

DRAFT CHANGES TO SUBJECT MATTER KNOWLEDGE REQUIREMENTS FOR EDUCATOR LICENSURE

PUBLIC COMMENT: WWW.SURVEYGIZMO.COM/S3/3620828/DRAFT-PUBLIC-COMMENT-SMK-UPDATES

Subject matter knowledge requirements (SMKs) outline the minimum level of content and pedagogical skills Massachusetts educators are expected to hold. SMKs establish the content assessed in Massachusetts Tests for Educator Licensure ([MTEL](#)) and guide content-area coursework for educator preparation programs. SMKs are aligned to [Massachusetts curriculum frameworks](#).

Massachusetts regulation [603 CMR 7.06](#) requires a public comment period of at least thirty days prior to any changes to the guidelines where SMKs are published. More information on the 2017 proposed changes is available at [www.doe.mass.edu/edprep](http://WWW.DOE.MASS.EDU/EDPREP).

GENERAL CURRICULUM

CURRENT SUBJECT MATTER KNOWLEDGE REQUIREMENTS 2011-2016

GENERAL CURRICULUM MTEL ASSESSMENT

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.

DRAFT CHANGES TO SUBJECT MATTER KNOWLEDGE REQUIREMENTS 2017

GENERAL CURRICULUM MTEL ASSESSMENT

The following topics will be addressed on the **General Curriculum** test:

(a) Science and Technology/Engineering.

1. Life Science: Understanding of molecules to organisms: structures and processes, ecosystems: interactions energy, and dynamics, heredity: inheritance and variation of traits, and biological evolution: unity and diversity.
2. Earth and Space Science: Understanding of Earth’s place in the universe, Earth’s systems and human activity.
3. Physical Science: Understanding of matter and its interactions, motion and stability: forces and interactions, energy, and waves and their applications in technologies for information transfer.
4. Technology/Engineering: Understanding of engineering design, materials, tools, and manufacturing, and technological systems.
5. Science and Engineering practices: Understanding of the dynamic holistic process of science and engineering practices that emphasizes how scientific knowledge develops and how scientists and engineers apply these practices in their work.

(b) Mathematics.

Comprehensive conceptual understanding, procedural knowledge, and problem solving application skills of the following grade PreK-8 content domains:

1. Counting and Cardinality: Understand concepts of number including numbers as quantities and the concept of one to one correspondence.
2. Operations and Algebraic Thinking: Understand properties of operations for computing using the operations of addition, subtraction, multiplication, and division with whole numbers, integers, and fractions and understand mathematical relationships and ways of representing relationships.
3. Numbers— Base Ten and fractions: Understand the concept of place value including decimals and understand fractions and their representations on a number line.
4. The Number System: Understand rational numbers and operations with rational numbers and know number classifications such as natural, whole, rational (including integers), and/or irrational.



5. Ratios and Proportional Relationships: Understand ratios and rates and connections to fractions and understand and apply proportional reasoning to solve problems in a variety of ways.
6. Geometry: Understand properties of two and three-dimensional shapes and understand the structure of the coordinate plane and its use to solve problems including applying the Pythagorean Theorem to solve problems.
7. Measurement: Understand length, area, and volume and their units of measure for both regular and irregular two and three-dimensional shapes.
8. Functions: Understand the concept of a function and their capacity to model relationships between quantities.
9. Expressions and Equations: Understand how expressions and equations are used to solve real-life and mathematical problems and understand correspondences between equations, verbal descriptions, tables, and graphs
10. Probability and Statistics: Understand statistical variability and statistical measures used to summarize and describe distributions of data and understand random sampling and its purposes and the probability of chance events.

c. English Language Arts.

1. Children's and young adult literature and informational texts.
2. Genres, literary elements, and literary techniques.
3. Research-based instructional practices for developing skill in using technology (including alternative communications technology).
4. History and structure of the English language, conventions of Standard English, and vocabulary development using knowledge of Greek/Latin roots.
5. Research-based instructional practices for writing opinions, arguments, explanations, and narratives.
6. The writing process and formal elements of writing and composition.

(d) History and Social Science.

1. Major developments and figures in Massachusetts and U.S. history from colonial times to the present.
2. Major developments and figures in world history, with stress on Western civilization.
3. Basic economic principles and concepts.
4. Basic geographical principles and concepts.
5. U.S. political principles, ideals, founding documents, institutions, processes, and their history and development.