

**PERFORMANCE STANDARDS  
FOR  
INITIAL CERTIFICATION PROGRAMS**

**SECONDARY MATH EDUCATION**

## PREAMBLE

### VINCENTIAN SPIRIT AND URBAN MISSION

Given that the School of Education subscribes to the Vincentian spirit and urban mission of DePaul University:

- we are committed to the improvement of pre-collegiate education, particularly in Chicago, and more generally in the Chicago metropolitan area;
- we are committed to programs which promote recognition of the dignity of every human being, especially the poor and abandoned, respect for persons, personal responsibility, appreciation of diversity, and the ongoing examination of values; and
- we are committed to fostering change in those educational and social structures and institutions that reinforce and perpetuate poverty and an inequitable distribution of resources.

These commitments permeate the performance standards expected of each student in the School of Education.

## STANDARDS

### The Candidate:

#### DIVERSITY & POSITIVE TRANSFORMATION

**Disciplinary Foundations (SOE).** Demonstrates interpretive, normative, critical understanding of educational phenomenon and/or praxis through the use of the humanities, social sciences and psychological sciences within the disciplinary foundations of education (anthropology of education, history of education, philosophy of education, psychology of education and sociology of education.).

**Transformation (SOE).** Demonstrates understanding of the human transformative dimensions of educational phenomenon and/or praxis at the level of the self and/or the social.

**Identity Development (SOE).** Understands the dynamic nature of identity development and maintain the role of individual agency in bringing about personal and social transformation.

**Understanding Differences (SOE).** Understands the multiple subjectivities and social relations of race, ethnicity, class, gender, and sexuality as they define a range of lived experiences and understand pedagogy as a project aimed at helping to realize the greatest range of possibilities for all youth irrespective of difference

#### MULTIPLE PERSPECTIVES & INQUIRY, THEORY, AND PRACTICE

**Problem Solving (ISBE math 2, NCTM 1).** Knows, understands and applies the process of mathematical problem solving.

**Reasoning and Proof (ISBE math 3, NCTM 2).** Reasons, constructs, and evaluates mathematical arguments and develop an appreciation for mathematical rigor and inquiry.

**Mathematical Communication (ISBE math 1, NCTM 3).** Communicates own mathematical thinking orally and in writing to peers, faculty and others.

**Mathematical Connections (ISBE math 4, NCTM 4).** Recognizes, uses, and makes connections between and among mathematical ideas and in contexts outside mathematics to build mathematical understanding.

**Mathematical Representation (NCTM 5).** Uses varied representations of mathematical ideas to support and deepen students' mathematical understanding.

**Number and Operations ( IPTS 1, ISBE math 6, NCTM 9).** Demonstrates computational proficiency, including a conceptual understanding of numbers, ways of representing number, relationships among number and number systems, and the meaning of operations.

**Different Perspectives on Algebra ( IPTS 1, ISBE math 8, NCTM 10).** Emphasizes relationships among quantities including functions, ways of representing mathematical relationships, and the analysis of change.

**Geometries ( IPTS 1, ISBE math 9, NCTM 11).** Uses spatial visualization and geometric modeling to explore and analyze geometric shapes, structures, and their properties.

**Calculus ( IPTS 1, ISBE math 8, NCTM 12).** Demonstrates a conceptual understanding of limit, continuity, differentiation, and integration and a thorough background in techniques and application of the calculus.

**Discrete Mathematics ( IPTS 1, ISBE math 8, NCTM 13).** Applies the fundamental ideas of discrete mathematics in the formulation and solution of problems.

**Data Analysis, Statistics, and Probability ( IPTS 1, ISBE math 10, NCTM 14).** Demonstrates an understanding of concepts and practices related to data analysis, statistics, and probability.

**Measurement ( IPTS 1, ISBE math 7, NCTM 15).** Applies and use measurement concepts and tools.

**Human Development and Learning ( IPTS 2).** Understands how children learn and develop, and can provide learning opportunities that support their intellectual, social and personal development.

**Diverse Students ( IPTS 3).** Understands how students differ in their approaches to learning and creates instructional opportunities that are adapted to diverse learners.

**Dispositions (NCTM 7).** Supports a positive disposition toward mathematical processes and mathematical learning consistent with reform in mathematics teaching and learning.

**Learning Environment ( IPTS 5).** Uses an understanding of individual and group motivation and behavior to create a learning environment that encourages positive social interaction, active engagement in learning, and self-motivation.

**Planning for Instruction. (IPTS 6).** Plans instruction based upon knowledge of subject matter, students, the community, and curriculum goals.

**Instructional Delivery (IPTS 4).** Uses a variety of instructional skills and strategies to encourage students' development of critical thinking, problem solving, and performance skills in the social sciences.

**Classroom Communication. (IPTS 7)** Uses knowledge and understanding of effective verbal, nonverbal, and media communication techniques to foster active inquiry, collaboration, and supportive interaction in the classroom

**Assessment (IPTS 8).** Understands and uses formal and informal assessment strategies to evaluate and ensure the continuous intellectual, social and physical development of the learner.

**Disabilities. (ISBE core)** Implements appropriate assessment and instruction that supports students with disabilities in mainstream/inclusive settings.

**Technology I (ISBE core tech, ISBE math 5, NCTM 6).** As appropriate for the discipline, enables students to learn about and to use technology.

**Technology II. (ISBE core tech)** Understands and uses technology to enhance his/her teaching

**Language Arts: Literacy Techniques & Strategies (ISBE Core LA 1).** Knows a broad range of literacy techniques and strategies for every aspect of communication and must be able to develop each student's ability to read, write, speak and listen to his or her potential within the demands of the discipline

**Language Arts: Modeling Literacy Skills (ISBE Core LA 2).** Models effective reading, writing, speaking, and listening skills during both direct and indirect instructional activities

**Language Arts: Instruction & Improvement (ISBE Core LA 3).** provides a variety of instructional strategies, constructive feedback, criticism, and improvement strategies to help students improve oral and written language skills

**Secondary Content Area Reading (ISBE math, science, social sci).** Understands the process of reading and demonstrates instructional abilities to teach reading in the discipline (math, science, social science & visual arts).

#### **For T&L Students**

**Inquiry (SOE).** Undertakes independent inquiry and use technology as one tool to assist him or her in the overall inquiry process

### **PERSONALISM, PROFESSIONALISM, & LIFE-LONG LEARNING**

**Collaboration (IPTS 9).** Fosters relationships with school colleagues, parents, and agencies in the larger community to support students' learning and well-being.

