



Subject Matter Knowledge Requirements

SMK Requirements –Regulations v May 2, 2016

7/28/2017

7.06: Subject Matter Knowledge Requirements for Teachers

(1) Biology (Levels: 5-8; 8-12)

- (a) Biology of organisms, especially that of humans, including characteristics and classifications of organisms.
- (b) Cells and cell theory.
- (c) Ecology and evolutionary biology.
- (d) Matter and energy in ecosystems.
- (e) Genetics, including chromosome structure and function and inheritance.
- (f) Molecular biology.
- (g) Related aspects of chemistry, physics, earth science, and mathematics, such as statistics.
- (h) Engineering and technical applications of biology.
- (i) History and philosophy of science.
- (j) Methods of research in the sciences, including laboratory techniques and the use of computers.

(2) Business (Levels: 5-12)

- (a) Business communications.
- (b) Business management.
- (c) Human resource management.
- (d) State and federal business law.
- (e) Business marketing.
- (f) Accounting principles and procedures.
- (g) Business technology and information systems.
- (h) Macro- and microeconomics.
- (i) Business mathematics.
- (j) Principles and procedures related to entrepreneurship.

(3) Chemistry (Levels: 5-8; 8-12)

- (a) Inorganic chemistry.
- (b) Organic chemistry.
- (c) Analytical chemistry.
- (d) Physical chemistry.
- (e) Biochemistry.
- (f) Related aspects of biology, physics, earth science, and mathematics, such as statistics and calculus.
- (g) Engineering and technical applications of chemistry.
- (h) History and philosophy of science.
- (i) Methods of research in the sciences, including laboratory techniques and the use of computers.

(4) Dance (Levels: All)

- (a) Dance technique, including skills and kinesthetic concepts of ballet, modern, jazz, tap, social, and folk dance.
- (b) Choreography, including elements and principles of design, rhythm, dynamics, form, improvisation, and composition.
- (c) Dance production, including costumes, lighting, sound, promotion, and management.
- (d) History of Western dance performance, including historical periods, major stylistic traditions, and major artists.

- (e) History of American dance performance from circa 1650.
- (f) Introductory knowledge of dance traditions across the world.
- (g) Children's dance, movement exploration, and improvisation.
- (h) Artistic development of children and adolescents in dance.
- (i) Dance criticism: analysis and critique of dance works and performance.

(5) Early Childhood: Teacher of Students with and Without Disabilities (Levels: PreK-2)

(a) The following topics will be addressed on the Foundations of Reading test:

1. Reading theory, research, and practice.
 - a. Knowledge of the significant theories, approaches, practices, and programs for developing reading skills and reading comprehension.
 - b. Phonemic awareness and phonics: principles, knowledge, and instructional practices.
 - c. Diagnosis and assessment of reading skills using standardized, criterion-referenced, and informal assessment instruments.
2. Development of a listening, speaking and reading vocabulary.
3. Theories on the relationships between beginning writing and reading.
4. Theories of first and second language acquisition and development.

(b) The following topics will be addressed on a test of other subject matter knowledge:

1. English language arts
 - a. Children's literature: genres, literary elements, literary techniques, vocabulary demands.
 - b. Approaches and practices for developing skill in using writing tools.
 - c. Writing process and formal elements of writing.
2. Basic principles and concepts related to PreK-2 grade mathematics in number sense and numeration, patterns and functions, geometry and measurement, and data analysis.
3. Basic principles and concepts of the physical and life sciences appropriate to the PreK-2 grades.
4. Basic principles and concepts of history, geography, government, and economics appropriate to the PreK-2 grades.
5. Basic theories of cognitive, social, physical, language, and emotional development in children and adolescents, including learning through play, as they apply to children with and without disabilities.
6. Preparation, implementation, and evaluation of Individualized Education Programs (IEPs).

(c) Topics in basic principles and concepts of the arts, health, and physical education appropriate to the PreK-2 grades shall be included in an approved program but will not be addressed on a written test of subject matter knowledge.

(6) Earth Science (Levels: 5-8; 8-12)

- (a) Geology.
- (b) Oceanography.
- (c) Astronomy.
- (d) Environmental biology, physics, and chemistry.
- (e) Meteorology.
- (f) Related aspects of chemistry, physics, biology, and mathematics.
- (g) Engineering and technical applications of earth science.

(h) History and philosophy of science.

(i) Methods of research in the sciences, including laboratory techniques and the use of computers.

(7) Elementary (Levels: 1-6)

(a) The following topics will be addressed on the Foundations of Reading test:

1. Reading theory, research, and practice.
 - a. Knowledge of the significant theories, practices, and programs for developing reading skills and reading comprehension.
 - b. Phonemic awareness and phonics: principles, knowledge, and instructional practices.
 - c. Diagnosis and assessment of reading skills using standardized, criterion-referenced, and informal assessment instruments.
2. Development of a listening, speaking, and reading vocabulary.
3. Theories on the relationships between beginning writing and reading.
4. Theories of first and second language acquisition and development.

(b) The following topics will be addressed on the General Curriculum test:

1. English.
 - a. Children's and young adult literature.
 - b. Adult literature, classical and contemporary works.
 - c. Genres, literary elements, and literary techniques.
 - d. Nature, history, and structure of the English language: lexicon and grammar.
 - e. Approaches and practices for developing skill in using writing tools.
 - f. Writing process and formal elements of writing and composition.
2. Mathematics.
 - a. Basic principles and concepts important for teaching elementary school mathematics in the following areas:
 - i. Number and operations (the foundation of topics in 603 CMR 7.06 (7) (b) 2. a. ii. - iv.).
 - ii. Functions and algebra.
 - iii. Geometry and measurement.
 - iv. Statistics and probability.
 - b. Candidates shall demonstrate that they possess both fundamental computation skills and comprehensive, in-depth understanding of K-8 mathematics. They must demonstrate not only that they know how to do elementary mathematics, but that they understand and can explain to students, in multiple ways, why it makes sense.
 - c. The Commissioner, in consultation with the Chancellor of Higher Education, shall issue guidelines for the scope and depth of knowledge expected in mathematics, described in 603 CMR 7.06 (7) (b) 2 a. and b.
3. History and Social Science.
 - a. Major developments and figures in Massachusetts and U.S. history from colonial times to the present.
 - b. Major developments and figures in world history, with stress on Western civilization.
 - c. Basic economic principles and concepts.
 - d. Basic geographical principles and concepts.
 - e. U.S. political principles, ideals, founding documents, institutions, and processes, their history and development.

