Florida Teacher Certification Examinations

Test Information Guide

for

Prekindergarten/Primary PK–3

FLORIDA DEPARTMENT OF EDUCATION
www.fldoe.org

Fifth Edition

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Contents

1 Test and Test Information Guide Development

Teacher Certification Testing

Since 1980, Florida teacher certification candidates have been required to pass the Florida Teacher Certification Examinations (FTCE), which consisted of tests in reading, writing, mathematics, and professional knowledge. The 1986 Florida Legislature modified the testing program by also requiring teacher candidates to pass a test in the subject area in which they wish to be certified. In addition, the Legislature substituted the Florida College-Level Academic Skills Test (CLAST) for the reading, writing, and mathematics portions of the FTCE. The 2000 Florida Legislature replaced the CLAST with the General Knowledge Test, effective July 1, 2002.

The subject area knowledge tested on the Prekindergarten/Primary PK–3 examination was identified and validated by committees of content specialists from within the state of Florida. Committee members included public school teachers, district supervisors, and college faculty with expertise in this field. Committee members were selected on the basis of recommendations by district superintendents, public school principals, deans of education, experts in the field, and other organizations. In developing the test, the committees used an extensive literature review, interviews with selected public school teachers, a large-scale survey of teachers, pilot tests, and their own professional judgment.

Role of the Test Information Guide

The purpose of this test information guide is to assist examinees in preparing for the subject area test in Prekindergarten/Primary PK–3 and identifying areas in need of further study. The guide was designed to familiarize prospective test takers with various aspects of the examination, including the content that is covered and the way it is represented. The guide should enable candidates to direct their study and to focus on relevant material for review. An annotated bibliography of related subject matter materials is available at the end of the test information guide to provide further guidance in identifying additional areas in need of study.

This test information guide is intended primarily for use by certification candidates, who may be students in a college or university teacher-preparation program, teachers with provisional certification, teachers seeking certification in an additional subject area, or persons making a career change to public school teaching. Candidates may have studied and worked in Florida or may be from out of state.

College or university faculty may also use the guide to prepare students for certification, and inservice trainers may find the guide useful for helping previously certified teachers prepare for recertification or multiple certification.

This test information guide is not intended as an all-inclusive source of subject area knowledge, nor is it a substitute for college course work in the subject area. The sample questions are representative of the content of the actual test; however, they are not actual test questions from an actual test form. Instead, the guide is intended to help candidates prepare for the subject area test by presenting an overview of the content and format of the examination.

Preparation for the Test

The following outline may help you prepare for the examination. Adapt these suggestions to suit your own study habits and the time you have available for review.

Overview

- **Look over the organization of the test information guide.**

  Section 1 discusses the development of the test and test information guide.
  Section 2 (this section) outlines test preparation steps.
  Section 3 offers strategies for taking the test.
  Section 4 presents information about the content and structure of the test.
  Section 5 lists question formats and includes sample test questions.
  Section 6 provides an annotated bibliography of general references you may find useful in your review.
  Section 7 identifies a source of further information.

Self-Assessment

- **Decide which content areas you should review.**

  Section 4 includes the competencies and skills used to develop this subject area test and the approximate proportion of test questions from each competency area.

Review

- **Study according to your needs.**

  Review all of the competencies and concentrate on areas with which you are least familiar.

Practice

- **Acquaint yourself with the format of the examination.**

  Section 5 describes types of questions you may find on the examination.

- **Answer sample test questions.**

  Section 5 gives you an opportunity to test yourself with sample test questions and provides an answer key and information regarding the competency to which each question is linked.

Final preparation

- **Review test-taking advice.**

  Section 3 includes suggestions for improving your performance on the examination.

- **Refer to field-specific references.**

  Section 6 includes an annotated bibliography listing general references keyed to the competencies and skills used to develop this subject area test.

3 Test-Taking Advice

- Go into the examination prepared, alert, and well rested.
- Complete your travel arrangements prior to the examination date. Plan to arrive early so that you can locate the parking facilities and examination room without rushing.
- Dress comfortably and bring a sweater or jacket in case the room is too cool for your comfort.
- Take the following with you to the test site:
  - Admission ticket
  - Proper identification as described in "Identification Policy"
- There are many strategies for taking a test and different techniques for dealing with different types of questions. Nevertheless, you may find the following general suggestions useful.
  - Read each question and all the response options carefully before selecting your answer. Pay attention to all of the details.
  - Go through the entire test once and answer all the questions you are reasonably certain about. Then go back and work through the questions that require more thought.
  - When you are not certain of the correct answer, eliminate as many options as you can and choose the response that seems best. It is to your advantage to answer all the questions on the test, even if you are uncertain about some of your choices.
  - After completing the examination, go back and check every question. Verify that you have answered all of the questions and that your responses are correctly entered.

4 Competencies and Skills and Test Blueprint

The table on the following pages lists the competencies and skills used as the basis for the Prekindergarten/Primary PK-3 examination. These competencies and skills represent the knowledge that teams of teachers, subject area specialists, and district-level educators have determined to be important for beginning teachers. This table can serve as a checklist for assessing your familiarity with each of the areas covered by the test. The competencies and skills should help you organize your review. The test blueprint indicates the approximate percentage of test questions that will cover each specific competency on the exam.

Competencies are broad areas of content knowledge.

Skills identify specific behaviors that demonstrate the competencies.

Percentages indicate the approximate proportion of test questions that represent the competencies on the test.

The following excerpt illustrates the components of the table.

Competency

Approximate percentage of total test questions (test blueprint)

Competency/Skill		**Approx. %**
Developmental Knowledge		
1	**Knowledge of child growth, child development, and relationships with families and the community**	**13%**
1	Identify the major effects of genetics, health, nutrition, public policy, environment, and economics on child development.	
2	Identify the developmental stages (e.g., social-emotional, cognitive, language, physical) and the milestones for the typically developing child.	
3	Identify atypical development (e.g., social-emotional, cognitive, language, physical).	
4	Identify and distinguish the influences of substance abuse, physical abuse, and emotional distress on child development.	
5	Identify diverse family systems and recognize their influences on children's early experiences which contribute to individual differences and development and learning.	
6	Identify the influence of scientific research on theories of cognitive and social development, the principles of how children learn, and the development and implementation of instructional strategies.	
7	Identify and apply strategies to involve families in their child's development and learning in all phases of school programs.	
8	Identify and apply strategies to facilitate family and community partnerships.	

Skills (1-8)

Table of Competencies, Skills, and Approximate Percentages of Questions

Competency/Skill		Approx. %
	DEVELOPMENTAL KNOWLEDGE	
1	**Knowledge of child growth, child development, and relationships with families and the community**	**14%**
1	Identify the major effects of genetics, health, nutrition, public policy, environment, and economics on child development.	
2	Identify the developmental stages (e.g., social-emotional, cognitive, language, physical) and the milestones for the typically developing child.	
3	Identify atypical development (e.g., social-emotional, cognitive, language, physical).	
4	Identify and distinguish the influences of substance abuse, physical abuse, and emotional distress on child development.	
5	Identify diverse family systems and recognize their influences on children's early experiences which contribute to individual differences and development and learning.	
6	Identify the influence of scientific research on theories of cognitive and social development, the principles of how children learn, and the development and implementation of instructional strategies.	
7	Identify and apply strategies to involve families in their child's development and learning in all phases of school programs.	
8	Identify and apply strategies to facilitate family and community partnerships.	
2	**Knowledge of the profession and foundations of early childhood (PreK–3) education**	**12%**
1	Identify theorists, theories, and developmental domains (e.g., physical, cognitive, social-emotional) in the fields of early childhood education and their implications for the classroom teacher of young children.	
2	Identify models of early childhood curriculum (e.g., Montessori, Creative Curriculum).	
3	Identify and analyze the impact of federal and state laws on education in the classroom (e.g., English for Speakers of Other Languages, Individuals with Disabilities Education Act).	
4	Identify professional organizations, websites, and scholarly journals in the field of early childhood education.	