**Reflection and Professional Growth (IPTS 10).** Is a reflective practitioner who continually evaluates the effects of his/her choices and actions on others (students, parents, and other professionals in the learning community) and who actively seeks out opportunities to grow professionally.

**Professional Conduct (IPTS 11).** Understands education as a profession, maintains standards of professional conduct, and provides leadership to improve student learning and well-being

# PERFORMANCE STANDARDS FOR INITIAL CERTIFICATION PROGRAMS

## SECONDARY EDUCATION

### The Secondary Educator:

**Disciplinary Foundations.** Demonstrates interpretive, normative, critical understanding of educational phenomenon and/or praxis through the use of the humanities, social sciences and psychological sciences within the disciplinary foundations of education (anthropology of education, history of education, philosophy of education, psychology of education and sociology of education).

#### Indicators

##### Knowledge

- Understand one or more of the disciplinary foundations of education knowledge bases that inform the anthropological, historical, philosophical, psychological and/or sociological contexts of educational phenomenon and/or praxis.
- Understand theoretical frameworks of one or more of the disciplinary foundations of education for the interpretive study of the complexities of class, ethnic, gender, racial and/or sexual, as well as other cultural, contexts of educational phenomenon and/or praxis.
- Understand modes of educational inquiry of one or more of the disciplinary foundations of education knowledge bases: for example, anthropology, history, philosophy, psychology and/or sociology of education
- Understand the theoretical significance of past and/or present ideas, theories and/or intellectual traditions for the interpretive study of educational phenomenon and/or praxis.

##### Dispositions

- Appreciates the disciplinary foundations of education knowledge bases as a theoretical context for the interpretive study of educational phenomenon and/or praxis.
- Develop habits of using one or more of the disciplinary foundations of education's modes of educational inquiry for critically understanding educational phenomenon and/or praxis in social and cultural contexts.
- Appreciates past and/or present ideas, theories and/or intellectual traditions for the interpretive study of educational phenomenon and/or praxis.

##### Performances

- Demonstrates clarity, creativity and critical/analytical understanding in using the concepts and theories of one or more of the disciplinary foundations of education knowledge bases to address the social and cultural contexts and complexities of educational phenomenon and/or praxis.
- Demonstrates an ability to develop a systematic logical argument by using one or more of the disciplinary foundations of education knowledge bases to address the problematics of educational phenomenon and/or praxis.
- Demonstrates the ability to use the disciplinary foundations of education knowledge bases to synthesis issues and ideas related to educational phenomenon and/or praxis.

**Transformation.** Demonstrates understanding of the human transformative dimensions of educational phenomenon and/or praxis at the level of the self and/or the social.

#### Indicators

##### Knowledge

- Understand theoretical frameworks that inform an understanding of the human transformative dimensions of educational phenomenon and/or praxis at the level of the self and/or the social.

- Understand the relationship between the organizing principles of a social order and educational phenomenon and/or praxis, and the influence of that relationship on human self and/or social transformation.

### **Dispositions**

- Appreciate the significance of educational phenomenon and /or praxis as a social and cultural force in human self and/or social transformation.
- Develop habits for understanding the social and cultural dynamics that define the normative character of human self and/or social transformation as related to educational phenomenon and/or praxis.

### **Performances**

- Demonstrates clarity, creativity and critical/analytical understanding in using theoretical frameworks to understand the social and cultural complexities and contexts of educational phenomenon and/or praxis.

**Identity Development.** Understands the dynamic nature of identity development and maintain the role of individual agency in bringing about personal and social transformation.

### **Indicators**

#### **Knowledge**

- Understands that human development occurs at the intersection of the individual, social institutions, and existing social relations of power and privilege.
- Understands that social identities of race, ethnicity, class, gender, and sexuality reflect hierarchies of power and privilege.
- Understand that human development is multiple, complex, and in constant flux.
- Understands that human development involves individuals actively working to shape identities in accommodation to and resistance against existing relations and structures of power and privilege.

#### **Dispositions**

- Appreciates the diversity of identities and lived experiences
- Demonstrates commitment to educational process and practice that recognizes and addresses diverse identities, cultures, and lived experiences

#### **Performances**

- Reflects on one's own identities as they reflect broader hierarchies of power and privilege
- Integrates an appreciation for the diversity of identities, cultures, and lived experiences into curriculum
- Integrates an appreciation for the diversity of identities, cultures, and lived experiences into educational policy
- Works towards the goal of individual and collective empowerment and broader social transformation in diverse and multiple educational contexts

**Individual Differences.** Understands the multiple subjectivities and social relations of race, ethnicity, class, gender, and sexuality as they define a range of lived experiences and understand pedagogy as a project aimed at helping to realize the greatest range of possibilities for all youth irrespective of difference

### **Indicators**

#### **Knowledge**

- Understands that social relations of race, ethnicity, class, gender, and sexuality are arrangements of power and privilege that serve the interests of some groups while significantly marginalizing those of others
- Understands that individuals negotiate a diversity of identities and lived experiences
- Understands that educational contexts can both facilitate and present barriers to individual and collective expressions of difference and diversity

**Dispositions**

- Appreciates diverse identities and lived experiences

**Performances**

- Considers diverse identities, cultures, and lived experiences in the design and implementation of curriculum and teaching
- Applies the appreciation of diverse identities, cultures, and lived experiences to the design and implementation of policy

**MULTIPLE PERSPECTIVES & INQUIRY, THEORY, AND PRACTICE**

<p><b>Problem Solving.</b> Knows, understands and applies the process of mathematical problem solving.</p>
--

Indicators

**Knowledge**

- Understands the many strategies for problem solving

**Dispositions**

**Performances**

- Applies and adapt a variety of appropriate strategies to solve problems.
- Solves problems that arise in mathematics and those involving mathematics in other contexts.
- Builds new mathematical knowledge through problem solving.
- Monitors and reflects on the process of mathematical problem solving.
- Generalizes results of problems and extends them to other problem situations.
- Uses problem explorations and modeling to extend mathematical knowledge of all students.

<p><b>Reasoning and Proof.</b> Reasons, constructs, and evaluates mathematical arguments and develop an appreciation for mathematical rigor and inquiry.</p>
--

Indicators

**Knowledge**

- Understands various ways of reasoning with respect to concepts, procedures, and conjectures.
- Recognizes reasoning and proof as fundamental aspects of mathematics

**Dispositions**

- Appreciates the power of mathematical reasoning and rigor in inquiry

**Performances**

- Makes and investigates mathematical conjectures.
- Develops and evaluate mathematical arguments and proofs.
- Selects and uses various types of reasoning and methods of proof.