4. Science and Technology/Engineering.
 - a. Basic principles and concepts of the life sciences appropriate to the elementary school curriculum.
 - b. Basic principles and concepts of the physical sciences appropriate to the elementary school curriculum.
 - c. Principles and procedures of scientific inquiry.
 - d. History of major scientific and technological discoveries or inventions.
 - e. Safety issues related to science investigations.

(c) The following topics shall be included in an approved program but will not be addressed on a written test of subject matter knowledge:

1. Science laboratory work.
2. Child development.
 - a. Basic theories of cognitive, social, emotional, language, and physical development from childhood through adolescence.
 - b. Characteristics and instructional implications of moderately and severely disabling conditions.
3. Basic principles and concepts in each of the visual and performing arts (art, music, drama/theater, dance).
4. Basic principles and practices in physical education.
5. Basic principles and practices related to personal and family health.

(8) English (Levels: 5-8; 8-12)

(a) Literature.

1. American literature including the Colonial Period; the Revolutionary Period; American Romanticism and the American Renaissance (to include Hawthorne, Emerson, Melville, Whitman, and Thoreau); the Civil War and the post-war period; and fiction, poetry, drama from the early 20th century to the present.
2. World literature including British literature (including the Anglo-Saxon period, the Middle Ages, the Renaissance, the Restoration and the 18th century, the Romantic Period, the Victorian Period, and the 20th century) and other European literature; literature of Africa, Latin America and Asia; Ancient Greek and Roman literature; the Bible as literature; world myths and folktales.
3. Characteristics of the different genres of literature.
4. Various schools of literary criticism.

(b) Language.

1. History and structure of the English language.
2. Knowledge of the rules and conventions of standard written and spoken English.

(c) Rhetoric and composition.

1. Principles of classical rhetoric.
2. Modern and contemporary theories of rhetoric.
3. Similarities and differences between oral and written communication.

(d) Reading theory, research, and practice at the middle and high school level.

(9) English as a Second Language (Levels: PreK-6; 5-12)

(a) The following items will be assessed on a subject matter knowledge test:

1. Language and Linguistics
 - a. Language as a system: functions and registers of language.
 - b. The structure and nature of language: Phonology, morphology, syntax, semantics, pragmatics, discourse varieties, aspects of social and academic language, rhetorical registers, and writing conventions.
 - c. Language variation and change
2. Language acquisition and literacy development
 - a. Theory and research in first and second language acquisition.
 - b. Knowledge of the significant theories and practices for developing reading skills and reading comprehension in English as a first language at different educational levels.
 - c. Relevance of linguistic differences between the first and the second language for reading instruction in English.
 - d. Differences in initial reading instruction in English (including phonemic awareness and phonics) for students who may or may not be literate in their first language: effects of first language literacy on second language learning and literacy.
 - e. Formal and informal measures for assessing development in reading skills and their use with second language learners.
 - f. Development of listening, speaking, reading, and writing vocabulary.
 - g. Approaches and practices for developing writing skills and the use of writing tools.
 - h. Writing process and formal elements of writing.
 - i. Oral/Aural fluency in English at different proficiency levels.
 - j. Social and academic English and academic language for the content areas.
 - k. Development of meta-linguistic skills and vocabulary appropriate to cognitive, academic, and language proficiency levels.
3. Instructional approaches and best practices for teaching ESL
 - a. Foundations of ESL instruction.
 - b. Theories and sheltered strategies for developing English language skills in listening, speaking, reading, and writing for English language learners in bilingual or multilingual classrooms from the primary grades on.
 - c. Research-based practices for English language development.
 - d. Program models and teaching strategies for developing and integrating language skills.
 - e. Planning and implementing standards-based ESL and content instruction.
4. Socio-cultural and socio-emotional considerations in teaching ESL
 - a. Regional, socioeconomic, and developmental factors influencing language variation and bilingualism or multilingualism.
 - b. The nature and role of culture and its intersection with teaching and learning.
 - c. Cultural, racial, ethnic, and linguistic identity.
 - d. Intercultural communication in the classroom.
 - e. Special populations and situations: long term English language learners, English learners with disabilities, and students with limited or interrupted formal education.
 - f. The role of the community, families, and schools in English language learner education.
5. Formal and informal English language assessment procedures and instruments for English language learners: selection, administration, and interpretation; identification of bias and normal variation in performance as well as possible differentiation from learning disabilities.

(b) The following shall be included in an approved program but will not be addressed on the subject matter test:

1. Federal and State laws pertaining to the education of English language learners.
2. Theoretical, political, and historical foundations of education for English language learners.
3. Instruction, assessments, resources, research, and advances in the field of ESL.
4. Strategies for school collaboration, family outreach, and community involvement for English language learners.

(10) Foreign Language (Levels: PreK-6; 5-12)

(a) The following topics will be addressed on a subject matter knowledge test for the PreK-6 level:

1. Spoken and written command of a standard version of the target language (the version used by a formally educated speaker of the language).
2. Knowledge of culturally and historically significant literary and non-literary texts and authors associated with the country of origin of the target language and of one other country with which the target language may now be associated.
3. Introductory knowledge of contemporary political, social, and artistic features of the country of origin of the target language and of one other country with which the target language may now be associated.
4. Children's literature, songs, and games in the target language.
5. Characteristics of elementary reading and writing pedagogy in the target language.
6. Similarities and differences between the target language and English.
7. Theories of, and differences between, first and second language acquisition.