Competency/Skill		**Approx. %**
5	Interpret professional standards set by early childhood and elementary educational organizations (e.g., National Association for the Education of Young Children, Association for Childhood Education International, National Council of Teachers of Mathematics, Southern Early Childhood Association).	
6	Analyze the relationships among current educational issues, trends, and legislation and their impact on the field of early childhood education.	
7	Analyze and apply ethical behavior and professional responsibilities as they relate to young children, families, colleagues, and the community (e.g., Florida Educator Accomplished Practices, Florida Department of Education Code of Ethics, National Association for the Education of Young Children Code of Ethics).	
3	**Knowledge of developmentally appropriate practices**	**20%**
1	Identify and apply developmentally appropriate practices that guide effective instruction.	
2	Identify the components of effective organization and management, such as classroom rituals, routines, and schedules.	
3	Identify ways to organize furniture, equipment, materials, and other resources in an indoor or outdoor environment in order to support early childhood development and curricula.	
4	Identify and analyze strategies for short- and long-term planning to set instructional goals in alignment with standards for developing teacher objectives.	
5	Identify strategies for designing appropriate objectives and developing, implementing, and assessing lesson plans.	
6	Identify and select developmentally and/or age-appropriate instructional materials that enrich and extend active learning.	
7	Apply a variety of methods of flexibly grouping children for the purposes of instruction.	
8	Identify and apply characteristics of an integrated curriculum.	
9	Identify characteristics of play as related to children's social, emotional, and cognitive development.	
10	Identify strategies for building and nurturing trusting relationships with students.	
11	Analyze and evaluate the use of evidence-based practices to improve student achievement.	

Competency/Skill		Approx. %
4	**Knowledge of developmentally appropriate curricula**	**12%**
1	Analyze and select developmentally appropriate curricula that provide for all areas of child development (i.e., physical, emotional, social, linguistic, aesthetic, cognitive).	
2	Identify strategies for facilitating the development of literal, interpretive, and critical listening and thinking skills.	
3	Determine activities that support the development of fine and gross motor skills.	
4	Select and apply strategies, including the use of technology, for presenting instruction and concepts related to health, safety, and nutrition.	
5	Select and apply strategies, including the use of technology, for presenting instruction and concepts related to visual arts, music, drama, and dance.	
6	Select and apply strategies, including the use of technology, in developmentally appropriate ways to teach reading, mathematics, science, and social studies.	
7	Select and apply strategies, including the use of technology, in developmentally appropriate ways to increase receptive and expressive vocabulary.	
5	**Knowledge of developmentally appropriate intervention strategies and resources available to meet the needs of all students**	**15%**
1	Select and analyze evidence-based instructional strategies to adapt curricula for children with diverse needs.	
2	Identify characteristics of children with diverse needs in order to support their learning.	
3	Identify and select resources and procedures that support children with diverse needs and their families.	
4	Identify characteristics of children at risk for school failure and select appropriate intervention strategies for these children.	
5	Identify major trends in educating children with exceptionalities and incorporate such trends in early childhood settings as appropriate.	
6	Select and apply appropriate strategies for working with children who are in foster care and children who are migrant, transient, orphaned, or homeless.	
7	Identify ways for accessing and appropriately using health information to monitor children's medical needs (e.g., medications for allergies) and/or other health impairments.	

Competency/Skill		Approx. %
8	Identify needs for, and methods of, collaboration with other professionals in order to positively impact student learning.	
9	Identify programs, curricula, and activities that address the language needs of children and their families with limited English proficiency.	
6	**Knowledge of diagnosis, assessment, and evaluation**	**14%**
1	Select and apply developmentally appropriate, reliable, and valid formal and informal screening, progress monitoring, and diagnostic instruments and procedures that measure specific characteristics.	
2	Identify procedures for accurately establishing, maintaining, and using formal and informal student records.	
3	Interpret formal and informal assessment data to make instructional decisions about the educational needs of children.	
4	Identify procedures for appropriately using authentic assessments (e.g., portfolios, observations, journals) to plan instruction that further develops a child's level of learning and interest.	
5	Identify procedures and legal requirements that provide for productive family conferences or home visits, regarding the assessment, education, and development of children, in accordance with due process (e.g., IEP, RtI) and confidentiality.	
6	Identify methods of observing, facilitating, and extending children's play to practice newly acquired abilities (e.g., through problem solving, imitation, persistence, and creativity).	
7	Identify different types of assessments (e.g., norm-referenced, criterion-referenced, diagnostic, curriculum-based) and the purposes of each.	
8	Identify and apply appropriate processes for monitoring struggling students (e.g., RtI, tiered interventions) and planning and implementing intervention strategies.	
7	**Knowledge of child guidance and classroom behavioral management**	**13%**
1	Identify and analyze developmentally appropriate components of a positive and effective classroom behavioral management system.	
2	Apply developmentally appropriate positive strategies for guiding children's behavior and responding to challenging behaviors.	
3	Identify opportunities for promoting children's positive self-concept and self-esteem, prosocial skills, and social-emotional development through interaction with peers and familiar adults.	
4	Select developmentally appropriate problem-solving strategies for conflict resolution, self-regulatory behavior, and social interaction.	

Competency/Skill		Approx. %
5	Select and analyze appropriate strategies for teaching character development to young children.	
6	Identify the roles of early childhood professionals in collaboration with other professionals (e.g., social workers, school counselors, community liaisons) in helping children and their families cope with stressors.	
	LANGUAGE ARTS AND READING	
1	**Knowledge of literacy and literacy instruction**	**24%**
1	Identify the content of emergent literacy (e.g., oral language development, phonological awareness, alphabet knowledge, concepts of print, motivation, written language development).	
2	Identify common emergent literacy difficulties and apply strategies for prevention and intervention.	
3	Apply various approaches for developing emergent and early literacy skills (e.g., oral language and listening, phonological awareness, alphabet knowledge, background knowledge, concepts of print).	
4	Identify appropriate emergent and early literacy activities.	
5	Select specific instructional methods (e.g., whole group, small group, explicit, systematic) for developing emergent literacy.	
6	Identify the components of and techniques for creating a print-rich environment reflecting diverse cultures and the impact of such an environment on classroom instruction.	
7	Analyze the structure (e.g., small group, whole group) and components (e.g., vocabulary, phonics) of a balanced literacy program.	
8	Apply instructional approaches and strategies for teaching informational literacy skills (e.g., reading labels, signs, newspapers).	
9	Identify effective methods and strategies to integrate reading, writing, speaking, listening, viewing, and presenting across the curriculum.	
10	Determine effective techniques for motivating students to engage in academic and personal reading (e.g., student interest in texts, student reading goals, student self-selection of texts).	
2	**Knowledge of fiction and nonfiction genres including reading informational texts (e.g., literary nonfiction, historical, scientific, and technical texts)**	**20%**
1	Select literature (e.g., pattern books, concept books) from a variety of narrative texts that build language skills and concept development.	

Competency/Skill		Approx. %
2	Identify and distinguish the elements of various literary genres and formats of prose and poetry (e.g., multicultural literature, fables, legends, biographies, realistic fiction, fantasy).	
3	Analyze and compare literature with common themes written from different viewpoints and cultural perspectives.	
4	Identify instructional approaches and apply strategies for developing literary analysis (e.g., story-mapping, plot structure, elements of literary devices).	
5	Select appropriate techniques for encouraging students to respond to literature and informational texts in a variety of ways (e.g., retelling, dramatizing, writing).	
6	Identify a variety of uses and purposes for multiple representations of information (e.g., maps, timelines, charts, tables, graphs, pictures, print and nonprint media).	
7	Identify instructional methods and strategies (e.g., using graphic organizers, summarizing, oral questioning, inferring) for facilitating students' reading comprehension across the curriculum.	
8	Identify and appropriately use text structures (e.g., cause and effect, chronological order, compare and contrast) to develop student comprehension.	
9	Identify informational text features and their purposes (e.g., index, glossary, heading/subheading, table of contents, bibliography, references).	
3	**Knowledge of reading foundational skills**	**24%**
1	Identify appropriate stages of word recognition (e.g., pre-alphabetic, partial-alphabetic, full-alphabetic) and cueing strategies (e.g., graphophonic, syntactic, semantic) that effective readers use in the decoding process.	
2	Identify the components of reading fluency (i.e., accuracy, automaticity, rate, prosody).	
3	Select instructional methods and strategies for increasing vocabulary acquisition and development (e.g., concept maps, morphemic and contextual analysis) across the curriculum.	
4	Select effective instructional methods for teaching essential comprehension skills (e.g., main idea, supporting details, author's purpose, inference).	
5	Apply instructional strategies (e.g., utilizing graphic organizers, activating background knowledge) for helping students comprehend content area texts.	

