

VSBPE

Date: February 13, 2019

Item: Elementary Education

ITEM: Shall the VSBPE vote to approve the revised (00) Elementary Education endorsement?

AGENCY RECOMMENDED ACTION:

That the Vermont Standards Board for Professional Educators votes to approve the revised (00) Elementary Education endorsement.

BACKGROUND: On November 30, 2018, a group of Elementary Education educators, and representatives from higher education met to revise the Elementary Education endorsement. The initial group met for full day and the revision process continued remotely over a number of days with an enlarged group specifically to help with the math section. Over the course of the revision process the group referenced other state competencies in the area of elementary education, syllabi in the area of elementary education, ETS testing requirements, articles on math education and current state and national standards including: Council for the Accreditation Educator Preparation 2018 K-6 Elementary Teacher Preparation Standards, Vermont Core Teaching Standards, National Council of Teachers of Mathematics Standards,

RATIONALE: The Vermont Standards Board for Professional Educators has set to revise endorsements on a five year cycle, Elementary Education is up for revision.

Attached: Revised (00) Elementary Education DRAFT, CURRENT (00) Elementary Education, Elementary of Education Summary of Changes

5440-00 Elementary Education

(Revised March 2013, Reviewed June 2018 to revise the instructional range)

The holder is authorized to teach grades K-6. Upon the request of a Superintendent the VSBPE or office can extend the instructional range and issue a K-8 restricted license for a particular location if the individual is working in a PK/K-8 school.

~~In order to qualify for this endorsement, the candidate shall demonstrate that s/he meets the foundational standards identified in Vermont's Core Teaching Standards. The following knowledge and performance standards for the four major content areas of the elementary curriculum build on the Core Teaching Standards and require elementary teachers to develop and implement instruction that is both content specific and interdisciplinary, as appropriate. The candidate shall demonstrate the following knowledge and performance standards for four major content areas of the elementary curriculum in conjunction with the Vermont Core Teaching Standards. This requires elementary teachers to develop and implement appropriate instruction so that all students have access to a high-quality curriculum, effective teaching and learning, high expectations, and the support and resources needed to maximize their learning potential. This also requires teachers to hold themselves and their colleagues accountable for the success of every student and for their personal and collective professional growth toward effective teaching and learning. In order to qualify for this endorsement, teachers must show evidence of the following:~~

1. English Language Arts Knowledge Standards

1.1. The educator demonstrates knowledge of research-based principles and processes underlying literacy development, and the components of effective instruction, as reflected in the standards approved by the State Board of Education for students. Specifically, the educator understands:

1.1.1. Foundational Skills

- The developmental progression of print concepts phonological and phonemic awareness fluency ~~the relationship between English phonemes and their graphemes~~ phonics and word recognition
- The factors that influence fluency
- The developmental stages of spelling and morphological awareness

1.1.2. Development of Oral Language and Literacy

- ~~processes, principles, and dimensions of oral language acquisition and stages of second language acquisition; the relationship between oral language development and literacy development; the development of emergent and early literacy~~
- The development of emergent and early literacy processes principles and dimensions of oral language and stages of second language acquisition
- The impact of physical emotional and cultural factors on language development and acquisition of reading and writing the relationship between oral language development and literacy development

1.1.3. *Literature, Informational Text, and Media*

- The quantitative and qualitative dimensions used to measure text complexity levels
- Text structures genre features and critical reading strategies for text analysis
- Techniques for incorporating fine and performing arts as expressions of human emotion culture communication and as vehicles for enhancing learning opportunities across the curriculum

1.1.4. *Speaking and Listening*

- The elements of effective verbal and non-verbal communication in a variety of settings for a variety of purposes including grammar and usage point of view reasoning and effective use of evidence and rhetoric ~~and register~~

1.1.5. **Language Vocabulary Development**

- The purposes of language and approaches to analyzing language
- Vocabulary development and its relationship to literacy acquisition
- Knowledge of the distinction between general academic and domain specific vocabulary
- Strategies to determine word meaning (i.e. contextual and morphological analysis)

1.1.6. *Reading Comprehension*

- Reading as the process of constructing meaning through interactions with text factors that influence comprehension
- Typical elements and features of literature and informational texts (~~i.e., arguments, primary sources and secondary sources~~), and how readers' awareness of these features supports comprehension
- Cognitive and metacognitive strategies and instructional approaches for supporting reading comprehension ~~of beginning and developing readers~~
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1.1.7. *Written Expression*