(b) The topics set forth in 603 CMR 7.06 (10) (a) 1., 6., and 7. and the following topics will be addressed on a subject matter knowledge test for the 5-12 level:

1. Knowledge of culturally and historically significant literary and non-literary texts and authors associated with the country of origin of the target language; literary traditions, periods, and genres.
2. Introductory knowledge of the other arts (historical traditions, genres, and major artists) associated with the country of origin of the target language.
3. Introductory knowledge of the political, social and intellectual history of the country or culture with which the target language is or was originally associated.
4. Introductory knowledge of significant literary and non-literary texts, the arts, and history of at least one other country or people with which the target language may now be associated.

(c) The following topics will be addressed on a subject matter knowledge test for American Sign Language at the PreK-6 and 5-12 grade levels:

1. Expressive and receptive fluency in American Sign Language at a level of proficiency set by the Board.
2. Knowledge of deaf history.
3. Knowledge of deaf culture.
4. Introductory knowledge of deaf art.
5. Knowledge of different literary genres; for example, children's literature, poetry, and games associated with the deaf.
6. Theories of first and second language acquisition for American Sign Language.
7. Similarities and differences in the linguistic structure of American Sign Language and English.
8. Knowledge of methods of instruction in American Sign Language.

9. Knowledge of philosophies of American Sign Language.

(11) General Science (Levels: 1-6; 5-8)

(a) The following topics will be addressed on a subject matter knowledge test for the 1-6 level:

1. Basic principles and concepts of the life sciences appropriate to the elementary school curriculum.
2. Basic principles and concepts of the physical sciences appropriate to the elementary school curriculum.
3. History and philosophy of science.
4. Safety issues related to science investigations.

(b) The topic set forth in 603 CMR 7.06 (11) (a) 3. and the following topics will be addressed on a subject matter knowledge test for the 5-8 level:

1. Intermediate knowledge of biology, chemistry, physics, earth/space science, and related mathematics.
2. Methods of research in the sciences, including laboratory techniques and the use of computers.

(12) Health/Family and Consumer Sciences (Levels: All)

(a) Human growth and development: physical (anatomy and physiology), emotional/mental, social, intellectual, and moral.

(b) Food science and nutrition.

(c) Physical fitness.

(d) Human sexuality.

(e) Disease prevention and control.

(f) First aid, safety, and injury prevention.

(g) Tobacco, alcohol, and other substance abuse prevention.

(h) Current topics in health education, including family violence, child abuse, suicide, sexually transmitted diseases (including AIDS), teen pregnancy, violence prevention, and eating disorders.

(i) Parenting skills, early childhood education, and care.

(j) Family and interpersonal relationships.

(k) Public health functions and responsibilities.

(l) Management skills for family/consumer health and finance.

(13) History (Levels: 1-6; 5-8; 8-12)

(a) The following topics will be addressed on a subject matter knowledge test for the 1-6 level:

1. United States history from the age of exploration to the Civil War.
2. World history from human beginnings and ancient and classical civilizations of the Mediterranean area; and English and Western European history through the Enlightenment.
3. Geography: major physical features of the world and key concepts of geography.
4. Basic economic principles and concepts.
5. United States political principles, institutions, and processes, their history and development.
6. Major developments and figures in Massachusetts history.

(b) The following topics will be addressed on a subject matter knowledge test for the 5-8 and 8-12 levels:

1. United States History: indigenous people of North America; European settlements and colonies; the American Revolution; expansion, reform, and economic growth of the United States up to the Civil War; the Civil War and Reconstruction; European immigration, industrialization, and scientific and technological progress; the two World Wars; and the United States from 1945 to the present.
2. World History: human beginnings and early civilizations (Africa, Mesopotamia, Phoenicia, Egypt, India, China); roots of Western civilization (Israel, Greece, Rome); English and Western European history; Renaissance and the age of exploration; development of Asia, Africa, and South America; age of revolutionary change in Europe; the world in the era of two World Wars; and the world from 1945 to the present.
3. Geography.
 - a. Major physical features of the world.
 - b. Key concepts of geography and its effects on various peoples.
4. Economics.
 - a. Fundamental economic concepts and economic reasoning.
 - b. American economic history.
5. Government.
 - a. Principles of American government and the Founding Documents of the United States.
 - b. Comparative government.
6. History and Philosophy of Science.
7. Methods and Sources for Research in History.

(14) Instructional Technology (Levels: All)

(a) The following topics will be addressed on a test of subject matter knowledge:

1. Technology tools for word processing, databases, spreadsheets, print/graphic utilities, multi-and hypermedia, presentations, videos for the purpose of formal and informal assessment, instruction, and administration for professional and instructional use.
2. Communications and research tools such as email, World Wide Web, web browsers and other online applications that link to the state standards and requirements, for professional and instructional use.
3. Criteria for selection, evaluation, and use of appropriate computer/technology based materials to support a variety of instructional methods.
4. Ethical and social issues surrounding privacy, copyright, and crime relating to educational technology and resources.

(b) The following topics shall be included in an approved program but will not be addressed on a test of subject matter knowledge:

1. Use of resources for adaptive/assistive devices that provide access for all students.
2. Methods to support classroom teachers and other school personnel in improving student learning through appropriate use of technology in the classroom, including consultation techniques and professional development.

(15) Latin and Classical Humanities (Levels: 5-12)

(a) Selections commonly read in secondary schools from the works of Cicero, Caesar, Catullus, Vergil, Horace, Ovid, and Pliny the Younger in the original Latin.

(b) How English words are derived and formed from Greek and Latin prefixes, bases, and suffixes,

and the influence of Greek and Latin on the technical vocabulary of the arts, sciences, and professions (medical and legal).

(c) Works of Greek literature in translation including Herodotus, Homer, Plato, Sappho, Thucydides, and the four major dramatists.

(d) Culture and history of ancient Greece and Rome, with emphasis on those elements that contributed to the foundation of modern Western civilization, including:

1. Major myths and legends.
2. Significant characteristics of classical art, architecture, and technology.
3. Major genres of literature.
4. Political, social, and economic institutions.

(e) Linguistics and theories of classical language acquisition.

(f) Methods of research and criticism as they apply to the study of Latin and classical humanities.

(g) Basic reading knowledge of the Greek language as demonstrated by ability to translate from the first book of Homer's Iliad or from Plato's Apology.

(h) Knowledge of grammar and syntax of classical Latin.