Competency/Skill		**Approx. %**
6	Identify instructional strategies (e.g., making connections, questioning, summarizing) for developing critical thinking skills (e.g., critiquing, analyzing, problem-solving).	
7	Select and apply instructional methods for developing reading fluency (e.g., practice with high-frequency words, timed readings, repeated readings).	
8	Apply effective reading strategies to comprehend complex literature and informational texts (e.g., stories, drama, poetry, biographies, technical texts).	
4	**Knowledge of language elements used for effective oral and written communication**	**22%**
1	Distinguish among the developmental stages of writing (e.g., drawing, scribbling, letter-like formations, strings of letters).	
2	Identify developmentally appropriate writing strategies for developing concepts of print and conventions, including spelling and punctuation.	
3	Determine the stages of the writing process (e.g., prewriting, editing, publishing).	
4	Identify and distinguish characteristics of various modes of writing (e.g., narrative, expository, persuasive, descriptive).	
5	Select and analyze the appropriate mode of writing for a variety of occasions, purposes and audiences, and use textual support, reader response, and research as needed.	
6	Identify developmentally appropriate strategies for enhancing writer's craft (e.g., supporting details, dialogue, transition words).	
7	Determine effective strategies for comprehension and collaboration (e.g., following multiple-step directions, following group rules, participating in group discussions).	
8	Identify key elements in students' presentations of ideas (e.g., visual and digital components, organization of ideas, clarity of thought).	
9	Analyze the increasing complexity of conventions of English (e.g., common prepositions, personal and possessive pronouns, compound and complex sentences).	
10	Compare characteristics and uses of formal and informal language (e.g., oral, written).	
5	**Knowledge of assessments to inform literacy instruction**	**10%**
1	Identify appropriate oral and written methods for assessing individual student progress in reading and writing (e.g., fluency probes, conferencing, rubrics, running records, portfolios).	

Competency/Skill		Approx. %
2	Interpret and analyze data from informal and formal reading assessments using qualitative and quantitative measures (e.g., screening, progress monitoring, diagnostic) to guide differentiated instruction.	
	MATHEMATICS The test center will provide a reference sheet.	
1	**Knowledge of effective mathematics instruction**	**23%**
1	Identify and analyze developmentally appropriate strategies for presenting mathematical concepts progressing from concrete to semi-concrete to abstract.	
2	Identify and apply related mathematical concepts, computation, problem-solving, and reasoning.	
3	Identify and analyze opportunities and strategies to integrate mathematics with other subject areas.	
4	Identify mathematical concepts appropriate for the PreK–3 curriculum.	
5	Select and apply the appropriate use of available tools, including technology (e.g., interactive white boards, computers) and manipulatives in teaching mathematics.	
6	Identify the use of mathematical practices to promote critical thinking (e.g., construct viable arguments, make use of structure, express regularity in repeated reasoning).	
7	Select and analyze uses of a variety of assessments to plan instruction.	
8	Select and analyze structured experiences for small and large groups of students according to mathematical concepts.	
9	Identify and analyze attitudes and dispositions underlying mathematical thinking.	
2	**Knowledge of algebraic thinking**	**16%**
1	Identify and extend simple number and nonnumeric repeating and growing patterns using words, variables, tables, and graphs.	
2	Determine and apply the concepts of equality and inequality in real-world situations (e.g., balancing and comparing quantities).	
3	Identify and apply function rules using addition and subtraction (e.g., input-output machines, tables).	
4	Identify and analyze appropriate instructional strategies (e.g., draw a picture, make a table, act it out) to facilitate student understanding of problem solving.	

Competency/Skill		Approx. %
3	**Knowledge of number concepts and operations in base ten**	**30%**
	1 Identify the cardinal number for a set, various ways to count efficiently (e.g., counting by ones, skip counting, counting on, counting backwards, counting collections), and ordinal numbers. 2 Identify pre-number concepts, 1-to-1 correspondence, conservation of numbers, constructing sets to match given criteria, and rote counting. 3 Use knowledge of place value to name, compare, and flexibly represent numbers in base ten (e.g., 22 = 2 tens and 2 ones, 1 ten and 12 ones, or 22 ones). 4 Use place value (e.g., flexibility of numbers) and properties of operations (i.e., commutative, associative, distributive, identity) to solve problems involving addition and subtraction of multi-digit numbers and multiplication facts through 100. 5 Differentiate between problem-solving strategies that use models, properties of operations, and the inverse relationship of operations. 6 Use area, set, and linear fraction models (e.g., number lines) to represent fractions, including fractions greater than one. 7 Relate the size of the fractional part to the number of equal-sized pieces in the whole. 8 Use models to represent equivalent fractions, including fractions greater than one, and numerical representation of equivalents (e.g., 1/2 = 2/4 = 3/6, the same amount is shaded in the whole).	
4	**Knowledge of measurement and data collection and analysis**	**15%**
	1 Identify the use of measurable attributes and the appropriate use of metric and customary units to measure and compare length, area, perimeter, and volume. 2 Identify effective instructional activities for estimating, telling, and writing time; calculating elapsed time; and counting money. 3 Select effective methods to organize, represent, and interpret data (e.g., bar graphs, line plots). 4 Solve problems analyzing data sets, drawing conclusions, and making predictions.	
5	**Knowledge of geometric and spatial concepts**	**16%**
	1 Identify and classify two-dimensional and three-dimensional shapes according to defining attributes (e.g., number of sides, length of sides, measure of angles).	

Competency/Skill		Approx. %
2	Identify the composition of a complex figure using basic two-dimensional and three-dimensional shapes (e.g., squares, circles, triangles, spheres, cones, prisms).	
3	Analyze and distinguish examples of symmetry and non-symmetry in two dimensions.	
4	Identify spatial concepts (e.g., above, below, hidden view, through) and vocabulary (e.g., line, angle, ray, plane) useful for teaching geometry in real-world situations.	
	SCIENCE	
1	**Knowledge of effective science instruction**	**19%**
1	Analyze developmentally appropriate strategies for teaching science practices (e.g., observing, questioning, designing and carrying out investigations, developing and using models, constructing and communicating explanations).	
2	Identify strategies and skills for facilitating children's experiences in ways that support their active inquiry, naturalistic exploration, talk and argument, and conceptual development.	
3	Identify and analyze strategies for formal and informal learning experiences to provide science curriculum that promotes children's natural curiosity about the world (e.g., active hands-on experiences, active engagement in the physical world, student interaction).	
4	Identify ways to organize and manage the early childhood classroom for safe, effective science teaching and learning (e.g., procedures, equipment, layout).	
5	Identify and select developmentally appropriate formal and informal assessments to evaluate prior knowledge, to guide instruction, and to evaluate the impact of science experiences on student learning.	
6	Select and analyze small- and large-group strategies to help students explain the concepts they are learning, provide opportunities to introduce formal science terms, and to clarify scientific concepts and misconceptions.	
7	Select and apply safe and effective instructional strategies when using curricular and instructional tools and resources such as physical and conceptual models, scientific equipment, realia, and print and digital representations to support and enhance science instruction.	
8	Apply scientifically and professionally responsible decision-making regarding the selection of socially and culturally sensitive science content and activities.	

Competency/Skill		Approx. %
2	**Knowledge of the nature of science**	**19%**
1	Identify and apply basic process skills (e.g., observing, inferring, classifying, measuring) and developmentally appropriate science practices (e.g., analyzing and interpreting data, constructing explanations, engaging in argument from evidence).	
2	Evaluate and interpret pictorial representations, charts, tables, and graphs of authentic data from scientific investigations to make predictions, construct explanations, and support conclusions.	
3	Analyze the dynamic nature of science as a way of understanding the world (e.g., tentativeness, replication, reliance on evidence).	
4	Identify and select appropriate tools, including digital technologies, and units of measurement for various science tasks.	
5	Evaluate the relationship between claims (e.g., including predictions), evidence (i.e., scientific knowledge, observations) and explanations (i.e., linking claims to evidence, drawing conclusions).	
6	Identify and analyze attitudes and dispositions underlying scientific thinking (e.g., curiosity, openness to new ideas, appropriate skepticism, cooperation).	
7	Identify and analyze ways in which science is an interdisciplinary process and interconnected to STEM disciplines (i.e., science, technology, engineering, mathematics).	
8	Analyze considerations of science technology in society including cultural, ethical, economic, political, and global implications.	
3	**Knowledge of earth and space sciences**	**20%**
1	Identify the living and nonliving composition of the Earth's surface and the properties of the nonliving materials that make up Earth's surface (e.g., soil, minerals, rocks, water).	
2	Identify the processes that change the surface of the Earth.	
3	Analyze the effects of the law of gravity on objects on Earth and in space.	
4	Identify and distinguish distant objects seen in the daytime and nighttime sky (e.g., Sun, stars, planets, Moon).	
5	Identify and analyze the causes and effects of atmospheric processes (e.g., weather, wind, water cycle).	
6	Interpret and predict the direct and indirect effects of the Sun's energy on Earth, including plants, animals, water, land, and air.	

