Instructional Focus Document - Kindergarten Mathematics

Basic Information: TEKS RS Unit 06: Introducing and Developing Numbers 11 – 15 and Reciting Numbers to 90

DurationGradeSubjectUnit15 daysKindergartenMathematics06

Unit Overview

Introduction

This unit bundles student expectations that address the foundational skills for developing an understanding of numbers 0-15, counting forward and backward 1-15, cardinality, subitizing, conservation of set, comparing numbers and sets of objects using comparative language, and generating numbers or set of objects less than or greater than a given amount. This unit also includes the student expectation that addresses reciting numbers up to 90 by ones beginning with any number. According to the Texas Education Agency, mathematical process standards including application, a problem-solving model, tools and techniques, communication, representations, relationships, and justifications should be integrated (when applicable) with content knowledge and skills so that students are prepared to use mathematics in everyday life, society, and the workplace.

Prior to this Unit

In Unit 03, students continued to investigate the foundational skills for understanding and using numbers from 0 to 10 and recited numbers up to 60 by ones beginning with any given number.

During this Unit

Students are introduced to the number 11 – 15. They use sets of objects up to 15 to develop an understanding of the concepts of cardinality, meaning that the last number said when counting a set of objects names the number of objects; hierarchical inclusion, meaning each prior number in the counting sequence is included in the set as the set increases; and conservation of set, meaning if the same number of objects are counted and then rearranged, the quantity of objects in the set does

© 2022 TCMPC Last Updated 03/13/2020 Page 1 of 56

Kindergarten Mathematics

TITLE: TEKS RS Unit 06: Introducing and Developing Numbers 11 – 15 and Reciting Numbers to 90 SUGGESTED DURATION: 15 days

not change. Students apply cardinality, hierarchical inclusion, and conservation of set as they continue to explore the true meaning of numbers. Students count forward and backward to 15 with and without objects, as well as read, write, and represent the numbers. Students also compose and decompose numbers up to 10 using objects and pictures, which parallels the development of subitizing, meaning instantly recognizing the number being represented by a small quantity of objects in random and organized arrangements. Students apply all of these skills as they consider magnitude, or relative size, to compare sets of objects up to 15 and generate a set of objects and pictures that is more than, less than, or equal to a given number. Students use comparative language to describe the comparison of numbers represented using objects, pictures, or numerals. When given a number up to 15, students are expected to generate a number that is one more than or one less than a given number. Along with the investigation of number and quantity, students are expected to recite numbers up to 90 by tens beginning with 10 and by ones beginning with any number. Practice with rote reciting of numbers and learning the correct sequence of numbers aids in developing the foundation for meaningful counting strategies.

Other considerations: Reference the Mathematics Kindergarten Instructional Considerations to Activate Purposeful Planning (ICAPP) Resource.

After this Unit

In Unit 08, students will continue to develop the foundations of number as they extend their number set to include 15 to 20. Students will also extend reciting numbers up to 100 by tens beginning with any multiple of ten and by ones beginning with any number.

Additional Notes

In Kindergarten, reciting numbers up to 90, reading, writing, and representing numbers, cardinality, subitizing, and comparing and describing sets of objects are foundational concepts that are subsumed within the Kindergarten *Texas Response to Curriculum Focal Points* (TxRCFP): Developing an understanding of whole numbers. Counting forward and backward with and without objects, composing and decomposing numbers, and generating numbers and sets of objects that are more than, less than, or equal to an original quantity are also subsumed within the Kindergarten *Texas Response to Curriculum Focal Points* (TxRCFP): Developing an understanding of whole numbers as well as the Kindergarten *Texas Response to Curriculum Focal Points* (TxRCFP): Developing an understanding of addition and subtraction. This unit is supporting the development of the *Texas College and Career Readiness Standards* (TxCCRS): I. Numeric Reasoning A1, A2, B1, B2; II. Algebraic Reasoning D1, D2; V. Statistical Reasoning A1, C2; VII. Problem Solving and Reasoning A1, A2, A3, A4, A5, B1, C1, D1, D2; VIII. Communication and Representation A1, A2, A3, B1, B2, C1, C2, C3; IX. Connections A1, A2, B1, B2, B3.

