MIDWESTERN STATE UNIVERSITY
A Member of the Texas Tech University System

Course Syllabus
Teaching Math Methods in Elementary School
West College of Education
EDUC 4043
Fall 2023, Revised August 2023

Contact Information

Instructor: Dr. Dittika Gupta
Office: Bridwell 220
Office hours: Virtual Office Hours - Monday 10:00-11:30am, Tuesday 10:00am-12:00pm, and Wednesday 10:00am-11:30am. I am also happy to meet outside of office hours if there is a need. Don't hesitate to contact me to find a convenient time for both of us.
Office phone: 940-397-4269
E-mail: dittika.gupta@msutexas.edu

Instructor Response Policy

We will be working and communicating constantly throughout the semester. Email is great however you will also be a part of class GroupMe which will provide more flexibility in communication. I will try my best to answer all emails and texts within 24 hours, however you will definitely get a response within 48 hours (2 days). Any emails or texts received during weekends will not receive a response till the following Monday. No emails or texts will be answered over the weekend.

Textbook & Instructional Materials

1. Van de Walle, J. A., Karp, K. S., & Bay-Williams, J. M. (2010). Elementary and middle school mathematics: Teaching developmentally. Boston: Allyn & Bacon (10th edition) **WITH Access code** (this is already included in your course fees at a discounted rate)
2. Handouts and copied materials as required through the semester.

Course Description

These field-based courses focus on elementary and middle school mathematics, mathematics pedagogy with emphasis on instructional strategies and models, the use of technology in the learning/teaching process, effective practices, professionalism, curriculum, and lesson design. Different teaching strategies include appropriate use of creative approaches to the learning/teaching process, cooperative learning, direct instruction, inquiry, concept attainment, etc. An important component of this field-based block of classes is the course time spent in active participation in field (classroom) experiences.

Course Objectives

1. Learners are able to describe learning and thinking in elementary and middle mathematics.
2. Learners will be able to develop curriculum and use effective instructional planning skills.
3. Learners will be able to develop appropriate assessment tools to assess students learning.
4. Learners will be able to use assessment data to design appropriate learning activities.
5. Learners will be able to develop lesson plans that involve students in an active learning environment.
6. Learners will be able to develop and implement effective teaching strategies.
7. Learners will be able to develop lesson plans/units that incorporate national standards in mathematics and technology applications.
8. Learners will be able to develop lesson plans/units that incorporate state standards in mathematics and technology applications.
9. Learners will be able to develop and implement learning environments that utilize various teaching/learning strategies.
10. Learners will be able to develop learning activities that involve the infusion of technology.

See Appendix A for a complete list of standards, competencies, and other expectations.

Study Hours and Tutoring Assistance

The TASP offers a schedule of selected subjects tutoring assistance. Please contact the TASP, (940)397-4684, or visit the ASC homepage for more information.
Tutoring & Academics Supports Programs

Student Handbook

Refer to: 2023-2024 Student Handbook

Academic Misconduct Policy & Procedures

Academic Dishonesty: Cheating, collusion, and plagiarism (the act of using source material of other persons, either published or unpublished, without following the accepted techniques of crediting, or the submission for credit of work not the individuals to whom credit is given). Additional guidelines on procedures in these matters may be found in the Office of Student Conduct.
Office of Student Conduct

Services for Students with Disabilities

In accordance with Section 504 of the Federal Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, Midwestern State University endeavors to make reasonable accommodations to ensure equal opportunity for qualified persons with disabilities to participate in all educational, social, and recreational programs and activities. After notification of acceptance, students requiring accommodations should make application for such assistance through Disability Support Services, located in the Clark Student Center, Room 168, (940) 397-4140. Current documentation of a disability will be required in order to provide appropriate

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services, and each request will be individually reviewed. For more details, please go to [Disability Support Services](#).

Students with Disabilities:
Any student who, because of a disability, may require special arrangements in order to meet the course requirements should contact the instructor as soon as possible to make necessary arrangements. Students must present appropriate verification from the University's Disability Support Services (DSS) Office during the instructor's office hours. Please note that instructors are not allowed to provide classroom accommodation(s) to a student until appropriate verification from DSS has been provided.

Grading/Assessment

Table 1: Points allocated to each assignment.

Assignments	Grade Points
Technology Assignment	25 points
Quizzes (4 of them)	110 points
Vertical Alignment Assignment	40 points
Instructional Strategy Presentation	15 points
Culturally Relevant Presentations	100 points
Lesson Plan	100 points
Classroom Observation	100 points
Final Exam	100 points
Classroom Participation and Disposition (this will be separated in 30, 40, and 40 points)	110 points
TOTAL	700 points

*Grading points may change as per the needs of the class and students.

Table 2: Total points for final grade.

Grade	Percentage
A	90% - 100%
B	80% - 89.99%
C	70% - 79.99%
D	60% - 69.99%
F	Below 59%

*Note that an "A" is 90% to 100%. There will be NO rounding and grades will be calculated with two decimal points.

Quizzes

There are four quizzes with varying grade points in this course that align with the book chapters. Quizzes will consist of multiple choice and open-ended questions. Quiz details as well as a rubric for open-ended questions will be provided.

Written Assignments

There are some written assignments in this course that build your understanding of thinking about how children assimilate mathematics and also prepare you to become aware of research-based practices in teaching mathematics. Details for assignments will be on D2L. Any questions can be asked via email or during class.

Expectations for written work:

Correct grammar, punctuation, and spelling are expected on all written assignments (although web discussions are not held to the high standard of a research project or other written assignment).

Written assignments should be:
- Done in Microsoft Word and turned in as an attachment in dropbox on D2L or
- Converted to a PDF and turned in as an attachment in dropbox on D2L.
- Discussions (if applicable) should be completed within the D2L discussion space and NOT uploaded as an attachment.

Lesson Planning

Teacher candidates must demonstrate the ability to plan, assess, and implement instruction. This begins in the Foundational block where the teacher candidates create and write lessons for effective teaching. Teacher candidates are required to develop lesson plans. The specific format can be adapted, but should always include the objectives, TEKS, procedures, materials/resources, assessments, and required components of the lesson plan. Student engagement is a key element in a good lesson with student learning and success as the goal.

Candidates must form assessment strategies to determine the extent to which students master the learning objectives. Candidates also describe the instructional delivery method addressing the following step-by-step procedures:

1. Questions and concerns listed in the directions given to you by your instructor
2. Setting purposes ("Today we will be…I want you to…because you will…")
3. Method(s) for engaging students in the lesson
4. Any questions asked during the lesson should be in **bold**
5. Higher order thinking reflected in questions
6. Instructional Strategies: Modeling, Discussion, "Hands-on", Inquiry, etc.
7. Grouping: when and how
8. Instruction that addresses learners' needs (ELLs, Special Education, 504, Gifted, Struggling Learner)
9. Closure

After teaching the lesson, candidates are then required to reflect on and explain:
- the lesson delivery and appropriateness of instructional strategies,
- the impact for future planning using evidence from gathered data and
- collaboration opportunities with the mentor teacher.

The skills acquired during lesson planning provide the foundation and are also built upon for unit planning and other key assessments.

Extra Credit
Extra Credit opportunities will be given and will depend on the flow and needs of the class. Any change in this policy will be dependent upon opportunities and instructor preferences.

Late Work
Late work will receive a 25% deduction per day per assignment (including Saturday and Sunday). This means if the assignment is for 100 points, you can make a maximum score of 75 after one day, 50 after two days, 25 after three days, and zero after 4 days if all your answers are correct. ***There is NO late work on discussion boards or quizzes**! All this is non-negotiable!!! If there are any issues or you are confused about an assignment, contact me ***BEFORE*** the assignment is due (at least 24 to 48 hours before the assignment is due). Time shown on D2L, or email will be used.

Please note: Even though this is a face-to-face class, this class requires you to have access to a computer (with Internet access) to check for class news updates, materials, instructions, resources and upload your assignments in D2L. It is your responsibility to have (or have access to) a working computer in this class. ***Assignments are due by the due date, and personal computer technical difficulties will not be considered reason for the instructor to allow students extra time for submission.**

Make Up Work/Tests
There will be no make-up or resubmissions allowed on assignments, quizzes, discussion boards, or any other activity in class.

Important Dates
Change of Schedule and Late Registration: August 28-31, 2023.
Final Deadline for December graduates to file for graduation: September 25, 2023
Last Day to drop with a grade of "W:" 4 pm, October 30, 2023
Refer to the academic calendar for more details.

Desire-to-Learn (D2L)
Extensive use of the MSU D2L program and Pearson MyLab is a part of this course. Each student is expected to be familiar with D2L as it provides a primary source of communication regarding assignments, examination materials, and general course information. You can log into D2L through the MSU Homepage and use the access code for Pearson MyLab. (There's a note from the bookstore at the bottom of the syllabus.) *If you experience difficulties, please contact the technicians listed for the program or contact your instructor. *__Do not wait till the last minute to submit the assignment. Delays or sending through email will be counted late!__*

Computers are available on campus in various areas of the buildings as well as the Academic Success Center. *__Again, your computer being down is not an excuse for missing a deadline!!__* There are many places to access your class! If you have technical difficulties in the course, there is also a student helpdesk available to you. The college cannot work directly on student computers due to both liability and resource limitations, however they are able to help you get connected to our online services. For help, log into D2L.

Attendance

Absence Policy - Professional teachers are dependable, reliable, and responsible. Therefore, candidates are expected to be on time and in attendance at *<u>every</u>* class, and to stay for the *<u>entire</u>* class. *Tardiness, leaving early, and excessive absences (3) are considered evidence of lack of dependability, and are taken seriously. *Candidates will receive a grade of F on the third absence. If a candidate is taking 'blocked' courses that are taught at a Professional Development School, requiring field experience, the candidate will be dropped with an F from those classes as well.*

After an absence from the course, it is imperative that a student schedule an appointment with the course instructor to discuss attendance. Failure to schedule and attend a conference will result in the loss of classroom participation and disposition points and also in the overall grade being lowered by one letter. It is the <u>candidate's responsibility</u> to make up for any missed work. It is also expected that you will complete all course field experience hours in a professional manner. Professional conduct is expected when observing or participating in school settings (e.g., dressing appropriately, arriving on time, remaining for the entire pre-arranged time, not canceling, and demonstrating respect in all interactions with young people, parents, teachers, and staff). If you must miss your field experience for any reason, you are expected to call the school and the teacher you are working with *<u>before</u>* school begins for the day. You must also contact the course instructor by e-mail or phone to let me know you will not be present and arrange a time with me when we can discuss the most appropriate way to make up that absence. Excessive tardiness (determined by the professor) can be defined as an absence and subject to the absentee policy. <u>Three instances of tardy arrival will be counted as one absence</u>.

If a class member is absent, for whatever reason, that individual assumes responsibility for contacting the instructor to account for missed work and to turn in work. **It is impossible to provide a summary of all that takes place during any given class via email.** If a student is going to be absent, they have the responsibility to contact the instructor to turn in assignments and obtain copies of any handouts from the missed class. Tentative assignment due dates are listed on the course schedule. While the actual due dates may vary due to the flow of the class, all assignment due dates will be finalized and announced in class well in advance of the specific date. *Late work, unless arrangements are made by the student and approved **in advance** by the instructor, **will not be accepted for full credit**.

Instructor Drop

As per the College policies, an instructor may drop a student any time during the semester for excessive absences, for consistently failing to meet class assignments, for an indifferent attitude, or for disruptive conduct. Instructor will give the student a verbal or written warning prior to dropping the student from the class. The instructor-drop takes precedence over the student-initiated course drop of a later date. The instructor will assign a grade of either WF or F through the first 8 weeks of this semester. After this period, the grade will be an F. The date the instructor drop form is received in the Office of the Registrar is the official drop date.

Change of Schedule

A student dropping a course (but not withdrawing from the University) within the first 12 class days of a regular semester or the first four class days of a summer semester is eligible for a 100%

refund of applicable tuition and fees. Dates are published in the [Schedule of Classes](#) each semester.

Refund and Repayment Policy

A student who withdraws or is administratively withdrawn from Midwestern State University (MSU) may be eligible to receive a refund for all or a portion of the tuition, fees and room/board charges that were paid to MSU for the semester. However, if the student received financial aid (federal/state/institutional grants, loans and/or scholarships), all or a portion of the refund may be returned to the financial aid programs. As described below, two formulas (federal and state) exist in determining the amount of the refund. (Examples of each refund calculation will be made available upon request).

Class Participation

Students should participate in all the activities of this course. It is important that students meet all the deadlines as posted. In the case of any emergency situation (like death or illness in family, etc.) it is important that the student should report the same to the professor in a timely manner. It is your course, and the primary intention should be to reach the goals and acquire proficiency in the topics discussed in the course. Generally, students are graded on intellectual effort and performance rather than attendance, absences may lower the student's grade where class attendance and class participation are deemed essential.