- Applies mathematical reasoning and appropriate technologies in the development of concepts, procedures, and conjectures.
- Generalizes reasoning skills within the study of mathematics and applies or extends them to other contexts.
- Uses mathematical arguments involving reasoning and proof to extend mathematical knowledge and encourage an appreciation for mathematical rigor and inquiry in all students.

**Mathematical Communication.** Communicates own mathematical thinking orally and in writing to peers, faculty and others.

Indicators

**Knowledge**

- Understands the dynamics of working collaboratively with others.
- Understands learning styles and learning strategies.

**Dispositions**

- Appreciates the need for coherence and clarity in mathematical communication

**Performances**

- Communicates their mathematical thinking coherently and clearly to peers, faculty, and others
- Uses the language of mathematics to express ideas precisely.
- Organizes mathematical thinking through communication.
- Analyzes and evaluates the mathematical thinking and strategies of others.
- Communicates verbally and in written, visual, and symbolic forms using appropriate technology.
- Creates effective learning environments where students will be able to work collaboratively in one-to-one, small-group, and large-group contexts.
- Analyzes the thinking and learning strategies of all students to extend mathematical knowledge.

**Mathematical Connections.** Recognizes, uses, and makes connections between and among mathematical ideas and in contexts outside mathematics to build mathematical understanding.

Indicators

**Knowledge**

- Understands the connections within the mathematics curriculum.
- Understands mathematical connections to school curriculums and to other disciplines.
- Knows the historical development of mathematics that includes contributions of men and women from various cultures.

**Dispositions**

**Performances**

- Recognizes and uses connections among mathematical ideas.
- Recognizes and applies mathematics in contexts outside of mathematics.
- Demonstrates how mathematical ideas interconnect and build on one another to produce a coherent whole.
- Develops the connections within and among the various branches of mathematics.
- Connects mathematics to other disciplines to extend the mathematical knowledge of all students

**Mathematical Representation.** Uses varied representations of mathematical ideas to support and deepen

students' mathematical understanding.

### Indicators

#### Knowledge

- Understands symbolic, numeric and graphical representations of mathematical situations
- Understands representations to model and interpret physical, social, and mathematical phenomena.
- 

#### Dispositions

#### Performances

- Uses representations to model and interpret physical, social, and mathematical phenomena.
- Creates and uses representations to organize, record, and communicate mathematical ideas.
- Selects, applies, and translates among mathematical representations to solve problems.
- Uses varied representations of mathematical ideas to support and deepen students' mathematical understanding.

**Number and Operations.** Demonstrates computational proficiency, including a conceptual understanding of numbers, ways of representing number, relationships among number and number systems, and the meaning of operations.

### Indicators

#### Knowledge

- Understands fundamental ideas of number theory
- Understands the mathematics that underlies the procedures used for operations involving integers, rational, real, and complex numbers.
- Understands complex numbers, modular systems, and matrices.
- Understands polar and vector representations of complex numbers, algebraic structures, and topics from discrete mathematics.
- Understands operations with algebraic expressions, and has knowledge of symbolic manipulators.
- Understands iterative processes as they relate to fractals and other applications.
- Understands matrices and vectors as systems that have some of the properties of the real number system.
- Knows the historical development of number and number systems including contributions from diverse cultures.

#### Dispositions

#### Performances

- Analyzes and explains the mathematics that underlies the procedures used for operations involving integers, rational, real, and complex numbers.
- Uses properties involving number and operations, mental computation, and computational estimation.
- Provides equivalent representations of fractions, decimals, and percents.
- Creates, solves, and applies proportions.
- Applies the fundamental ideas of number theory.
- Makes sense of large and small numbers and use scientific notation.
- Compares and contrasts properties of numbers and number systems.
- Represents, uses, and applies complex numbers.

**Different Perspectives on Algebra.** Emphasizes relationships among quantities including functions, ways of representing mathematical relationships, and the analysis of change.

## Indicators

### Knowledge

- Understands a wide range of modeling applications involving graphs, tree charts, and other visual representations of data with multiple dimensions.
- Understands logarithmic, parametric, trigonometric, rational, radical, and absolute value relations and their graphs.
- Understands linear algebra.
- Understands the properties of complex and modular systems and their applications.
- Understands groups, rings, integral domains, and fields.
- Knows the historical development of algebra including contributions from diverse cultures.

## Dispositions

### Performances

- Analyzes patterns, relations, and functions of one and two variables.
- Applies fundamental ideas of linear algebra.
- Applies the major concepts of abstract algebra to justify algebraic operations and formally analyze algebraic structures.
- Uses mathematical models to represent and Understands quantitative relationships.
- Uses technological tools to explore algebraic ideas and representations of information and in solving problems.
- Uses a wide range of modeling applications involving graphs and tree charts.
- Solves systems of linear equations graphically and algebraically (including matrices and determinants). Solves systems of nonlinear equations and inequalities algebraically and graphically.
- Explains and applies symbolic logic.
- Explains and applies induction and recursion.
- Explains and applies sequences and series.
- Finds and uses slope, symmetry, roots, intercepts, critical points, and vertices to construct and interpret graphs of functions and relations.
- Recognizes and uses the equations of lines, hyperbolas, parabolas, circles, ellipses, and nonlinear equations.
- Formulates, explains, and solves problems involving nonlinear equations such as variation and exponential and logarithmic growth and decay.
- Applies principles and properties of linear algebra.

<p><b>Geometries.</b> Uses spatial visualization and geometric modeling to explore and analyze geometric shapes, structures, and their properties.</p>
--

## Indicators

### Knowledge

- Understands inductive and deductive reasoning and understands the appropriate uses of different types of proof.
- Extends the understanding of proof to finite and non-Euclidean settings.
- Understands core concepts and principles of Euclidean and non-Euclidean geometries in two and three dimensions from both formal and informal perspectives.
- Understands the role of axiomatic systems and proofs in geometry.
- Understands terminology, properties of two- and three-dimensional shaper, and the relationships among them.
- Knows Euclidean and non-Euclidean geometry, coordinate geometry, graph theory, and transformational geometry and the relationships among them.