(16) Library (Levels: All)

(a) Characteristics, uses, and design of information systems, for standard reference sources and appropriate technologies.

(b) Selection, acquisition, organization, and maintenance of information resources.

(c) Appropriate equipment for using information resources.

(d) Development, organization, management, and evaluation of school library media programs and resource centers.

(e) Literature for children and young adults.

(f) Selection, adaptation, and production of instructional materials.

(g) Federal and state laws and regulations pertaining to media, including those governing access to and reproduction of materials.

(h) Ethical issues affecting library media services.

(i) Community and governmental resources.

(17) Mathematics (Levels: 1-6; 5-8; 8-12)

(a) The following topics will be addressed on a subject matter knowledge test for the 1-6 level:

1. Basic principles and concepts related to elementary school mathematics in the areas of number sense and numeration, patterns and functions, geometry and measurement, and data analysis.
2. Algebra.
3. Euclidean geometry.

(b) The following topics will be addressed on a subject matter knowledge test for the 5-8 level:

1. Algebra.
2. Euclidean geometry.
3. Trigonometry.
4. Discrete/finite mathematics.
5. Introductory calculus through integration.
6. History of mathematics.

(c) The topics set forth in 603 CMR 7.06 (17) (b) and the following topics will be addressed on a subject matter knowledge test for the 8-12 level:

1. Abstract algebra.

2. Number theory.
3. Calculus through differential equations.
4. Probability and statistics.
5. Non-Euclidean and transformational geometries.
6. Applied mathematics or mathematics modeling.

(18) Middle School: Humanities (English and History) (Levels: 5-8)

(a) English

1. Literature
 - a. American literature including the Colonial Period; the Revolutionary Period; American Romanticism and the American Renaissance (to include Hawthorne, Emerson, Melville, Whitman, and Thoreau); the Civil War and the post-war period; and fiction, poetry, and drama from the early 20th century to the present.
 - b. World literature including British literature (including the Anglo-Saxon period, the Middle Ages, the Renaissance, the Restoration and the 18th century, the Romantic Period, the Victorian Period, and the 20th century) and other European literature; literature of Africa, Latin America and Asia; Ancient Greek and Roman literature; the Bible as literature; world myths and folktales.
 - c. Characteristics of the different genres of literature.
2. Language.
 - a. History and structure of the English language.
 - b. Knowledge of the rules and conventions of standard written and spoken English.
3. Rhetoric and Composition.
 - a. Principles of classical rhetoric.
 - b. Similarities and differences between oral and written communication.

(b) History.

1. United States History: indigenous people of North America; European settlements and colonies; the American Revolution; expansion, reform, and economic growth of the United States up to the Civil War; the Civil War and Reconstruction; European immigration, industrialization, and scientific and technological progress; the two World Wars; and the United States from 1945 to the present.
2. World History: human beginnings and early civilizations (Africa, Mesopotamia, Phoenicia, Egypt, India, China); roots of Western Civilization (Israel, Greece, Rome); English and Western European history; Renaissance and the age of exploration; age of revolutionary change in Europe; development of Asia, Africa, and South America; the world in the era of two World Wars; and the world from 1945 to the present.
3. Geography.
 - a. Major physical features of the world.
 - b. Key concepts of geography and its effects on various peoples.
4. Economics.
 - a. Fundamental economic concepts and economic reasoning.
 - b. American economic history.
5. Government: Principles of American government and the founding documents of the United States.
6. Methods and Sources for Research in History.

(c) Reading theory, research, and practice at the middle school level.

(19) Middle School: Mathematics/Science (Levels: 5-8)

(a) General Science.

1. Intermediate knowledge of biology, chemistry, physics, earth/space science, and related mathematics.
2. History and philosophy of science.
3. Methods of research in the sciences, including laboratory techniques and the use of computers.

(b) Mathematics.

1. Algebra.
2. Euclidean geometry.
3. Trigonometry.
4. Discrete/finite mathematics.
5. Introductory calculus through integration.
6. History of mathematics.

(c) Reading theory, research, and practice at the middle school level.

(20) Music: Vocal/Instrumental/General (Levels: All)

(a) The following topics will be addressed on the test of subject matter knowledge:

1. Traditional Western music theory and harmony.
2. Score reading and musical analysis.
3. Music history and literature, including the following:
 - a. Western (European) - early Gregorian chant to present.
 - b. American music - 1650 to present (including ethnic folk, jazz, Broadway, and classic streams).
 - c. Introductory knowledge of at least two other musical traditions with contrasting compositional and performance characteristics and genres.
4. Music criticism: analysis and critique of musical works and performance.
5. Knowledge of at least one special approach to music education for students, such as Orff Schulwerk, Kodály, Dalcroze, Suzuki, Gordon.
6. Musical development in children and adolescents.
7. Introductory knowledge of choral literature and conducting techniques.
8. Introductory knowledge of instrumental literature and conducting techniques.

(b) The following topics shall be included in an approved program but will not be addressed on the test of subject matter knowledge:

1. Singing skills and basic vocal production.
2. Sight singing and music reading, using standard notation.
3. Intermediate level of keyboard proficiency.
4. Use of technologies in music.
5. Advanced vocal proficiency.
6. Choral methods for treble, changing, and high school voices.
7. Advanced instrumental proficiency on one instrument.
8. Instrumental methods on strings, woodwinds, brass, percussion.

(21) Physical Education (Levels: PreK-8; 5-12)

- (a) Principles of developmentally sound physical health and fitness.
- (b) Lifespan growth, development, and nutrition.
- (c) History and foundations of kinesiology.
- (d) Range of appropriate play and sports for PreK-12 and the relevant motor skills.
- (e) Knowledge of appropriate physical and safety limitations, legal standards, tort liability, and first aid and Cardiac Pulmonary Resuscitation (CPR).
- (f) Knowledge of adaptations for students with disabilities.