Excessive tardiness or absence (as determined by the professor), disruptive attitude, or failure to consistently meet class requirements might result in instructor-drop, if required. Being repeatedly late for class will also result in a grade reduction regardless of other marks. Tardiness will result in loss of classroom disposition points and three instances of tardy arrival will be counted as one absence.

Each student brings a unique perspective and life experience to the learning environment and is expected to participate actively and thoughtfully by making pertinent contributions. All students are expected to read assignments and be prepared to discuss them. Note that you are provided with focus questions that are designed to structure your reading of the assigned texts. Moreover, the course instructor may assign additional readings. *Participating in class discussions and following expectations is a part of your grade*. Please come to class with questions or issues from the reading that you found central or worthy of further exploration. Students may also be asked to do activities and exercises related to the assigned readings or to lead discussions on a topic or reading. You will have many opportunities to participate in class and on D2L. These opportunities are a very important part of this course.

Online Computer Requirements

As mentioned above, it is your responsibility to have (or have access to) a working computer in this class. Assignments are due by the due date, and personal computer technical difficulties will not be considered a reason for the instructor to allow students extra time to submit assignments, tests, or discussion postings.

Computers are available on campus in various areas of the buildings as well as the Academic Success Center. Your computer being down is not an excuse for missing a deadline!!

Instructor Classroom Policies

Students are expected to assist in maintaining a classroom environment which is conducive to learning. In order to assure that all students have the opportunity to gain from time spent in class, unless otherwise approved by the instructor, students are prohibited from engaging in any form of distraction—this includes but is not limited to pagers and cell phones. In the classroom or during virtual meetings, cell phones need to be put away so that they do not disrupt the learning environment for you and others. Inappropriate behavior in the classroom shall result, minimally, in a request to leave class and a Professional Fitness Form will be filed for review with the college. If the instructor must file a Fitness Alert Form for any reason, including failure to demonstrate appropriate teaching dispositions, the student may receive an instructor drop with an "F" for the course.

Any student who misses class (for any reason) remains responsible for contacting other students to obtain class materials. In the event that a class member is absent, for whatever reason, that individual assumes responsibility for contacting the instructor to account for missed work and to turn in work. It is impossible to provide a summary of all that takes place during any given class via email. If a student is going to be absent, they have the responsibility to contact the instructor to turn in assignments and obtain copies of any handouts from the missed class. Tentative assignment due dates are listed on the course schedule. While the actual due dates may vary due to the flow of the class, all assignment due dates will be finalized and announced in class well in advance of the specific date. *Late work, unless arrangements are made by the student and approved in advance by the instructor, will not be accepted for full credit.*

As previously mentioned, cheating, collusion, and plagiarism (the act of using source material of other persons, either published or unpublished, without following the accepted techniques of crediting, or the submission for credit of work not the individuals to whom credit is given) will not be considered. I use Turnitin for the written assignments and D2L directly syncs with it (you do not have to do anything). You will be able to see the plagiarism percentage and are welcome to make changes and resubmit **BEFORE** the due date. *Any plagiarism of 30% and above is too much and the assignment will not be graded, given a zero, and no make-up allowed!!!

College Policies

Campus Carry Rules/Policies
Refer to: Campus Carry Rules and Policies

Smoking/Tobacco Policy
College policy strictly prohibits the use of tobacco products in any building owned or operated by WATC. Adult students may smoke only in the outside designated-smoking areas at each location.

Alcohol and Drug Policy
To comply with the Drug Free Schools and Communities Act of 1989 and subsequent amendments, students and employees of Midwestern State are informed that strictly enforced policies are in place which prohibits the unlawful possession, use or distribution of any illicit

drugs, including alcohol, on university property or as part of any university-sponsored activity. Students and employees are also subject to all applicable legal sanctions under local, state, and federal law for any offenses involving illicit drugs on University property or at University-sponsored activities.

COVID

Scientific data shows that being fully vaccinated is the most effective way to prevent and slow the spread of COVID-19 and has the greatest probability of avoiding serious illness if infected in all age groups. Although MSU Texas is not mandating vaccinations in compliance with Governor Abbott's executive orders, we highly encourage eligible members of our community to get a vaccination. If you have questions or concerns about the vaccine, please contact your primary care physician or health care professional. Given the recent rise in cases, individuals are also strongly encouraged to wear facial coverings when indoors among groups of people, regardless of vaccination status. Although MSU Texas is not currently requiring facial coverings, they have been an effective strategy in slowing the spread.

Grade Appeal Process

Students who wish to appeal a grade should consult the Midwestern State University MSU Catalog

Course Schedule

Disclaimer Notice: Changes in the course syllabus, procedure, assignments, and schedule may be made at the discretion of the instructor to meet the needs of the class appropriately.
All assignments are due on Sunday by 11:30pm. Please see attached document for a detailed course schedule.

Other Expectations

As a part of your preparation for becoming a teacher, you are expected to begin acting in a professional manner – starting today. This includes, but is not limited to:

Internship Experience – Throughout your internship experience, ask your mentor teacher to provide you with constructive feedback regarding your classroom presence, interactions with students and lessons that you present to the students. Use this information to make necessary improvements during the time that remains in the schedule. Always conduct yourself in a professional manner.

Participation – It is not enough to just "show up." In other words, you cannot just sit there and breathe. You need to be prepared to discuss the readings that are assigned, contribute appropriately, and encourage the participation of your peers.

Preparation – Complete all assignments on time. Written assignments (whether submitted online or in class) will be discounted by 25% for each late day. Complete readings assigned prior to class in order to be able to participate in class discussions and activities.

Attitude – Demonstrate the following dispositions that are essential for learning:
- Curiosity (ask questions, look for additional answers, probe, reflect)

- Flexibility (take alternate points of view, be open-minded)
- Organization (plan ahead – literally, GET A PLANNER!)
- Patience (take time to reason, be persistent in efforts)
- Risk-taking (try things beyond your current repertoire)
- Passion (invest in ideas, processes, products, and most of all – other people)

Be aware that your attitude is conveyed to others by body language, conversation, neatness, completeness of work, willingness to assist and contribute and many other ways. A sense of humor and the ability to be flexible are crucial – not just in this class but from now on – that is the nature of the classroom.

***Respect* –** Be considerate of others. Do not talk while others are talking; do not use foul language; behave in an ethical manner. This is particularly important considering our classroom location - we are guests in the Wichita Falls school district and should behave as such.

***Professional Development* –** Remember that teaching requires a commitment to continual learning. You will be asked to complete several "chores" as the semester rolls along and the points earned for dispositions are affected by those "chores." Timely completion of tasks (or "chores") is an indication of your "fitness" to this profession.

From the MSU Bookstore

Mustangs,

EDUC 4043 is included in the above program for the Fall semester. What does this mean?
- Your course material is in D2L on the first day of class, for everyone in your class. Your professors opted to have your course in the program to save you time and money.
- The money saving charge of $80.00+ tax has been added to your student account, which is below the publisher's website price. This amount also includes connection to Pearson's website.
- You have the choice to "opt out" of this special pricing and find your material on your own. If you prefer to "opt out", the instructions will be in your my.msutexas.edu email on the second day of class. The last day to "opt- out" of this program is 9/13/2023.

Students- if you have questions concerning this program, please email
jenny.denning@msutexas.edu..

References
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I wish you all the very best and am so happy to have you all in class!!!

Appendix A: Standards/Competencies

WCOE Standards

The outcomes for graduates of professional programs are based upon knowledge, skills, and dispositions in the following elements:

1. **Learner Development** - understand how learners grow and develop, recognizing that patterns of learning and development vary individually within and across the cognitive, linguistic, social, emotional, and physical areas, and design and implements developmentally appropriate and challenging learning experiences.
2. **Learning Differences__-**understand individual differences and diverse cultures and communities to ensure inclusive learning environments that enable each learner to meet high standards.
3. **Learning Environment -** work with others to create environments that support individual and collaborative learning, and that encourage positive social interaction, active engagement in learning, and self-motivation.
4. **Content Knowledge -** understand the central concepts, tools of inquiry, and structures of the discipline(s) he or she teaches and creates learning experiences that make the discipline accessible and meaningful for learners to assure mastery of the content.
5. **Application of Content -** understand how to connect concepts and use differing perspectives to engage learners in critical thinking, creativity, and collaborative problem solving related to authentic local and global issues.
6. **Assessment -** understand and use multiple methods of assessment to engage learners in their own growth, to monitor learner progress, and to guide the teacher's and learner's decision making.
7. **Planning for Instruction -** plan instruction that supports every student in meeting rigorous learning goals by drawing upon knowledge of content areas, curriculum, cross-disciplinary skills, and pedagogy, as well as knowledge of learners and the community context.
8. **Instructional Strategies -** understand and use a variety of instructional strategies to encourage learners to develop deep understanding of content areas and their connections, and to build skills to apply knowledge in meaningful ways.
9. **Professional Learning and Ethical Practice -** engage in ongoing professional learning and use evidence to continually evaluate his or her practice, particularly the effects of his or her choices and actions on others (learners, families, other professionals, and the community), and adapts practice to meet the needs of each learner.
10. **Leadership and Collaboration -** seek appropriate leadership roles and opportunities to take responsibility for student learning, to collaborate with learners, families, colleagues, other school professionals, and community members to ensure learner growth, and to advance the profession.

Teacher Preparation Standards

Mathematics Standard I - Number Concepts: The mathematics teacher understands and uses numbers, number systems and their structure, operations and algorithms, quantitative reasoning and technology appropriate to teach the statewide curriculum (Texas Essential Knowledge and Skills [TEKS]) in order to prepare students to use mathematics.

Mathematics Standard II Patterns and Algebra: The mathematics teacher understands and uses patterns, relations, functions, algebraic reasoning, analysis and technology appropriate to teach

the statewide curriculum (Texas Essential Knowledge and Skills [TEKS]) in order to prepare students to use mathematics.

Mathematics Standard III Geometry and Measurement: The mathematics teacher understands and uses geometry, spatial reasoning, measurement concepts and principles and technology appropriate to teach the statewide curriculum (Texas Essential Knowledge and Skills [TEKS]) in order to prepare students to use mathematics.

Mathematics Standard IV Probability and Statistics: The mathematics teacher understands and uses probability and statistics, their applications and technology appropriate to teach the statewide curriculum (Texas Essential Knowledge and Skills [TEKS]) in order to prepare students to use mathematics.

Mathematics Standard V Mathematical Processes: The mathematics teacher understands and uses mathematical processes to reason mathematically, to solve mathematical problems, to make mathematical connections within and outside of mathematics and to communicate mathematically.

Mathematics Standard VI Mathematical Perspectives: The mathematics teacher understands the historical development of mathematical ideas, the interrelationship between society and mathematics, the structure of mathematics and the evolving nature of mathematics and mathematical knowledge.

Mathematics Standard VII Mathematical Learning and Instruction: The mathematics teacher understands how children learn and develop mathematical skills, procedures and concepts; knows typical errors students make; and uses this knowledge to plan, organize and implement instruction; to meet curriculum goals; and to teach all students to understand and use mathematics.

Mathematics Standard VIII Mathematical Assessment: The mathematics teacher understands assessment and uses a variety of formal and informal assessment techniques appropriate to the learner on an ongoing basis to monitor and guide instruction and to evaluate and report student progress.

Mathematics Standard IX Professional Development: The mathematics teacher understands mathematics teaching as a profession, knows the value and rewards of being a reflective practitioner and realizes the importance of making a lifelong commitment to professional growth and development.

Competencies

Competency 001 (Mathematics Instruction): The teacher understands how students learn mathematical skills and uses that knowledge to plan, organize and implement instruction and assess learning.

The beginning teacher: A. Plans appropriate instructional activities for all students by applying research-based theories and principles of learning mathematics.

B. Employs instructional strategies that build on the linguistic, cultural and socioeconomic diversity of students and that relate to students' lives and communities.

C. Plans and provides developmentally appropriate instruction that establishes transitions between concrete, symbolic and abstract representations of mathematical knowledge and that builds on students' strengths and addresses their needs.

D. Understands how manipulatives and technological tools can be used appropriately to assist students in developing, comprehending and applying mathematical concepts.

E. Creates a learning environment that motivates all students and actively engages them in the learning process by using a variety of interesting, challenging and worthwhile mathematical tasks in individual, small-group and large-group settings.

F. Uses a variety of tools (e.g., counters, standard and nonstandard units of measure, rulers, protractors, scales, stopwatches, measuring containers, money, calculators, software) to strengthen students' mathematical understanding.

G. Implements a variety of instructional methods and tasks that promote students' ability to do the mathematics described in the Texas Essential Knowledge and Skills (TEKS).

H. Develops clear learning goals to plan, deliver, assess and reevaluate instruction based on the mathematics in the Texas Essential Knowledge and Skills (TEKS).

