

**University of Texas at El Paso**

College of Education, Department of Teacher Education  
College of Science, Department of Mathematical Sciences

**BLOCK-1A- SPRING 2003**

**MATH 2303 "Properties of Real Numbers-I"**

**ELED 3310 "Teaching Mathematics in the Elementary School"**

**ELED 3302 "Principles and Practices of Learning in the Elementary School"**

**INTEGRATED SYLLABUS**

MATH 2303: **Dr. Art Duval**

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Sections: **M 8:00-9:20 am (Wiggs),**

**W 10:30-12:00 am (Wiggs)**

Office hrs: **MW 2:30-3:30 pm,**

**Tu 1:00-2:00pm, F 10:00-11:00 am**

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Sections: **W 8:00-10:20 am (Wiggs)**

Office hrs: **M 2:00-3:00**

**Required Text**

Van de Walle, John A. (2000). *Elementary and Middle School Mathematics: Teaching Developmentally*. 4th Edition. Longman ([www.longman.awl.com](http://www.longman.awl.com)).

**Course Materials**

*Projects and readings will be distributed in the class.*

**Recommended Manipulative Kit**

*Cuisenaire Manipulative Starter Kit ([www.cuisenaire.com](http://www.cuisenaire.com)).*

**Block Objectives**

1. Learn the mathematical theory underlying elementary and middle school mathematics.
2. Incorporate a "Learning Through Teaching" approach in elementary pre-service teacher preparation.
3. Introduce the students to contemporary learning theories and innovative techniques of teaching and learning elementary and middle school mathematics based on the national (NCTM), local (TEKS) Standards, and ExCET competencies.
4. Provide the students an opportunity to create a successful learning environment while teaching mathematics in elementary and middle school.

5. Help the students overcome challenges, reflect upon and grow from their own experiences of learning and teaching mathematics.
6. Introduce students to behavior management theories.

### **ExCET Competencies**

As a result of this Block and its field component, students will demonstrate knowledge and skill in ExCET Elementary Comprehensive (EC) Competencies (Domain II - Mathematics, Competencies 020-030) and Professional Development (PD) Competencies (Domain I: Competencies 001-005, Domain II: Competencies 006-011, Domain III: Competencies 012-015). Competencies are attached to the syllabus (see Appendix).

### **Block Structure**

The Block incorporates field-based team teaching approach. It is designed using the model of constructive pedagogical cycle (COPEC):

#### ***Learning - Rehearsing - Teaching - Reflecting.***

Each cycle consists of the following activities: working on a conceptually rich, multistep mathematical project; micro-teaching the project before your peers, teaching this activity to elementary/middle school students, discussion and reflection on learning and teaching. Discussions will focus on how the lessons exemplify the given Standard, on how to assess the effectiveness of the lesson, and on modifications and improvements. The goal is to create a community of learners, acting and reflecting on learning and teaching mathematics, and learning how to become effective teachers of mathematics.

### **Block Philosophy**

This Block is built on the following set of pedagogical beliefs:

- ❖ Teachers are supposed not only to teach, but also to help students learn. The teacher's role is to engage students by posing challenging problems and creating a mathematically friendly learning atmosphere.
- ❖ Conceptual learning leads procedural development.
- ❖ It is better to solve one problem by several methods than several problems by one method.
- ❖ The purpose of mathematical activity is not to get the right answer but to promote students' thinking; giving right answers to students is to do their thinking for them.
- ❖ It doesn't matter if you know how to solve 100 problems, it does matter how you approach the rest of them.
- ❖ Do not be afraid of making mistakes but be afraid of repeating them.
- ❖ Fun is a derivative of challenge.