Competency/Skill		Approx. %
	7 Identify the components and significance of space research and exploration (e.g., timelines, tools and equipment, benefits and cost to society). 8 Identify and describe repeated patterns in the Sun-Earth-Moon system (e.g., the day-night cycle, phases of the Moon, seasons). 9 Analyze the impact of human activity on renewable and nonrenewable resources and natural events, including preparation for severe weather related events (e.g., hurricanes, tornadoes, flooding).	
4	**Knowledge of the physical sciences**	**17%**
	1 Sort matter by its observable qualitative properties (e.g., shape, color, states, texture, hardness) and quantitative properties (e.g., mass, volume, temperature, weight, density). 2 Categorize matter as an element, compound, or mixture and compare the similarities and differences among them. 3 Identify and differentiate between physical and chemical changes in matter. 4 Identify and compare types, characteristics, and functions of energy. 5 Identify and analyze ways energy is transferred between objects or the surrounding air. 6 Analyze and compare the relationship between forces (e.g., push or pull) and an object's change in position, direction, and/or speed.	
5	**Knowledge of the life sciences**	**25%**
	1 Identify how plants and animals respond to their environment. 2 Identify basic concepts of heredity (e.g., why offspring resemble their parents). 3 Classify plants and animals into major groups according to characteristics (e.g., physical features, behaviors, development). 4 Compare the ways living things meet their basic needs through interaction with and dependence on one another when sharing an environment (e.g., competition, predation, pollination). 5 Identify basic characteristics of living and nonliving things. 6 Identify and describe the basic structures, behaviors, and functions of plants and animals that allow them to carry out their life processes (e.g., grow, reproduce, and survive). 7 Identify and compare the structure and functions of major systems of the human body.	

Competency/Skill		**Approx. %**
8	Identify and compare the predictable ways plants and animals change as they grow, develop, and age.	
9	Identify and compare processes of sexual and asexual reproduction in plants, animals, and microorganisms.	
10	Identify the variety of habitats within ecosystems and analyze how they meet the needs of the organisms that live there.	

5 Test Format and Sample Questions

The Prekindergarten/Primary PK-3 subject area test consists of four subtests: Developmental Knowledge; Language Arts and Reading; Mathematics; and Science. There are approximately 220 multiple-choice questions. You will have four and one-half hours to complete the test.

Each question will contain four response options, and you will indicate your answer by selecting **A**, **B**, **C**, or **D**.

The table below presents types of questions on the examination and refers you to a sample question of each type.

Type of Question	Sample
Direct question Choose the response option that best answers the question.	Question 6, page 26
Sentence completion Select the response option that best completes the sentence.	Question 8, page 26
Scenario Examine a situation, problem, or case study. Then answer a question, make a diagnosis, or recommend a course of action by selecting the best response option.	Question 7, page 28

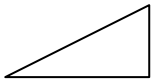
Sample Questions

The following questions represent both the form and content of questions on the examination. These questions will acquaint you with the general format of the examination; however, these sample questions do not cover all of the competencies and skills that are tested and will only approximate the degree of examination difficulty.

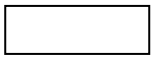
An answer key follows at the end of the sample questions. The answer key includes information regarding the competency to which each question is linked.

PK-3 Mathematics Reference Sheet

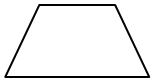
Area



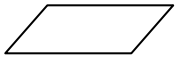
Triangle $A = \frac{1}{2}bh$



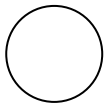
Rectangle $A = lw$



Trapezoid $A = \frac{1}{2}h\,(b_1 + b_2)$



Parallelogram $A = bh$



Circle $A = \pi r^2$

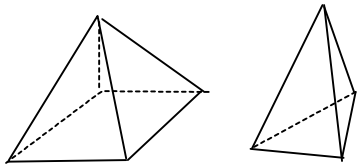
KEY	
b = base	d = diameter
h = height	r = radius
l = length	A = area
w = width	C = circumference
$S.A.$ = surface area	V = volume
	B = area of base
Use 3.14 or $\frac{22}{7}$ for π	

Circumference

$C = \pi d = 2\pi r$

Surface Area

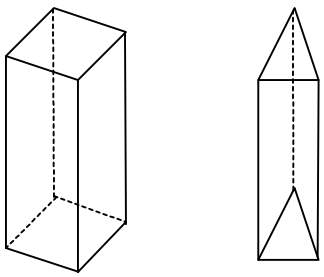
1. Surface area of a prism or pyramid equals the sum of the areas of all faces.



Volume

1. Volume of a triangular or rectangular prism equals the Area of the Base (B) times the height (h).

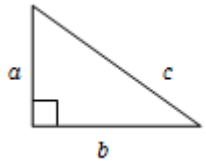
   $V = Bh$



2. Volume of a pyramid equals $\frac{1}{3}$ times the Area of the Base (B) times the height (h).

$$V = \frac{1}{3}Bh$$

Pythagorean theorem: $a^2 + b^2 = c^2$



Conversions

1 yard = 3 feet = 36 inches
1 mile = 1,760 yards = 5,280 feet
1 acre = 43,560 square feet
1 hour = 60 minutes
1 minute = 60 seconds

1 cup = 8 fluid ounces
1 pint = 2 cups
1 quart = 2 pints
1 gallon = 4 quarts
1 pound = 16 ounces
1 ton = 2,000 pounds

1 liter = 1000 milliliters = 1000 cubic centimeters
1 meter = 100 centimeters = 1000 millimeters
1 kilometer = 1000 meters
1 gram = 1000 milligrams
1 kilogram = 1000 grams

Metric numbers with four digits are presented without a comma (e.g., 9960 kilometers). For metric numbers greater than four digits, a space is used instead of a comma (e.g., 12 500 liters).

DIRECTIONS: Read each question and select the best response.

DEVELOPMENTAL KNOWLEDGE SAMPLE ITEMS

1. Which of the following teacher strategies would be most effective in maintaining communication with families whose home language is not English?

   A. sending out a monthly multilingual newsletter
   B. providing the school's website address
   C. providing phone numbers of bilingual classmates
   D. sending out teacher contact information

2. In the "nature versus nurture" controversy, the term *nature* refers to

   A. environmental factors.
   B. family dynamics.
   C. genetic inheritance.
   D. cultural influences.

3. A primary teacher wants the students to transition to the next activity. Which of the following is the best strategy for accomplishing this goal?

   A. describing the new task while students are still working
   B. giving each student specific directions
   C. signaling students to gain their attention
   D. walking around the room asking the students to listen

4. A kindergarten teacher is developing a unit on weather. Which of the following strategies should be utilized first when planning the unit?

   A. reviewing concepts in the adopted textbook
   B. examining state and district science standards
   C. surveying children's interest in weather concepts
   D. assessing students' prior knowledge about weather

5. Third graders are writing stories about their family members. Which of the following accommodations would be most beneficial for several beginner-level English language learners in the class?

   A. allowing them to type their stories on a computer
   B. permitting them to copy a story from a book
   C. permitting them to use inventive spelling in their stories
   D. allowing them to watch their peers compose stories

6. Which of the following components of effective co-teaching is most likely to positively impact student learning?

   A. adequate planning
   B. time management
   C. communicating expectations
   D. defining responsibilities

7. Which of the following is the most appropriate approach for facilitating preschool students' pretend play in the classroom?