I. Helps students make connections between mathematics and the real world, as well as between mathematics and other disciplines such as art, music, science, social science and business.

J. Uses a variety of questioning strategies to encourage mathematical discourse and to help students analyze and evaluate their mathematical thinking. K. Uses a variety of formal and informal assessments and scoring procedures to evaluate mathematical understanding, common misconceptions and error patterns.

L. Understands the relationship between assessment and instruction and knows how to evaluate assessment results to design, monitor and modify instruction to improve mathematical learning for all students, including English-language learners.

M. Understands the purpose, characteristics and uses of various assessments in mathematics, including formative and summative assessments.

N. Understands how mathematics is used in a variety of careers and professions and plans instruction that demonstrates how mathematics is used in the workplace.

Competency 002 (Number Concepts and Operations): The teacher understands concepts related to numbers, operations and algorithms and the properties of numbers.

The beginning teacher: A. Analyzes, creates, describes, compares and models relationships between number properties, operations and algorithms for the four basic operations involving integers, rational numbers and real numbers, including real-world situations.

B. Demonstrates an understanding of equivalency among different representations of rational numbers and between mathematical expressions.

C. Selects appropriate representations of real numbers (e.g., fractions, decimals, percents) for particular situations.

D. Demonstrates an understanding of ideas from number theory (e.g., prime factorization, greatest common divisor, divisibility rules) as they apply to whole numbers, integers and rational numbers, and uses those ideas in problem situations.

E. Understands the relative magnitude of whole numbers, integers, rational numbers and real numbers including the use of comparative language and sets of objects.

F. Identifies and demonstrates an understanding of and uses of a variety of models and objects for representing numbers (e.g., fraction strips, diagrams, patterns, shaded regions, number lines).

G. Uses a variety of concrete and visual representations to demonstrate the connections between operations and algorithms.

H. Identifies, demonstrates and applies knowledge of counting techniques, including combinations, to quantify situations and solve math problems (e.g., to include forward, backward and skip counting, with or without models).

I. Identifies, represents and applies knowledge of place value (e.g., to compose and decompose numbers), rounding and other number properties to perform mental mathematics and computational estimation with automaticity.

J. Demonstrates a thorough understanding of fractions, including the use of various representations to teach fractions and operations involving fractions.

K. Uses a variety of strategies to generate and solve problems that involve one or more steps, with fluency

Competency 003 (Patterns and Algebra): The teacher understands concepts related to patterns, relations, functions, and algebraic reasoning

The beginning teacher: A. Illustrates relations and functions using concrete models, tables, graphs and symbolic and verbal representations, including real-world applications.

B. Demonstrates an understanding of the concept of linear function using concrete models, tables, graphs and symbolic and verbal representations.

C. Understands how to use algebraic concepts and reasoning to investigate patterns, make generalizations, formulate mathematical models, make predictions and validate results.

D. Formulates implicit and explicit rules to describe and construct sequences verbally, numerically, graphically and symbolically.

E. Knows how to identify, extend, and create patterns using concrete models, figures, numbers and algebraic expressions.

F. Uses properties, graphs, linear and nonlinear functions and applications of relations and functions to analyze, model and solve problems in mathematical and real-world situations.

G. Translates problem-solving situations into expressions and equations involving variables and unknowns.

H. Models and solves problems, including those involving proportional reasoning, using concrete, numeric, tabular, graphic and algebraic methods (e.g., using ratios and percents with fractions and decimals).

I. Determines the linear function that best models a set of data.

J. Understands and describes the concept of and relationships among variables, expressions, equations, inequalities and systems in order to analyze, model and solve problems.

K. Applies algebraic methods to demonstrate an understanding of whole numbers using any of the four basic operations.

Competency 004 (Geometry and Measurement): The teacher understands concepts and principles of geometry and measurement.

The beginning teacher: A. Applies knowledge of spatial concepts such as direction, shape and structure.

B. Identifies, uses, understands and models the development of formulas to find lengths, perimeters, areas and volumes of geometric figures.

C. Uses the properties of congruent triangles to explore geometric relationships.

D. Identifies, uses and understands concepts and properties of points, lines, planes, angles, lengths and distances.

E. Analyzes and applies the properties of parallel and perpendicular lines.

F. Uses a variety of representations (e.g., numeric, verbal, graphic, symbolic) to analyze and solve problems involving angles and two- and three-dimensional figures such as circles, triangles, polygons, cylinders, prisms and spheres.

G. Uses symmetry to describe tessellations and shows how they can be used to illustrate geometric concepts, properties and relationships.

H. Understands measurement concepts and principles, including methods of approximation and estimation, and the effects of error on measurement.

I. Explains, illustrates, selects and uses appropriate units of measurement to quantify and compare time, temperature, money, mass, weight, area, capacity, volume, percent, speed and degrees of an angle.

J. Uses translations, rotations and reflections to illustrate similarities, congruencies and symmetries of figures.

K. Develops, justifies and uses conversions within and between measurement systems.

L. Understands logical reasoning, justification and proof in relation to the axiomatic structure of geometry and uses reasoning to develop, generalize, justify and prove geometric relationships.

M. Understands attributes of various polygons, including names and how sides and angles of the polygon affect its attributes.

N. Partitions or decomposes polygons to express areas as fractions of a whole or to find areas of nonstandard polygons.

O. Demonstrates the value and relationships of United States coins and bills and uses appropriate symbols to name the value of a collection.

P. Identifies, uses and understands the concepts and properties of geometric figures and their relationships.

Q. Describes the key attributes of the coordinate plane and models the process of graphing ordered pairs.

Competency 005 (Probability and Statistics): The teacher understands concepts related to probability and statistics and their applications.

The beginning teacher: A. Investigates and answers questions by collecting, organizing and displaying data in a variety of formats as described in the Texas Essential Knowledge and Skills (TEKS) and draws conclusions from any data graph.

B. Demonstrates an understanding of measures of central tendency (e.g., mean, median, mode) and range and uses those measures to describe a set of data.

C. Explores concepts of probability through data collection, experiments and simulations.

D. Uses the concepts and principles of probability to describe the outcome of simple and compound events.

E. Determines probabilities by constructing sample spaces to model situations.

F. Applies deep knowledge of the use of probability, in different scenarios, to make observations, draw conclusions and create relationships.

G. Solves a variety of probability problems using combinations and geometric probability (e.g., probability as the ratio of two areas).

H. Supports arguments, makes predictions and draws conclusions using summary statistics and graphs to analyze and interpret one-variable data.

I. Applies knowledge of designing, conducting, analyzing and interpreting statistical experiments to investigate real-world problems.

J. Generates, simulates and uses probability models to represent situations.

K. Uses the graph of the normal distribution as a basis for making inferences about a population.

Competency 006 (Mathematical Processes): The teacher understands mathematical processes and knows how to reason mathematically, solve mathematical problems, and make mathematical connections within and outside of mathematics.

The beginning teacher: A. Understands the role of logical reasoning in mathematics and uses formal and informal reasoning to explore, investigate and justify mathematical ideas.

B. Applies correct mathematical reasoning to derive valid conclusions from a set of premises.

C. Applies principles of inductive reasoning to make conjectures and uses deductive methods to evaluate the validity of conjectures.

D. Evaluates the reasonableness of a solution to a given problem.

E. Understands connections among concepts, procedures and equivalent representations in areas of mathematics (e.g., algebra, geometry).

F. Recognizes that a mathematical problem can be solved in a variety of ways and selects an appropriate strategy for a given problem.

G. Expresses mathematical statements using developmentally appropriate language, standard English, mathematical language and symbolic mathematics.

H. Communicates mathematical ideas using a variety of representations (e.g., numeric, verbal, graphic, pictorial, symbolic, concrete).

I. Demonstrates an understanding of the use of visual media such as graphs, tables, diagrams and animations to communicate mathematical information. J. Demonstrates an understanding of estimation, including the use of compatible numbers, and evaluates its appropriate uses.

K. Knows how to use mathematical manipulatives and a wide range of appropriate technological tools to develop and explore mathematical concepts and ideas.

L. Demonstrates knowledge of the history and evolution of mathematical concepts, procedures and ideas.

M. Recognizes the contributions that different cultures have made to the field of mathematics and the impact of mathematics on society and cultures.

N. Demonstrates an understanding of financial literacy concepts and their application as these relate to teaching students (e.g., describes the basic purpose of financial institutions; distinguishes the difference between gross and net income; identifies various savings options; defines different types of taxes; identifies the advantages and disadvantages of different methods of payments, savings and credit uses and responsibilities).

O. Applies mathematics to model and solve problems to manage financial resources effectively for lifetime financial security, as it relates to teaching students (e.g., distinguishes between fixed and variable expenses, calculates profit in a given situation, develops a system for keeping and using financial records, describes actions that might be taken to develop and balance a budget when expenses exceed income).

Course Objectives

1. Learners are able to describe learning and thinking in elementary and middle mathematics.
2. Learners will be able to develop curriculum and use effective instructional planning skills.
3. Learners will be able to develop appropriate assessment tools to assess students learning.
4. Learners will be able to use assessment data to design appropriate learning activities.
5. Learners will be able to develop lesson plans that involve students in an active learning environment.
6. Learners will be able to develop and implement effective teaching strategies.
7. Learners will be able to develop lesson plans/units that incorporate national standards in mathematics and technology applications.
8. Learners will be able to develop lesson plans/units that incorporate state standards in mathematics and technology applications.
9. Learners will be able to develop and implement learning environments that utilize various teaching/learning strategies.

10. Learners will be able to develop learning activities that involve the infusion of technology.

TEKS Standards
Pre-K
Child identifies objects. V.A.1. Child knows that objects, or parts of an object, can be counted.
Child recites number words in order up to 10. V.A.2. Child uses words to rote count from 1 to 30.
Child counts up to 4 objects with one count per item. V.A.3. Child counts 1– 10 items, with one count per item.
Child identifies items that can be counted. V.A.4. Child demonstrates that the order of the counting sequence is always the same, regardless of what is counted.
Child counts up to 4 items and demonstrates understanding that the last count indicates how many items were counted. V.A.5. Child counts up to 10 items and demonstrates that the last count indicates how many items were counted.
Child begins to understand that items can be counted. V.A.6. Child demonstrates understanding that when counting, the items can be chosen in any order
Child demonstrates proper use of the word "first." V.A.7. Child uses the verbal ordinal terms.
Child verbally identifies without counting the number of objects from 1 to 3. V.A.8. Child verbally identifies, without counting, the number of objects from 1 to 5.
Child recognizes one-digit numerals 1–4. V.A.9. Child recognizes one-digit numerals, 0–9.
Child understands that adding one or more concrete objects to a set will increase the number of objects in the set. V.B.1. Child uses concrete objects, creates pictorial models and shares a verbal word problem for adding up to 5 objects.
Child understands that taking away one or more objects from a set will decrease the number of objects in the set. V.B.2. Child uses concrete models or makes a verbal word problem for subtracting 0–5 objects from a set.
Child identifies two groups of objects placed side-by-side as being equal or non-equal. V.B.3. Child uses informal strategies to separate up to 10 items into equal groups.
Child recognizes common shapes. V.C.1. Child names common shapes.
Child manipulates shapes using fine and gross motor skills. V.C.2. Child creates shapes.
Child begins to use language to describe location of objects. V.C.3. Child demonstrates use of location words (such as "over," "under," "above," "on," "beside," "next to," "between," "in front of," "near," "far," etc.).
Child moves objects during informal play. V.C.4. Child slides, flips, and turns shapes to demonstrate that the shapes remain the same.
Child understands that lengths of objects can vary and be compared. V.D.1. Child recognizes and compares heights or lengths of people or objects.
Child begins to recognize how much can be placed within an object. V.D.2. Child recognizes how much can be placed within an object.
Child understands that weights of objects can vary and be compared. V.D.3. Child informally recognizes and compares weights of objects or people.
Child shows awareness of the passage of time. V.D.4. Child uses language to describe concepts associated with the passing of time.
Child sorts objects that are the same and different. V.E.1. Child sorts objects that are the same and different into groups and uses language to describe how the groups are similar and different.
Child recognizes that data can be organized into a graphic representation. V.E.2. Child collects data and organizes it in a graphic representation.

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Child begins to recognize patterns. V.E.3. Child recognizes and creates patterns.

Kindergarten

(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:

   (A) apply mathematics to problems arising in everyday life, society, and the workplace;

   (B) use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;

   (C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems;

   (D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;

   (E) create and use representations to organize, record, and communicate mathematical ideas;

   (F) analyze mathematical relationships to connect and communicate mathematical ideas; and

   (G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

 (2) Number and operations. The student applies mathematical process standards to understand how to represent and compare whole numbers, the relative position and magnitude of whole numbers, and relationships within the numeration system. The student is expected to:

   (A) count forward and backward to at least 20 with and without objects;

   (B) read, write, and represent whole numbers from 0 to at least 20 with and without objects or pictures;

   (C) count a set of objects up to at least 20 and demonstrate that the last number said tells the number of objects in the set regardless of their arrangement or order;

   (D) recognize instantly the quantity of a small group of objects in organized and random arrangements;

   (E) generate a set using concrete and pictorial models that represents a number that is more than, less than, and equal to a given number up to 20;

   (F) generate a number that is one more than or one less than another number up to at least 20;

   (G) compare sets of objects up to at least 20 in each set using comparative language;

   (H) use comparative language to describe two numbers up to 20 presented as written numerals; and

   (I) compose and decompose numbers up to 10 with objects and pictures.