- Knows the historical development of Euclidean and non-Euclidean geometries including contributions from diverse cultures

### **Dispositions**

### **Performances**

- Analyzes characteristics and relationships of geometric shapes and structures.
- Builds and manipulates representations of two- and three- dimensional objects and visualize objects from different perspectives.
- Specifies locations and describe spatial relationships using coordinate geometry, vectors, and other representational systems.
- Applies transformations and Uses symmetry, similarity, and congruence to analyze mathematical situations.
- Uses concrete models, drawings, and dynamic geometric software to explore geometric ideas and their applications in real-world contexts.
- recognizes relationships and patterns in geometric figures.
- Uses characteristics of geometric figures including symmetry, congruence, and similarity to recognize, identify, build, draw, describe, analyze, and categorize two- and three-dimensional figures and tessellation.
- Applies geometric concepts to solve practical applications.
- Uses trigonometry to solve practical applications.
- Generates solids of revolution from two-dimensional figures.
- Applies recursion and iteration geometrically.
- Recognizes and Uses relationships that exist between algebra and geometry.
- Describes relationships of the planar sections of three-dimensional objects.
- Explains relationships that exist between transformations (including matrix representations) as a geometric equivalence of the function concept.
- Constructs inductive, deductive, and indirect arguments and explains the difference among them.
- Uses a formal axiomatic system to construct and analyze proofs.

**Calculus.** Demonstrates a conceptual understanding of limit, continuity, differentiation, and integration and a thorough background in techniques and application of the calculus.

### **Indicators**

### **Knowledge**

- Knows the historical development of calculus.
- Understands the concept of limits.
- Understands the concepts of calculus and their applications.

### **Dispositions**

### **Performances**

- Demonstrates a conceptual understanding of and procedural facility with basic calculus concepts.
- Applies concepts of function, geometry, and trigonometry in solving problems involving calculus.
- Uses the concepts of calculus and mathematical modeling to represent and solve problems taken from real-world contexts.
- Uses technological tools to explore and represent fundamental concepts of calculus.
- Demonstrates knowledge of the historical development of calculus including contributions from diverse cultures.
- Calculates and interprets basic limits.

- Illustrates the basic concepts of calculus using concrete applications.
- Uses differentiation, integration, and other concepts of calculus to solve problems and interpret results.

**Discrete Mathematics.** Applies the fundamental ideas of discrete mathematics in the formulation and solution of problems.

#### **Indicators**

#### **Knowledge**

- Knows the basic elements of discrete mathematics such as graph theory, recurrence relations, finite difference approaches, linear programming, and combinatorics.
- Understands variable relationships, logic, and concepts of discrete mathematics.
- Knows the historical development of discrete mathematics including contributions from diverse cultures.

#### **Dispositions**

#### **Performances**

- Applies the fundamental ideas of discrete mathematics in the formulation and solution of problems arising from real-world situations.
- Uses technological tools to solve problems involving the uses of discrete structures and the application of algorithms.

**Data Analysis, Statistics, and Probability.** Demonstrates an understanding of concepts and practices related to data analysis, statistics, and probability.

#### **Indicators**

#### **Knowledge**

- Understands how to create tables, graphs, charts, pictures, and other visual representations of a set of data.
- Understands simple random sampling and recognizes bias.
- Understands data trends and curves of best fit.
- Understands line of best fit.
- Understands measures of central tendency, variation, and position.
- Understands common distributions.
- Understands additional measures of central tendency and variation.
- Understands the design of observations and experiments to answer questions.
- Understands the concept of reliability and validity.
- Understands correlation and regression techniques.
- Understands the design of experiments Used in testing hypotheses.
- Understands the uses of random variables to solve problems
- Understands the link between probability theory and inferential statistics.

#### **Dispositions**

#### **Performances**

- Designs investigations, collect data, and Uses a variety of ways to display data and interpret data representations that may include bivariate data, conditional probability and geometric probability.
- Uses appropriate methods such as random sampling or random assignment of treatments to estimate population characteristics, test conjectured relationships among variables, and analyze data.
- Uses appropriate statistical methods and technological tools to describe shape and analyze spread and center.
- Uses statistical inference to draw conclusions from data.

- Identifies misuses of statistics and invalid conclusions from probability.
- Draws conclusions involving uncertainty by using hands-on and computer-based simulation for estimating probabilities and gathering data to make inferences and conclusions.
- Determines and interpret confidence intervals.
- Demonstrates knowledge of the historical development of statistics and probability including contributions from diverse cultures.
- Creates tables, graphs, charts, pictures, and other visual representations of a set of data.
- Collects simple random samples and recognizes sample bias.
- Uses visual techniques for finding, interpreting, and Applying the line of best fit.
- finds and Applies appropriate curves of best fit using technology.
- Uses measures of central tendency and variation to describe a set of data.
- Uses common distributions as appropriate to solve problems.
- Uses additional measures of central tendency and variation to describe a set of data.
- Develops a hypothesis based on a question or problem of interest and devises a plan for the collection of Uses simple survey and sampling techniques.data.
- Collects, records, organizes, displays, summarizes, and interprets data.
- Chooses an appropriate experimental design, selects and performs proper research procedures, and interprets results
- Determines probabilities involving combinations and permutations.
- Generates and interprets probability distributions for random variables.
- Links probability to inferential statistics.

<p><b>Measurement.</b> Applies and use measurement concepts and tools.</p>
--

### Indicators

#### Knowledge

- Understands trigonometric ratios and relationships.
- Understands how changing one measure of a multi-dimensional object may affect other measures.
- Understands conversion factors as they apply to dimensional analysis.
- Understands nonlinear scales
- Knows the historical development of measurement and measurement systems including contributions from diverse cultures.

### Dispositions

#### Performances

- Recognizes the common representations and uses of measurement and choose tools and units for measuring.
- Applies appropriate techniques, tools, and formulas to determine measurements and their application in a variety of contexts.
- Completes error analysis through determining the reliability of the numbers obtained from measures.
- Uses trigonometric ratios and their relationships to solve problems.
- Applies nonlinear scales (e.g., exponential and logarithmic).
- Reads and interprets topographical maps and architectural drawings.
- Applies dimensional analysis.
- Uses modeling and visualization to hypothesize about and predict measurements.

<p><b>Dispositions.</b> Supports a positive disposition toward mathematical processes and mathematical learning consistent with reform in mathematics teaching and learning and demonstrates a commitment to principles of</p>
--

excellence in mathematics teaching.

### Indicators

### Knowledge

### Dispositions

- Commitment to excellence in mathematics education through high expectations and strong support for all students.
- Commitment to excellent curriculum that is stimulating, coherent, focused on important mathematics, and well articulated across the grades.
- Commitment to excellent and effective mathematics teaching that focuses on understanding what students know and need to learn and then challenging and supporting them to learn it well.
- Commitment to student learning with understanding, particularly to actively building new knowledge from experience and prior knowledge and combining factual knowledge, procedural facility, and conceptual understanding
- Commitment to use of formative and summative assessments that is an integral part of instruction, that supports the learning of important mathematics, and furnishes useful information to both teachers and students.
- Commitment to appropriate and responsible use of technologies in teaching and learning to enhance mathematical thinking and to provide opportunities for students to learn more mathematics more deeply

### Performances

**Human Development and Learning.** Understands how children learn and develop, and can provide learning opportunities that support their intellectual, social and personal development.