(22) Physics (Levels: 5-8; 8-12)

- (a) Mechanics (including fluid mechanics).
- (b) Heat, heat transfer, and thermodynamics.
- (c) Kinetic theory of gases.
- (d) Light and geometric optics.
- (e) Electricity and magnetism.
- (f) Waves (sound and light).
- (g) The atom: its structure and the nucleus (including nuclear reactions).
- (h) Quantum theory of the atom.
- (i) Quantum theory of light.
- (j) Engineering and technical application of physics.
- (k) Related aspects of biology, chemistry, earth science and mathematics, such as trigonometry, vector analysis, and calculus.
- (l) History and philosophy of science.
- (m) Methods of research in the sciences, including laboratory techniques and the use of computers.

(23) Political Science/Political Philosophy (Levels: 5-8; 8-12)

- (a) Civics and Government.
 - 1. The founding documents of the United States and Massachusetts.
 - 2. American government and politics.
 - 3. Comparative government.
 - 4. Theories of political science or philosophy.
 - 5. International relations.
- (b) History.
 - 1. United States history.
 - 2. Western civilization.
 - 3. World history.
- (c) Geography.
 - 1. Major physical features of the world.
 - 2. Key concepts of geography and its effects on various peoples.
- (d) Economics.
 - 1. Fundamental economic concepts and economic reasoning.
 - 2. American economic history.
- (e) Methods and sources for research in the social sciences.

(24) Speech (Levels: All)

- (a) Classical, modern, and contemporary theories of rhetoric.
- (b) Role of oratory, public argument, and debate in democratic societies.
- (c) History of the public speaking lecture circuits of the 19th century.
- (d) Important orations in American history through the 20th century (including speeches made in other countries that have had an impact on American history).
- (e) How to compose and deliver a public speech.
- (f) Rules of evidence that should govern persuasive messages.
- (g) Persuasive techniques used by professional persuaders.
- (h) Parliamentary procedure and other essential elements in conducting meetings.
- (i) Structure of oral English, standard English usage, and appropriate speech in variety of situations.
- (j) Requirements for critical listening and responding to messages.
- (k) United States Supreme Court decisions on freedom of speech.
- (l) Strategies for managing fear of public speaking.

(25) Teacher of Students with Moderate Disabilities (Levels: PreK-8; 5-12)

(a) Teachers seeking a license as a teacher of students with moderate disabilities for PreK-8 must meet the requirements set forth in 603 CMR 7.06 (25) (b) (c) and (d); those seeking this license for 5-12 must meet the requirements set forth in 603 CMR 7.06 (25) (b) and (d) and pass either the General Curriculum test or a subject matter test in one of the following academic subjects: English, mathematics, science (biology, chemistry, earth science, general science, and physics), history, middle school humanities, middle school mathematics/science, or political science/political philosophy at the 5-8 or 8-12 grade level.

(b) The following topics will be addressed on the Foundations of Reading test:

1. Reading theory, research, and practice.
 - a. Knowledge of the significant theories, approaches, practices, and programs for developing reading skills and reading comprehension.
 - b. Phonemic awareness and phonics: principles, knowledge, and instructional practices.
 - c. Diagnosis and assessment of reading skills using standardized, criterion-referenced, and informal assessment instruments.
2. Development of a listening, speaking, and reading vocabulary.
3. Theories of the relationships between beginning writing and reading.
4. Theories of first and second language acquisition and development.

(c) The following topics will be addressed on the General Curriculum test:

1. English.
 - a. Children's and young adult literature.
 - b. Adult literature, classical and contemporary works.
 - c. Genres, literary elements, and literary techniques.
 - d. Nature, history, and structure of the English language: lexicon and grammar.
 - e. Approaches and practices for developing skill in using writing tools.
 - f. Writing process and formal elements of writing and composition.
2. Mathematics.
 - a. Basic principles and concepts important for teaching elementary school mathematics in the following areas:

- i. Number and operations (the foundation of topics in 603 CMR 7.06 (7) (b) 2. a. ii. - iv.).
 - ii. Functions and algebra.
 - iii. Geometry and measurement.
 - iv. Statistics and probability.
 - b. Candidates shall demonstrate that they possess both fundamental computation skills and comprehensive, in-depth understanding of K-8 mathematics. They must demonstrate not only that they know how to do elementary mathematics, but that they understand and can explain to students, in multiple ways, why it makes sense.
 - c. The Commissioner, in consultation with the Chancellor of Higher Education, shall issue guidelines for the scope and depth of knowledge expected in mathematics, described in 603 CMR 7.06 (7) (b) 2 a. and b.
- 3. History and Social Science.
 - a. Major developments and figures in Massachusetts and U.S. history from colonial times to the present.
 - b. Major developments and figures in world history, with stress on Western civilization.
 - c. Basic economic principles and concepts.
 - d. Basic geographical principles and concepts.
 - e. U.S. political principles, ideals, founding documents, institutions, and processes, their history and development.
- 4. Science and Technology/Engineering.
 - a. Basic principles and concepts of the life sciences appropriate to the elementary school curriculum.
 - b. Basic principles and concepts of the physical sciences appropriate to the elementary school curriculum.
 - c. Principles and procedures of scientific inquiry.
 - d. History of major scientific and technological discoveries or inventions.
 - e. Safety issues related to science investigations.

(d) The following topics shall be included in an approved program but will not be addressed on a written test of subject matter knowledge:

- 1. Educational terminology for students with mild to moderate disabilities.
- 2. Preparation, implementation, and evaluation of Individualized Education Programs (IEPs).
- 3. Design or modification of curriculum, instructional materials, and general education classroom environments for students with moderate disabilities.
- 4. Instruction on the appropriate use of augmentative and alternative communication and other assistive technologies.
- 5. Ways to prepare and maintain students with disabilities for general education classrooms; for example, use of behavioral management principles.
- 6. Knowledge of services provided by other agencies.
- 7. Federal and state laws and regulations pertaining to special education.
- 8. Science laboratory work.
- 9. Child development.
 - a. Basic theories of cognitive, social, emotional, language, and physical development from childhood through adolescence.
 - b. Characteristics and instructional implications of moderately and severely disabling conditions.