Research

According to Copley (2010), "The teen numbers are often the most difficult for children, at least in English" (p. 57). The National Council of Teachers of Mathematics (2010) also acknowledges the difficulties students encounter with teen numbers due to the irregularities in the language pattern when paired with the written numerals. NCTM identifies several of the irregularities that students encounter. One of these irregularities is that the written symbol does not match the verbalization of the word. NCTM also states, "This *ones-before-tens* structure of the teen words is opposite to the *tens-before-ones* structure in the written teen number symbols. We say "four" first in "fourteen" but write 4 second in 14 (1 ten 4 ones)" (p. 18). This often leads to reversals when writing numerals. Copley further states, "To progress in counting, children must recognize the patterns involved in counting numbers greater than 9 — for example, after a number ending in 9, a new decade (10, 20, 30...) begins; or after a new decade number (20), subsequent numbers require the addition of the numbers 1 through 9 (21, 22, 23...)" (p. 57).

Kindergarten Mathematics

TITLE: TEKS RS Unit 06: Introducing and Developing Numbers 11 – 15 and Reciting Numbers to 90 SUGGESTED DURATION: 15 days

Copley, J. (2010). The young child and mathematics. Washington, DC: National Association for the Education of Young Children National Council of Teachers of Mathematics. (2010). Focus in kindergarten teaching with curriculum focal points. Reston, VA: National Council of Teachers of Mathematics, Inc.

Texas Education Agency & Texas Higher Education Coordinating Board. (2009). *Texas college and career readiness standards*. Retrieved from http://www.thecb.state.tx.us/institutional-resources-programs/public-community-technical-state-colleges/texas-college-and-career-readiness-standards/
Texas Education Agency. (2013). *Texas response to curriculum focal points for kindergarten through grade 8 mathematics*. Retrieved from https://www.texasgateway.org/resource/txrcfp-texas-response-curriculum-focal-points-k-8-mathematics-revised-2013

Overarching Understandings and Questions

OVERARCHING UNDERSTANDINGS AND QUESTIONS

Numeracy requires the ability to work flexibly with quantities in order to recognize, reason, and solve situations of varying contexts in everyday life, society, and the work place.

- How is numeracy like literacy?
- What are some examples of numeracy in everyday life, society, and the work place?
- How does context influence understanding of a quantity?
- Why is the ability to work flexibly with quantities essential to developing the foundations of numeracy?

UNIT UNDERSTANDINGS AND QUESTIONS	OVERARCHING CONCEPTS AND UNIT CONCEPTS	PERFORMANCE ASSESSMENT(S)

Kindergarten Mathematics

UNIT UNDERSTANDINGS AND QUESTIONS	OVERARCHING CONCEPTS AND UNIT CONCEPTS	PERFORMANCE ASSESSMENT(S)
A thorough understanding of counting involves integrating different skills or characteristics of numbers and is foundational and essential for continued work	Number Composition and Decomposition of Numbers	Mathematics Kindergarten Unit 06 PA 01 Click on the PA title to view related rubric.
 with numbers (counting numbers through 15). What relationships exist between numbers in the proper counting sequence? What strategies can be used to keep track of the count when counting a set of objects? 	 Number Counting (natural) numbers Whole numbers Number Recognition and Counting Sequence 	Provide a collection of color tiles greater than 15 and orally present the following real-world situation and tasks:
 Why are tracking strategies important in counting a set of objects? How does starting the count with a different object affect the count? How does rearranging the set of objects affect the count? The ability to recognize and represent numbers in various forms develops the understanding of equivalence and allows for working flexibly with 	 Cardinality Conservation of set Hierarchical inclusion Magnitude Number Representations Standard form Relationships Numerical Equivalence 	 Kyle has 15 markers. Select the appropriate number of color tiles to represent Kyle's markers. Orally count the selected color tiles and record the count using a numeral. Rearrange the selected color tiles. Orally count the color tiles forward and then backward.
numbers in order to communicate and reason about the value of the number (whole numbers through 15; decomposition within 10). • What are some ways a number can be	 Associated Mathematical Processes Application Problem Solving Model Tools and Techniques 	Mario has 7 markers. a. Select the appropriate number of color tiles to represent Mario's markers.
represented? Why can a number vary in representation but the value of the number stay the same? Why is it important to be able to recognize and create a variety of representations for a quantity?	CommunicationRepresentationsRelationshipsJustification	 b. Orally count the selected color tiles and record the count using a numeral. c. Decompose the selected color tiles into two or more groups. Orally count the number of color tiles in each group.