 (3) Number and operations. The student applies mathematical process standards to develop an understanding of addition and subtraction situations in order to solve problems. The student is expected to:

   (A) model the action of joining to represent addition and the action of separating to represent subtraction;

   (B) solve word problems using objects and drawings to find sums up to 10 and differences within 10; and

   (C) explain the strategies used to solve problems involving adding and subtracting within 10 using spoken words, concrete and pictorial models, and number sentences.

(4) Number and operations. The student applies mathematical process standards to identify coins in order to recognize the need for monetary transactions. The student is expected to identify U.S. coins by name, including pennies, nickels, dimes, and quarters.

(5) Algebraic reasoning. The student applies mathematical process standards to identify the pattern in the number word list. The student is expected to recite numbers up to at least 100 by ones and tens beginning with any given number.

(6) Geometry and measurement. The student applies mathematical process standards to analyze attributes of two-dimensional shapes and three-dimensional solids to develop generalizations about their properties. The student is expected to:

   (A) identify two-dimensional shapes, including circles, triangles, rectangles, and squares as special rectangles;

   (B) identify three-dimensional solids, including cylinders, cones, spheres, and cubes, in the real world;

   (C) identify two-dimensional components of three-dimensional objects;

   (D) identify attributes of two-dimensional shapes using informal and formal geometric language interchangeably;

   (E) classify and sort a variety of regular and irregular two- and three-dimensional figures regardless of orientation or size; and

   (F) create two-dimensional shapes using a variety of materials and drawings.

(7) Geometry and measurement. The student applies mathematical process standards to directly compare measurable attributes. The student is expected to:

   (A) give an example of a measurable attribute of a given object, including length, capacity, and weight; and

   (B) compare two objects with a common measurable attribute to see which object has more of/less of the attribute and describe the difference.

(8) Data analysis. The student applies mathematical process standards to collect and organize data to make it useful for interpreting information. The student is expected to:

   (A) collect, sort, and organize data into two or three categories;

   (B) use data to create real-object and picture graphs; and

   (C) draw conclusions from real-object and picture graphs.

(9) Personal financial literacy. The student applies mathematical process standards to manage one's financial resources effectively for lifetime financial security. The student is expected to:

   (A) identify ways to earn income;

   (B) differentiate between money received as income and money received as gifts;

   (C) list simple skills required for jobs; and

   (D) distinguish between wants and needs and identify income as a source to meet one's wants and needs

First Grade

(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:

   (A) apply mathematics to problems arising in everyday life, society, and the workplace;

   (B) use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;

(C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems;

(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;

(E) create and use representations to organize, record, and communicate mathematical ideas;

(F) analyze mathematical relationships to connect and communicate mathematical ideas; and

(G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

(2) Number and operations. The student applies mathematical process standards to represent and compare whole numbers, the relative position and magnitude of whole numbers, and relationships within the numeration system related to place value. The student is expected to:

(A) recognize instantly the quantity of structured arrangements;

(B) use concrete and pictorial models to compose and decompose numbers up to 120 in more than one way as so many hundreds, so many tens, and so many ones;

(C) use objects, pictures, and expanded and standard forms to represent numbers up to 120;

(D) generate a number that is greater than or less than a given whole number up to 120;

(E) use place value to compare whole numbers up to 120 using comparative language;

(F) order whole numbers up to 120 using place value and open number lines; and

(G) represent the comparison of two numbers to 100 using the symbols >, <, or =.

(3) Number and operations. The student applies mathematical process standards to develop and use strategies for whole number addition and subtraction computations in order to solve problems. The student is expected to:

(A) use concrete and pictorial models to determine the sum of a multiple of 10 and a one-digit number in problems up to 99;

(B) use objects and pictorial models to solve word problems involving joining, separating, and comparing sets within 20 and unknowns as any one of the terms in the problem such as 2 + 4 = [ ]; 3 + [ ] = 7; and 5 = [ ] - 3;

(C) compose 10 with two or more addends with and without concrete objects;

(D) apply basic fact strategies to add and subtract within 20, including making 10 and decomposing a number leading to a 10;

(E) explain strategies used to solve addition and subtraction problems up to 20 using spoken words, objects, pictorial models, and number sentences; and

(F) generate and solve problem situations when given a number sentence involving addition or subtraction of numbers within 20.

(4) Number and operations. The student applies mathematical process standards to identify coins, their values, and the relationships among them in order to recognize the need for monetary transactions. The student is expected to:

(A) identify U.S. coins, including pennies, nickels, dimes, and quarters, by value and describe the relationships among them;

(B) write a number with the cent symbol to describe the value of a coin; and

(C) use relationships to count by twos, fives, and tens to determine the value of a collection of pennies, nickels, and/or dimes.

(5) Algebraic reasoning. The student applies mathematical process standards to identify and apply number patterns within properties of numbers and operations in order to describe relationships. The student is expected to:

(A) recite numbers forward and backward from any given number between 1 and 120;

(B) skip count by twos, fives, and tens to determine the total number of objects up to 120 in a set;

(C) use relationships to determine the number that is 10 more and 10 less than a given number up to 120;

(D) represent word problems involving addition and subtraction of whole numbers up to 20 using concrete and pictorial models and number sentences;

(E) understand that the equal sign represents a relationship where expressions on each side of the equal sign represent the same value(s);

(F) determine the unknown whole number in an addition or subtraction equation when the unknown may be any one of the three or four terms in the equation; and

(G) apply properties of operations to add and subtract two or three numbers.

(6) Geometry and measurement. The student applies mathematical process standards to analyze attributes of two-dimensional shapes and three-dimensional solids to develop generalizations about their properties. The student is expected to:

(A) classify and sort regular and irregular two-dimensional shapes based on attributes using informal geometric language;

(B) distinguish between attributes that define a two-dimensional or three-dimensional figure and attributes that do not define the shape;

(C) create two-dimensional figures, including circles, triangles, rectangles, and squares, as special rectangles, rhombuses, and hexagons;

(D) identify two-dimensional shapes, including circles, triangles, rectangles, and squares, as special rectangles, rhombuses, and hexagons and describe their attributes using formal geometric language;

(E) identify three-dimensional solids, including spheres, cones, cylinders, rectangular prisms (including cubes), and triangular prisms, and describe their attributes using formal geometric language;

(F) compose two-dimensional shapes by joining two, three, or four figures to produce a target shape in more than one way if possible;

(G) partition two-dimensional figures into two and four fair shares or equal parts and describe the parts using words; and

(H) identify examples and non-examples of halves and fourths.

(7) Geometry and measurement. The student applies mathematical process standards to select and use units to describe length and time. The student is expected to:

(A) use measuring tools to measure the length of objects to reinforce the continuous nature of linear measurement;

(B) illustrate that the length of an object is the number of same-size units of length that, when laid end-to-end with no gaps or overlaps, reach from one end of the object to the other;

(C) measure the same object/distance with units of two different lengths and describe how and why the measurements differ;

(D) describe a length to the nearest whole unit using a number and a unit; and

(E) tell time to the hour and half hour using analog and digital clocks.

(8) Data analysis. The student applies mathematical process standards to organize data to make it useful for interpreting information and solving problems. The student is expected to:

(A) collect, sort, and organize data in up to three categories using models/representations such as tally marks or T-charts;

(B) use data to create picture and bar-type graphs; and

(C) draw conclusions and generate and answer questions using information from picture and bar-type graphs.

(9) Personal financial literacy. The student applies mathematical process standards to manage one's financial resources effectively for lifetime financial security. The student is expected to:

(A) define money earned as income;

(B) identify income as a means of obtaining goods and services, oftentimes making choices between wants and needs;

(C) distinguish between spending and saving; and

(D) consider charitable giving.

Second Grade

(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:

(A) apply mathematics to problems arising in everyday life, society, and the workplace;

(B) use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;

(C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems;

(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;

(E) create and use representations to organize, record, and communicate mathematical ideas;

(F) analyze mathematical relationships to connect and communicate mathematical ideas; and

(G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

(2) Number and operations. The student applies mathematical process standards to understand how to represent and compare whole numbers, the relative position and magnitude of whole numbers, and relationships within the numeration system related to place value. The student is expected to:

(A) use concrete and pictorial models to compose and decompose numbers up to 1,200 in more than one way as a sum of so many thousands, hundreds, tens, and ones;

(B) use standard, word, and expanded forms to represent numbers up to 1,200;

(C) generate a number that is greater than or less than a given whole number up to 1,200;

(D) use place value to compare and order whole numbers up to 1,200 using comparative language, numbers, and symbols (>, <, or =);

(E) locate the position of a given whole number on an open number line; and

(F) name the whole number that corresponds to a specific point on a number line.

(3) Number and operations. The student applies mathematical process standards to recognize and represent fractional units and communicates how they are used to name parts of a whole. The student is expected to:

(A) partition objects into equal parts and name the parts, including halves, fourths, and eighths, using words;

(B) explain that the more fractional parts used to make a whole, the smaller the part; and the fewer the fractional parts, the larger the part;

(C) use concrete models to count fractional parts beyond one whole using words and recognize how many parts it takes to equal one whole; and

(D) identify examples and non-examples of halves, fourths, and eighths.

(4) Number and operations. The student applies mathematical process standards to develop and use strategies and methods for whole number computations in order to solve addition and subtraction problems with efficiency and accuracy. The student is expected to:

(A) recall basic facts to add and subtract within 20 with automaticity;

(B) add up to four two-digit numbers and subtract two-digit numbers using mental strategies and algorithms based on knowledge of place value and properties of operations;

(C) solve one-step and multi-step word problems involving addition and subtraction within 1,000 using a variety of strategies based on place value, including algorithms; and

(D) generate and solve problem situations for a given mathematical number sentence involving addition and subtraction of whole numbers within 1,000.

(5) Number and operations. The student applies mathematical process standards to determine the value of coins in order to solve monetary transactions. The student is expected to:

(A) determine the value of a collection of coins up to one dollar; and

(B) use the cent symbol, dollar sign, and the decimal point to name the value of a collection of coins.

(6) Number and operations. The student applies mathematical process standards to connect repeated addition and subtraction to multiplication and division situations that involve equal groupings and shares. The student is expected to:

(A) model, create, and describe contextual multiplication situations in which equivalent sets of concrete objects are joined; and

(B) model, create, and describe contextual division situations in which a set of concrete objects is separated into equivalent sets.

(7) Algebraic reasoning. The student applies mathematical process standards to identify and apply number patterns within properties of numbers and operations in order to describe relationships. The student is expected to:

(A) determine whether a number up to 40 is even or odd using pairings of objects to represent the number;

(B) use an understanding of place value to determine the number that is 10 or 100 more or less than a given number up to 1,200; and

(C) represent and solve addition and subtraction word problems where unknowns may be any one of the terms in the problem.

(8) Geometry and measurement. The student applies mathematical process standards to analyze attributes of two-dimensional shapes and three-dimensional solids to develop generalizations about their properties. The student is expected to:

(A) create two-dimensional shapes based on given attributes, including number of sides and vertices;

(B) classify and sort three-dimensional solids, including spheres, cones, cylinders, rectangular prisms (including cubes as special rectangular prisms), and triangular prisms, based on attributes using formal geometric language;

(C) classify and sort polygons with 12 or fewer sides according to attributes, including identifying the number of sides and number of vertices;

(D) compose two-dimensional shapes and three-dimensional solids with given properties or attributes; and

(E) decompose two-dimensional shapes such as cutting out a square from a rectangle, dividing a shape in half, or partitioning a rectangle into identical triangles and identify the resulting geometric parts.

(9) Geometry and measurement. The student applies mathematical process standards to select and use units to describe length, area, and time. The student is expected to:

(A) find the length of objects using concrete models for standard units of length;

(B) describe the inverse relationship between the size of the unit and the number of units needed to equal the length of an object;

(C) represent whole numbers as distances from any given location on a number line;

(D) determine the length of an object to the nearest marked unit using rulers, yardsticks, meter sticks, or measuring tapes;

(E) determine a solution to a problem involving length, including estimating lengths;

(F) use concrete models of square units to find the area of a rectangle by covering it with no gaps or overlaps, counting to find the total number of square units, and describing the measurement using a number and the unit; and

(G) read and write time to the nearest one-minute increment using analog and digital clocks and distinguish between a.m. and p.m.