- Writing as symbolic representation; the stages of early writing development; the writing process including appropriate planning organization and style for task purpose and audience
- The characteristics of quality writing and types of writing including but not limited to narratives informational text (~~e.g., procedures and experiments~~) and arguments focused on domain specific content
- The conventions of written English (i.e., grammar, usage, mechanics, punctuation, and spelling)
- Methods for conducting research to build and present knowledge the process of citing evidence from multiple sources ~~methods for conducting research to build and present knowledge, the process of citing evidence from multiple sources~~

2. **English Language Arts Performance Standards**

2.1. ~~The educator implements a language arts curriculum, by designing interdisciplinary units of instruction that foster interest and growth in all aspects of oral and written literacy, in order to provide~~ The educator implements a language arts curriculum that is responsive to the individual needs of students by designing interdisciplinary instruction that provides

students with the communication skills necessary to understand and influence their own lives and to learn about the world. Specifically, the educator:

2.1.1. *Foundational Skills*

- Uses a variety of explicit and interactive approaches to assess and teach foundational skills including concepts of print phonological awareness fluency phonics and word recognition
- Uses instructional strategies to help students apply skills in authentic reading and writing tasks

2.1.2. *Development of Oral Language and Literacy*

- Uses active instructional strategies to promote various dimensions of oral language development
- Facilitates conversation and collaboration

2.1.3. *Literature, Informational Text, and Media*

- Uses a wide variety of fiction and non-fiction textual materials including ~~digital text and~~ student self-selected material to increase students' motivation to read independently for information pleasure and personal growth uses multiple metrics to
- Purposefully select a wide variety of quality age-appropriate literature including complex developmentally and instructionally appropriate texts across genres eras perspectives and cultures and sub cultures
- Selects and reads quality literature and informational text aloud and applies critical thinking skills and tools of analysis to facilitate discussions of central themes and ideas within
- Integrates visual information and technology with ~~meaningful and~~ authentic reading writing speaking and listening tasks
- Teaches students how to identify and analyze ~~and judge~~ the credibility of print and non-print communications

2.1.4. *Speaking and Listening*

- Models and teaches the elements of effective verbal and non-verbal communication;
- Models and facilitates active listening conversations and collaborations
- Models effective methods of discourse for delineating and presenting an argument

2.1.5. *Vocabulary Development Language*

- Employs effective instructional strategies for the development of general academic and domain specific vocabulary to improve the quality of comprehension and communication

2.1.6. *Reading Comprehension*

- Provides explicit instruction in how to flexibly use pre-, during, and post-reading cognitive and metacognitive strategies to understand, analyze, and interpret a variety of types of texts, including complex text; use cognitive and metacognitive reading strategies flexibly to understand analyze and interpret a variety of texts
- Provides opportunities for students to respond to literature and informational text orally and in writing; cites evidence from text to support conclusions; models how to interpret author's purpose, style, point of view and rhetoric; distinguishes fact, opinion, and reasoned judgment in a text; makes connections between reading, writing, and literacy

~~across content areas~~ cite evidence from text to support conclusions when responding to literature and informational text orally and in writing

- Models how to interpret author's purpose craft point of view and rhetoric
- Provide opportunities to distinguish fact opinion and reasoned judgment in a text;
- Encourages students to makes connections between reading writing and literacy across content areas

2.1.7. *Written Expression*

- Provides ~~multiple~~ opportunities ~~for beginning writers~~ that are developmentally appropriate for writers to learn that print carries meaning to practice writing with purposefully and to apply sound-symbol relations in written tasks
- Promotes high quality writing using a variety of instructional strategies and topics to teach structures and composition
- Uses exemplars as instructional models for all types of composition (i.e. creative/narrative informational/expository and opinion/ argumentative)
- Models and teaches appropriate conventions of English
- Implements strategies to build fluency accuracy and automaticity in written communication ~~models methods of conducting short and sustained research to build and present knowledge; employs a range of instructional approaches to support writing across the content areas~~
- Models methods of conducting short and sustained research to build and present knowledge
- Employs a range of instructional approaches to support writing across the content areas
- Employs instruction in proper letter formation.