### **Block Syllabus**

Week	Date	ExCET Competencies	Topic/Issue	Assignment
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1.	M - 01/13	EC-021,025	Introduction and Overview of the Syllabus Reflection on Learning and Teaching of Mathematics Doing Project-0 Lines/ pre-test	
	W - 01/15	EC-025,027 PD-010	Doing Project-1 Handshakes Discussion on Assessment Model Contemporary Issues in Teacher Education	
2.	M - 01/20		<b>MLK Day - No Classes</b>	
	W - 01/22	EC-025,027 PD-010	Doing Project-1 Historical Overview of Education in the United States Introductory Activity at Wiggs	Start <b>ERJ</b>
3.	M - 01/27	EC-025,027 EC-030 PD-007-008	Doing Project-2 Blocks <i>US School Mathematics from an International Perspective</i> Rehearsing Micro-Lesson on Project-0 in Class (before peers)	Ch.1 <b>LP-0 due</b>
	W - 01/27	EC-022,025,027 PD-007,008 EC-020, PD-008	Doing Project-2. Discussion on Project-1 Teaching Project-0 at Wiggs. Assessment Discussion	<b>P1 due</b> Ch.5
4.	M - 02/3	EC-025 EC-020-023 EC-024	Doing Project-3 Stamps Discussion on <i>What It Means to Do Mathematics</i> Discussion on <i>Development of Number Sense</i>	Ch.2-4 Ch.6-11
	W - 02/5	EC-022,025 PD-007,008 EC-020, PD-008	Doing Project-3. Discussion on Project-2 Teaching Project-0 at Wiggs High Order Thinking Skills	<b>P2 due</b>
5.	M - 02/10	EC-027, 028	Doing Project-4 "Area" Discussion on <i>Development of Geometric Concepts</i> Rehearsing Micro-Lesson on Project-2	Ch.16-17 <b>LP-2 due</b>
	W - 02/12	EC-022,027,028 PD-007-010 PD-012	Doing Project-4. Discussion on Project-3 Teaching Project-2 at Wiggs Discussion on Reflective Teaching	<b>P3 due</b>
6.	M - 02/17	EC-025,027 EC-024, 026 PD-007-010	Doing Project-5 "Similarity" Discussion on <i>Development of Fraction Concepts</i> Rehearsing Micro-Lesson on Project-3	Ch.12-13 <b>LP-3 due</b>
	W - 01/19	EC-022,025,027 PD-007-010 PD-012-015	Doing Project-5. Discussion on Project-4 Teaching Project-2 at Wiggs Environmental Factors in Teaching	<b>P4 due</b>
7.	M - 02/24	EC-027 EC-024 PD-007-010	Doing Project-6 "Diagonals" Discussion on <i>Development of Ratio and Proportion Concepts</i> Rehearsing Micro-Lesson on Project-4	<b>Quiz 1</b> Ch.15 <b>LP-4 due</b>
	W - 02/26	EC-022,027 PD-007-010 PD-004	Doing Project-6. Discussion on Project-5 Teaching Project-4 at Wiggs Understanding How Learning Occurs	<b>P5 due</b>
8.	M - 03/3	EC-027 EC-023,030 EC-020-030	Doing Project-7 "Length" <b>Mid-term for ELED3310 and ELED3302</b>	
	W - 03/5	EC-022,027 PD-007-010 PD-004	Doing Project-7. Discussion on Project-6 Teaching Project-4 at Wiggs Behavior Management	<b>P6 due</b>
9.	M - 03/10	EC-024,026,027 EC-029 PD-007-010	Doing Project-8 "Square Roots" Discussion on <i>Technology and School Mathematics</i> Rehearsing Micro-Lesson on Project-5	Ch.24 <b>LP-5 due</b>

	W - 03/12	EC-022,024,026 PD-007-010 PD-005, EC-020	Doing Project-8. Discussion on Project-7 Finishing and catching up at Wiggs Discussion on Motivating Students	<b>P7 due</b>
10.	03/24	EC-029 EC-020-030 PD-007-010	Doing Project-9 "How Much Would You Pay?" Discussion on <i>Big Ideas of Probability and Data Analysis</i> Rehearsing Micro-Lesson on Project-7	Ch.18 <b>EQ due</b> <b>LP-7 due</b>
	W- 03/26	EC-022,029 PD-007-010 PD-011	Doing Project-9. Discussion on Project-8 Teaching Project-6 at Wiggs Managing the Physical Classroom Environment	<b>P8 due</b>
11.	M - 03/31		<b>Cesar Chavez Day - No Class</b>	
	W - 04/02		Doing Project 10 Polydrons Teaching Project 9 Political Influence on Schools	<b>P9 Due</b>
12.	M - 04/14	EC-025,027 EC-025, 021	Doing Project-11 Symmetry Discussion on <i>Development of Algebraic Reasoning</i>	Ch.19
	W - 04/16	EC-022,025,027 PD-007-010 PD-015	Doing Project-10. Discussion on Project-9 Teaching Project-9 at Wiggs Texas Teaching Requirements	<b>P10 Due</b>
13.	M - 04/21	EC-026,027 EC-024, 026 PD-007-010	Doing Project-12 Discussion on <i>Development of Function Concept</i> Rehearsing Micro-Lesson on Project-9	Ch.20 <b>LP-9 due</b>
	W - 04/23	EC-022,026,027 PD-007-010 PD-015	Doing Project-12. Discussion on Project-11 Teaching Catch up Texas Teaching Requirements	<b>P10 due</b>

