship in symbolic mathematical terms.</li> </ul> <p><b>Fundamental Concepts</b></p> <p><b>304 – Understand the fundamental concepts, principles, and theories of the life sciences.</b></p> <ul style="list-style-type: none"> <li>• Describe the elements of fundamental concepts in the life sciences.</li> <li>• Describe the basic processes of matter, energy, and information in the life sciences.</li> <li>• Describe significant relationships among natural phenomena in the life sciences.</li> <li>• Describe the products or effects of fundamental processes in the life sciences.</li> </ul> <p><b>Skill 305: Understand the fundamental concepts, principles, and theories of the physical sciences.</b></p> <ul style="list-style-type: none"> <li>• Describe the elements of fundamental</li> </ul>
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<p>ecosystems and biomes, the flow of energy and cycling of matter in ecosystems, and the effect of human activities on the environment and biological systems.</p> <ul style="list-style-type: none"> <li>• Demonstrate knowledge of the properties and characteristics of matter, of atomic structure, of the periodic table, and of physical and chemical changes.</li> <li>• Demonstrate knowledge of the different states of matter, the characteristics of phase changes, and the gas laws.</li> <li>• Recognize the characteristics of various types of chemical bonds and intermolecular forces and their effects on the properties of substances; common types of chemical reactions, and the concept of chemical equilibrium.</li> <li>• Demonstrate knowledge of the conservation of mass and energy and the properties of solutions, including ways of expressing concentration and converting between units; and the ability to perform chemical calculations and balance basic chemical equations.</li> </ul> <p><b>0011 – Understand the fundamental concepts, principles, and theories of physics, geology, and</b></p>		<p>concepts in the physical sciences.</p> <ul style="list-style-type: none"> <li>• Describe the basic process of matter, energy, and information in the physical sciences.</li> <li>• Describe the significant relationships among natural phenomena in the physical sciences.</li> <li>• Describe the products or effects of fundamental processes in the physical sciences.</li> </ul>
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**astronomy.**

For example:

- Demonstrate knowledge of types of forces, including gravity; the relationship between velocity, acceleration, and force; and the application of Newton's laws to describe motion.
- Recognize the characteristics and transformations of various forms of energy and the relationship between energy, heat, and temperature.
- Demonstrate knowledge of mechanical and electromagnetic waves, the characteristics of sound and light, and general concepts related to electricity and magnetism.
- Demonstrate knowledge of the earth's geologic, atmospheric, and hydrospheric systems; the earth's surface features; and the properties and characteristics of the earth's materials, including rocks, soil, water, and energy and mineral resources.
- Demonstrate knowledge of the earth's history, concepts and principles used in studying the earth's history, the changes that have occurred over geologic time, and the geologic processes that shape the earth's surface.
- Demonstrate knowledge of the hierarchical structure of the universe; the nature of the solar system and the