3. **Social Studies Knowledge Standards**

3.1. The educator demonstrates knowledge of the historical and social science content, concepts, and skills of history, government, geography, and economics, as reflected in the standards approved by the State Board of Education for students. Specifically, the educator ~~understands concepts and processes related to the four core disciplines within social studies and social studies inquiry, including skills related to understands: Major concepts and processes related to the four core disciplines within social studies and social studies inquiry, including skills related to developing questions and planning inquiries; applying disciplinary concepts and tools; evaluating sources and using evidence, including data; communicating conclusions; and understanding civic engagement~~

- Developing questions and planning inquiries
- Applying disciplinary concepts and tools
- Evaluating sources and using evidence including data
- Communicating conclusions
- Civic engagement

3.1.1. *History*

- Major developments and significant events and perspectives in U.S. and regional history and how they are relevant to life in the twenty-first century

- Major eras events and perspectives in the development of world civilization including the establishment and spread of major world religions; cultural diversity and influences of a culture on institutions, literature, fine and performing arts; major discoveries, and the relationship between science, engineering, technology, and social, cultural, and economic change

3.1.2. *Civics Government*

- Major concepts and processes of local and national government including features and concepts of the social contract citizenship and civic responsibility in a democratic society and how to engage in the government process and advocate for a particular cause that benefits society; major concepts and processes of government, including features and concepts of the social contract, citizenship, and civic responsibility in a democratic society; structures, functions, and purposes of different governments, including local, national and international; major features and processes of Vermont and U.S. government; and how to engage in the government process, and advocate for a particular cause that benefits society

3.1.3. *Geography*

- Major features and processes of cultural and physical geography including physical and human environmental interactions
- Map reading and creation
- Human population trends migrations
- How people of different cultural backgrounds interact with their environment family neighborhoods and communities
- Current events
- Global interconnections

3.1.3. *Economics*

- ~~Major concepts and theories of economics, including the~~ Basic principles of economic decision-making the local national and global economy and how they relate to historical and contemporary issues

4. **Social Studies Performance Standards**

4.1. ~~The educator implements history and social sciences curriculum by designing interdisciplinary units of instruction that integrate social studies skills and content and enables development of the habits of mind that support inquiry within social studies. Specifically, the educator:~~

The educator implements history and social sciences curriculum by designing interdisciplinary units of instruction that integrate social studies skills and content and enables development of the habits of mind that support inquiry within social studies specifically the educator

4.1.1. Models how historians geographers and other social scientists view research analyze and interpret the world

4.1.2. Incorporates instructional activities that enable students to make connections among themselves their classroom their community their environment and the larger world by sharing and experiencing community-based service by exploring content and texts that represent the

varied perspectives of people currently and historically by participating in the arts and by reading informational texts

4.1.3. Recognizes common historical preconceptions

- Predicts and seeks out likely student misconceptions
- Proactively plans to address and correct those misconceptions

4.1.4. Provides opportunities for students to

- Examine and interpret historical and contemporary events and issues using historical geographical and social science research methods tools and technologies including accessing and using local historical resources and data

4.1.5. Creates or adopts instructional and assessment tasks that teach students to:

- Analyze and interpret primary and secondary sources
- Identify webs of cause and effect
- Differentiate between fact opinion and interpretation
- Develop claims with supportive evidence

4.1.6. Integrates strategies for identifying and analyzing central ideas assumptions and questions in social studies resources and for seeking out and respecting multiple perspectives during social studies inquiry

5. Math Knowledge Standards

The educator demonstrates knowledge of the standards for school mathematics. These standards, cited from the National Council of Teacher of Math, describe the mathematical understanding knowledge and skills that students should acquire from prekindergarten through the grades. Each Standard consists of two to four specific goals that apply across all the grades.

5.1. Numbers and Operations

- Understand numbers ways of representing numbers relationships among numbers and number systems
- Understand meanings of operations and how they relate to one another
- Compute

5.2. Algebra

- Understand patterns relations and functions
- Represent and analyze mathematical situations and structures using algebraic symbols
- Use mathematical models to represent and understand quantitative relationships
- Analyze change in various contexts

5.3. Geometry

- Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships
- Specify locations and describe spatial relationships using coordinate geometry and other representational systems
- Apply transformations and use symmetry to analyze mathematical situations
- Use visualization spatial reasoning and geometric modeling to solve problems

5.4. Measurement

- Understand measurable attributes of objects and the units systems and processes of measurement
 - Apply appropriate techniques tools and formulas to determine measurements
- 5.5. Data and Probability
- Formulate questions that can be addressed with data and collect organize and display relevant data to answer them
 - Select and use appropriate statistical methods to analyze data
 - Develop and evaluate inferences and predictions that are based on data
 - Understand and apply basic concepts of probability

The educator demonstrates mathematical knowledge that supports the development of mathematical proficiency as characterized by conceptual understanding, procedural fluency, strategic competence, adaptive reasoning, and productive dispositions as reflected in the standards approved by the State Board of Education for students. Specifically, the educator understands:

Counting and Cardinality: pre-number concepts: non-quantified comparisons (less than, more than, the same), containment (e.g., 5 contains 3), 1 to 1 correspondence, cardinality, ordinality, and quantified comparisons