   A. providing a supply of materials and organizing them in one area of the classroom
   B. providing a supply of materials and modeling their use in one area of the classroom
   C. reading a story and telling students to act the story
   D. creating a story script and assigning individual roles

8. Students and teachers would collect samples of the students' best work to create a

   A. showcase portfolio.
   B. process portfolio.
   C. composite portfolio.
   D. documentation portfolio.

9. A teacher can best develop children's self-confidence and positive feelings toward learning by providing activities that

   A. present a limited level of difficulty.
   B. exceed developmental capabilities.
   C. emphasize repetition in format presentation.
   D. provide challenges yet offer opportunities for success.

LANGUAGE ARTS AND READING SAMPLE ITEMS

1. Which of the following is the best demonstration of phonemic segmenting from 1st-grade students working with the word “jumping”?

   A. jump-ing
   B. ju-mp-ing
   C. jum-pi-ng
   D. j-u-m-p-i-n-g

2. If a student wants to get an overview of an informational text, see the relationships among the various topics, and have an indication if the text is in chronological order or by topic, where should the student look in the text to find this information?

   A. glossary
   B. bibliography
   C. table of contents
   D. chapter sub-headings

3. A kindergarten teacher notices that a student is becoming aware of syllables within words. In an effort to promote phonological awareness, the teacher helps the student break down the word *car*.

   What is the correct term for part of the word that comes after the initial consonant, *ar*?

   A. body
   B. coda
   C. onset
   D. rime

4. In order to prepare students to read about city government, the teacher organized a field trip to city hall and arranged a presentation by the city manager for the class. The teacher is developing

   A. background information, interest, and purpose.
   B. interest, textual characteristics, and motivation.
   C. oral language skills, schema, and automaticity.
   D. background information, phonics skills, and purpose.

5. A 2nd-grade student brainstorms a list of ideas and then identifies the topic the student is most interested in writing about. The student defines the purpose for writing, the audience, and what form the writing will take. The student's practices represent what stage of the writing process?

   A. editing
   B. drafting
   C. prewriting
   D. publishing

6. Strategies for facilitating the audience's comprehension include coming to discussions prepared, staying on topic, maintaining eye-contact, and

   A. exuding an air of confidence.
   B. speaking slowly with emphatic pauses.
   C. using verbose language with frequency.
   D. choosing a topic based on background knowledge.

7. A 2nd-grade teacher has been using a number of anecdotal records compiled over several weeks about an individual student. From the information, the teacher notes that the student is having trouble with subject-verb agreement and develops a set of remediation activities for that student. Which of the following responses is an example of another qualitative measure the teacher might use?

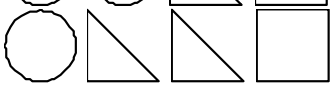
   A. summative assessments
   B. screening assessments
   C. diagnostic assessments
   D. portfolio assessments

MATHEMATICS SAMPLE ITEMS

1. A kindergarten teacher is trying to assess her students' abilities to identify and describe shapes. Which would be the best example of a formative assessment method designed to provide the most accurate reflection of student progress?

   A. Once a week, the teacher asks, "Who knows which shape is a triangle?" The teacher then records the names of students who raise their hands, selecting a different shape each week and monitoring responses.
   B. At the end of the school year, the children take an online quiz with auditory directions such as, "Can you find the triangle? Click on the triangle now." The teacher then reviews the resulting data.
   C. On a daily basis, the teacher asks, "Can you draw a triangle and turn it into an animal?" The teacher then retains student drawings for a portfolio, offering different prompts for creativity each time such as fruits or toys.
   D. Periodically, the teacher directs students to, "Draw a triangle on your paper." The teacher then asks each child to explain what makes the shape a triangle, noting responses and alternating shapes.

2. Which of the following patterns is an example of an "ABCC" pattern?

   A. 
   B. 
   C. 
   D. 

3. Which property was used to simplify the following expression?

   $2a + 4b + a = 2a + a + 4b$

   A. commutative
   B. identity
   C. distributive
   D. closure

4. Which of the selections below best represents seriation?

   A. A child knows where to stand in line based on number order.
   B. A child stacks blocks of different sizes from largest to smallest.
   C. A child recognizes that there are three cookies without counting them.
   D. A child creates a pattern by alternating two different shapes of pasta.

5. Which of the following algebraic equations shows the additive identity property?

   A. $a + b = b + a$
   B. $a + 0 = 0 + a = a$
   C. $a(b + c) = ab + ac$
   D. $(a + b) + c = a + (b + c)$

6. A 1st-grade teacher has promised a small class reward for every ten compliments received for good conduct, and a larger reward when fifty compliments have been received. How would this data best be tracked and represented on the board?

   A. tally marks grouped by fives
   B. a series of algebraic equations
   C. concept maps involving numerals
   D. number patterns showing trends

7. A group of 2nd-grade students were cutting out shapes. While cutting they noticed that when they opened the scissors to a certain position it looked like one of the corners on a square. They also noticed that as they closed the scissors the corner got smaller.

What geometric vocabulary term would be appropriate to introduce to these students?

A. ray
B. angle
C. line segment
D. parallel lines

SCIENCE SAMPLE ITEMS

1. Which of the following activities would be the most meaningful science experience for kindergarten students?

   A. engaging in self-generated, open-ended investigations
   B. participating in hands-on instruction from a textbook
   C. viewing an educational DVD with the class
   D. conducting an experiment with several variables

2. To address a state standard on forces and changes in motion, a 1st-grade teacher designed an activity using balls. The teacher marks off a space and provides balls of different sizes and materials. Pairs of students are allowed 20 minutes to explore the balls and 10 minutes to discuss the question, "How did the balls roll?" This is an example of what type of teaching?

   A. reciprocal
   B. direct instruction
   C. thematic instruction
   D. inquiry

3. Which of the following is LEAST reflective of science's interrelatedness to other disciplines?

   A. After reading a short passage, students predict the events of the next chapter using evidence from the reading.
   B. After viewing famous works of European artists, students categorize the paintings according to their characteristics.
   C. Students use various methods to prove that 4 x 3 = 12, including arrays, skip-counting, and drawing pictures.
   D. Students create a timeline of Florida history, including Native American tribes, colonialism, and current events.

4. Greenhouse gasses trap the Sun's thermal energy in the atmosphere. What is a direct effect of having too much of the Sun's energy trapped in the Earth's atmosphere?

   A. atmospheric changes
   B. increase of global temperatures
   C. increased air pollution
   D. decrease of natural resources

5. Which of the following actions would demonstrate to a class the cause of the Earth's four seasons?

   A. The teacher moves a model of the Earth closer and further from a model of the Sun.
   B. The teacher tilts a model of the Earth on its axis as it orbits around a model of the Sun.
   C. The teacher rotates a model of the Earth in an elliptical orbit around a model of the Sun.
   D. The teacher rotates a model of the Earth on its axis as it orbits around a model of the Sun.

6. Water is best described as a

   A. mixture.
   B. element.
   C. compound.
   D. substance.

7. Plants and animals are both classified as living things. They have many characteristics in common such as the ability to grow, reproduce, and use energy from food. Which of the following is a true statement about how plants and animals differ?

   A. Plants can move freely, whereas animals have limited movement.
   B. Animals acquire their food, whereas plants produce their own food.
   C. Plant structures have internal organs, whereas animals have external organs.
   D. Animals respond slowly to environmental changes, whereas plants respond quickly.

Answer Keys

Developmental Knowledge

Question Number	Correct Response	Competency
1.	A	1
2.	C	2
3.	C	3
4.	B	3
5.	C	4
6.	A	5
7.	A	6
8.	A	6
9.	D	7

Language Arts and Reading

Question Number	Correct Response	Competency
1.	D	1
2.	C	2
3.	D	3
4.	A	3
5.	C	4
6.	D	4
7.	D	5

Mathematics

Question Number	Correct Response	Competency
1.	D	1
2.	A	2
3.	A	2
4.	B	3
5.	B	3
6.	A	4
7.	B	5

Science

Question Number	Correct Response	Competency
1.	A	1
2.	D	2
3.	D	2
4.	B	3
5.	B	3
6.	C	4
7.	B	5

6 Annotated Bibliography

The annotated bibliography in this section includes basic references that you may find useful in preparing for the exam. Each resource is linked to the competencies and skills found in Section 4 of this guide.