Kindergarten Mathematics

TITLE: TEKS RS Unit 06: Introducing and Developing Numbers 11 – 15 and Reciting Numbers to 90 SUGGESTED DURATION: 15 days

UNIT UNDERSTANDINGS AND QUESTIONS	OVERARCHING CONCEPTS AND UNIT CONCEPTS	PERFORMANCE ASSESSMENT(S)
 How could representing a number using concrete models pictorial models improve understanding and communicating about the value of a number and the equivalence of the representations? 		Record the count of each group using numerals. Describe the relationship between the total number of markers and the number of color tiles in both groups combined. Explain why the total would be the same or why the total would be different.
		d. Repeat the process by decomposing the same color tiles into two or more groups in a different way. Orally count the number of color tiles in each group. Record the count of each group using numerals. Describe the relationship between the total number of markers and the number of color tiles in both groups combined. Explain why the total would be the same or why the total would be different.
		Standard(s): <u>K.1A</u> , <u>K.1B</u> , <u>K.1C</u> , <u>K.1D</u> , <u>K.1E</u> , <u>K.1F</u> , <u>K.1G</u> , <u>K.2A</u> , <u>K.2B</u> , <u>K.2C</u> , <u>K.2I</u> , <u>ELPS.c.1B</u> , <u>ELPS.c.2C</u> , <u>ELPS.c.3A</u> , <u>ELPS.c.3D</u> , <u>ELPS.c.3H</u>

OVERARCHING UNDERSTANDINGS AND QUESTIONS

Kindergarten Mathematics

TITLE: TEKS RS Unit 06: Introducing and Developing Numbers 11 – 15 and Reciting Numbers to 90

SUGGESTED DURATION: 15 days

Page 6 of 56

Numeracy requires the ability to work flexibly with quantities in order to recognize, reason, and solve situations of varying contexts in everyday life, society, and the work place.

- How is numeracy like literacy?
- What are some examples of numeracy in everyday life, society, and the work place?
- How does context influence understanding of a quantity?
- Why is the ability to work flexibly with quantities essential to developing the foundations of numeracy?

UNIT UNDERSTANDINGS AND QUESTIONS	OVERARCHING CONCEPTS AND UNIT CONCEPTS	PERFORMANCE ASSESSMENT(S)
A thorough understanding of counting involves integrating different skills or characteristics of numbers and is foundational and essential for continued work with numbers (whole numbers through 15). • What relationships exist between numbers in the proper counting sequence? • What strategies can be used to keep track of the count when counting a set of objects? • Why are tracking strategies important in counting a set of objects? • How does starting the count with a different object affect the count? • How are counting skills used to generate numbers that are greater or less than a given number? The ability to recognize and represent numbers in various forms develops the understanding of equivalence and allows for working flexibly with	Number Compare Comparative language Number Counting (natural) numbers Whole numbers Number Recognition and Counting Sequence Cardinality Conservation of set Hierarchical inclusion Magnitude Number Representations Standard form Relationships Numerical Equivalence	Mathematics Kindergarten Unit 06 PA 02 Click on the PA title to view related rubric. Provide a collection of 30 color tiles. Orally present the following real-world situation and tasks: 1. Keith and Jennifer were comparing their crayons in their school supply boxes. Keith had 11 crayons, and Jennifer had 15 crayons. a. Select the appropriate number of color tiles to represent the crayons Keith had in his school supply box. b. Orally count the selected color tiles and record the count using a numeral.