(26) Teacher of Students with Severe Disabilities (Levels: All)

(a) The following topics will be addressed on the General Curriculum test:

1. English.
 - a. Children's and young adult literature.
 - b. Adult literature, classical and contemporary works.
 - c. Genres, literary elements, and literary techniques.
 - d. Nature, history, and structure of the English language: lexicon and grammar.
 - e. Approaches and practices for developing skill in using writing tools.
 - f. Writing process and formal elements of writing and composition.
2. Mathematics.
 - a. Basic principles and concepts important for teaching elementary school mathematics in the following areas:
 - i. Number and operations (the foundation of topics in 603 CMR 7.06 (7) (b) 2. a. ii. - iv.).
 - ii. Functions and algebra.
 - iii. Geometry and measurement.
 - iv. Statistics and probability.
 - b. Candidates shall demonstrate that they possess both fundamental computation skills and comprehensive, in-depth understanding of K-8 mathematics. They must demonstrate not only that they know how to do elementary mathematics, but that they understand and can explain to students, in multiple ways, why it makes sense.
 - c. The Commissioner, in consultation with the Chancellor of Higher Education, shall issue guidelines for the scope and depth of knowledge expected in mathematics, described in 603 CMR 7.06 (7) (b) 2 a. and b.
3. History and Social Science.
 - a. Major developments and figures in Massachusetts and U.S. history from colonial times to the present.
 - b. Major developments and figures in world history, with stress on Western civilization.
 - c. Basic economic principles and concepts.
 - d. Basic geographical principles and concepts.
 - e. U.S. political principles, ideals, founding documents, institutions, and processes, their history and development.
4. Science and Technology/Engineering.
 - a. Basic principles and concepts of the life sciences appropriate to the elementary school curriculum.
 - b. Basic principles and concepts of the physical sciences appropriate to the elementary school curriculum.
 - c. Principles and procedures of scientific inquiry.
 - d. History of major scientific and technological discoveries or inventions.
 - e. Safety issues related to science investigations.

(b) The following topics shall be included in an approved program but will not be addressed on a test of subject matter knowledge:

1. Definitions, etiologies, and characteristics of severely disabling conditions.
2. Theories, concepts, and methods of assessing physical, emotional, intellectual, and social development in children and adolescents.
3. Theories of language development and the effects of disabilities on learning.

4. Reading.
 - a. Reading theory, research, and practice.
 - i. Knowledge of the significant theories, practices, and programs for developing reading skills and reading comprehension.
 - ii. Phonemic awareness and phonics: principles, knowledge, and instructional practices.
 - iii. Diagnosis and assessment of reading skills using standardized, criterion-referenced, and informal assessment instruments.
 - b. Development of a listening, speaking, and reading vocabulary.
 - c. Theories on the relationships between beginning writing and reading.
 - d. Theories of first and second language acquisition and development.
5. Preparation, implementation, and evaluation of Individualized Education Programs (IEPs).
6. How to design or modify curriculum, instructional materials, and classroom environments for students with severe disabilities.
7. Ways to prepare and maintain students with severe disabilities for general education classrooms; for example, use of behavioral management principles.
8. Knowledge of services provided by other agencies.
9. Knowledge of appropriate vocational or alternative school programs, or work-study and community-based opportunities and alternative high school programs and how to refer students to them.
10. Federal and state laws pertaining to special education.
11. Techniques for developing skills designed to facilitate placement in least restrictive environments.
12. Instruction on the appropriate use of augmentative and alternative communication and other assistive technologies.
13. Source and operation of orthotic devices, medical technologies, and computer-moderated prosthetic devices.

(27) Teacher of the Deaf and Hard-of-Hearing: American Sign Language/Total Communication or Oral/Aural (Levels: All)

(a) The following topics will be addressed on the General Curriculum test:

1. English.
 - a. Children's and young adult literature.
 - b. Adult literature, classical and contemporary works.
 - c. Genres, literary elements, and literary techniques.
 - d. Nature, history, and structure of the English language: lexicon and grammar.
 - e. Approaches and practices for developing skill in using writing tools.
 - f. Writing process and formal elements of writing and composition.
2. Mathematics.
 - a. Basic principles and concepts important for teaching elementary school mathematics in the following areas:
 - i. Number and operations (the foundation of topics in 603 CMR 7.06 (7) (b) 2. a. ii. - iv.).
 - ii. Functions and algebra.
 - iii. Geometry and measurement.
 - iv. Statistics and probability.

- b. Candidates shall demonstrate that they possess both fundamental computation skills and comprehensive, in-depth understanding of K-8 mathematics. They must demonstrate not only that they know how to do elementary mathematics, but that they understand and can explain to students, in multiple ways, why it makes sense.
 - c. The Commissioner, in consultation with the Chancellor of Higher Education, shall issue guidelines for the scope and depth of knowledge expected in mathematics, described in 603 CMR 7.06 (7) (b) 2 a. and b.
3. History and Social Science.
- a. Major developments and figures in Massachusetts and U.S. history from colonial times to the present.
 - b. Major developments and figures in world history, with stress on Western civilization.
 - c. Basic economic principles and concepts.
 - d. Basic geographical principles and concepts.
 - e. U.S. political principles, ideals, founding documents, institutions, and processes, their history and development.
4. Science and Technology/Engineering.
- a. Basic principles and concepts of the life sciences appropriate to the elementary school curriculum.
 - b. Basic principles and concepts of the physical sciences appropriate to the elementary school curriculum.
 - c. Principles and procedures of scientific inquiry.
 - d. History of major scientific and technological discoveries or inventions.
 - e. Safety issues related to science investigations.

(b) The following topics shall be included in an approved program but will not be addressed on a written test of subject matter knowledge:

1. Theories of language acquisition for American Sign Language (ASL) and English in hearing and deaf and hard-of-hearing children.
2. Theories on the relationship between ASL and the English language.
3. Similarities and differences in the linguistic structure of ASL and English.
4. Benefits and limitations of ASL, spoken English, and printed English for learning, and the instructional strategies for using them.
5. Knowledge of how deaf people live their daily lives.
6. Historical and current developments in deaf education in the United States and other countries.
7. Features of family support and services.
8. Similarities and differences between hearing and deaf and hard-of-hearing students in emotional, social, and intellectual development.
9. Ways to prepare deaf and hard-of-hearing students for classrooms ranging from general education classrooms to schools for the deaf and hard of hearing.
10. Design or modification of the curriculum and instructional materials for the deaf and hard-of-hearing.
11. Modifications of theories of reading for hearing children necessary for the learning of reading by deaf and hard-of-hearing children.
12. General and specific effects of hearing loss upon the production of speech and the reception of speech and other sounds.