Abbreviations:

**Ch** Chapter from Van de Walle (required text)  
**LP** Lesson-Plan  
**P** Project  
**EC** Elementary Comprehensive

**ERJ** E-mail Reflective Journals  
**FP** Final Portfolio  
**EQ** ExCET Question  
**PD** Professional Development

### Course Requirements

1. It is expected that students will attend **all classes** and actively participate in working on projects and class discussions. Students are expected to prepare for each class session. If a student misses a session, it is the responsibility of the student to make up for it.
2. Math **Projects** are weeklong investigations of conceptually rich multistep problems. During class, students will work on the projects individually and in groups, and later turn in a written report. You must write your report yourself. You are expressly prohibited from consulting with anyone who has taken this course before, or seeing their notes or reports.  
  
On the day reports are due, there will be a class discussion, with groups presenting various solutions.
3. **Quizzes** will cover material in the math projects as well as classroom discussions.

4. **Written Mid-term** will cover the material discussed in ELED3310 and ELED3302 classes.
5. **E-mail Reflective Journals (ERJ)** includes students' own questions, thoughts, and classroom reflections and should be sent to Dr. Blake ([sblake@utep.edu](mailto:sblake@utep.edu)) every two weeks.
6. **Teaching Micro-Lesson in Class** (30-45 min): each group of students will present one micro-lesson to their peers on a chosen project. Student-teachers must prepare and distribute the lesson plan (LP) prior to teaching the project in the class.
7. **Videotaping the Best Lesson Fragment** (20-25 min): every student will arrange to have a videotape of his/her best mathematics lesson taught in an actual classroom setting at the elementary or middle school, with a narrative justifying why this teaching segment is considered his/her best work. Due by November 22 .
8. **Composing ExCET Questions:** each student will prepare 3 ExCET-type questions with scenarios relevant to classroom projects and present the best question during one of the classroom discussions. Each question should be provided with a right answer, an explanation of the reasoning behind this answer, and connection to relevant ExCET competency. The *balance between content and pedagogy* in questions' scenario and answers is highly encouraged.
9. **Final Oral test** will cover the main concepts from projects, activities, and problems used in the class during the semester.

The **Complete Portfolio** must include the following components (all assignments, except videotape, are to be type-written, double-spaced, 12 pt. font, 1 inch margins):

- ❖ **Four Exemplary Projects**, two chosen by the instructors (the same two for all students) and two by each student. More work on these four projects may be included. There should also be a short (at most two pages) description of why these projects show the student's **best** work.
- ❖ **Lesson Plan** for the chosen project, including detailed description of teacher's and students' actions, a set of classroom activities related to the national NCTM and local TEKS Standards, and examples of assessment instruments. **Focus on good questioning techniques is a key requirement for the lesson plan.**
- ❖ **3 ExCET-type Questions** should be related to one of the projects learned in the class. Each question should be provided with a right answer and an explanation of the reasoning behind this answer as well as indication of what particular ExCET competency and proficiencies it reflects.
- ❖ **Assessment of Wiggs Students** must include your quizzes and the Wiggs students math journals. Students quizzes are due the week after you have given them to students and should be graded.

- ❖ **Videotape of the Best Lesson** (20-25 min) should include a fragment of student's teaching of mathematics in an actual classroom setting at one of the elementary or middle schools.

### **Deadline**

Complete Portfolio

**May 2, 2003**

### **Grade Distribution**

<b>Activity</b>	<b>Dr. Duval</b>	<b>Dr. Tchoshanov</b>	<b>Dr. Blake</b>
1. Classroom Discussions	-	<b>10</b>	<b>10</b>
2. Classroom Observations	-	<b>5</b>	<b>5</b>
3. Projects*	<b>50</b>	-	-
4. Exemplary projects	<b>15</b>	-	-
5. Quizzes/ Mid term	<b>15</b>	<b>15</b>	<b>15</b>
6. Lesson Plans	-	<b>15</b>	-
7. Micro-Teaching in Class	<b>5</b>	<b>15</b>	-
8. Reflections on Teaching	-	-	<b>15</b>
9. Wiggs Students' Assessment	-	-	<b>15</b>
10. Videotape of the Best Lesson	-	-	<b>15</b>
11. E-mail Reflective Journals	-	-	<b>10</b>
12. ExCET Questions	-	<b>15</b>	
13. Final oral test	<b>15</b>	<b>25</b>	<b>15</b>

\* The lowest project grade will be dropped.