Number and Operations—Base Ten: the four operations of arithmetic and the arithmetic properties; the structure of place value notation in general and base ten notation and the use of these notations to order numbers, estimate, and represent order of magnitude; the basic number systems; whole numbers, integers, positive and negative rational numbers, and real numbers; additive, multiplicative, and proportional reasoning; computing fluently with multi-digit numbers and finding common factors and multiples; how to apply and extend previous understandings of numbers to the system of rational numbers

Number and Operations—Fractions: fractions as numbers; fraction equivalence and ordering; building fractions from unit fractions; decimal notation for fraction; comparing decimal fractions; using equivalent fractions as a strategy to add and subtract fractions; applying and extending previous understandings of multiplication and division of whole numbers and of fractions by fractions

Operations and Algebraic Thinking: algebraic notation and equation; order of operations, expression, equations and equality; functions and their relationship to modeling algebraic phenomena connected to a deep number sense; generating and analyzing patterns and relationships; applying and extending previous understanding of arithmetic to algebraic expressions; reasoning and solving one-variable equations and inequalities; representing and analyzing quantitative relationships between dependent and independent variables

Ratios and Proportional Relationships: ratio and rate concepts and use ratio and rate reasoning to solve problems

Geometry: composing and decomposing geometric figures; congruence and similarity; basic geometric figures in each dimension and key elements of these figures; planar coordinate geometry; transformational geometry; proof-making and proving conjectures about geometric shapes or relations; concepts of exploring and justifying formulas; solving real-world and mathematical problems involving area, perimeter, surface area and volume

Measurement and Data: describing and comparing measurable attributes; classifying and counting the number of objects in each category; the concept of a unit in terms of measurement; measuring and estimating lengths indirectly and by iterating length using non-standard and standard units; telling and writing time; representing and interpreting data; relating addition and subtraction to length; the nature and uses of data including the designing of an experiment; concepts of angle and measuring angles; converting like measurements within a given measurement

Probability and Statistics: basic concepts of probability and ways to represent them; appropriate types of representation and statistical calculations of data to inform and draw conclusions; statistical variability; summarizing and describing distributions

6. **Math Performance Standards**

The educator implements these standards through

6.1. Problems Solving

- Building new mathematical knowledge through problem solving
- Solving problems that arise in mathematics and in other contexts
- Applying and adapt a variety of appropriate strategies to solve problems
- Monitor and reflect on the process of mathematical problem solving

6.2. Reasoning and Sense Making

- Recognize reasoning and proof as fundamental aspects of mathematics
- Making and investigating mathematical conjectures
- Developing and evaluating mathematical arguments and justifications
- Selecting and using various types of reasoning and methods of justification

6.3. Communication

- Organizing and consolidating their mathematical thinking through communication
- Communicating their mathematical thinking coherently and clearly to peers teachers and others
- Analyzing and evaluating the mathematical thinking and strategies of others;
- Using the language of mathematics to express mathematical ideas precisely

6.4. Connections

- Recognize and use connections among mathematical ideas
- Understand how mathematical ideas interconnect and build on one another to produce a coherent whole

- Recognize and apply mathematics in contexts outside of mathematics

6.5. Representation

- Creating and using representations to organize record and communicate mathematical ideas
- Select apply and translate among mathematical representations to solve problems
- Use representations to model and interpret physical social and mathematical phenomena

The educator implements a math curriculum by designing interdisciplinary units of instruction that demonstrate proficient use of mathematical practices such as: making sense of problems and persevering in solving them, reasoning abstractly and quantitatively, constructing viable arguments and critiquing the reasoning of others, modeling with mathematics, using appropriate tools strategically, attending to precision, looking for and making use of structure, and looking for and expressing regularity in repeated reasoning. Specifically the educator:

Knowledge of Student and Content: utilizes and builds upon learners' existing mathematics knowledge, skills, understandings; encourages genuine curiosity when faced with novel mathematical situations; builds an awareness of the ways mathematical language develops, how the language used in mathematics factors in learning math for all students, as well as those who are English Language Learners; creates social learning contexts that engage learners in discussions and mathematical explorations among peers to motivate and extend learning opportunities within mathematics concepts and among disciplines