13. General and specific effects of visual processing and reception of a visual language and its acquisition.
14. Anatomy and physiology of human speech, hearing, and language mechanisms.
15. Knowledge of state-of-the-art diagnostic instruments; procedures for testing and interpreting results.
16. Characteristics of types of amplification equipment and their uses by teachers and students.
17. Medical, social, ethical, and educational research relating to the deaf and hard-of-hearing, including the effects of cochlear implants on language learning.
18. Preparation, implementation, and evaluation of Individualized Education Programs (IEPs).
19. Federal and state laws pertaining to special education.
20. Science laboratory work.
21. Child development.
 - a. Basic theories of cognitive, social, emotional, language, and physical development from childhood through adolescence.
 - b. Characteristics and instructional implications of moderately and severely disabling conditions.

(c) For the Teacher of the Deaf and Hard-of-Hearing: American Sign Language/Total Communication. Passing score on a test of sign language proficiency approved by the Department.

(d) For the Teacher of the Deaf and Hard of Hearing: Oral/Aural. Passing score on the Foundations of Reading test.

(28) Teacher of the Visually Impaired (Levels: All)

(a) The following topics will be addressed on the General Curriculum test:

1. English.
 - a. Children's and young adult literature.
 - b. Adult literature, classical and contemporary works.
 - c. Genres, literary elements, and literary techniques.
 - d. Nature, history, and structure of the English language: lexicon and grammar.
 - e. Approaches and practices for developing skill in using writing tools.
 - f. Writing process and formal elements of writing and composition.
2. Mathematics.
 - a. Basic principles and concepts important for teaching elementary school mathematics in the following areas:
 - i. Number and operations (the foundation of topics in 603 CMR 7.06 (7) (b) 2. a. ii. - iv.).
 - ii. Functions and algebra.
 - iii. Geometry and measurement.
 - iv. Statistics and probability.
 - b. Candidates shall demonstrate that they possess both fundamental computation skills and comprehensive, in-depth understanding of K-8 mathematics. They must demonstrate not only that they know how to do elementary mathematics, but that they understand and can explain to students, in multiple ways, why it makes sense.
 - c. The Commissioner, in consultation with the Chancellor of Higher Education, shall issue guidelines for the scope and depth of knowledge expected in mathematics, described in 603 CMR 7.06 (7) (b) 2. a. and b.

3. History and Social Science.
 - a. Major developments and figures in Massachusetts and U.S. history from colonial times to the present.
 - b. Major developments and figures in world history, with stress on Western civilization.
 - c. Basic economic principles and concepts.
 - d. Basic geographical principles and concepts.
 - e. U.S. political principles, ideals, founding documents, institutions, and processes, their history and development.
4. Science and Technology/Engineering.
 - a. Basic principles and concepts of the life sciences appropriate to the elementary school curriculum.
 - b. Basic principles and concepts of the physical sciences appropriate to the elementary school curriculum.
 - c. Principles and procedures of scientific inquiry.
 - d. History of major scientific and technological discoveries or inventions.
 - e. Safety issues related to science investigations.

(b) The following topics will be addressed on the Foundations of Reading test:

1. Reading theory, research, and practice.
 - a. Knowledge of the significant theories, practices, and programs for developing reading skills and reading comprehension.
 - b. Phonemic awareness and phonics: principles, knowledge, and instructional practices.
 - c. Diagnosis and assessment of reading skills using standardized, criterion-referenced, and informal assessment instruments.
2. Development of a listening, speaking, and reading vocabulary.
3. Theories on the relationships between beginning writing and reading.
4. Theories of first and second language acquisition and development.

(c) The following topics shall be included in an approved program but will not be addressed on a written test of subject matter knowledge:

1. Similarities and differences between visually impaired and non-visually impaired children in emotional, social, physical, and intellectual development.
2. Anatomy and physiology of the eye and visual abnormalities.
3. Historical and current developments in education of the visually impaired in the United States and other countries.
4. How to use state-of-the-art diagnostic information.
5. Medical and educational research related to the visually impaired.
6. Use of Grade II Braille and the Nemeth Code.
7. Use of assistive technology such as low-vision devices.
8. Design or modification of the curriculum and instructional materials for the visually impaired.
9. Ways to prepare visually impaired students for, classrooms ranging from general education classrooms to schools for the visually impaired.
10. Features of family support and services.
11. Preparation, implementation, and evaluation of Individualized Education Programs (IEPs).
12. Federal and state laws pertaining to special education.
13. Science laboratory work.
14. Child development.

- a. Basic theories of cognitive, social, emotional, language, and physical development from childhood through adolescence.
- b. Characteristics and instructional implications of moderately and severely disabling conditions.

(29) Technology/Engineering (Levels: 5-12)

- (a) Nature of engineering and technology systems.
- (b) Engineering concepts in specific fields: manufacturing, construction, communication, power, energy, and transportation technologies.
- (c) Engineering design and technology development process.
- (d) How to use tools, machinery, and materials properly and safely.
- (e) Environmental effects of engineering/technology.
- (f) Skill in technical reading and writing.
- (g) Requisite topics in mathematics and physical sciences.

(30) Theater (Levels: All)

- (a) Principles of acting, including improvisation methods, styles, and techniques for developing voice, movement and characterization.
- (b) Principles of dramatic structure and processes of playwriting, playmaking, and adaptation of literary works for the theater.
- (c) Fundamentals of directing, including selection of material, script analysis, and techniques and procedures for rehearsing and staging theatrical works.
- (d) Basics of stage and theater management.
- (e) Knowledge of theater production, including principles of design and basic tools and techniques of technical theater.
- (f) American dramatic literature in the 20th century.
- (g) British, European, and classical Greek dramatic literature: historical periods, major stylistic traditions, major works and writers.
- (h) History of drama.
- (i) Introductory knowledge of other world drama in its cultural and historical contexts.
- (j) Theater criticism: analysis and critique of works of theater and dramatic literature.
- (k) Knowledge of theater for young audiences and dramatic literature for children.
- (l) Appropriate practices in drama and theater education for children.
- (m) Artistic development of children and adolescents in the theater arts.