### **Grading Scale:**

90 - 100 = **A** (Excellent - 4.0)      80 - 89 = **B** (Good - 3.0)  
 70 - 79 = **C** (Average - 2.0)      60 - 69 = **D** (Passing - 1.0)  
 0 - 59 = **F** (Failure - 0.0)

### **Notes**

- ❖ Lateness to class is strongly discouraged. Many classes will begin with a group project/activity or classroom discussion. Your group will depend upon you to be present and prepared for class. Missed assignments must be completed. Every unexcused absence or lateness will reduce your final grade at the rate of .5 point per hour of missed class time.
- ❖ The schedule of reading assignments and classroom discussions may change over the course of the semester. Any changes to the syllabus will be announced in class. Every student is responsible for these changes whether or not he or she is present in class. It is recommended that students exchange telephone numbers and/or e-mail addresses with a few of their peers.
- ❖ Please turn in all assignments on the date they are due, at the beginning of class. One letter grade will be deducted for late assignments.

- ❖ Please feel free to speak to us regarding any questions or concerns. You can reach us during office hours, speak to us after class, call or e-mail us.

**Have a Great Semester!**

**Enjoy the Challenge!**

Appendix

**ELEMENTARY COMPREHENSIVE (ExCET-04, DOMAIN II—MATHEMATICS)**

**Competency 020**

Higher-order thinking and questioning. The elementary teacher understands, applies, and encourages higher-order thinking and questioning skills in mathematics.

The elementary teacher uses reasoning and questioning skills in relation to mathematics. The teacher recognizes the role of higher-order thinking and questioning in the mathematics curriculum and encourages the development of thinking and questioning skills in students by providing opportunities for students to discover and apply mathematical principles in a variety of contexts, including real-world applications.

**Competency 021**

Problem-solving strategies. The elementary teacher understands problem-solving strategies and techniques and applies these strategies and techniques to solve application and non-routine problems.

The elementary teacher uses an organized approach to problem solving. The teacher selects appropriate strategies from a variety of approaches, including acting out problems; making models; using manipulatives; drawing pictures; guessing and checking; making diagrams, charts, or graphs; looking for patterns; using simpler problems; and working backwards. The teacher selects appropriate methods for solving problems, such as mental mathematics, estimation, concrete modeling, paper-and-pencil techniques, and calculator-based and computer-based methods. The teacher knows how to guide students in the problem-solving process, develop their ability to solve problems using a variety of strategies and techniques, and analyze students' problem-solving procedures.

**Competency 022**

Mathematical communication. The elementary teacher understands mathematical communication and uses mathematical language and vocabulary, representations, and data to communicate information.

The elementary teacher uses mathematical terminology and symbols to interpret mathematical information and describes and communicates quantitative information using symbolic, verbal, graphic, and concrete representations, such as models, tables, and drawings. The teacher knows how to promote the use of mathematical communication in students.

**Competency 023**

Mathematics in various contexts. The elementary teacher relates concepts and skills within mathematics to other content areas and to daily life.

The elementary teacher recognizes the interrelatedness of the various areas of mathematics, identifies opportunities to integrate mathematical concepts into instruction in other content areas, and uses mathematics as a context for extending learning in other curricular areas. The teacher uses everyday contexts to investigate careers in mathematics, organize mathematics instruction, and apply mathematical principles and skills.

#### Competency 024

Number and numeration concepts. The elementary teacher understands the role of number and numeration in the real number system (including the use of estimation) and applies these concepts to real-world situations.

The elementary teacher understands such fundamental concepts of number and numeration systems as quantification, notation, and operations and relates these concepts to real-life situations. The teacher applies these concepts to such mathematical activities as measuring, ordering, comparing, and symbolizing. The teacher recognizes quantitative relationships in concrete situations and represents those relationships clearly. The teacher knows how to promote students' understanding of number and numeration.

#### Competency 025

Patterns and relationships. The elementary teacher understands the development of the concept of function through the exploration of patterns and relationships and knows how to use mathematical modeling processes to represent these relationships.