Kindergarten Mathematics

UNIT UNDERSTANDINGS AND QUESTIONS	OVERARCHING CONCEPTS AND UNIT CONCEPTS	PERFORMANCE ASSESSMENT(S)
numbers in order to communicate and reason about the value of the number (whole numbers through 15). • What are some ways a number can be represented?	Associated Mathematical Processes Application Problem Solving Model	c. Select the appropriate number of color tiles to represent the crayons Jennifer had in her school supply box.
 Why can a number vary in representation but the value of the number stay the same? Why is it important to be able to recognize and 	 Tools and Techniques Communication Representations	d. Orally count the selected color tiles and record the count using a numeral.
 create a variety of representations for a quantity? How could representing a number using concrete models 	RelationshipsJustification	e. Compare the quantity of crayons represented in each set. Orally describe the two sets using comparative language.
 pictorial models improve understanding and communicating about the value of a number and the equivalence of the representations? Quantities are compared to determine magnitude of 		f. If Keith puts one more crayon in his box, create a pictorial model to represent the number of crayons Keith would have in his school supply box. Orally count the objects in the pictorial model and record the count using a numeral.
 number and equality or inequality relations (whole numbers through 15). Why is it important to identify the unit or attribute being described by numbers before comparing the numbers? How can numeric representations 		g. If Jennifer had two fewer crayons in her box, create a pictorial model to represent the number of crayons Jennifer would have in her box. Orally count the objects in the pictorial model and record the count using a numeral.
 concrete representations pictorial representations aid in comparing numbers? How can the comparison of two numbers be described and represented? 		h. Compare the new quantities of crayons represented in the pictorial models. Orally describe the two groups using comparative language.

Kindergarten Mathematics

TITLE: TEKS RS Unit 06: Introducing and Developing Numbers 11 – 15 and Reciting Numbers to 90 SUGGESTED DURATION: 15 days

UNIT UNDERSTANDINGS AND QUESTIONS	OVERARCHING CONCEPTS AND UNIT CONCEPTS	PERFORMANCE ASSESSMENT(S)
		Standard(s): <u>K.1A</u> , <u>K.1B</u> , <u>K.1C</u> , <u>K.1D</u> , <u>K.1E</u> , <u>K.1F</u> , <u>K.1G</u> , <u>K.2A</u> , <u>K.2B</u> , <u>K.2C</u> , <u>K.2E</u> , <u>K.2G</u> , <u>ELPS.c.1B</u> , <u>ELPS.c.2C</u> , <u>ELPS.c.3D</u> , <u>ELPS.c.3H</u>

OVERARCHING UNDERSTANDINGS AND QUESTIONS

Numeracy requires the ability to work flexibly with quantities in order to recognize, reason, and solve situations of varying contexts in everyday life, society, and the work place.

- How is numeracy like literacy?
- What are some examples of numeracy in everyday life, society, and the work place?
- How does context influence understanding of a quantity?
- Why is the ability to work flexibly with quantities essential to developing the foundations of numeracy?

UNIT UNDERSTANDINGS AND QUESTIONS	OVERARCHING CONCEPTS AND UNIT CONCEPTS	PERFORMANCE ASSESSMENT(S)
A thorough understanding of counting involves integrating different skills or characteristics of numbers and is foundational and essential for continued work with numbers (whole numbers through 15). • What relationships exist between numbers in the proper counting sequence? • How are counting skills used to generate numbers that are greater or less than a given number?	Number Compare Comparative language Number Counting (natural) numbers Whole numbers Number Recognition and Counting Hierarchical inclusion	Mathematics Kindergarten Unit 06 PA 03 Click on the PA title to view related rubric. Orally present the following real-world situation and tasks:

Kindergarten Mathematics

TITLE: TEKS RS Unit 06: Introducing and Developing Numbers 11 – 15 and Reciting Numbers to 90 SUGGESTED DURATION: 15 days

UNIT UNDERSTANDINGS AND QUESTIONS	OVERARCHING CONCEPTS AND UNIT CONCEPTS	PERFORMANCE ASSESSMENT(S)
 What relationships exist between numerals and the quantities? Quantities are compared to determine magnitude of number and equality or inequality relations (whole numbers through 15). Why is it important to identify the unit or attribute being described by numbers before comparing the numbers? How can numeric representations concrete representations pictorial representations aid in comparing numbers? How can the comparison of two numbers be described and represented? 	 Magnitude Number Representations Standard form Relationships Numerical Equivalence Associated Mathematical Processes Application Problem Solving Model Tools and Techniques Communication Representations Relationships Justification 	 Daryl played two basketball games. He scored 12 points in the first game. He scored 14 points in the second game. Record the numerals that represent each of Daryl's scores. Describe Daryl's two scores using comparative language. If Daryl had scored one more point in his first game, record the numeral that would represent his new score. If Daryl had scored one less point in his second game, record the numeral that would represent his new score. Describe Daryl's new scores using comparative language. Standard(s): K.1A, K.1B, K.1C, K.1D, K.1E, K.1F, K.1G, K.2B, K.2F, K.2H, ELPS.c.1A, ELPS.c.2C, ELPS.c.3C, ELPS.c.3H