### Indicators

### Knowledge

- Understands how learning occurs--how students construct knowledge, acquire skills, and develop habits of mind--and knows how to use instructional strategies that promote student learning.
- Understands the psychological principles of learning and how they apply to visual arts education.
- Understands that students' physical, social, emotional, moral and cognitive development influence learning and knows how to address these factors when making instructional decisions.
- Is aware of expected developmental progressions and ranges of individual variation within each domain (physical, social, emotional, moral and cognitive), can identify levels of readiness in learning, and Understands how development in any one domain may affect performance in others.

### Dispositions

- Appreciates individual variation within each area of development, shows respect for the diverse talents of all learners, and is committed to help them develop self-confidence and competence.
- Is disposed to use students' strengths as a basis for growth, and their errors as an opportunity for learning.

### Performances

- Assesses individual and group performance in order to design instruction that meets learners' current needs in each domain (cognitive, social, emotional, moral, and physical) and that leads to the next level of development.
- Stimulates student reflection on prior knowledge and links new ideas to already familiar ideas, making connections to students' experiences, providing opportunities for active engagement, manipulation, and testing of ideas and materials, and encouraging students to assume responsibility for shaping their learning

tasks.

- Assesses students' thinking and experiences as a basis for instructional activities by, for example, encouraging discussion, listening and responding to group interaction, and eliciting samples of student thinking orally and in writing.

**Diverse Students.** Understands how students differ in their approaches to learning and creates instructional opportunities that are adapted to diverse learners.

## Indicators

### Knowledge

- Understands and can identify differences in approaches to learning and performance, including different learning styles, multiple intelligences, and performance modes, and can design instruction that helps use students' strengths as the basis for growth.
- Knows about areas of exceptionality in learning--including learning disabilities, visual and perceptual difficulties, and special physical or mental challenges.
- Knows about the process of second language acquisition and about strategies to support the learning of students whose first language is not English.
- Understands how students' learning is influenced by individual experiences, talents, and prior learning, as well as language, culture, family and community values.
- Has a well-grounded framework for understanding cultural and community diversity and knows how to learn about and incorporate students' experiences, cultures, and community resources into instruction.

### Dispositions

- Believes that all children can learn at high levels and persists in helping all children achieve success.
- Appreciates and values human diversity, shows respect for students' varied talents and perspectives, and is committed to the pursuit of "individually configured excellence."
- Respects students as individuals with differing personal and family backgrounds and various skills, talents, and interests.
- Is sensitive to community and cultural norms.
- Makes students feel valued for their potential as people, and helps them learn to value each other.

### Performances

- Identifies and designs instruction appropriate to students' stages of development, learning styles, strengths, and needs.
- Uses teaching approaches that are sensitive to the multiple experiences of learners and that address different learning and performance modes.
- Makes appropriate provisions (in terms of time and circumstances for work, tasks assigned, communication and response modes) for individual students who have particular learning differences or needs.
- Can identify when and how to access appropriate services or resources to meet exceptional learning needs.
- Seeks to understand students' families, cultures, and communities, and uses this information as a basis for connecting instruction to students' experiences (e.g. drawing explicit connections between subject matter and community matters, making assignments that can be related to students' experiences and cultures)
- Brings multiple perspectives to the discussion of subject matter, including attention to students' personal, family, and community experiences and cultural norms.
- Creates a learning community in which individual differences are respected.

**Learning Environment.** Uses an understanding of individual and group motivation and behavior to create a learning environment that encourages positive social interaction, active engagement in learning, and self-motivation.



## **Indicators**

### **Knowledge**

- Can use knowledge about human motivation and behavior drawn from the foundational sciences of psychology, anthropology, and sociology to develop strategies for organizing and supporting individual and group work.
- Understands how social groups function and influence people, and how people influence groups.
- Knows how to help people work productively and cooperatively with each other in complex social settings.
- Understands the principles of effective classroom management and can use a range of strategies to promote positive relationships, cooperation, and purposeful learning in the classroom.
- Recognizes factors and situations that are likely to promote or diminish intrinsic motivation, and knows how to help students become self-motivated.

### **Dispositions**

- Takes responsibility for establishing a positive climate in the classroom and participates in maintaining such a climate in the school as whole.
- Is committed to the expression and use of democratic values in the classroom
- Values the role of students in promoting each other's learning and recognizes the importance of peer relationships in establishing a climate of learning.
- Recognizes the value of intrinsic motivation to students' life-long growth and learning.
- Is committed to the continuous development of individual students' abilities and considers how different motivational strategies are likely to encourage this development for each student.

### **Performances**

- Creates a smoothly functioning learning community in which students assume responsibility for themselves and one another, participate in decision making, work collaboratively and independently, and engage in purposeful learning activities.
- Engages students in individual and cooperative learning activities that help them develop the motivation to achieve, by, for example, relating lessons to students' personal interests, allowing students to have choices in their learning, and leading students to ask questions and pursue problems that are meaningful to them.
- Organizes, allocates, and manages the resources of time, space, activities, and attention to provide active and equitable engagement of students in productive tasks.
- Maximizes the amount of class time spent in learning by creating expectations and processes for communication and behavior along with a physical setting conducive to classroom goals.
- Helps the group to develop shared values and expectations for student interactions, academic discussions, and individual and group responsibility that create a positive classroom climate of openness, mutual respect, support, and inquiry.
- Analyzes the classroom environment and makes decisions and adjustments to enhance social relationships, student motivation and engagement, and productive work.
- Organizes, prepares students for, and monitors independent and group work that allows for full and varied participation of all individuals.

**Planning for Instruction. Plans instruction based upon knowledge of subject matter, students, the community, and curriculum goals.**

## **Indicators**

### **Knowledge**

- Understands learning theory, subject matter, curriculum development, and student development and knows how to use this knowledge in planning instruction to meet curriculum goals.
- Knows how to take contextual considerations (instructional materials, individual student interests, needs,

and aptitudes, and community resources) into account in planning instruction that creates an effective bridge between curriculum goals and students' experiences.

- Knows when and how to adjust plans based on student responses and other contingencies.

### **Dispositions**

- Values both long term and short term planning.
- Believes that plans must always be open to adjustment and revision based on student needs and changing circumstances.
- Values planning as a collegial activity.