universe; the basic motions of bodies in space; and interactions of the sun, moon, and Earth and the effects of these interactions on Earth systems.		
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<p><b>SOCIAL STUDIES</b></p> <p><b>0012 – Apply inquiry and literacy skills in the social sciences.</b></p> <p>For example:</p> <ul style="list-style-type: none"> <li>Identify the characteristics of social science disciplines, demonstrate knowledge of social studies tools and resources, recognize basic steps and procedures (e.g., posing questions, formulating hypotheses, challenging claims) in social science research, and apply skills for locating, gathering, organizing, and presenting social science information.</li> <li>Identify and interpret primary and secondary sources, placing them in the context of their time and place; and demonstrate the ability to formulate historical arguments based on evidence from such sources.</li> <li>Demonstrate the ability to identify purpose, point of view, central ideas, and relationships between fundamental concepts and key details in social science documents.</li> <li>Demonstrate the ability to interpret words and phrases used in social science texts, identify underlying assumptions, distinguish between fact and opinion, recognize bias, and assess the</li> </ul>	<p><b>a. Social and Behavioral Sciences</b></p> <p>State-Level Goal: To develop students' understanding of themselves and the world around them through study of content and the processes used by historians and social and behavioral scientists to discover, describe, explain, and predict human behavior and social systems. Students must understand the diversities and complexities of the cultural and social world, past and present, and come to an informed sense of self and others. (Students must fulfill the state statute requirements for the United States and Missouri constitutions.)</p> <p><b>Suggested Competencies:</b> Students will demonstrate the ability to...</p> <ul style="list-style-type: none"> <li>explain social institutions, structures, and processes across a range of historical periods and cultures.</li> <li>develop and communicate hypothetical explanations for individual human behavior within the large-scale historical and social context.</li> <li>draw on history and the social sciences to evaluate contemporary problems.</li> <li>describe and analytically compare social, cultural, and historical settings and processes other than one's own.</li> <li>articulate the interconnectedness of people and places around the globe.</li> <li>describe and explain the constitutions of the United States and Missouri .</li> </ul>	<p><b>400: SOCIAL SCIENCE – History</b></p> <p><b>401 – Recognize the chronology and significance of major events and movements in world history.</b></p> <ul style="list-style-type: none"> <li>Identify and compare key institutions or participants in major events and movements of world history.</li> <li>Identify the sequence of major events and movements in world history.</li> <li>Describe the significance of major events and movements in world history, including their causes and effects as well as their relationships to broader historical trends.</li> </ul> <p>402 – Recognize the chronology and significance of major events and movements in United States history.</p> <ul style="list-style-type: none"> <li>Identify and compare key institutions or participants in major events and movements in United States history.</li> <li>Identify the sequence and significance of major events and movement in the United States history, including their causes and effects as well as their relationships to broader historical trends.</li> <li>Identify technological developments and environmental changes in the United States history and relate them to historical events and movements.</li> <li>Describe the principles and development of American Constitutional democracy and the significance of major Supreme</li> </ul>
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<p>adequacy of claims, reasoning, and evidence in social science documents.</p> <ul style="list-style-type: none"> <li>• Demonstrate the ability to integrate and evaluate content presented in diverse formats and media and analyze how multiple texts address similar themes or topics.</li> <li>• Evaluate multiple perspectives and interpretations of world and U.S. history, examine the assumptions, values, and beliefs on which they are based and analyze historical and contemporary problems in the social sciences.</li> </ul> <p><b>0013 – Understand major developments and significant features of world and U.S. history, geography, culture, and society.</b></p> <p>For Example:</p> <ul style="list-style-type: none"> <li>• Recognize the chief characteristics, connections, commonalities, differences and contributions of world civilizations.</li> <li>• Analyze the origins and consequences of significant eras, events, and movements in world and U.S. history; recognize the roles of notable individuals and demonstrate knowledge of the chronological and causal relationships between the social, political, scientific, technological, economic, and</li> </ul>		<p>Court decisions.</p> <ul style="list-style-type: none"> <li>• Describe the interaction among peoples of different national origins, races, and cultures and how such interaction shaped American history.</li> </ul> <p><b>Social Sciences</b></p> <p><b>403 – Recognize basic features and concepts of world geography.</b></p> <ul style="list-style-type: none"> <li>• Identify the location and explain the geographical significance of cultural regions, political units, and physical features of the world, including nations, cities, land masses, bodies of water and waterways, mountain ranges, deserts, and climatic Zones.</li> <li>• Describe central features of the cultural and social life within nations, including aspects of daily life, customs, religious belief, and the arts.</li> <li>• Analyze geographical relationships, including the effects of geographical factors upon human life.</li> </ul> <p><b>404 – Recognize basic features and concepts of the world’s political and economic structures.</b></p> <ul style="list-style-type: none"> <li>• Identify and apply basic principles of economics and international trade, as well as describe their operation between and within the economic systems of particular countries.</li> <li>• Identify and apply basic principles of</li> </ul>
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<p>cultural developments that have shaped human history.</p> <ul style="list-style-type: none"> <li>• Use historical analysis to evaluate cause and effect, comparisons and contrasts, and patterns of continuity over time.</li> <li>• Demonstrate knowledge of major concepts in geography, anthropology, and sociology (e.g., region, relative location, cultural diffusion, status) and use geographic tools (e.g., maps, atlases) to analyze and interpret information.</li> <li>• Identify the location and characteristics of major physical features, climatic patterns, cultural regions, and political units of the world and analyze their geographic significance.</li> <li>• Demonstrate knowledge of factors that influence human migration and settlement, apply understanding of fundamental population models and terminology, and analyze historical and contemporary patterns of population growth, decline, and movement.</li> <li>• Demonstrate knowledge of the characteristics of cultural groups; recognize the economic, political, and cultural commonalities, differences, and interactions between places and regions; and</li> </ul>		<p>political science, as well as describe their operation between and within the governments of particular countries.</p> <p><b>405 – Recognize appropriate investigative and interpretive procedures in the social sciences.</b></p> <ul style="list-style-type: none"> <li>• Identify appropriate sources and methods for the investigation of a social problem or institution.</li> <li>• Interpret and express the results of social science research in verbal, tabular, and graphic form.</li> </ul>
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<p>analyze the ways in which humans modify the physical and social environments and are influenced by the physical and social environments around them.</p> <ul style="list-style-type: none"><li>• Demonstrate knowledge of how personal identity is formed and shaped and the role of culture and social institutions in human societies.</li></ul> <p><b>0014 – Understand primary features, central concepts, and basic operations of the world's political and economic systems and the principles of American citizenship.</b></p> <p>For example:</p> <ul style="list-style-type: none"><li>• Recognize major characteristics of various forms of government and examine similarities and differences between political systems.</li><li>• Demonstrate knowledge of the origins, basic structures, functions, and purposes of government in the United States and Missouri, and analyze the democratic ideals and constitutional principles (e.g., federalism, popular sovereignty, separation of powers) on which they are based.</li><li>• Demonstrate knowledge of the U.S. electoral system (e.g., political parties, electoral campaigns, public opinion, the media), the rights and responsibilities of U.S.</li></ul>		
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<p>citizenship, and the skills and civic dispositions required for effective participation in politics and government.</p> <ul style="list-style-type: none"><li>• Recognize basic characteristics of a free-market economic system and examine similarities and differences among major economic systems.</li><li>• Demonstrate knowledge of the components and operation of the U.S. economy, including the role of government and the application of fiscal and monetary policy.</li><li>• Demonstrate knowledge of basic principles of international trade and historical and contemporary patterns of commercial exchange in the global economic system.</li></ul>		
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