The elementary teacher observes and describes patterns and uses them to predict unobserved phenomena. The teacher recognizes how everyday situations may be used to promote students' exploration of patterns, their understanding of the functional relationships reflected in these patterns, their ability to represent observed patterns and relationships in a variety of ways, and their ability to make predictions based on observations.

#### Competency 026

Mathematical operations. The elementary teacher understands the role of mathematical operations in problem solving, understands the concepts underlying these operations, and can use these operations to solve problems in a variety of contexts.

The elementary teacher applies mathematical operations in everyday situations; understands their logic and implications, their relationships to one another, and their effects on number pairs; and uses this information to solve problems effectively. The teacher is able to apply this knowledge to enhance students' understanding of operations and computation.

#### Competency 027

Geometry and spatial sense. The elementary teacher recognizes the role of geometry and spatial sense in understanding the physical world and can apply related skills and concepts to solve problems.

The elementary teacher understands two-dimensional and three-dimensional shapes and their properties and applies this understanding to such activities as identifying, classifying, analyzing, and comparing geometric figures. The teacher represents geometric figures through a variety of means such as model making and drawing from different perspectives. The teacher communicates to students an understanding of geometry as a method for exploring the physical world.

#### Competency 028

Measurement. The elementary teacher understands the principles and conventions of measurement and can apply measurement concepts and procedures to describe and compare phenomena in the real world.

Given a problem requiring measuring, the elementary teacher determines an appropriate nonstandard (e.g., hands, paperclips) or standard unit and method of measuring, assesses the accuracy of a measurement, recognizes variations among measurements, and makes conversions within a measurement system. The teacher is able to apply this knowledge to enhance students' skills and understanding in instructional contexts.

#### Competency 029

Statistics and probability. The elementary teacher understands the uses of basic statistics and probability in interpreting data and applying mathematical expectations to real-world phenomena and can apply related concepts and methods to solve problems.

The elementary teacher interprets and understands real-world phenomena through the use of fundamental concepts and skills related to statistics and probability. The teacher provides instruction to promote students' ability to apply



statistics and probability concepts to collect, organize, and interpret data; construct and interpret charts and graphs; draw conclusions; and make decisions in everyday situations.

### Competency 030

Recent developments and issues. The elementary teacher is familiar with recent developments and issues in mathematics education.

Recent developments and issues in mathematics education include, for example, those related to instructional emphases, to evaluation practices and standards, and to classroom applications of technology. The teacher is aware of these developments and recognizes their implications for instruction in the elementary classroom.

## **ELEMENTARY PROFESSIONAL DEVELOPMENT (ExCET-02)**

### DOMAIN I—UNDERSTANDING LEARNERS

#### Competency 001

The teacher uses an understanding of human developmental processes to nurture student growth through developmentally appropriate instruction.

The teacher recognizes that students' developmental characteristics affect what and how they learn and that effective decision making about instructional content and methods takes into account individual students' levels of development in the various domains (e.g., cognitive, social, emotional, aesthetic). The teacher is aware of expected developmental progressions and ranges of individual variation in each domain, knows how to foster growth in each domain, and understands how development in any one domain may affect performance in other domains. The teacher applies knowledge of human development to design instruction that helps students at various developmental levels make connections between their current skills and understandings and those that are new to them.

#### Competency 002

The teacher considers environmental factors that may affect learning in designing a supportive and responsive classroom community that promotes all students' learning and self-esteem.

The teacher understands how various external factors (e.g., conflict within students' families, peer relationships, gang- or drug-related community problems, malnutrition) may affect students' lives and their performance in school and knows how to create a learning environment that takes advantage of positive factors and minimizes the effects of negative factors. The teacher recognizes signs of stress in students (e.g., a sudden drop in grades, an increase in aggressiveness) and knows how to respond appropriately to help students deal with stress. The teacher understands factors inside and outside the classroom that influence students' perceptions of their own worth and potential (e.g., grouping practices, parent and teacher expectations, prior experiences in school), recognizes the effects of these perceptions on learning, and knows how to plan instruction to enhance all students' self-esteem and to create an environment in which all students feel safe, accepted, competent, and productive.

#### Competency 003

The teacher appreciates human diversity, recognizing how diversity in the classroom and the community may affect learning and creating a classroom environment in which both the diversity of groups and the uniqueness of individuals are recognized and celebrated.