OVERARCHING UNDERSTANDINGS AND QUESTIONS

Kindergarten Mathematics

TITLE: TEKS RS Unit 06: Introducing and Developing Numbers 11 – 15 and Reciting Numbers to 90 SUGGESTED DURATION: 15 days

Numeracy requires the ability to work flexibly with quantities in order to recognize, reason, and solve situations of varying contexts in everyday life, society, and the work place.

Page 10 of 56

- How is numeracy like literacy?
- What are some examples of numeracy in everyday life, society, and the work place?
- How does context influence understanding of a quantity?
- Why is the ability to work flexibly with quantities essential to developing the foundations of numeracy?

Kindergarten Mathematics

UNIT UNDERSTANDINGS AND QUESTIONS	OVERARCHING CONCEPTS AND UNIT CONCEPTS	PERFORMANCE ASSESSMENT(S)
A thorough understanding of counting involves integrating different skills or characteristics of numbers and is foundational and essential for continued work with numbers (whole numbers through 10). • Why are visualizing and instantly recognizing small quantities beneficial when • working with larger quantities of objects? • composing or decomposing numbers?	Number Composition and Decomposition of Numbers Number Whole numbers Number Recognition and Counting Subitizing Associated Mathematical Processes Problem Solving Model Tools and Techniques Communication Representations Relationships Justification	Mathematics Kindergarten Unit 06 PA 04 Click on the PA title to view related rubric. Present a set of dot cards that include a mixture of random and organized arrangements of the quantities 0 – 10, or use dots on a computerized random-number generator. Quickly flash the dot arrangements one at a time and assess students on the following tasks: 1. Look at each arrangement of dots. a. Quickly identify the quantity represented without counting. b. Orally describe how the arrangement of the dots helped to quickly identify the quantity. Standard(s): K.1B, K.1C, K.1D, K.1E, K.1F, K.1G, K.2D, ELPS.c.1A, ELPS.c.2D, ELPS.c.3D, ELPS.c.3H

Kindergarten Mathematics

TITLE: TEKS RS Unit 06: Introducing and Developing Numbers 11 – 15 and Reciting Numbers to 90 SUGGESTED DURATION: 15 days

OVERARCHING UNDERSTANDINGS AND QUESTIONS

Numeracy requires the ability to work flexibly with quantities in order to recognize, reason, and solve situations of varying contexts in everyday life, society, and the work place.

- How is numeracy like literacy?
- What are some examples of numeracy in everyday life, society, and the work place?
- How does context influence understanding of a quantity?
- Why is the ability to work flexibly with quantities essential to developing the foundations of numeracy?

Quantitative relationships model problem situations efficiently and can be used to make generalizations, predictions, and critical judgements in everyday life.

- What patterns exist within different types of quantitative relationships and where are they found in everyday life?
- Why is the ability to model quantitative relationships in a variety of ways essential to solving problems in everyday life?

Kindergarten Mathematics

UNIT UNDERSTANDINGS AND QUESTIONS	OVERARCHING CONCEPTS AND UNIT CONCEPTS	PERFORMANCE ASSESSMENT(S)
A thorough understanding of counting involves integrating different skills or characteristics of numbers and is foundational and essential for continued work with numbers (counting numbers forward and backward through 15). • What relationships exist between numbers in the counting sequence when • counting forward from one number to the next number? • counting backward from one number to the previous number? Recognition of patterns in the number word sequence, which are repeated with every grouping of ten, leads to efficient and accurate reciting of numbers (reciting numbers to 90). • What patterns can be found between each grouping of ten when reciting numbers in sequence by ones?	Number Number Counting (natural) numbers Number Recognition and Counting Sequence Cardinality Hierarchical inclusion Magnitude Algebraic Reasoning Patterns and Relationships Reciting numbers Associated Mathematical Processes Problem Solving Model Tools and Techniques	Mathematics Kindergarten Unit 06 PA 05 Click on the PA title to view related rubric. Without the use of concrete or pictorial models, assess students on the following tasks: 1. Orally complete the following tasks. a. Beginning with 1, count forward to 15. b. Beginning with 15, count backward to 1. c. Beginning with 10, recite numbers by tens to 90. d. Beginning with 1, recite numbers by ones to 90. e. Beginning with 36, recite numbers by ones to 90. Standard(s): K.1B, K.1C, K.2A, K.5A, ELPS.c.1B, ELPS.c.3A, ELPS.c.3D