### **Performances**

- As an individual and a member of a team,
- Selects and creates learning experiences that are appropriate for curriculum goals, relevant to learners, and based upon principles of effective instruction (e.g. that activate students' prior knowledge, anticipate preconceptions, encourage exploration and problem-solving, and build new skills on those previously acquired).
- Plans for learning opportunities that recognize and address variation in learning styles and performance modes.
- Creates lessons and activities that operate at multiple levels to meet the developmental and individual needs of diverse learners and help each progress.
- Creates short-range and long-term plans that are linked to student needs and performance, and adapts the plans to ensure and capitalize on student progress and motivation.
- Responds to unanticipated sources of input, evaluates plans in relation to short- and long-range goals, and systematically adjusts plans to meet student needs and enhance learning.

<p><b>Instructional Delivery.</b> Understands and uses a variety of instructional strategies to encourage students' development of critical thinking, problem solving, and performance skills.</p>
--

### **Indicators**

#### **Knowledge**

- Understands the cognitive processes associated with various kinds of learning (e.g. critical and creative thinking, problem structuring and problem solving, invention, memorization and recall) and how these processes can be stimulated.
- Understands principles and techniques, along with advantages and limitations, associated with various instructional strategies (e.g. cooperative learning, direct instruction, discovery learning, whole group discussion, independent study, interdisciplinary instruction).
- Knows how to enhance learning through the use of a wide variety of materials as well as human and technological resources (e.g. computers, audio-visual technologies, videotapes and discs, local experts, primary documents and artifacts, texts, reference books, literature, and other print resources).

- **Dispositions**

- Values the development of students' critical thinking, independent problem solving, and performance capabilities.
- Values flexibility and reciprocity in the teaching process as necessary for adapting instruction to student responses, ideas, and needs.

- **Performances**

- Carefully evaluates how to achieve learning goals, choosing alternative teaching strategies and materials to achieve different instructional purposes and to meet student needs (e.g. developmental stages, prior knowledge, learning styles, and interests).

- Uses multiple teaching and learning strategies to engage students in active learning opportunities that promote the development of critical thinking, problem solving, and performance capabilities and that help student assume responsibility for identifying and using learning resources.
- Constantly monitors and adjusts strategies in response to learner feedback.
- Varies his or her role in the instructional process (e.g. instructor, facilitator, coach, audience) in relation to the content and purposes of instruction and the needs of students.
- Develops a variety of clear, accurate presentations and representations of concepts, using alternative explanations to assist students' understanding and presenting diverse perspectives to encourage critical thinking.
- Develops a variety of clear, accurate presentations and representations of concepts, using alternative explanations to assist students' understanding and presenting diverse perspectives to encourage critical thinking.
- Uses resources (technology, materials, and physical environment) to facilitate students' learning.

**Communication. Uses knowledge and understanding of effective verbal, nonverbal, and media communication techniques to foster active inquiry, collaboration, and supportive interaction in the classroom**

### Indicators

#### Knowledge

- Understands communication theory and language development
- Understands the role of language in learning

#### Dispositions

- Is sensitive to how cultural and gender differences can affect communication in the classroom

#### Performances

- Models effective communication strategies
- Conveys information effectively
- Asks questions effectively
- Uses visual, aural, kinesthetic and nonverbal cues
- Uses oral and written discourse effectively
- Helps students develop and extend their oral and written communication skills to promote subject matter learning
- Uses variety of media tools to enrich learning opportunities

**Assessment. Understands and uses formal and informal assessment strategies to evaluate and ensure the continuous intellectual, social and physical development of the learner.**

### Indicators

#### Knowledge

- Understands the strengths and limitations of different types of assessments (e.g. observation, portfolios of student work, teacher-made tests, performance tasks, projects, student self-assessment, peer assessment, and standardized tests) to enhance her or his knowledge of learners, evaluate students' progress and performances, and modify teaching and learning strategies.
- Knows how to select, construct, and use assessment strategies and instruments appropriate to the learning outcomes being evaluated and to other diagnostic purposes.

- Understands measurement theory and assessment-related issues, such as validity, reliability, bias, and scoring concerns.

### **Dispositions**

- Values ongoing assessment as essential to the instructional process and recognizes that many different assessment strategies, accurately and systematically used, are necessary for monitoring and promoting student learning.
- Is committed to using assessment to identify student strengths and promote student growth rather than to deny students access to learning opportunities.

### **Performances**

- Uses multiple strategies, including listening to and understanding the ways students think about mathematics, to assess students' mathematical knowledge.
- Appropriately uses a variety of formal and informal assessment techniques (e.g. observation, portfolios of student work, teacher-made tests, performance tasks, projects, student self-assessments, peer assessment, and standardized tests) to enhance her or his knowledge of learners, evaluate students' progress and performances, and modify teaching and learning strategies.
- Solicits and uses information about students' experiences, learning behavior, needs, and progress from parents, other colleagues, and the students themselves.
- Uses assessment strategies to involve learners in self-assessment activities, to help them become aware of their strengths and needs, and to encourage them to set personal goals for learning.
- Evaluates the effect of class activities on both individuals and the class as a whole, collecting information through observation of classroom interactions, questioning, and analysis of student work.
- Monitors his or her own teaching strategies and behavior in relation to student success, modifying plans and instructional approaches accordingly.
- Maintains useful records of student work and performance and can communicate student progress knowledgeably and responsibly, based on appropriate indicators, to students, parents, and other colleagues.

**Disabilities.** Implements appropriate assessment and instruction that supports students with disabilities in mainstream/inclusive settings.

### **Indicators**

#### **Knowledge**

- Knows the implications of various disabilities on human development and learning
- Knows legal provisions for assessment, planning, and instruction for students with disabilities
- Knows techniques for assessment and instruction of students with disabilities

#### **Dispositions**

- Demonstrates commitment to helping students with disabilities achieve to their highest educational and quality of life potential.

#### **Skills**

- Adapts curriculum and uses instructional strategies, materials, and assistive equipment/technology according to the characteristics of the learner.
- Creates a positive climate and promotes social interaction between disabled and non-disabled students
- Collaborates with professional colleagues, families, and communities to support students with disabilities.