The teacher is aware that each student brings to the classroom an array of personal and social characteristics related to a variety of factors such as ethnicity, gender, language background, and exceptionality. The teacher recognizes the instructional implications of student diversity and knows how to create an environment that nurtures a sense of community, respects differences, fosters learning, and enhances students' understanding of the society in which they live.

#### Competency 004

The teacher understands how learning occurs and can apply this understanding to design and implement effective instruction.

The teacher understands how students develop knowledge and skills and recognizes instructional strategies that promote student learning (e.g., linking new information to old, fostering a view of learning as a purposeful pursuit, promoting a sense of responsibility for one's own learning). The teacher is aware of factors that affect learning (e.g., individual talents, learning styles, teaching styles, prior learning experiences) and can design instruction to facilitate learning in different situations and to help students learn how to learn and to monitor their own performance.

#### Competency 005

The teacher understands how motivation affects group and individual behavior and learning and can apply this understanding to promote student learning.

The teacher understands the importance of motivation to learning, knows how to help students become self-motivated, and is able to recognize factors and situations that are likely to promote or diminish motivation. The teacher is aware of the characteristics and effects of intrinsic and extrinsic motivation and knows how to use a variety of techniques (e.g., relating lessons to students' personal interests, allowing students to have choices in their learning, giving students control over their learning experiences, leading individuals or groups of students to ask questions and pursue problems that are meaningful to them) to engage students in learning activities and to help them develop the motivation to achieve.

### DOMAIN II—ENHANCING STUDENT ACHIEVEMENT

#### Competency 006

The teacher uses planning processes to design outcome-oriented learning experiences that foster understanding and encourage self-directed thinking and learning in both individual and collaborative settings.

The teacher understands the relationship between careful planning and student success in the classroom. In designing instruction the teacher takes account of factors relevant to instructional planning (e.g., learners' backgrounds, desired learner outcomes, content of instruction, integrated curriculum, input from students, available materials and resources, time and space constraints). The teacher chooses lessons and activities that reflect the principles of effective instruction and that help students achieve an in-depth understanding and acquire the will to set and accomplish their own long-term and short-term goals. The teacher makes use of collaborative processes (e.g., working with other teachers) in planning instruction and in designing individual and group activities.

#### Competency 007

The teacher uses effective verbal, nonverbal, and media communication techniques to shape the classroom into a community of learners engaged in active inquiry, collaborative exploration, and supportive interactions.

The teacher understands that communication takes place verbally, nonverbally, and through the use of media. Using a variety of modes and tools of communication, the teacher imparts expectations and ideas to create a climate of trust, respect, support, and inquiry. The teacher models effective communication strategies (e.g., monitoring the effects of messages, being a reflective listener, simplifying and restating, being sensitive to nonverbal cues given and received) and encourages students to communicate effectively in a variety of contexts. The teacher is a thoughtful questioner who asks questions that elicit different levels of thinking and recognizes that different ways of questioning achieve different purposes (e.g., promoting risk taking and problem solving, facilitating factual recall, encouraging divergent thinking, stimulating curiosity). The teacher appreciates the cultural dimensions of communication and knows how to foster effective, constructive, and purposeful communication by and among all students in the class.

#### Competency 008

The teacher uses a variety of instructional strategies and roles to facilitate learning and to help students become independent thinkers and problem solvers who use higher-order thinking in the classroom and the real world.

The teacher uses an array of instructional strategies to actively engage students in learning, and constantly monitors and adjusts strategies in response to learner feedback. The teacher understands principles, procedures, advantages, and limitations associated with various instructional strategies (e.g., interdisciplinary instruction, cooperative learning, discovery learning) and appropriately chooses among alternative strategies to achieve different purposes and meet different needs. The teacher can vary 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 levels of need and independence of the students. The teacher knows how to make instruction relevant to students' own needs and purposes and helps students acquire strategies and skills (including higher-order thinking skills, such as comparison, analysis, evaluation) that will be useful to them in the real world.

#### Competency 009

The teacher uses a variety of instructional materials and resources (including human and technological resources) to support individual and group learning.

The teacher knows how to enhance learning for all students through the appropriate use of instructional materials and resources (e.g., computers, CD-ROM, videodiscs, primary documents and artifacts, AV equipment, manipulatives, local experts) and helps students understand the role of technology as a learning tool. The teacher evaluates the effectiveness of specific materials and resources for particular situations and purposes; selects appropriate materials and resources to address individual students' strengths and needs, learning styles, preferred modalities, and interests; understands the value of using multiple resources in instruction; and can manage the logistics of individual and collaborative use of limited materials and resources.