This bibliography is representative of the most important and most comprehensive texts pertaining to the competencies and skills for Prekindergarten/Primary PK-3. The Florida Department of Education does not endorse these references as the only appropriate sources for review; many comparable texts currently used in teacher preparation programs also cover the competencies and skills that are tested on the exam.

Developmental Knowledge

1. Bigner, J. J. (2006). *Parent-child relations: An introduction to parenting* (7th ed.). Upper Saddle River, NJ: Pearson Merrill Prentice Hall.
Introduces research on parent-child relationships. Through exploration of family systems and systemic family development theory, the text addresses the changes in parent-child relationships that accompany developmental changes in children, adults, and family systems. Useful for review of competencies 1, 2, and 5.

2. Bos, C. S., & Vaughn, S. R. (2006). *Strategies for teaching students with learning and behavior problems* (6th ed.). Boston: Pearson Allyn & Bacon.
Introduces current research on best practices as the basis of strategies for providing instructional and support services to students with learning and behavior challenges in a variety of settings. Emphasizes progress monitoring, assessment, diversity, and family involvement. Useful for review of competencies 5, 6, and 7.

3. Bredekamp, S. (2011). *Effective practices in early childhood development: Building a foundation*. Boston, MA: Pearson.
Provides the building blocks for understanding effective practices in early childhood education. Useful for review of competencies 1, 2, and 7.

4. Bredekamp, S., & Copple, C. (Eds.). (1997). *Developmentally appropriate practice in early childhood programs* (Rev. ed.). Washington, DC: National Association for the Education of Young Children.
Presents the position statement of the National Association for the Education of Young Children on developmentally appropriate practice in early childhood programs. Provides an overview of each period of development from birth through age 8 and includes examples of practices that are appropriate and inappropriate for use with children in each age group. Useful for review of competencies 1, 2, and 4.

5. Brisbane, H. E. (2006). *The developing child* (10th ed.). New York: Glencoe McGraw-Hill.
Provides an overview of child development in stages from birth through adolescence. Explores typical physical, emotional, social, and intellectual development for each stage and includes discussion of research on brain development. Useful for review of competency 1.

6. Charlesworth, R. (2008). *Understanding child development* (7th ed.). Albany, NY: Delmar Cengage Learning.
Includes information on developmentally appropriate practices in the assessment and education of children, as well as ways of working with children and families from diverse cultures. Explores children's readiness, the development of early stages of reading, the importance of brain development, and play and learning. Useful for review of competencies 1, 3, 4, 5, and 6.

7. Cole, M., Cole, S., & Lightfoot, C. (2005). *The development of children* (5th ed.). New York: Worth Publishers.
Based on both scientific research and the authors' practical experience, this book explores the interrelationship of biological and cultural processes in child development. Useful for review of competency 1.

8. Cook, R. E., Klein, M. D., & Tessier, A. (2008). *Adapting early childhood curricula for children with special needs* (7th ed.). Upper Saddle River, NJ: Pearson Merrill.
Incorporates theory and evidence-based practice from the fields of exceptional student education and early childhood education. Introduces activities supported by current theory, provides intervention strategies to make the most effective use of embedded learning opportunities in the curriculum, and encourages a family-centered, inclusive approach to working with children with exceptionalities. Useful for review of competencies 1, 4, and 5.

9. Downs, S. W., Moore, E., McFadden, E. J., & Costin, L. B. (2009). *Child welfare and family services: Policies and practice* (8th ed.). Boston: Pearson Allyn & Bacon.
Reflects current issues, controversies, and innovative practice methods in services for children and families. Discusses the historical context for current programs, issues, and policy decisions and includes in-depth information on legal and legislative frameworks. Useful for review of competencies 1, 2, and 6.

10. Epstein, A. S. (2006). *The intentional teacher: Choosing the best strategies for young children's learning*. Washington, DC: National Association for the Education of Young Children.
Emphasizes the importance of considering goals for learning and development in all domains in the planning of curriculum and selection of teaching strategies. Explores how and when child-guided, adult-guided, or a combination of learning strategies is most effective, and what teachers can do to support learning. Useful for review of competencies 1, 2, 3, and 4.

11. Gestwicki, C. (2007). *Developmentally appropriate practice: Curriculum and development in early education* (3rd ed.). Clifton Park, NJ: Thompson Delmar.
Intended as a guide for developmentally appropriate classroom and caregiver practices in early education, this book assumes the reader already has basic child development knowledge and experience. Topics include theory and research of play as well as social/emotional and cognitive/language environments. Useful for review of competencies 1, 2, 3, and 4.

12. Gordon, A. M., & Brown, K. W. (2011). *Beginnings and beyond: Foundations in early childhood education.* Belmont, CA: Wadsworth.
Covers current developmentally appropriate practices while presenting key concepts, the latest research, and practical examples to answer questions any early childhood education student would need answered. Useful for review of competencies 2 and 3.

13. Kaiser, B., & Sklar Rasminsky, J. (2007). *Challenging behavior in young children: Understanding, preventing, and responding effectively* (2nd ed.). Boston: Pearson Allyn & Bacon.
Examines current research on understanding and prevention of challenging behavior. Includes strategies for responding to this behavior, such as positive behavior support and functional assessment. Useful for review of competencies 2 and 7.

14. Keyser, J., & National Association for the Education of Young Children. (2006). *From parents to partners: Building a family-centered early childhood program*. St. Paul, MN: Redleaf Press.
Explores the reasons and methods for developing ongoing partnerships with parents and other family members in early childhood programs. Includes tools and strategies to build communication and support networks to sustain those partnerships. Useful for review of competency 2.

15. Lerner, J. W., & Kline, F. M. (2006). *Learning disabilities and related disorders: Characteristics and teaching strategies* (10th ed.). Boston: Houghton Mifflin.
Intended to help preservice teachers and practicing professionals evaluate students with disabilities. Explores assessment and evaluation of students with learning disabilities, learning-disabled theory and its practical applications, and recent developments and topics of debate in the field. Useful for review of competencies 5 and 6.

16. Lerner, J. W., Lowenthal, B., & Egan, R. W. (2003). *Preschool children with special needs: Children at risk and children with disabilities* (2nd ed.). Boston: Pearson Allyn & Bacon.
Explores how to provide appropriate learning environments in general education and exceptional student education settings for children ages 3–6 who have special needs. Emphasizes the needs of preschoolers and their families and explores curriculum models that incorporate research and practical experiences with children who have special needs. Useful for review of competency 5.

17. McDevitt, T., & Ormrod, J. E. (2013). *Child development and education* (5th ed.). Upper Saddle River, NJ: Pearson Merrill Prentice Hall.
A child-development text for educators that includes current research in the field as well as applications of that research specifically for educators. Includes authentic student work, observation guidelines with educational applications, development and practice features with concrete strategies for facilitating student development and learning, and information on helping diverse students learn and thrive in the classroom. Useful for review of competencies 1, 3, 4, and 5.

18. McLean, M. E., Wolery, M., & Bailey, D. B. (2004). *Assessing infants and preschoolers with special needs* (3rd ed.). Upper Saddle River, NJ: Pearson Merrill.
Examines assessment issues, including test development and cultural competence, and emphasizes family-centered education, collaborative decision making, and holistic understanding of children with disabilities. Intended to help students use assessment in order to plan effective, personalized intervention programs for infants and preschoolers with special needs. Useful for review of competency 3.

19. Meece, J. (2008). *Child and adolescent development for educators* (3rd ed.). New York: McGraw-Hill.
Provides research-based foundation knowledge of development for future teachers. Content is arranged by topic and focuses on what teachers need to know about the science of development. Useful for review of competencies 1 and 2.

20. Morrison, G. S. (2008). *Fundamentals of early childhood education* (5th ed.). Upper Saddle River, NJ: Pearson Merrill Prentice Hall.
Contains current information on how children learn, how best to teach them, and how to effectively include families and communities in their education. Useful for review of competencies 1 and 2.

21. Ormrod, J. E. (2008). *Educational psychology: Developing learners* (6th ed.). Upper Saddle River, NJ: Pearson Merrill Prentice Hall.
Concentrates on the core ideas of educational psychology. Presents both theory and applications and includes integrated coverage of diversity. Useful for review of competencies 2, 5, and 6.