**Technology I.** As appropriate for the discipline, enables students to learn about and to use technology.

### Indicators

#### Knowledge

- Is familiar with the capabilities and benefits of current and emerging technologies
- Understands the selection, integration, and utilization of appropriate technologies throughout the mathematics curriculum.
- Knows the technology-related Illinois Learning Standards that apply to the teaching certificate area(s) held, as well as the scope and sequence of their instruction
- Knows research-based, developmentally appropriate, "best" practices focusing on a variety of technological instructional tools
- Knows programs, hardware, etc. appropriate for use with diverse learners, including adaptive/assistive technologies for students with special needs
- Knows how to assess and monitor students' engagements with technology to insure ethical, legal, and equitable uses

#### Dispositions

- Demonstrates awareness and sensitivity to the ethical, legal, and human issues involved in using technology with students
- Demonstrates commitment to bridging the access equity gap, or "digital divide", that affects marginalized populations
- Demonstrates commitment to providing engaging, technology-based learning opportunities for all students

#### Skills

- Uses knowledge of mathematics to select and Uses appropriate technological tools, such as but not limited to, spreadsheets, dynamic graphing tools, computer algebra systems, dynamic statistical packages, graphing calculators, data-collection devices, and presentation software.
- Critiques educational software, hardware, and technological innovations from a variety of stances -- philosophical, pedagogical, and ethical
- Selects appropriate technologies for instruction.
- Integrates current technology as appropriate for instruction.
- Uses technology terminology accurately in written and oral communications
- Integrates technology into the curriculum to expand students' knowledge and skills
- Matches technology to the particular learning situation and each learner's needs
- Observes and evaluates students' technology knowledge, skills, and dispositions
- Creates opportunities for students to use technology tools for learning, demonstrating their learning, and reflecting on it
- Uses software and hardware appropriately

**Technology II.** Understands and uses technology to enhance his/her teaching

### Indicators

#### Knowledge

- Knows particular technology resources to aid in designing learning opportunities for a variety of student grouping situations and diverse learning needs
- Knows the uses of computers and technology in business, industry, and society

- Knows resources for developing a personal professional network or community for ongoing professional development

### **Dispositions**

- Demonstrates commitment to using technology in instruction
- Explores and evaluates technology-based resources regularly, as part of ongoing personal professional development
- Adheres to ethical principles in exploring, using, and sharing technology resources on a personal professional basis

### **Skills**

- Uses technology to research, communicate, and collaborate in an ongoing fashion
- Uses productivity tools (e.g., word processing, presentation graphics) for classroom/program management and instruction

**Language Arts: Literacy Techniques & Strategies** Knows a broad range of literacy techniques and strategies for every aspect of communication and develops each student's ability to read, write, speak and listen to his or her potential within the demands of the discipline.

### **Indicators**

#### **Knowledge**

- understands and can articulate the needs for literacy development in general and in specific disciplines or at specific grade levels.
- understands effective literacy techniques to activate prior student knowledge and build schema to enhance comprehension of "text."
- knows strategies and techniques for teaching communication skills to those students' whose first language is not English.

#### **Dispositions**

- Demonstrates commitment to viewing one's self as a literacy teacher, whatever the age/grade level or specialty area of the certificate(s) held
- Demonstrates awareness and sensitivity to the ethical, legal, and human issues involved in helping all students develop their personal literacy
- Demonstrates commitment to bridging the literacy equity gap that affects marginated populations
- Views all students as readers, authors, and thinkers
- Demonstrates respect for all students' literacy voices and languages
- Views literacy as a developmental process for making and representing meaning, not merely a series of discrete skills for reading, writing, listening, and speaking
- Acknowledges the need to instill in students a desire to use literacy skills

#### **Performance**

- practices effectively the language processes of reading, writing, and oral communication in the daily classroom exchange between student and teacher, between student and student, between teacher and "text," and between student and "text".
- practices effective literacy techniques to make reading purposeful and meaningful.
- practices effective questioning and discussion techniques to extend content knowledge acquired from "text."
- uses a variety of "text" and research resources with students/ in an attempt to enhance student learning from reading, learning from writing, and learning from oral communication.

**Language Arts: Modeling Literacy** Models effective reading, writing, speaking, and listening skills during their

direct and indirect instructional activities.

### Indicators

#### Knowledge

- knows and understands the rules of English grammar, spelling, punctuation, capitalization, and syntax for both written and oral contexts.
- understands how to communicate ideas in writing to accomplish a variety of purposes.

#### Dispositions

- Recognizes that the teacher is the most important communicator in the classroom

#### Performance

- models the rules of English grammar, spelling, punctuation, capitalization, and syntax in both written and oral contexts.
- reads, understands, and clearly conveys ideas from texts or other supplementary materials.
- writes and speaks in a well-organized and coherent manner that adapts to the individual needs of readers/listeners.
- expresses ideas orally with explanations, examples, and support in a clear, succinct style.
- helps students understand a variety of modes of writing (persuasive, descriptive, informative, and narrative).
- listens well.

**Language Arts: Instruction & Improvement** Provides a variety of instructional strategies, constructive feedback, criticism, and improvement strategies in Language Arts while being aware of diverse learners' needs.

### Indicators

#### Knowledge

- understands how to analyze an audience to determine culturally appropriate communication strategies to share ideas effectively in both written and oral formats with students and their families, other faculty and administrators, and the community and business in general.
- understands how to use diverse instructional strategies and assessments that include an appropriate balance of lecture, discussion, activity, and written and oral work.

#### Dispositions

- Approaches literacy curriculum planning as a process aimed at meeting learners' individual needs, not the imposition of a prescribed, inflexible program

#### Performance

- analyzes content materials to determine appropriate strategies and techniques to create successful learning through reading, writing, speaking, and listening.
- assists students whose communication skills may be impeded by learning, language, and/or cultural differences, especially those whose first language is not English.
- conducts effective classroom discussions by managing groups, asking questions, eliciting and probing responses, and summarizing for comprehension.
- uses a variety of media to enhance and supplement instruction.
- uses multi-disciplinary instructional approaches.

**Secondary Content Area Reading.** Understands the process of reading and demonstrates instructional abilities to teach reading in the discipline (math, science, social science & visual arts).

### Indicators

#### Knowledge

- Understands that the reading process is the construction of meaning through the interactions of the reader's background knowledge and experiences, the information in the text, and the purpose of the reading situation.
- Recognizes the relationships among the four language arts (reading, writing, listening, and speaking), and knows how to provide opportunities to integrate these through instruction.
- Understands how to design, select, modify and evaluate materials in terms of the reading needs of the learner.
- Understands the importance of and encourages the use of literature for adolescents in the curriculum and for independent reading.
- Understands the relationship between oral and silent reading.
- Understands the role of subject-area vocabulary in developing reading comprehension.
- Understands the importance of the unique study strategies required of the specific content area in developing reading comprehension.
- Understands the importance of the relationship between assessment and instruction in planning.