#### Competency 010

The teacher uses processes of informal and formal assessment to understand individual learners, monitor instructional effectiveness, and shape instruction.

The teacher understands the importance of ongoing assessment as an instructional tool and employs a variety of formal and informal assessment techniques (e.g., observation, portfolio, teacher-made classroom test, student self-assessment, peer assessment, standardized test) to enhance his or her knowledge of learners, monitor students' progress in achieving outcomes, and modify instructional delivery. The teacher is aware of the characteristics, uses, advantages, and limitations of different types of assessments; understands assessment-related issues such as those related to bias, reliability, validity, and grading; and knows how to select or construct and use assessment instruments for various purposes.

#### Competency 011

The teacher structures and manages the learning environment to maintain a classroom climate that promotes the lifelong pursuit of learning and encourages cooperation, leadership, and mutual respect.

The teacher knows how to promote student ownership of and membership in a smoothly functioning learning community whose members are responsible, cooperative, purposeful, and mutually supportive. The teacher facilitates a positive social and emotional atmosphere in the classroom, establishes and maintains standards of behavior, manages routines and transitions, maximizes the amount of class time spent in learning, and creates a physical setting that is conducive to the achievement of various goals.

### DOMAIN III—UNDERSTANDING THE TEACHING ENVIRONMENT

#### Competency 012

The teacher is a reflective practitioner who knows how to promote his or her own professional growth and can work cooperatively with other professionals in the system to create a school culture that enhances learning and encourages positive change.

The teacher understands the importance of reflection and self-evaluation and recognizes personal factors (e.g., self-concept, attitudes toward authority, biases, sense of mission) that affect one's role as a teacher and the nature of one's interpersonal relationships with students. The teacher recognizes that he or she is a member of a learning community and knows how to work effectively with all members of that community (e.g., teaching colleagues, a mentor, special needs professionals) to solve problems, deal with stress, explore new ideas, and accomplish educational goals (e.g., planning a new curriculum, working across disciplines, assessing school effectiveness, implementing site-based management plans). The teacher actively seeks out opportunities to grow professionally; knows how to use different sources of support, information, and guidance (e.g., mentor, principal, professional journals and organizations, in-service training programs) to enhance his or her own professional skills and knowledge; and is aware of the value of technology in promoting efficient time use and professional growth.

### Competency 013

The teacher knows how to foster strong school-home relationships that support student achievement of desired learning outcomes.

The teacher is able to establish a relationship of trust with parents or guardians from diverse backgrounds and to develop effective parent-teacher partnerships that foster all students' learning and well-being. The teacher recognizes the importance of maintaining ongoing parent-teacher communication, is aware of factors that may facilitate or impede communication with students' families, and understands strategies for promoting effective communication. The teacher understands basic principles of conducting parent-teacher conferences (e.g., beginning and ending on a positive note, avoiding technical jargon) and knows how to work cooperatively with parents to devise strategies for use at home and in the classroom.

### Competency 014

The teacher understands how the school relates to the larger community and knows strategies for making interactions between school and community mutually supportive and beneficial.

The teacher is aware of the significance of the school-community relationship and understands the value of working with local citizens to establish strong and positive ties between the school and the community. The teacher knows how to take advantage of community strengths and resources to foster student growth. In addition, the teacher is aware of problems facing the community (e.g., drugs, gangs, racism, crime, unemployment, poverty), understands how these problems may affect students' lives and learning, and is aware of resources and strategies that can help students cope with community problems.

### Competency 015

The teacher understands requirements, expectations, and constraints associated with teaching in Texas, and can apply this understanding in a variety of contexts.

The teacher is familiar with the various expectations (e.g., those of school boards, principals, colleagues, parents, students) and constraints (e.g., legal requirements, ethical responsibilities) placed on members of the teaching profession and is aware of the multiplicity of roles that teachers may be called upon to assume (e.g., instructor, resource person, problem solver, curriculum developer, school spokesperson). The teacher understands laws and guidelines relevant to education (e.g., those related to civil rights, special needs, confidentiality, child abuse) and ensures that his or her decisions and actions are in compliance with legal and ethical requirements and the legitimate interests of others. The teacher understands the structure of the Texas education system, recognizes types of authority and decision-making structures within the system (e.g., centralized systems, site-based management), and knows how to work within the system to address issues and make decisions appropriately.