(10) Data analysis. The student applies mathematical process standards to organize data to make it useful for interpreting information and solving problems. The student is expected to:

(A) explain that the length of a bar in a bar graph or the number of pictures in a pictograph represents the number of data points for a given category;

(B) organize a collection of data with up to four categories using pictographs and bar graphs with intervals of one or more;

(C) write and solve one-step word problems involving addition or subtraction using data represented within pictographs and bar graphs with intervals of one; and

(D) draw conclusions and make predictions from information in a graph.

(11) Personal financial literacy. The student applies mathematical process standards to manage one's financial resources effectively for lifetime financial security. The student is expected to:

(A) calculate how money saved can accumulate into a larger amount over time;

(B) explain that saving is an alternative to spending;

(C) distinguish between a deposit and a withdrawal;

(D) identify examples of borrowing and distinguish between responsible and irresponsible borrowing;

(E) identify examples of lending and use concepts of benefits and costs to evaluate lending decisions; and

(F) differentiate between producers and consumers and calculate the cost to produce a simple item.

Third Grade

(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:

(A) apply mathematics to problems arising in everyday life, society, and the workplace;

(B) use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;

(C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems;

(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;

(E) create and use representations to organize, record, and communicate mathematical ideas;

(F) analyze mathematical relationships to connect and communicate mathematical ideas; and

(G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

(2) Number and operations. The student applies mathematical process standards to represent and compare whole numbers and understand relationships related to place value. The student is expected to:

(A) compose and decompose numbers up to 100,000 as a sum of so many ten thousands, so many thousands, so many hundreds, so many tens, and so many ones using objects, pictorial models, and numbers, including expanded notation as appropriate;

(B) describe the mathematical relationships found in the base-10 place value system through the hundred thousands place;

(C) represent a number on a number line as being between two consecutive multiples of 10; 100; 1,000; or 10,000 and use words to describe relative size of numbers in order to round whole numbers; and

(D) compare and order whole numbers up to 100,000 and represent comparisons using the symbols >, <, or =.

(3) Number and operations. The student applies mathematical process standards to represent and explain fractional units. The student is expected to:

(A) represent fractions greater than zero and less than or equal to one with denominators of 2, 3, 4, 6, and 8 using concrete objects and pictorial models, including strip diagrams and number lines;

(B) determine the corresponding fraction greater than zero and less than or equal to one with denominators of 2, 3, 4, 6, and 8 given a specified point on a number line;

(C) explain that the unit fraction 1/b represents the quantity formed by one part of a whole that has been partitioned into b equal parts where b is a non-zero whole number;

(D) compose and decompose a fraction a/b with a numerator greater than zero and less than or equal to b as a sum of parts 1/b;

(E) solve problems involving partitioning an object or a set of objects among two or more recipients using pictorial representations of fractions with denominators of 2, 3, 4, 6, and 8;

(F) represent equivalent fractions with denominators of 2, 3, 4, 6, and 8 using a variety of objects and pictorial models, including number lines;

(G) explain that two fractions are equivalent if and only if they are both represented by the same point on the number line or represent the same portion of a same size whole for an area model; and

(H) compare two fractions having the same numerator or denominator in problems by reasoning about their sizes and justifying the conclusion using symbols, words, objects, and pictorial models.

(4) Number and operations. The student applies mathematical process standards to develop and use strategies and methods for whole number computations in order to solve problems with efficiency and accuracy. The student is expected to:

(A) solve with fluency one-step and two-step problems involving addition and subtraction within 1,000 using strategies based on place value, properties of operations, and the relationship between addition and subtraction;

(B) round to the nearest 10 or 100 or use compatible numbers to estimate solutions to addition and subtraction problems;

(C) determine the value of a collection of coins and bills;

(D) determine the total number of objects when equally-sized groups of objects are combined or arranged in arrays up to 10 by 10;

(E) represent multiplication facts by using a variety of approaches such as repeated addition, equal-sized groups, arrays, area models, equal jumps on a number line, and skip counting;

(F) recall facts to multiply up to 10 by 10 with automaticity and recall the corresponding division facts;

(G) use strategies and algorithms, including the standard algorithm, to multiply a two-digit number by a one-digit number. Strategies may include mental math, partial products, and the commutative, associative, and distributive properties;

(H) determine the number of objects in each group when a set of objects is partitioned into equal shares or a set of objects is shared equally;

(I) determine if a number is even or odd using divisibility rules;

(J) determine a quotient using the relationship between multiplication and division; and

(K) solve one-step and two-step problems involving multiplication and division within 100 using strategies based on objects; pictorial models, including arrays, area models, and equal groups; properties of operations; or recall of facts.

(5) Algebraic reasoning. The student applies mathematical process standards to analyze and create patterns and relationships. The student is expected to:

(A) represent one- and two-step problems involving addition and subtraction of whole numbers to 1,000 using pictorial models, number lines, and equations;

(B) represent and solve one- and two-step multiplication and division problems within 100 using arrays, strip diagrams, and equations;

(C) describe a multiplication expression as a comparison such as 3 x 24 represents 3 times as much as 24;

(D) determine the unknown whole number in a multiplication or division equation relating three whole numbers when the unknown is either a missing factor or product; and

(E) represent real-world relationships using number pairs in a table and verbal descriptions.

(6) Geometry and measurement. The student applies mathematical process standards to analyze attributes of two-dimensional geometric figures to develop generalizations about their properties. The student is expected to:

(A) classify and sort two- and three-dimensional figures, including cones, cylinders, spheres, triangular and rectangular prisms, and cubes, based on attributes using formal geometric language;

(B) use attributes to recognize rhombuses, parallelograms, trapezoids, rectangles, and squares as examples of quadrilaterals and draw examples of quadrilaterals that do not belong to any of these subcategories;

(C) determine the area of rectangles with whole number side lengths in problems using multiplication related to the number of rows times the number of unit squares in each row;

(D) decompose composite figures formed by rectangles into non-overlapping rectangles to determine the area of the original figure using the additive property of area; and

(E) decompose two congruent two-dimensional figures into parts with equal areas and express the area of each part as a unit fraction of the whole and recognize that equal shares of identical wholes need not have the same shape.

(7) Geometry and measurement. The student applies mathematical process standards to select appropriate units, strategies, and tools to solve problems involving customary and metric measurement. The student is expected to:

(A) represent fractions of halves, fourths, and eighths as distances from zero on a number line;

(B) determine the perimeter of a polygon or a missing length when given perimeter and remaining side lengths in problems;

(C) determine the solutions to problems involving addition and subtraction of time intervals in minutes using pictorial models or tools such as a 15-minute event plus a 30-minute event equals 45 minutes;

(D) determine when it is appropriate to use measurements of liquid volume (capacity) or weight; and

(E) determine liquid volume (capacity) or weight using appropriate units and tools.

(8) Data analysis. The student applies mathematical process standards to solve problems by collecting, organizing, displaying, and interpreting data. The student is expected to:

(A) summarize a data set with multiple categories using a frequency table, dot plot, pictograph, or bar graph with scaled intervals; and

(B) solve one- and two-step problems using categorical data represented with a frequency table, dot plot, pictograph, or bar graph with scaled intervals.

(9) Personal financial literacy. The student applies mathematical process standards to manage one's financial resources effectively for lifetime financial security. The student is expected to:

(A) explain the connection between human capital/labor and income;

(B) describe the relationship between the availability or scarcity of resources and how that impacts cost;

(C) identify the costs and benefits of planned and unplanned spending decisions;

(D) explain that credit is used when wants or needs exceed the ability to pay and that it is the borrower's responsibility to pay it back to the lender, usually with interest;

(E) list reasons to save and explain the benefit of a savings plan, including for college; and

(F) identify decisions involving income, spending, saving, credit, and charitable giving

Fourth Grade

(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:

(A) apply mathematics to problems arising in everyday life, society, and the workplace;

(B) use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;

(C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems;

(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;

(E) create and use representations to organize, record, and communicate mathematical ideas;

(F) analyze mathematical relationships to connect and communicate mathematical ideas; and

(G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

 (2) Number and operations. The student applies mathematical process standards to represent, compare, and order whole numbers and decimals and understand relationships related to place value. The student is expected to:

(A) interpret the value of each place-value position as 10 times the position to the right and as one-tenth of the value of the place to its left;

(B) represent the value of the digit in whole numbers through 1,000,000,000 and decimals to the hundredths using expanded notation and numerals;

(C) compare and order whole numbers to 1,000,000,000 and represent comparisons using the symbols >, <, or =;

(D) round whole numbers to a given place value through the hundred thousands place;

(E) represent decimals, including tenths and hundredths, using concrete and visual models and money;

(F) compare and order decimals using concrete and visual models to the hundredths;

(G) relate decimals to fractions that name tenths and hundredths; and

(H) determine the corresponding decimal to the tenths or hundredths place of a specified point on a number line.

 (3) Number and operations. The student applies mathematical process standards to represent and generate fractions to solve problems. The student is expected to:

(A) represent a fraction a/b as a sum of fractions $1/b$, where a and b are whole numbers and $b > 0$, including when $a > b$;

(B) decompose a fraction in more than one way into a sum of fractions with the same denominator using concrete and pictorial models and recording results with symbolic representations;

(C) determine if two given fractions are equivalent using a variety of methods;

(D) compare two fractions with different numerators and different denominators and represent the comparison using the symbols >, =, or <;

(E) represent and solve addition and subtraction of fractions with equal denominators using objects and pictorial models that build to the number line and properties of operations;

(F) evaluate the reasonableness of sums and differences of fractions using benchmark fractions 0, 1/4, 1/2, 3/4, and 1, referring to the same whole; and

(G) represent fractions and decimals to the tenths or hundredths as distances from zero on a number line.

(4) Number and operations. The student applies mathematical process standards to develop and use strategies and methods for whole number computations and decimal sums and differences in order to solve problems with efficiency and accuracy. The student is expected to:

(A) add and subtract whole numbers and decimals to the hundredths place using the standard algorithm;

(B) determine products of a number and 10 or 100 using properties of operations and place value understandings;

(C) represent the product of 2 two-digit numbers using arrays, area models, or equations, including perfect squares through 15 by 15;

(D) use strategies and algorithms, including the standard algorithm, to multiply up to a four-digit number by a one-digit number and to multiply a two-digit number by a two-digit number. Strategies may include mental math, partial products, and the commutative, associative, and distributive properties;

(E) represent the quotient of up to a four-digit whole number divided by a one-digit whole number using arrays, area models, or equations;

(F) use strategies and algorithms, including the standard algorithm, to divide up to a four-digit dividend by a one-digit divisor;

(G) round to the nearest 10, 100, or 1,000 or use compatible numbers to estimate solutions involving whole numbers; and

(H) solve with fluency one- and two-step problems involving multiplication and division, including interpreting remainders.

(5) Algebraic reasoning. The student applies mathematical process standards to develop concepts of expressions and equations. The student is expected to:

(A) represent multi-step problems involving the four operations with whole numbers using strip diagrams and equations with a letter standing for the unknown quantity;

(B) represent problems using an input-output table and numerical expressions to generate a number pattern that follows a given rule representing the relationship of the values in the resulting sequence and their position in the sequence;

(C) use models to determine the formulas for the perimeter of a rectangle *(l + w + l + w* or *2l + 2w),* including the special form for perimeter of a square (4*s)* and the area of a rectangle *(l* x *w);* and

(D) solve problems related to perimeter and area of rectangles where dimensions are whole numbers.

(6) Geometry and measurement. The student applies mathematical process standards to analyze geometric attributes in order to develop generalizations about their properties. The student is expected to:

(A) identify points, lines, line segments, rays, angles, and perpendicular and parallel lines;

(B) identify and draw one or more lines of symmetry, if they exist, for a two-dimensional figure;

(C) apply knowledge of right angles to identify acute, right, and obtuse triangles; and

(D) classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines or the presence or absence of angles of a specified size.

(7) Geometry and measurement. The student applies mathematical process standards to solve problems involving angles less than or equal to 180 degrees. The student is expected to:

(A) illustrate the measure of an angle as the part of a circle whose center is at the vertex of the angle that is "cut out" by the rays of the angle. Angle measures are limited to whole numbers;

(B) illustrate degrees as the units used to measure an angle, where 1/360 of any circle is one degree and an angle that "cuts" *n* /360 out of any circle whose center is at the angle's vertex has a measure of *n* degrees. Angle measures are limited to whole numbers;

(C) determine the approximate measures of angles in degrees to the nearest whole number using a protractor;

(D) draw an angle with a given measure; and

(E) determine the measure of an unknown angle formed by two non-overlapping adjacent angles given one or both angle measures.

(8) Geometry and measurement. The student applies mathematical process standards to select appropriate customary and metric units, strategies, and tools to solve problems involving measurement. The student is expected to:

(A) identify relative sizes of measurement units within the customary and metric systems;

(B) convert measurements within the same measurement system, customary or metric, from a smaller unit into a larger unit or a larger unit into a smaller unit when given other equivalent measures represented in a table; and

(C) solve problems that deal with measurements of length, intervals of time, liquid volumes, mass, and money using addition, subtraction, multiplication, or division as appropriate.