Kindergarten Mathematics

TITLE: TEKS RS Unit 06: Introducing and Developing Numbers 11 – 15 and Reciting Numbers to 90 SUGGESTED DURATION: 15 days

Misconceptions/Underdeveloped Concepts

Misconceptions:

- Some students may think the last number said when counting a set of objects represents the last object counted rather than the quantity of all objects in the set.
- Some students may think a change in the arrangement of objects changes the number of objects in the set rather than recognizing that the quantity does not change if the objects are rearranged or counted in a different order.
- Some students may think that a number can be composed or decomposed in only one way rather than understanding that a number can be composed or decomposed in many ways as long as the quantity of the whole remains the same.
- Some students may think of naming or reciting counting numbers in sequence as a memorization task rather than associating each number with a single object in the set and understanding the tagging of objects to demonstrate one-to-one correspondence.
- Some students may think of naming or reciting counting numbers in sequence as a memorization task rather than understanding that each number represents a quantity and that each number in the counting sequence represents a quantity of one more than the previous number.
- Some students may think there is no pattern or connection between the sequence of number words and the decade words in sequence rather than seeing the pattern or relationship as numbers in sequence move to the next decade (e.g., 49 to 50; 59 to 60; 69 to 70; etc.).
- Some students may think the comparison of two numbers has no relationship to other comparisons rather than realizing that if a given number is greater than another number, then the given number is also greater than all numbers before that number in numerical sequence (e.g., if 14 is greater than 12, it is also greater than 11, 10, 9, 8, 7, 6, 5, 4, 3, 2, 1, and 0).
- Some students may think the comparison of two numbers has no relationship to other comparisons rather than realizing that if a given number is greater than another number, then the given number is also greater than all numbers that could compose that number (e.g., 12 is greater than 11 and greater than 1, 12 is greater than 10 and greater than 2, 12 is greater than 9 and greater than 3, 12 is greater than 8 and greater than 2, 12 is greater than 7 and greater than 5, 12 is greater than 6, and 12 is greater than 0).
- Some students may think that the comparison of two sets of objects has no relationship to other comparisons rather than realizing that the same comparison of sets of objects applies to the numerals representing the sets of objects.
- Some students may think that numbers with the same digits represent the same numbers rather than recognizing that digits in different positions represent different numbers (e.g., thinking that 51 is 15 because both numbers have the same digits).
- Some students may auditorily confuse teen words with decade words (e.g., fifteen and fifty) when reciting numbers.
- Some students may auditorily confuse number words with similar sounds (e.g., seven and eleven) when reciting numbers.
- Some students may pronounce teen words incorrectly (e.g., saying eleventeen for eleven) when reciting numbers.

Kindergarten Mathematics

TITLE: TEKS RS Unit 06: Introducing and Developing Numbers 11 – 15 and Reciting Numbers to 90 SUGGESTED DURATION: 15 days

Underdeveloped Concepts:

• Some students may not associate the idea of "none" with the number zero.