#### **Dispositions**

- Demonstrates commitment to viewing one's self as a literacy teacher, whatever the age/grade level or specialty area of the certificate(s) held

#### **Performances**

- Plans and teaches lessons for students that develop comprehension of content-area materials through instructional practices that include analyzing critically, evaluating sources, and synthesizing and summarizing material.
- Plans and teaches lessons on how to monitor comprehension and correct confusions and misunderstandings that arise during reading.
- Plans and models the use of comprehension strategies before, during, and after reading of text.
- Provides opportunities for students to develop content-area vocabulary through instructional practices that develop connections and relationships among words, use of context clues, and understanding of connotative and denotative meaning of words.
- Plans and teaches lessons that encourage students to write about the content read in order to improve understanding.
- Plans and teaches lessons to help students develop study strategies that include previewing and preparing to read text effectively, recognizing organizational patterns unique to informational text, and using graphic organizers as an aid for recalling information.
- Plans and teaches units that require students to carry out research or inquiry using multiple texts, including electronic resources.
- Provides continuous monitoring of students' progress through observations, work samples, and various informal reading assessments.
- Analyzes and evaluates the quality and appropriateness of instructional materials in terms of readability, content, length, format, illustrations, and other pertinent factors.
- Promotes the development of an environment that includes classroom libraries that foster reading.

#### **For T&L Students**

<p><b>Inquiry.</b> Undertakes independent inquiry and use technology as one tool to assist him or her in the overall inquiry process</p>
--

#### **Indicators**

#### **Knowledge**

- Understands the value of research to inquiry in education
- Understands key concepts, assumptions, debates, and ways of knowing that inform the design, collection, and analysis of research in education
- Understands the use of technology as one tool to assist with the overall inquiry process in education



- Understands the roles that technology plays in schools and society

### **Dispositions**

- Appreciates the value of reading and conducting research in education
- Appreciates the role of technology in assisting with the design, conduct, and analysis of research in education

### **Performances**

- Conducts meaningful inquiry on an independent basis in education
- Makes meaningful evaluative judgments about the quality of existing research in education
- Builds on existing theoretical frameworks through independent inquiry in education
- Demonstrates familiarity with a range of technological resources that support educational inquiry
- Accesses a range of technological resources relevant to educational inquiry

## **PERSONALISM, PROFESSIONALISM, & LIFE-LONG LEARNING**

**Collaboration.** Is a reflective practitioner who continually evaluates the effects of his/her choices and actions on others (students, parents, and other professionals in the learning community) and who actively seeks out opportunities to grow professionally.

### **Indicators**

#### **Knowledge**

- Understands schools as organizations within the larger community context and Understands the operations of the relevant aspects of the system(s) within which s/he works.
- Understands how factors in the students' environment outside of school (e.g. family circumstances, community environments, health and economic conditions) may influence students' life and learning.
- Understands and implements laws related to students' rights and teacher responsibilities (e.g. for equal education, appropriate education for handicapped students, confidentiality, privacy, appropriate treatment of students, reporting in situations related to possible child abuse).

#### **Dispositions**

- Values and appreciates the importance of all aspects of a child's experience.
- Is concerned about all aspects of a child's well-being (cognitive, emotional, social, and physical), and is alert to signs of difficulties.
- Is willing to consult with other adults regarding the education and well-being of his/her students.
- Is willing to work with parents and guardians from diverse home and community situations, and to develop cooperative partnerships in support of student learning and well being
- Respects the privacy of students and confidentiality of information.
- Is willing to work with other professionals to improve the overall learning environment for students.

#### **Performances**

- Participates in collegial activities designed to make the entire school a productive learning environment.
- Makes links with the learners' other environments on behalf of students, by consulting with parents, counselors, teachers of other classes and activities within the schools, and professionals in other community agencies.
- Can identify and use community resources to foster student learning.
- Establishes respectful and productive relationships with parents and guardians from diverse home and community situations, and seeks to develop cooperative partnerships in support of student learning and well being.

- Talks with and listens to the student, is sensitive and responsive to clues of distress, investigates situations, and seeks outside help as needed and appropriate to remedy problems.
- Acts as an advocate for students.

**Reflection and Professional Growth.** Fosters relationships with school colleagues, parents, and agencies in the larger community to support students' learning and well-being.

### Indicators

#### Knowledge

- Understands methods of inquiry that provide him/her with a variety of self- assessment and problem-solving strategies for reflecting on his/her practice, its influences on students' growth and learning, and the complex interactions between them.
- Is aware of major areas of research on teaching and of resources available for professional learning (e.g. professional literature, colleagues, professional associations, professional development activities).

#### Dispositions

- Values critical thinking and self-directed learning as habits of mind.
- Is committed to reflection, assessment, and learning as an ongoing process.
- Is willing to give and receive help.
- Is committed to seeking out, developing, and continually refining practices that address the individual needs of students.
- Recognizes his/her professional responsibility for engaging in and supporting appropriate professional practices for self and colleagues.
- Is committed to ongoing development of set of professional values and beliefs about teaching, learning, and schooling as a basis for their classroom practice

#### Performances

- Participates in professional mathematics organizations and uses their print and on-line resources.
- Uses classroom observation, information about students, and research as sources for evaluating the outcomes of teaching and learning and as a basis for experimenting with, reflecting on, and revising practice.
- Is engaged in ongoing professional development, seeking out professional literature, colleagues, and other resources to continually develop and inform their professional perspectives on teaching and learning and enhancing their classroom practice.
- Draws upon professional colleagues within the school and other professional arenas as supports for reflection, problem-solving and new ideas, actively sharing experiences and seeking and giving feedback.
- Advances his or her knowledge of current developments in the field by participating in professional development activities (e.g., coursework, professional organizations, and workshops).
- Participates in professional mathematics organizations and uses their print and on-line resources.

**Professional Conduct.** Understands education as a profession, maintains standards of professional conduct, and provides leadership to improve student learning and well-being

### Indicators

#### Knowledge

- Understands the unique characteristics of education as a profession and a professional code of conduct

- Understands how school systems are organized and operate
- Understands school policies and procedures
- Understands legal issues in education
- Understands the importance of active participation and leadership in professional education organizations

**Dispositions**

- Believes that all students have the potential to learn rigorous content and achieve high standards.
- Is prepared to assume roles beyond the classroom for the benefit and welfare of students
- Is committed to the highest ethical standards of professional behavior

**Performances**

- Contributes knowledge and expertise about teaching and learning to the profession
- Follows codes of professional conduct and exhibits knowledge and expectations of current legal directives
- Follows school policy and procedures, respecting the boundaries of professional responsibilities, when working with students, colleagues, and families
- Initiates and develops educational projects and programs
- Actively participates in or leads such activities as curriculum development, staff development, and student organizations
- Participates as appropriate in policy design and development at the local level with professional organizations, and/or with community organizations