(9) Data analysis. The student applies mathematical process standards to solve problems by collecting, organizing, displaying, and interpreting data. The student is expected to:

(A) represent data on a frequency table, dot plot, or stem-and-leaf plot marked with whole numbers and fractions; and

(B) solve one- and two-step problems using data in whole number, decimal, and fraction form in a frequency table, dot plot, or stem-and-leaf plot.

(10) Personal financial literacy. The student applies mathematical process standards to manage one's financial resources effectively for lifetime financial security. The student is expected to:

(A) distinguish between fixed and variable expenses;

(B) calculate profit in a given situation;

(C) compare the advantages and disadvantages of various savings options;

(D) describe how to allocate a weekly allowance among spending; saving, including for college; and sharing; and

(E) describe the basic purpose of financial institutions, including keeping money safe, borrowing money, and lending.

Fifth Grade

(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:

(A) apply mathematics to problems arising in everyday life, society, and the workplace;

(B) use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;

(C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems;

(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;

(E) create and use representations to organize, record, and communicate mathematical ideas;

(F) analyze mathematical relationships to connect and communicate mathematical ideas; and

(G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

(2) Number and operations. The student applies mathematical process standards to represent, compare, and order positive rational numbers and understand relationships as related to place value. The student is expected to:

(A) represent the value of the digit in decimals through the thousandths using expanded notation and numerals;

(B) compare and order two decimals to thousandths and represent comparisons using the symbols >, <, or =; and

(C) round decimals to tenths or hundredths.

(3) Number and operations. The student applies mathematical process standards to develop and use strategies and methods for positive rational number computations in order to solve problems with efficiency and accuracy. The student is expected to:

(A) estimate to determine solutions to mathematical and real-world problems involving addition, subtraction, multiplication, or division;

(B) multiply with fluency a three-digit number by a two-digit number using the standard algorithm;

(C) solve with proficiency for quotients of up to a four-digit dividend by a two-digit divisor using strategies and the standard algorithm;

(D) represent multiplication of decimals with products to the hundredths using objects and pictorial models, including area models;

(E) solve for products of decimals to the hundredths, including situations involving money, using strategies based on place-value understandings, properties of operations, and the relationship to the multiplication of whole numbers;

(F) represent quotients of decimals to the hundredths, up to four-digit dividends and two-digit whole number divisors, using objects and pictorial models, including area models;

(G) solve for quotients of decimals to the hundredths, up to four-digit dividends and two-digit whole number divisors, using strategies and algorithms, including the standard algorithm;

(H) represent and solve addition and subtraction of fractions with unequal denominators referring to the same whole using objects and pictorial models and properties of operations;

(I) represent and solve multiplication of a whole number and a fraction that refers to the same whole using objects and pictorial models, including area models;

(J) represent division of a unit fraction by a whole number and the division of a whole number by a unit fraction such as $1/3 \div 7$ and $7 \div 1/3$ using objects and pictorial models, including area models;

(K) add and subtract positive rational numbers fluently; and

(L) divide whole numbers by unit fractions and unit fractions by whole numbers.

(4) Algebraic reasoning. The student applies mathematical process standards to develop concepts of expressions and equations. The student is expected to:

(A) identify prime and composite numbers;

(B) represent and solve multi-step problems involving the four operations with whole numbers using equations with a letter standing for the unknown quantity;

(C) generate a numerical pattern when given a rule in the form $y = ax$ or $y = x + a$ and graph;

(D) recognize the difference between additive and multiplicative numerical patterns given in a table or graph;

(E) describe the meaning of parentheses and brackets in a numeric expression;

(F) simplify numerical expressions that do not involve exponents, including up to two levels of grouping;

(G) use concrete objects and pictorial models to develop the formulas for the volume of a rectangular prism, including the special form for a cube *(V = l* x *w* x *h, V = s* x *s* x *s,* and *V = Bh);* and

(H) represent and solve problems related to perimeter and/or area and related to volume.

(5) Geometry and measurement. The student applies mathematical process standards to classify two-dimensional figures by attributes and properties. The student is expected to classify two-dimensional figures in a hierarchy of sets and subsets using graphic organizers based on their attributes and properties.

(6) Geometry and measurement. The student applies mathematical process standards to understand, recognize, and quantify volume. The student is expected to:

(A) recognize a cube with side length of one unit as a unit cube having one cubic unit of volume and the volume of a three-dimensional figure as the number of unit cubes *(n* cubic units) needed to fill it with no gaps or overlaps if possible; and

(B) determine the volume of a rectangular prism with whole number side lengths in problems related to the number of layers times the number of unit cubes in the area of the base.

(7) Geometry and measurement. The student applies mathematical process standards to select appropriate units, strategies, and tools to solve problems involving measurement. The student is expected to solve problems by calculating conversions within a measurement system, customary or metric.

(8) Geometry and measurement. The student applies mathematical process standards to identify locations on a coordinate plane. The student is expected to:

(A) describe the key attributes of the coordinate plane, including perpendicular number lines (axes) where the intersection (origin) of the two lines coincides with zero on each number line and the given point (0, 0); the *x*- coordinate, the first number in an ordered pair, indicates movement parallel to the *x*- axis starting at the origin; and the *y*- coordinate, the second number, indicates movement parallel to the *y*- axis starting at the origin;

(B) describe the process for graphing ordered pairs of numbers in the first quadrant of the coordinate plane; and

(C) graph in the first quadrant of the coordinate plane ordered pairs of numbers arising from mathematical and real-world problems, including those generated by number patterns or found in an input-output table.

(9) Data analysis. The student applies mathematical process standards to solve problems by collecting, organizing, displaying, and interpreting data. The student is expected to:

(A) represent categorical data with bar graphs or frequency tables and numerical data, including data sets of measurements in fractions or decimals, with dot plots or stem-and-leaf plots;

(B) represent discrete paired data on a scatterplot; and

(C) solve one- and two-step problems using data from a frequency table, dot plot, bar graph, stem-and-leaf plot, or scatterplot.

(10) Personal financial literacy. The student applies mathematical process standards to manage one's financial resources effectively for lifetime financial security. The student is expected to:

(A) define income tax, payroll tax, sales tax, and property tax;

(B) explain the difference between gross income and net income;

(C) identify the advantages and disadvantages of different methods of payment, including check, credit card, debit card, and electronic payments;

(D) develop a system for keeping and using financial records;

(E) describe actions that might be taken to balance a budget when expenses exceed income; and

(F) balance a simple budget.

Sixth Grade

(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:

(A) apply mathematics to problems arising in everyday life, society, and the workplace;

(B) use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;

(C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems;

(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;

(E) create and use representations to organize, record, and communicate mathematical ideas;

(F) analyze mathematical relationships to connect and communicate mathematical ideas; and

(G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

(2) Number and operations. The student applies mathematical process standards to represent and use rational numbers in a variety of forms. The student is expected to:

(A) classify whole numbers, integers, and rational numbers using a visual representation such as a Venn diagram to describe relationships between sets of numbers;

(B) identify a number, its opposite, and its absolute value;

(C) locate, compare, and order integers and rational numbers using a number line;

(D) order a set of rational numbers arising from mathematical and real-world contexts; and

(E) extend representations for division to include fraction notation such as a/b represents the same number as $a \div b$ where $b \neq 0$.

(3) Number and operations. The student applies mathematical process standards to represent addition, subtraction, multiplication, and division while solving problems and justifying solutions. The student is expected to:

(A) recognize that dividing by a rational number and multiplying by its reciprocal result in equivalent values;

(B) determine, with and without computation, whether a quantity is increased or decreased when multiplied by a fraction, including values greater than or less than one;

(C) represent integer operations with concrete models and connect the actions with the models to standardized algorithms;

(D) add, subtract, multiply, and divide integers fluently; and

(E) multiply and divide positive rational numbers fluently.

(4) Proportionality. The student applies mathematical process standards to develop an understanding of proportional relationships in problem situations. The student is expected to:

(A) compare two rules verbally, numerically, graphically, and symbolically in the form of $y = ax$ or $y = x + a$ in order to differentiate between additive and multiplicative relationships;

(B) apply qualitative and quantitative reasoning to solve prediction and comparison of real-world problems involving ratios and rates;

(C) give examples of ratios as multiplicative comparisons of two quantities describing the same attribute;

(D) give examples of rates as the comparison by division of two quantities having different attributes, including rates as quotients;

(E) represent ratios and percents with concrete models, fractions, and decimals;

(F) represent benchmark fractions and percents such as 1%, 10%, 25%, 33 1/3%, and multiples of these values using 10 by 10 grids, strip diagrams, number lines, and numbers;

(G) generate equivalent forms of fractions, decimals, and percents using real-world problems, including problems that involve money; and

(H) convert units within a measurement system, including the use of proportions and unit rates.

(5) Proportionality. The student applies mathematical process standards to solve problems involving proportional relationships. The student is expected to:

(A) represent mathematical and real-world problems involving ratios and rates using scale factors, tables, graphs, and proportions;

(B) solve real-world problems to find the whole given a part and the percent, to find the part given the whole and the percent, and to find the percent given the part and the whole, including the use of concrete and pictorial models; and

(C) use equivalent fractions, decimals, and percents to show equal parts of the same whole.

(6) Expressions, equations, and relationships. The student applies mathematical process standards to use multiple representations to describe algebraic relationships. The student is expected to:

(A) identify independent and dependent quantities from tables and graphs;

(B) write an equation that represents the relationship between independent and dependent quantities from a table; and

(C) represent a given situation using verbal descriptions, tables, graphs, and equations in the form $y = kx$ or $y = x + b$.

(7) Expressions, equations, and relationships. The student applies mathematical process standards to develop concepts of expressions and equations. The student is expected to:

(A) generate equivalent numerical expressions using order of operations, including whole number exponents and prime factorization;

(B) distinguish between expressions and equations verbally, numerically, and algebraically;

(C) determine if two expressions are equivalent using concrete models, pictorial models, and algebraic representations; and

(D) generate equivalent expressions using the properties of operations: inverse, identity, commutative, associative, and distributive properties.

(8) Expressions, equations, and relationships. The student applies mathematical process standards to use geometry to represent relationships and solve problems. The student is expected to:

(A) extend previous knowledge of triangles and their properties to include the sum of angles of a triangle, the relationship between the lengths of sides and measures of angles in a triangle, and determining when three lengths form a triangle;

(B) model area formulas for parallelograms, trapezoids, and triangles by decomposing and rearranging parts of these shapes;

(C) write equations that represent problems related to the area of rectangles, parallelograms, trapezoids, and triangles and volume of right rectangular prisms where dimensions are positive rational numbers; and

(D) determine solutions for problems involving the area of rectangles, parallelograms, trapezoids, and triangles and volume of right rectangular prisms where dimensions are positive rational numbers.

(9) Expressions, equations, and relationships. The student applies mathematical process standards to use equations and inequalities to represent situations. The student is expected to:

(A) write one-variable, one-step equations and inequalities to represent constraints or conditions within problems;

(B) represent solutions for one-variable, one-step equations and inequalities on number lines; and

(C) write corresponding real-world problems given one-variable, one-step equations or inequalities.

(10) Expressions, equations, and relationships. The student applies mathematical process standards to use equations and inequalities to solve problems. The student is expected to:

(A) model and solve one-variable, one-step equations and inequalities that represent problems, including geometric concepts; and

(B) determine if the given value(s) make(s) one-variable, one-step equations or inequalities true.

(11) Measurement and data. The student applies mathematical process standards to use coordinate geometry to identify locations on a plane. The student is expected to graph points in all four quadrants using ordered pairs of rational numbers.

(12) Measurement and data. The student applies mathematical process standards to use numerical or graphical representations to analyze problems. The student is expected to:

(A) represent numeric data graphically, including dot plots, stem-and-leaf plots, histograms, and box plots;

(B) use the graphical representation of numeric data to describe the center, spread, and shape of the data distribution;

(C) summarize numeric data with numerical summaries, including the mean and median (measures of center) and the range and interquartile range (IQR) (measures of spread), and use these summaries to describe the center, spread, and shape of the data distribution; and

(D) summarize categorical data with numerical and graphical summaries, including the mode, the percent of values in each category (relative frequency table), and the percent bar graph, and use these summaries to describe the data distribution.

(13) Measurement and data. The student applies mathematical process standards to use numerical or graphical representations to solve problems. The student is expected to:

(A) interpret numeric data summarized in dot plots, stem-and-leaf plots, histograms, and box plots; and

(B) distinguish between situations that yield data with and without variability.