22. Pierangelo, R., & Giuliani, G. (2006). *Learning disabilities: A practical approach to foundations, assessment, diagnosis, and teaching*. Boston: Pearson Allyn & Bacon.
Covers the spectrum of issues involved with learning, including the process of understanding, assessing, diagnosing, and teaching students with learning disabilities. Useful for review of competencies 5 and 6.

23. Polloway, E. A., Patton, J. R., & Serna, L. (2008). *Strategies for teaching learners with special needs* (9th ed.). Upper Saddle River, NJ: Pearson Merrill Prentice Hall.
Focuses on effective instructional strategies for students in diverse educational settings, with a primary emphasis on inclusive educational environments. Includes discussion of curriculum development and instruction as well as the requirements of No Child Left Behind and the Individuals with Disabilities Education Act of 2004. Useful for review of competencies 5 and 6.

24. Salend, S. J. (2008). *Creating inclusive classrooms: Effective and reflective practices* (6th ed.). Upper Saddle River, NJ: Pearson Merrill Prentice Hall.
Incorporates themes of diversity, collaboration, technology, and effective and reflective classroom practices. Consistent with professional standards for preparing teachers to work in today's diverse classrooms. Useful for review of competency 5.

25. Spinelli, C. (2006). *Classroom assessment for students in special and general education* (2nd ed.). Upper Saddle River, NJ: Pearson Merrill Prentice Hall.
Introduces the skills needed to effectively use assessment, particularly informal assessment, in understanding the needs of the whole student. Includes updates on authentic curriculum- and performance-based assessment measures with connections to instruction, IEP development, and family involvement. Useful for review of competencies 5 and 6.

26. Trawick-Smith, J. (2006). *Early childhood development: A multicultural perspective* (4th ed.). Upper Saddle River, NJ: Pearson Merrill.
Introduces a multicultural approach to all facets of development from birth to age 8. Topics include intellectual development, attachment patterns, peer relations, and motor skills. Includes information on atypical development and exceptional student education. Useful for review of competencies 1 and 5.

27. Vaughn, S., Bos, C. S., & Schumm, J. S. (2007). *Teaching students who are exceptional, diverse, and at risk in the general classroom* (4th ed.). Upper Saddle River, NJ: Pearson Merrill.
Provides information on how to teach students with disabilities, culturally diverse students, English language learners, and students from families with low socioeconomic status. Features sample learning activities and lesson plans. A unit on curriculum adaptations includes specific strategies and activities to teach reading, writing, mathematics, content areas, self-advocacy, and study skills and strategies. Useful for review of competency 5.

28. Wicks-Nelson, R., & Israel, A. C. (2006). *Behavior disorders of childhood* (6th ed.). Indianapolis, IN: Pearson Prentice Hall.
A research-based introduction to childhood behavior disorders, their central issues and their theoretical and methodological bases. Includes descriptions and discussions of numerous disorders. Useful for review of competencies 6 and 7.

29. Winter, S. (2007). *Inclusive early childhood education: A collaborative approach*. Upper Saddle River, NJ: Pearson Merrill Prentice Hall.
Balances the perspectives of early childhood education and early childhood exceptional student education, emphasizing collaboration and presenting current information on theory and practice for inclusive education. Useful for review of competencies 1, 2, 3, and 5.

30. Woolfolk, A. (2007). *Educational psychology* (10th ed.). Boston: Pearson Allyn & Bacon.
Contains examples, lesson segments, case studies, and practical ideas from experienced teachers. Useful for review of competencies 2, 5, and 6.

Language Arts and Reading

1. Antonacci, P., & O'Callaghan, C. (2004). *Portraits of literacy development: Instruction and assessment in a well-balanced literacy program, K–3.*: Upper Saddle River, NJ: Pearson Merrill Prentice Hall.
Outlines instructional approaches using various assessments to inform and scaffold literacy instruction for emergent, early, and fluent readers. Useful for review of competencies 3 and 5.

2. Blachowicz, C. & Fisher, P. J. (2010). *Teaching vocabulary in all classrooms,* (4th ed.). Boston: Allyn & Bacon.
Contains strategies and information on vocabulary instruction in the classroom. Useful for review of competencies 1 and 3.

3. Booth, D. & Swartz, L. (2004). *Literacy techniques for building successful readers and writers* (2nd ed.). Markham: Pembroke.
Identifies common behaviors and outlines strategies for encouraging the growth of literacy. Useful for review of competencies 3 and 4.

4. Caldwell, J. S. (2008). *Reading assessment: A primer for teachers and coaches* (2nd ed.). New York: Guilford Press.
Presents practical strategies for identifying the behaviors common to good readers, assessing students' strengths and weaknesses in reading, analyzing evidence, and making instructional decisions. Useful for review of competencies 3 and 5.

5. DeVries, B. A. (2008). *Literacy assessment and intervention for K-6 classrooms* (2nd ed.). Scottsdale: Holcomb Hathaway.
Focuses on appropriate assessment strategies and interpretation of results with special attention to emergent literacy. Useful for review of competencies 1 and 5.

6. Dodge, D. T., Colker, L. J., & Heroman, C. (2002). *Creative curriculum for preschool* (4th ed.). Florence, KY: Delmar Cengage Learning.
Presents a research-based curriculum detailing effective ways for children to learn science, social studies, literacy, math, the arts, and technology. Includes higher-order thinking practice, building on prior knowledge, and experimentation based on theories of children's learning styles, content standards and assessment preparation skills. Defines the teacher's role in connecting content, teaching, and learning for preschool children. Useful for review of competency 5.

7. Fox, B. J. (2012). *Word identification strategies: Building phonics into a classroom reading program* (5th ed.). Boston: Pearson.
Gives pre- and in-service teachers essential information for planning and implementing effective word identification in elementary classroom reading programs. Useful for review of competency 3.

8. Gunning, Thomas G. (2013). *Creating literacy instruction for all students* (8th ed.). Boston: Pearson.
Includes plans and strategies to develop appropriate lesson plans that enable students to achieve higher levels of literacy. Useful for review of competency 1.

9. Harvey, S. & Goudvis, A. (2007). *Strategies that work: Teaching comprehension for understanding and engagement* (2nd ed.). Portland: Stenhouse.
Includes strategies so that students become engaged, thoughtful, independent readers while describing how to apply the strategies flexibly across the curriculum. Useful for review of competencies 3 and 5.

10. Jalongo, M. R. (2006). *Early childhood language arts* (4th ed.). Upper Saddle River, NJ: Pearson Allyn & Bacon.
Includes 36 research-based teaching strategies, and information on brain research, bilingual education, technology, and the media's influence on young children. Provides a synthesis of the information on language arts gleaned from research on emergent literacy, early childhood education, and special education. Useful for review of competency 1.

11. McEwan, P., & McEwan, E. (2002). *Teach them all to read.* Thousand Oaks, CA: Corwin Press.
Provides insight into current research and effective strategies to use in the instruction of reading, including vocabulary, comprehension, and fluency. Emphasizes differentiating instruction to meet the needs of all students. Useful for review of competency 1.

12. McLaughlin, M. (2003). *Guided comprehension in the primary grades*. Newark: International Reading Association.
Presents a teaching framework that develops reading comprehension in primary-grade students through direct and guided strategy instruction, opportunities for engagement, and a variety of leveled texts and instructional settings. Useful for review of competency 3.

13. Rasinski, Timothy V. (2010). *The fluent reader: Oral & silent reading strategies for building fluency, word recognition & comprehension*. New York: Scholastic.
Includes coverage of the latest research on fluency, teaching strategies based on that research, new classroom vignettes, and suggestions for using a variety of texts to teach fluency such as poetry, speeches, and monologues and dialogues. Useful for review of competencies 2 and 3.

14. Schulze, A. (2006). *Helping children become readers through writing.* Newark: International Reading Association.
Writing workshop approach to teach kindergarten students how to communicate a message while learning phonemic awareness and the alphabetic principle. Provides a research-based explanation of the stages of students' writing development using mini-lessons. Useful for review of competency

15. Tompkins, G. (2006). *Literacy for the 21st century: A balanced approach* (4th ed.). Upper Saddle River, NJ: Pearson Merrill Prentice Hall.
Offers a balanced approach to teaching reading and writing and provides insights into successful literacy teaching. Includes charts and appendixes. Useful for review of competency 4.