(31) Visual Art (Levels: PreK-8; 5-12)

- (a) Elements of art and the principles of design.
- (b) Methods, materials, and techniques unique to the visual arts in: drawing, painting, sculpture, printmaking, collage, crafts, photography, film, and electronic technologies.
- (c) Observation, abstraction, invention, and representation in visual art.
- (d) Theories of artistic creativity and aesthetics; philosophies of prominent artists and art educators.
- (e) Art criticism: concepts of style and stylistic change.
- (f) Artistic development in children and adolescents.
- (g) Major developments, periods, and artists in Western traditions in art and architecture.
- (h) Major developments, periods, and artists in American art and architecture from *circa* 1650 to the present.
- (i) Characteristics of art and architecture in two non-Western artistic traditions stylistically different

from each other.

(j) Influences of non-Western artistic traditions on Western art; influences of Western art on non-Western artistic traditions.

7.07: Specialist Teacher Licenses

For candidates who were prepared outside Massachusetts, see 603 CMR 7.05 (5). [Route 5 – Reciprocity]

(1) Academically Advanced (Levels: PreK-8)

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3. The topics set forth in 603 CMR 7.06 (18) (a) and (b) and 603 CMR 7.06 (19) (a) and (b), together with the following topics, will be addressed on the test of subject matter knowledge:
 - a. Knowledge of ways to adapt curricular content from higher grade levels, especially in science and mathematics, for academically advanced students in lower grade levels.
 - b. Design and implementation of accelerated curricula providing conceptual understanding for academically advanced students in mixed ability classrooms that enable them to engage in sustained study in a content area appropriate to their learning pace.
4. The following topics shall be included in an approved program but will not be addressed on a test of subject matter knowledge:
 - a. Knowledge of curricular content in all the Massachusetts Curriculum Frameworks for PreK-10, with emphasis on either science and mathematics or the humanities.
 - b. Emotional, social, and cognitive development and needs of academically advanced students.
 - c. Design and implementation of accelerated curricula providing conceptual understanding for academically advanced students in groups (pullout grouping, cluster grouping, cross-graded classes, full-time ability grouping, regrouping for specific instruction).
 - d. Knowledge of research on issues related to the education of academically advanced students.
 - e. Knowledge of federal and state laws on education for the academically advanced.

(2) Reading (Levels: All)

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- a. Knowledge of the significant theories, practices, and programs for developing reading skills and reading comprehension.
- b. Phonemic awareness and phonics: principles, knowledge, and instructional practices.
- c. History and nature of English vocabulary and of English-language dialects; development of vocabulary knowledge.
- d. Theories, research, and practices for reading instruction in the academic disciplines.
- e. Selection and use of appropriate programs, materials, and technology for reading instruction.

- f. Knowledge of, and selection criteria for, literature and informational books for children and adolescents.
- g. Screening and diagnostic instruments, their administration and use for determining student strengths and weaknesses.
- h. Knowledge and use of a variety of informal and formal reading assessments.
- i. Second language acquisition and its relationship to literacy learning.
- j. Child and adolescent development and the timing of formal reading instruction.
- k. Cognitive development in adolescence and its relationship to reading instruction.
- l. Approaches and practices for writing instruction, including assessment of writing skills and their relationship to reading.
- m. Methods to support classroom teachers and tutors in the improvement of reading instruction, including consultation techniques and professional development.

7.09: Licenses and Routes for Administrators

(5) School Business Administrator (Levels: All)

- a. Financial planning and management methods.
- b. Accounting systems.
- c. Management of federal and state appropriations for special services (e.g., special education, food, and transportation).
- d. Municipal and school finance laws and regulations.
- e. Personnel matters including contract negotiations.
- f. Purchasing and district level facilities management.
- g. Insurance.
- h. Payroll.
- i. Scheduling.

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7.11: Professional Support Personnel Licenses

(1) School Guidance Counselor (Levels: PreK-8; 5-12)

- a. Familiarity with the Curriculum Frameworks and their use in the advising responsibilities of the guidance counselor.
- b. Understanding and interpretation of Massachusetts Comprehensive Assessment System (MCAS) and other academic test results to students, teachers, and parents.
- c. Psychology of learning.
- d. Understanding of the diagnosis and treatment of learning and behavior disorders.
- e. Theories of normal and abnormal intellectual, social, and emotional development.
- f. Knowledge of strategies used for the prevention and treatment of substance abuse, physical and sexual abuse, the spectrum of mental illnesses, and violence in PreK-12 students.

- g. Philosophy, principles and practices in school guidance counseling.
- h. Federal, state, municipal, and school laws and regulations.
- i. Career counseling.
- j. Resources within the school system or the community for referral.
- k. Knowledge of statistics, research design, and research in guidance counseling.
- l. Group counseling and group leadership.
- m. Development of skills for consultation with parents, teachers, and administrators.
- n. College counseling and use of college and other post-secondary resource materials (grades 5-12).

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(4) School Social Worker/School Adjustment Counselor (Levels: All)

1. Course work and clinical experience that demonstrate knowledge of:
 - a. Principles of therapeutic relationships.
 - b. Theories of normal and abnormal intellectual, social, and emotional development.
 - c. Learning disorders, including emotional issues affecting student achievement, and their treatment.
 - d. Prevention and treatment of substance abuse, physical and sexual abuse, and violence in PreK-12 students.
 - e. Knowledge of state-of-the-art diagnostic instruments; procedures for testing and interpreting results.
 - f. Techniques for communicating and working with families and school and community personnel.
 - g. Knowledge of the criminal justice system with particular reference to the juvenile justice system and organizations.
 - h. Knowledge of medical conditions and medication related to physical disabilities and learning disorders.
 - i. Federal and state laws and regulations addressing the legal rights of students and families.