(14) Personal financial literacy. The student applies mathematical process standards to develop an economic way of thinking and problem solving useful in one's life as a knowledgeable consumer and investor. The student is expected to:

(A) compare the features and costs of a checking account and a debit card offered by different local financial institutions;

(B) distinguish between debit cards and credit cards;

(C) balance a check register that includes deposits, withdrawals, and transfers;

(D) explain why it is important to establish a positive credit history;

(E) describe the information in a credit report and how long it is retained;

(F) describe the value of credit reports to borrowers and to lenders;

(G) explain various methods to pay for college, including through savings, grants, scholarships, student loans, and work-study; and

(H) compare the annual salary of several occupations requiring various levels of post-secondary education or vocational training and calculate the effects of the different annual salaries on lifetime income.

Commissioner's Standards
Commissioner's Standard 1--Instructional Planning and Delivery.
Teachers demonstrate their understanding of instructional planning and delivery by providing standards-based, data-driven, differentiated instruction that engages students, makes appropriate use of technology, and makes learning relevant for today's learners.
Early Childhood-Grade 6 classroom teachers must:

(1) develop lessons that build coherently toward objectives based on course content, curriculum scope and sequence, and expected student outcomes;

(2) effectively communicate goals, expectations, and objectives to help all students reach high levels of achievement;

(3) connect students' prior understanding and real-world experiences to new content and contexts, maximizing learning opportunities;

(4) plan instruction that is developmentally appropriate, is standards driven, and motivates students to learn;

(5) use a range of instructional strategies, appropriate to the content area, to make subject matter accessible to all students;

(6) differentiate instruction, aligning methods and techniques to diverse student needs, including acceleration, remediation, and implementation of individual education plans;

(7) plan student groupings, including pairings and individualized and small-group instruction, to facilitate student learning;

(8) integrate the use of oral, written, graphic, kinesthetic, and/or tactile methods to teach key concepts;

(9) ensure that the learning environment features a high degree of student engagement by facilitating discussion and student-centered activities as well as leading direct instruction;

(10) encourage all students to overcome obstacles and remain persistent in the face of challenges, providing them with support in achieving their goals;

(11) set high expectations and create challenging learning experiences for students, encouraging them to apply disciplinary and cross-disciplinary knowledge to real-world problems;

(12) provide opportunities for students to engage in individual and collaborative critical thinking and problem solving;

(13) monitor and assess students' progress to ensure that their lessons meet students' needs;

(14) provide immediate feedback to students in order to reinforce their learning and ensure that they understand key concepts; and

(15) adjust content delivery in response to student progress through the use of developmentally appropriate strategies that maximize student engagement.

Commissioner's Standard 2—Knowledge of Students and Student Learning.

Teachers work to ensure high levels of learning, social-emotional development, and achievement outcomes for all students, taking into consideration each student's educational developmental backgrounds and focusing on each student's needs.

Early Childhood-Grade 6 classroom teachers must:

(1) create a community of learners in an inclusive environment that views differences in learning and background as educational assets;

(2) connect learning, content, and expectations to students' prior knowledge, life experiences, and interests in meaningful contexts;

(3) understand the unique qualities of students with exceptional needs, including disabilities and giftedness, and know how to effectively address these needs through instructional strategies and resources;

(4) understand the role of language and culture in learning and know how to modify their practice to support language acquisition so that language is comprehensible and instruction is fully accessible;

(5) understand how learning occurs and how learners develop, construct meaning, and acquire knowledge and skills; and

(6) identify readiness for learning and understand how development in one area may affect students' performance in other areas.

Commissioner's Standard 3— Content Knowledge and Expertise.

Teachers exhibit a comprehensive understanding of their content, discipline, and related pedagogy as demonstrated through the quality of the design and execution of lessons and their ability to match objectives and activities to relevant state standards.

Early Childhood-Grade 6 classroom teachers must:

(1) have expertise in how their content vertically and horizontally aligns with the grade-level/subject area continuum, leading to an integrated curriculum across grade levels and content areas;

(2) identify gaps in students' knowledge of subject matter and communicate with their leaders and colleagues to ensure that these gaps are adequately addressed across grade levels and subject areas;

(3) keep current with developments, new content, new approaches, and changing methods of instructional delivery within their discipline;

(4) organize curriculum to facilitate student understanding of the subject matter;

(5) understand, actively anticipate, and adapt instruction to address common misunderstandings and preconceptions;

(6) promote literacy and the academic language within the discipline and make discipline-specific language accessible to all learners;

(7) teach both the key content knowledge and the key skills of the discipline; and

(8) make appropriate and authentic connections across disciplines, subjects, and students' real-world experiences.

Commissioner's Standard 4— Learning Environment.

Teachers interact with students in respectful ways at all times, maintaining a physically and emotionally safe, supportive learning environment that is characterized by efficient and effective

routines, clear expectations for student behavior, and organization that maximizes student learning.

Early Childhood-Grade 6 classroom teachers must:

  (1) embrace students' backgrounds and experiences as an asset in their learning;

  (2) maintain and facilitate respectful, supportive, positive, and productive interactions with and among students;

  (3) establish and sustain learning environments that are developmentally appropriate and respond to students' needs, strengths, and personal experiences;

  (4) create a physical classroom set-up that is flexible and accommodates the different learning needs of students;

  (5) implement behavior management systems to maintain an environment where all students can learn effectively;

  (6) maintain a culture that is based on high expectations for student performance and encourages students to be self-motivated, taking responsibility for their own learning;

  (7) maximize instructional time, including managing transitions;

  (8) manage and facilitate groupings in order to maximize student collaboration, participation, and achievement; and

(9) communicate regularly, clearly, and appropriately with parents and families about student progress, providing detailed and constructive feedback and partnering with families in furthering their students' achievement goals.

Commissioner's Standard 5— Data-Driven Practice.

Teachers use formal and informal methods to assess student growth aligned to instructional goals and course objectives and regularly review and analyze multiple sources of data to measure student progress and adjust instructional strategies and content delivery as needed.

Early Childhood-Grade 6 classroom teachers must:

  (1) gauge student progress and ensure mastery of content knowledge and skills by providing assessments aligned to instructional objectives and outcomes that are accurate measures of student learning;

  (2) analyze and review data in a timely, thorough, accurate, and appropriate manner, both individually and with colleagues, to monitor student learning; and

  (3) design instruction, change strategies, and differentiate their teaching practices to improve student learning based on assessment outcomes.

Commissioner's Standard 6—Professional Practices and Responsibilities.

Teachers consistently hold themselves to a high standard for individual development, pursue leadership opportunities, collaborate with other educational professionals, communicate regularly with stakeholders, maintain professional relationships, comply with all campus and school district policies, and conduct themselves ethically and with integrity.

Early Childhood-Grade 6 classroom teachers must:

  (1) reflect on their own strengths and professional learning needs, using this information to develop action plans for improvement;

  (2) seek out feedback from supervisor, coaches, and peers and take advantage of opportunities for job-embedded professional development;

  (3) adhere to the educators' code of ethics in §247.2 of this title (relating to Code of Ethics and Standard Practices for Texas Educators), including following policies and procedures at their specific school placement(s);

(4) communicate consistently, clearly, and respectfully with all members of the campus community, administrators, and staff; and

  (5) serve as advocates for their students, focusing attention on students' needs and concerns and maintaining thorough and accurate student records.

ELPS-TELPAS Proficiency Level Descriptors

ELPS-TELPAS Proficiency Level Descriptors Grades K-12 Listening

Beginning English learners (ELs) have little or no ability to understand spoken English used in academic and social settings.

These students: • struggle to understand simple conversations and simple discussions even when the topics are familiar and the speaker uses linguistic supports (e.g., visuals, slower speech and other verbal cues, gestures) • struggle to identify and distinguish individual words and phrases during social and instructional interactions that have not been intentionally modified for ELs • may not seek clarification in English when failing to comprehend the English they hear; frequently remain silent, watching others for cues

Intermediate ELs have the ability to understand simple, high frequency spoken English used in routine academic and social settings.

These students: • usually understand simple or routine directions, as well as short, simple conversations and short, simple discussions on familiar topics; when topics are unfamiliar, require extensive linguistic supports and adaptations (e.g., visuals, slower speech and other verbal cues, simplified language, gestures, preteaching to preview or build topic-related vocabulary) • often identify and distinguish key words and phrases necessary to understand the general meaning (gist) during social and basic instructional interactions that have not been intentionally modified for ELs • have the ability to seek clarification in English when failing to comprehend the English they hear by requiring/requesting the speaker to repeat, slow down, or rephrase speech

Advanced ELs have the ability to understand, with second language acquisition support, grade-appropriate spoken English used in academic and social settings.

These students: • usually understand longer, more elaborated directions, conversations, and discussions on familiar and some unfamiliar topics, but sometimes need processing time and sometimes depend on visuals, verbal cues, and gestures to support understanding • understand most main points, most important details, and some implicit information during social and basic instructional interactions that have not been intentionally modified for ELs • occasionally require/request the speaker to repeat, slow down, or rephrase to clarify the meaning of the English they hear

Advanced high ELs have the ability to understand, with minimal second language acquisition support, grade appropriate spoken English used in academic and social settings.

These students: • understand longer, elaborated directions, conversations, and discussions on familiar and unfamiliar topics with only occasional need for processing time and with little dependence on visuals, verbal cues, and gestures; some exceptions when complex academic or highly specialized language is used • understand main points, important details, and implicit information at a level nearly comparable to native English-speaking peers during social and

instructional interactions • rarely require/request the speaker to repeat, slow down, or rephrase to clarify the meaning of the English they hear

ELPS-TELPAS Proficiency Level Descriptors Grade K-12 Speaking

Beginning English learners (ELs) have little or no ability to speak English in academic and social settings.

These students: • mainly speak using single words and short phrases consisting of recently practiced, memorized, or highly familiar material to get immediate needs met; may be hesitant to speak and often give up in their attempts to communicate • speak using a very limited bank of high-frequency, high-need, concrete vocabulary, including key words and expressions needed for basic communication in academic and social contexts • lack the knowledge of English grammar necessary to connect ideas and speak in sentences; can sometimes produce sentences using recently practiced, memorized, or highly familiar material • exhibit second language acquisition errors that may hinder overall communication, particularly when trying to convey information beyond memorized, practiced, or highly familiar material • typically use pronunciation that significantly inhibits communication

Intermediate ELs have the ability to speak in a simple manner using English commonly heard in routine academic and social settings.

These students: • are able to express simple, original messages, speak using sentences, and participate in short conversations and classroom interactions; may hesitate frequently and for long periods to think about how to communicate desired meaning • speak simply using basic vocabulary needed in everyday social interactions and routine academic contexts; rarely have vocabulary to speak in detail • exhibit an emerging awareness of English grammar and speak using mostly simple sentence structures and simple tenses; are most comfortable speaking in present tense • exhibit second language acquisition errors that may hinder overall communication when trying to use complex or less familiar English • use pronunciation that can usually be understood by people accustomed to interacting with ELs

Advanced ELs have the ability to speak using grade-appropriate English, with second language acquisition support, in academic and social settings.

These students: • are able to participate comfortably in most conversations and academic discussions on familiar topics, with some pauses to restate, repeat, or search for words and phrases to clarify meaning • discuss familiar academic topics using content-based terms and common abstract vocabulary; can usually speak in some detail on familiar topics • have a grasp of basic grammar features, including a basic ability to narrate and describe in present, past, and future tenses; have an emerging ability to use complex sentences and complex grammar features • make errors that interfere somewhat with communication when using complex grammar structures, long sentences, and less familiar words and expressions • may mispronounce words, but use pronunciation that can usually be understood by people not accustomed to interacting with ELs

Advanced high ELs have the ability to speak using grade appropriate English, with minimal second language acquisition support, in academic and social settings.

These students: • are able to participate in extended discussions on a variety of social and grade-appropriate academic topics with only occasional disruptions, hesitations, or pauses • communicate effectively using abstract and content-based vocabulary during classroom instructional tasks, with some exceptions when low-frequency or academically demanding vocabulary is needed; use many of the same idioms and colloquialisms as their native English-speaking peers • can use English grammar structures and complex sentences to narrate and describe at a level nearly comparable to native English-speaking peers • make few second language acquisition errors that interfere with overall communication • may mispronounce words, but rarely use pronunciation that interferes with overall communication

ELPS-TELPAS Proficiency Level Descriptors Grades K–1 Writing

Beginning
Beginning English language learners (ELs) have little or no ability to use the English language to build foundational writing skills.
These students: • are unable to use English to explain self-generated writing (e.g., stories they have created or other personal expressions), including emergent forms of writing (pictures, letter-like forms, mock words, scribbling, etc.) • know too little English to participate meaningfully in grade appropriate shared writing activities using the English language • cannot express themselves meaningfully in self-generated, connected written text in English beyond the level of high-frequency, concrete words, phrases, or short sentences that have been recently practiced/memorized * • may demonstrate little or no awareness of English print conventions

Intermediate
Intermediate ELs have a limited ability to use the English language to build foundational writing skills.
These students: • know enough English to explain briefly and simply self-generated writing, including emergent forms of writing, as long as the topic is highly familiar and concrete and requires very high-frequency English • can participate meaningfully in grade-appropriate shared writing activities using the English language only when the writing topic is highly familiar and concrete and requires very high frequency English • express themselves meaningfully in self-generated, connected written text in English when their writing is limited to short sentences featuring simple, concrete English used frequently in class * • frequently exhibit features of their primary language when writing in English (e.g., primary language words, spelling patterns, word order, literal translating) *

Advanced
Advanced ELs have the ability to use the English language to build, with second language acquisition support, foundational writing skills.
These students: • use predominantly grade appropriate English to explain, in some detail, most self-generated writing, including emergent forms of writing • can participate meaningfully, with second language acquisition support, in most grade-appropriate shared writing activities using the English language • although second language acquisition support is needed, have an emerging ability to express themselves in self-generated, connected written text in English in a grade-appropriate manner * • occasionally exhibit second language acquisition errors when writing in English *

Advanced High

Advanced high ELs have the ability to use the English language to build, with minimal second language acquisition support, foundational writing skills.