16. Vacca, J. A. L., et al. (2012). *Reading and learning to read* (8th ed.). Boston: Pearson.
Discusses instructional practices and ways of encouraging success in reading and reading comprehension. Useful for review of competencies 1 and 3.

Mathematics

1. Ashlock, R. B. (2010). *Error patters in computation: Using error patterns to improve instruction*. (10th ed.). Boston, MA: Pearson Education.
Focuses on analysis of student errors to appropriately identify and address common mistakes and foster understanding. Useful for review of competencies 1 and 2.

2. Bennett, A. B., Burton, L. J., & Nelson, L. T. (2012). *Mathematics for elementary teachers: A conceptual approach*. (9th ed.). New York, NY: McGraw-Hill.
Contains a strong focus on the development of math skills and the instructional practices that most encourage success. Useful for review of competencies 1 and 2.

3. Billstein, R., Libeskind, S., & Lott, J. W. (2007). *A problem solving approach to mathematics for elementary school teachers*. (9th ed.). Boston, MA: Pearson Education.
Skills-based resource for future teachers. Includes instruction for problem solving, integers, probability, and geometry. Useful for review of competencies 2, 3, 4, and 5.

4. Charlesworth, R., & Lind, K. (2007). *Math and science for young children* (5th ed.). Clifton Park, NY: Delmar Cengage Learning.
Focuses on integration of mathematics and science with other areas of child development from birth through age 8. Addresses significant national standards and the frequent changes in those standards. Useful for review of competency 1.

5. Copley, J. V. (2000). *The young child and mathematics*. Washington, DC: National Association for the Education of Young Children.
Focuses on ways teachers can encourage the natural mathematical interests and abilities of young children. Consistent with guidelines on curriculum and assessment from the National Association for the Education of Young Children as well as the National Council of Teachers of Mathematics *Principles and Standards for School Mathematics*. Useful for review of competency 1.

6. Long, C. T., DeTemple, D. W., & Millman, R. S. (2012). *Mathematical reasoning for elementary teachers.* (6th ed.). Boston, MA: Pearson Education.
Focuses on mathematical content knowledge that teachers will need to know and methods of its use in the classroom. Useful for all competencies.

7. National Council of Teachers of Mathematics. (2000). *Principles and standards for school mathematics*. Reston, VA: Author.
Outlines the mathematical understanding, knowledge, and skills students should learn from prekindergarten through grade 12. For a detailed explanation of the standards, download *Curriculum Focal Points for Prekindergarten through Grade 8 Mathematics: A quest for coherence* online at www.nctm.org. Useful for review of competencies 2, 3, 4, and 5.

8. Parker, T. H., & Baldridge, S. J. (2004). *Elementary mathematics for teachers*. Okemos, MI: Sefton-Ash.
Focuses on knowledge K–8 teachers need to know to teach mathematics effectively. Covers the topics roughly in the order in which they are typically introduced in elementary school. Useful for review of competencies 2, 3, 4, and 5.

9. Schifter, D., Bastable, V., Russell, S. J., Yaffee, L., Lester, B., & Cohen, S. (1999). *Making meaning for operations*. Parsippany, NJ: Dale Seymour Publishing.
Provides basic instruction and guidance in mathematical thinking. Useful for review of competency 1.

10. Tobey, C. R., Minton, L. (2011). *Uncovering student thinking in mathematics: Grades K-5.* Thousand Oaks, CA: Corwin. Focuses on development of mathematical thought in students and how common errors and misconceptions can be identified through student work and behaviors. Includes instructional practices for addressing these issues. Useful for review of competencies 1 and 2.

11. Van de Walle, J. A. (2005). *Teaching student-centered mathematics.* Boston: Pearson Allyn & Bacon. Provides big ideas approach and explanations to mathematical concepts through student-centered, problem-based learning. Useful for review of competency 1.

12. Van de Walle, J. A. (2007). *Elementary and middle school mathematics: Teaching developmentally* (6th ed.). Boston: Pearson Allyn & Bacon. A K–8 mathematics methods text reflecting the National Council of Teachers of Mathematics *Principles and Standards for School Mathematics*. Provides ideas and discussions to help future teachers understand the mathematics they will be teaching. Discusses the benefits of student-centered instruction in mathematics. Useful for review of competency 1.

Science

1. Abruscato, J. & DeRosa, D. A. (2010). *Teaching children science: A discovery approach* (7th ed.). Boston: Allyn & Bacon. Provides content on the latest techniques in science teaching. Establishes a solid foundation in science pedagogy upon which students can build in later years. Useful for review of competency 1.

2. Charlesworth, R., & Lind, K. (2007). *Math and science for young children* (5th ed.). Clifton Park, NY: Delmar Cengage Learning. Focuses on integration of mathematics and science with other areas of child development from birth through age 8. Addresses significant national standards and the frequent changes in those standards. Useful for review of competency 1 and 2.

3. Chaille, C. & Britain, L. (2003). *The young child as scientist: A constructivist approach to early childhood science education*. Boston: Allyn & Bacon.
Discusses children's relationships and responses to science instruction. Provides guidance in the construction of developmentally sound lessons and activities. Useful for review of competency 1.

4. Davis, G, A. & Keller, J. D. (2009). *Exploring science and mathematics in a child's world.* Upper Saddle River, NJ: Pearson Education.
Explores the relationship between mathematics and science and how children develop understanding of different concepts. Provides insight into growth and development of reasoning and logic skills. Useful for review of competencies 1 and 2.

5. Kellman, K., Knowles, M., Martin, S., Needham, F. (2005). *ScienceSaurus: A student handbook grades 4-5.* Great Source Education Group, Inc.
A science textbook containing many developmentally appropriate texts and lessons. Useful for review of all competecies.

6. Kwan, T. & Texley, J. (2002). *Exploring safely: A guide for elementary teachers*. Arlington: National Science Teachers Association.
Provides guidance in effective and safe science instruction at a developmentally appropriate level. Useful for review of competency 1.

7. Lutgens, F. K., Tarbuck, E., & Tasa, D. (2008). *Foundations of earth science* (5th ed.). Upper Saddle River, NJ: Pearson Prentice Hall.
A highly visual, nontechnical survey emphasizing broad, up-to-date coverage of basic topics and principles in geology, oceanography, meteorology, and astronomy. Useful for review of competency 3.

8. Martin, R., Sexton, C., & Franklin, T. (2009). *Teaching science for all children: Inquiry methods for constructing understanding* (4th ed.). Boston, MA: Pearson.
Emphasizes learning science through inquiry, implementation of the Learning Cycle, NSE standards, constructivism, technology, and strategies for teaching diverse learners. Useful for the review of competency 1.

9. Ritz, W. C. (2007). *A head start on science: Encouraging a sense of wonder.* Arlington, VA: National Science Teachers Association Press.
Discusses how instructional methods and classroom environment affect the success of science instruction. Useful for review of competency 1.

10. Sadava, D., Heller, C. H., Orians, G. H., Purves, W. K., & Hillis, D. (2008). *Life: The science of biology* (8th ed.). Sunderland, MA: Sinauer Associates.
Covers the fundamentals of biology, including chapters on emerging subdisciplines such as evolutionary change and the evolution of genes and genomes. Useful for the review of competency 5.

11. Seefeldt, C., Galper, A., & Jones, I. (2012). *Active experiences for active children* (3rd ed.). Boston: Pearson.
Discusses how children learn and relate to science, with an emphasis on investigation. Useful for review of competency 1.

12. Victor, E., Kellough, R. D., & Tai, R. H (2008). *Science K-8: An integrated approach*. Upper Saddle River, NJ: Pearson/Merrill Prentice Hall.
Based on the premise that integrated learning by inquiry is the cornerstone of effective science teaching and focuses on the four developmental components of both teaching and learning. Useful for review of competency 1.

13. Wysession, M., Frank, D. V., & Yancopoulos, S. (2004). *Physical science: Concepts in action*. Needham, MA: Pearson Prentice Hall.
A text to help students make connections between science and everyday experiences. Includes technology, tools, and activities to support differentiated instruction. Useful for review of competencies 1 and 2.

7 Additional Information

Please visit the following website to review FTCE registration details and to find additional FTCE information, including test locations and passing scores.

www.fldoe.org/accountability/assessments/postsecondary-assessment/ftce/