Knowledge of Content and Teaching: designs, selects and adapts worthwhile mathematics tasks and sequences of examples that support a particular learning goal; understands learning trajectories related to particular topics in mathematics and uses this knowledge to understand cultural differences as it pertains to mathematics among learners, such as algorithms or learning practices familiar to different groups of learners; predicts likely student misconceptions and proactively plans strategies to detect and correct those misconceptions within the design of student learning opportunities; supports students' learning of appropriate technical language associated with mathematics; constructs and evaluates multiple representations of mathematical ideas or processes; establishes correspondences between representations and understands the purpose and value of doing so; develops learners' abilities to give clear and coherent public mathematical (i.e. oral and written) communications in a classroom setting; models effective problem solving and mathematical practices: questioning, representing, communicating, conjecturing, making connections, reasoning and proving; self-monitors and cultivates the development of such practices in learners; uses various instructional applications of technology, judiciously, in ways that are mathematically and pedagogically grounded

Knowledge of Curriculum and Assessment: articulates a theory of mathematics teaching and learning; knows learning trajectories related to mathematical topics and uses this knowledge to sequence activities and design instructional tasks; understands the importance of careful sequencing and development of K-6 mathematical ideas, concepts, and skills; uses multiple

~~strategies, including listening to and understanding the ways students think about mathematics; selects, uses, adapts, and determines the suitability of mathematics curricula and teaching materials for particular learning aligned with local and state curriculum standards, district textbooks and district and state assessments, and makes appropriate adjustments to address gaps~~

7. Science Knowledge Standards

7.1. The educator demonstrates scientific knowledge that supports the development of scientific proficiency in both science as a body of knowledge and science as a process This includes

- The development of students' scientific thinking
- The scientific inquiry process
- The engineering design cycle and the skills of science and engineering design process and application within the following domains
 - life sciences physical sciences earth and space sciences and engineering as reflected in the standards approved by the State Board of Education for students

7.1.1. Specifically the educator understands the central practices of scientists and engineers including

- Asking questions in sciences and defining problems in engineering
- Developing and using models
- Planning and carrying out investigations
- Analyzing and interpreting data
- Using mathematics and computational thinking
- Constructing explanations in science and designing solutions in engineering
- Engaging in argument from evidence
- Obtaining evaluating and communicating information

7.1.2. How science is related to other ways of knowing including

- How science and technology affect our society
- The relationship of scientific study to contemporary historical technological and societal issues and how the concepts and processes of science pertain to current controversies

7.1.3. Crosscutting concepts across disciplines including

- Patterns
- Cause and effect
 - mechanism and explanation
 - scale proportion and quantity
 - systems and system models
 - energy and matter
 - flows cycles and conservation
 - structure and function
 - and stability and change

7.1.4. *Physical Science*

- Fundamental concepts including the structure properties and interactions of matter
- Force and motion
- Energy waves and their interactions with matter

7.1.5. *Life Science*

- Fundamental concepts including
 - The structures and processes of molecules and organisms
 - Ecosystems and their interactions energy and dynamics
 - Heredity inheritance and variation of traits
 - Biological evolution unity and diversity

7.1.6. *Earth and Space Science*

- Fundamental concepts including
 - earth's place in the universe
 - the solar system
 - earth's history
 - earth's materials and systems
 - weather and climate
 - earth and human activity

7.1.7. *Engineering and Technology Design Process and Application*

- Fundamental concepts and applications of science including
 - engineering design and design solutions
 - the interdependence and influence of science engineering and technology on society and the natural world

8. **Science Performance Standards**

8.1. The educator implements science curricula by designing interdisciplinary units of instruction that integrate skills and content and enable development of the habits of mind that support effective scientific inquiry specifically the educator

8.1.1. Models how scientists and engineers work

8.1.2. Provides opportunities for students to

- Locate appropriate resources
- Design and conduct inquiry-based open-ended scientific investigations
- Solve specific engineering challenges
- Interpret findings communicate results/solutions in words pictures and with graphical representations
- Make conclusions based on evidence

8.1.3. Designs a variety of activities so that all students use inquiry to

- Learn about the world
- Design and conduct investigations using appropriate methodology and technology
- Learn from books and other sources of information
- Communicate their findings using appropriate technology
- Reconstruct previously learned knowledge

8.1.4. Understands and maintains safe science practices including but not limited to the ethical and appropriate use and care for living organisms and scientific equipment and the safe storage use and disposal of chemicals

- 8.1.5. Recognizes common prescientific notions and preconceptions
 - Predicts likely student misconceptions and proactively plans to address and correct those misconceptions
- 8.1.6. Creates a spectrum of scientific investigations for students including simple investigations and experiments in the classroom using everyday materials field studies outside the classroom and student-designed investigations
- 8.1.7. Structures integrated lessons using crosscutting concepts

9. A minimum of a practicum or the equivalent in elementary education at both the primary (K-2) and upper elementary (3-6) instructional levels is required
10. REQUIRED TESTING: Praxis II Subject Assessment in Elementary Education – Test Code 5001 series (5002-5005)

DRAFT