These students: • use English at a level of complexity and detail nearly comparable to that of native English-speaking peers when explaining self-generated writing, including emergent forms of writing • can participate meaningfully in most grade-appropriate shared writing activities using the English language • although minimal second language acquisition support may be needed, express themselves in self-generated, connected written text in English in a manner nearly comparable to their native English speaking peers *

ELPS-TELPAS Proficiency Level Descriptors Grades 2–12 Writing

Beginning

Beginning English learners (ELs) lack the English vocabulary and grasp of English language structures necessary to address grade-appropriate writing tasks meaningfully.

These students: • have little or no ability to use the English language to express ideas in writing and engage meaningfully in grade-appropriate writing assignments in content area instruction • lack the English necessary to develop or demonstrate elements of grade appropriate writing (e.g., focus and coherence, conventions, organization, voice, and development of ideas) in English Typical writing features at this level: • ability to label, list, and copy • high-frequency words/phrases and short, simple sentences (or even short paragraphs) based primarily on recently practiced, memorized, or highly familiar material; this type of writing may be quite accurate • present tense used primarily • frequent primary language features (spelling patterns, word order, literal translations, and words from the student's primary language) and other errors associated with second language acquisition may significantly hinder or prevent understanding, even for individuals accustomed to the writing of ELs

Intermediate

Intermediate ELs have enough English vocabulary and enough grasp of English language structures to address grade appropriate writing tasks in a limited way.

These students: • have a limited ability to use the English language to express ideas in writing and engage meaningfully in grade-appropriate writing assignments in content area instruction • are limited in their ability to develop or demonstrate elements of grade-appropriate writing in English; communicate best when topics are highly familiar and concrete, and require simple, high-frequency English Typical writing features at this level: • simple, original messages consisting of short, simple sentences; frequent inaccuracies occur when creating or taking risks beyond familiar English • high-frequency vocabulary; academic writing often has an oral tone • loosely connected text with limited use of cohesive devices or repetitive use, which may cause gaps in meaning • repetition of ideas due to lack of vocabulary and language structures • present tense used most accurately; simple future and past tenses, if attempted, are used inconsistently or with frequent inaccuracies • descriptions, explanations, and narrations lacking detail; difficulty expressing abstract ideas • primary language features and errors associated with second language acquisition may be frequent • some writing may be understood only by individuals accustomed to the writing of ELs; parts of the writing may be hard to understand even for individuals accustomed to the writing of ELs

Advanced

Advanced ELs have enough English vocabulary and command of English language structures to address grade appropriate writing tasks, although second language acquisition support is needed. These students: • are able to use the English language, with second language acquisition support, to express ideas in writing and engage meaningfully in grade-appropriate writing assignments in content area instruction • know enough English to be able to develop or demonstrate elements of grade-appropriate writing in English, although second language acquisition support is particularly needed when topics are abstract, academically challenging, or unfamiliar Typical writing features at this level: • grasp of basic verbs, tenses, grammar features, and sentence patterns; partial grasp of more complex verbs, tenses, grammar features, and sentence patterns • emerging grade-appropriate vocabulary; academic writing has a more academic tone • use of a variety of common cohesive devices, although some redundancy may occur • narrations, explanations, and descriptions developed in some detail with emerging clarity; quality or quantity declines when abstract ideas are expressed, academic demands are high, or low-frequency vocabulary is required • occasional second language acquisition errors • communications are usually understood by individuals not accustomed to the writing of ELs

Advanced High

Advanced high ELs have acquired the English vocabulary and command of English language structures necessary to address grade-appropriate writing tasks with minimal second language acquisition support.

These students: • are able to use the English language, with minimal second language acquisition support, to express ideas in writing and engage meaningfully in grade-appropriate writing assignments in content area instruction • know enough English to be able to develop or demonstrate, with minimal second language acquisition support, elements of grade-appropriate writing in English Typical writing features at this level: • nearly comparable to writing of native English-speaking peers in clarity and precision with regard to English vocabulary and language structures, with occasional exceptions when writing about academically complex ideas, abstract ideas, or topics requiring low-frequency vocabulary • occasional difficulty with naturalness of phrasing and expression • errors associated with second language acquisition are minor and usually limited to low-frequency words and structures; errors rarely interfere with communication

ELPS-TELPAS Proficiency Level Descriptors Grades K–1 Reading

Beginning

Beginning English learners (ELs) have little or no ability to use the English language to build foundational reading skills.

These students: • derive little or no meaning from grade-appropriate stories read aloud in English, unless the stories are – read in short "chunks" – controlled to include the little English they know such as language that is high-frequency, concrete, and recently practiced – accompanied by ample visual supports such as illustrations, gestures, pantomime, and objects and by linguistic supports such as careful enunciation and slower speech • begin to recognize and understand environmental print in English (e.g., signs, labeled items, names of peers, logos) •

have difficulty decoding most grade-appropriate English text because they * – understand the meaning of very few words in English – struggle significantly with sounds in spoken English words and with sound-symbol relationships due to differences between their primary language and English

Intermediate
Intermediate ELs have a limited ability to use the English language to build foundational reading skills.
These students: • demonstrate limited comprehension (key words and general meaning) of grade appropriate stories read aloud in English, unless the stories include – predictable story lines – highly familiar topics – primarily high-frequency, concrete vocabulary – short, simple sentences – visual and linguistic supports • regularly recognize and understand common environmental print in English (e.g., signs, labeled items, names of peers, logos) • have difficulty decoding grade appropriate English text because they * – understand the meaning of only those English words they hear frequently – struggle with some sounds in English words and some sound symbol relationships due to differences between their primary language and English

Advanced
Advanced ELs have the ability to use the English language, with second language acquisition support, to build foundational reading skills.
These students: • demonstrate comprehension of most main points and most supporting ideas in grade appropriate stories read aloud in English, although they may still depend on visual and linguistic supports to gain or confirm meaning • recognize some basic English vocabulary and high-frequency words in isolated print • with second language acquisition support, are able to decode most grade-appropriate English text because they * – understand the meaning of most grade-appropriate English words – have little difficulty with English sounds and sound-symbol relationships that result from differences between their primary language and English

Advanced High
Advanced high ELs have the ability to use the English language, with minimal second language acquisition support, to build foundational reading skills.
These students: • demonstrate, with minimal second language acquisition support and at a level nearly comparable to native English-speaking peers, comprehension of main points and supporting ideas (explicit and implicit) in grade-appropriate stories read aloud in English • with some exceptions, recognize sight vocabulary and high frequency words to a degree nearly comparable to that of native English-speaking peers • with minimal second language acquisition support, have an ability to decode and understand grade appropriate English text at a level nearly comparable to native English-speaking peers *

ELPS-TELPAS Proficiency Level Descriptors Grades 2–12 Reading

Beginning
Beginning English learners (ELs) have little or no ability to read and understand English used in academic and social contexts.
These students: • read and understand the very limited recently practiced, memorized, or highly familiar English they have learned; vocabulary predominantly includes - environmental print -

some very high-frequency words - concrete words that can be represented by pictures • read slowly, word by word • have a very limited sense of English language structures • comprehend predominantly isolated familiar words and phrases; comprehend some sentences in highly routine contexts or recently practiced, highly familiar text • are highly dependent on visuals and prior knowledge to derive meaning from text in English • are able to apply reading comprehension skills in English only when reading texts written for this level

Intermediate
Intermediate ELs have the ability to read and understand simple, high-frequency English used in routine academic and social contexts.
These students: • read and understand English vocabulary on a somewhat wider range of topics and with increased depth; vocabulary predominantly includes - everyday oral language - literal meanings of common words - routine academic language and terms - commonly used abstract language such as terms used to describe basic feelings • often read slowly and in short phrases; may re-read to clarify meaning • have a growing understanding of basic, routinely used English language structures • understand simple sentences in short, connected texts, but are dependent on visual cues, topic familiarity, prior knowledge, pretaught topic-related vocabulary, story predictability, and teacher/peer assistance to sustain comprehension • struggle to independently read and understand grade-level texts • are able to apply basic and some higher-order comprehension skills when reading texts that are linguistically accommodated and/or simplified for this level

Advanced
Advanced ELs have the ability to read and understand, with second language acquisition support, grade-appropriate English used in academic and social contexts.
These students: • read and understand, with second language acquisition support, a variety of grade-appropriate English vocabulary used in social and academic contexts: - with second language acquisition support, read and understand grade-appropriate concrete and abstract vocabulary, but have difficulty with less commonly encountered words - demonstrate an emerging ability to understand words and phrases beyond their literal meaning - understand multiple meanings of commonly used words • read longer phrases and simple sentences from familiar text with appropriate rate and speed • are developing skill in using their growing familiarity with English language structures to construct meaning of grade-appropriate text • are able to apply basic and higher-order comprehension skills when reading grade-appropriate text, but are still occasionally dependent on visuals, teacher/peer assistance, and other linguistically accommodated text features to determine or clarify meaning, particularly with unfamiliar topics

Advanced High
Advanced high ELs have the ability to read and understand, with minimal second language acquisition support, grade appropriate English used in academic and social contexts.
These students: • read and understand vocabulary at a level nearly comparable to that of their native English-speaking peers, with some exceptions when low-frequency or specialized vocabulary is used • generally read grade-appropriate, familiar text with appropriate rate f , speed, intonation, and expression • are able to, at a level nearly comparable to native English-speaking peers, use their familiarity with English language structures to construct meaning of grade-appropriate text • are able to apply, with minimal second language acquisition

support and at a level nearly comparable to native English-speaking peers, basic and higher-order comprehension skills when reading grade-appropriate text

Appendix B: <mark>Required assignment/standard alignment matrix</mark>

Assignment	Course Objectives - (CO #)	WCOE Standard (WCOE #) EC-6 Competency (EC6C #)
Technology Assignment	CO #10	WCOE #4
Quiz #1	CO #1,10	WCOE #1,4,5,8 EC6C #1,6 Applicable Teks/Tech Standards
Quiz #2	CO #3	WCOE #1,4,5,6, EC6C #1
Vertical Alignment Assignment	CO #1	WCOE #1,4,5, EC6C #1,2,3,4,5,6 Applicable Teks/Tech Standards
Multicultural Mini Teaching	CO #2,4,5,7,8,10	WCOE #1,2,4,5,7,8, EC6C #1,2,6 Applicable Teks/Tech Standards
Lesson Plan and Reflection	CO #2,3,4,5,7,8	WCOE #1,2,4,5,6,7,8,10 EC6C #1,2,3,4,5,6 Applicable Teks/Tech Standards TT #1-6, PPR-All
Classroom Observation	CO #2,6,7,8,9	WCOE #1,2,3,4,5,6,7,8,10 EC6C #1,2,3,4,5,6 TT #1-6, PPR-All
Quiz #3	CO #4	WCOE #1,4,5, EC6C #1,2,6 Applicable Teks/Tech Standards
Quiz #4	CO #4, 5	WCOE #1,4,5, EC6C #1,3,4,6
Reflection Assignment	CO #1,9	WCOE #1,2,3,7,8,9,10 EC6C #1,6
Final Exam	CO #1,2,3	WCOE #1,2,3,4,5,7,8,10 EC6C #1,2,3,4,5,6
Field Experience	CO #1,2,3,4,6,9,10	WCOE #1,2,3,4,5,6,7,8,9,10 EC6C #1,2,3,4,5,6 Applicable Teks/Tech Standards
In Class Activities: class discussion, lecture, guided reading, guest speakers, case study, peer practice, experiential learning, exploration, and role playing	CO #1,2,3,4,5,6,7,8,9,10	WCOE #1,2,3,4,5,6,7,8,9,10 EC6C #1,2,3,4,5,6 Applicable Teks/Tech Standards TT #1-6, PPR-All