Unit Vocabulary

- Compare numbers to consider the value of two numbers to determine which number is greater or less or if the numbers are equal in value
- Compare sets to consider the value of two sets to determine which set is greater or less in value or if the sets are equal in value
- Compose numbers to combine parts or smaller values to form a number
- Counting (natural) numbers the set of positive numbers that begins at one and increases by increments of one each time {1, 2, 3, ..., n}
- **Decompose numbers** to break a number into parts or smaller values
- One-to-one correspondence each object counted is matched accurately with a number word in correct sequence
- Recite to verbalize from memory
- Whole numbers the set of counting (natural) numbers and zero {0, 1, 2, 3, ..., n}

Related Vocabulary:

- Backward
- Comparative language
- Count
- Counting by ones
- Counting order
- Decrease
- Digit
- Eleven

- Fifteen
- Fourteen
- Forward
- Greater than, more than
- Increase
- · Less than, fewer than
- Model
- Number

- Numeral
- Part
- Quantity
- Sequence
- Set
- Thirteen
- Twelve
- Whole

Kindergarten Mathematics

TITLE: TEKS RS Unit 06: Introducing and Developing Numbers 11 – 15 and Reciting Numbers to 90 SUGGI

SUGGESTED DURATION: 15 days

• Equal to, same as

System Resources

Mathematics Concepts Charts

Mathematics K-HS Overarching Understandings and Questions

Mathematics Kindergarten Backward Design Document

Mathematics Kindergarten Enhanced TEKS Clarification

Mathematics Kindergarten Focal Points with Aligned Standards and TEKS Introduction

Mathematics Kindergarten Instructional Considerations to Activate Purposeful Planning (ICAPP)

Mathematics Kindergarten Vertical Alignment

Mathematics Long Term Transfer Goals

Kindergarten Mathematics

TITLE: TEKS RS Unit 06: Introducing and Developing Numbers 11 – 15 and Reciting Numbers to 90 SUGGESTED DURATION: 15 days

Mathematics Suggested Basic Manipulatives by Grade Level

Mathematics Suggested Engaging Literature

Mathematics Teacher Manipulative Google Slide Decks

Mathematics Texas Education Agency Kindergarten TEKS Supporting Information (with TEKS Resource System Comments)

Mathematics Vertical Quick Guide

Other Resources

Texas Higher Education Coordinating Board – Texas College and Career Readiness Standards

Texas Education Agency – <u>Texas Response to Curriculum Focal Points for K-8 Mathematics Revised 2013</u>

Texas Education Agency - Mathematics Curriculum

Texas Education Agency – <u>STAAR Mathematics Resources</u>

Kindergarten Mathematics

TITLE: TEKS RS Unit 06: Introducing and Developing Numbers 11 – 15 and Reciting Numbers to 90

SUGGESTED DURATION: 15 days

Texas Education Agency Texas Gateway – Revised Mathematics TEKS: Vertical Alignment Charts

Texas Education Agency Texas Gateway - Mathematics TEKS: Supporting Information

Texas Education Agency Texas Gateway – <u>Interactive Mathematics Glossary</u>

Texas Education Agency Texas Gateway – Resources Aligned to Kindergarten Mathematics TEKS

Taught Directly TEKS

Kindergarten Mathematics

	TAUGHT DIRECTLY TEKS	
TEKS INTEN		TENDED TO BE EXPLICITLY TAUGHT IN THIS UNIT.
TEKS/SE Legend:		Specificity Legend:
 Knowledge and Skills Statements (TEKS) identified by TEA are in italicized, bolded, black text. Student Expectations (TEKS) identified by TEA are in bolded, black text. Portions of the Student Expectations (TEKS) that are not included in this unit but are taught in previous or future units are indicated by a strike-through. 		 Supporting information / clarifications (specificity) written by TEKS Resource System are in blue text. Unit-specific clarifications are in italicized, blue text. Information from Texas Education Agency (TEA), Texas College and Career Readiness Standards (TxCCRS), Texas Response to Curriculum Focal Points (TxRCFP) is labeled. A Partial Specificity label indicates that a portion of the specificity not aligned to this unit has been removed.
TEKS# SE#	TEKS	SPECIFICITY
<u>K.1</u>	Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	
<u>K.1A</u>	Apply mathematics to problems arising in everyday life, society, and the workplace.	Apply
		MATHEMATICS TO PROBLEMS ARISING IN EVERYDAY LIFE, SOCIETY, AND THE WORKPLACE
		· · · · · ·

Kindergarten Mathematics

TEKS# SE#	TEKS	SPECIFICITY
		Everyday life
		 Society
		Workplace
		Note(s):
		 The mathematical process standards may be applied to all content standards as appropriate. TxRCFP:
		Developing an understanding of whole numbers
		Developing an understanding of addition and subtraction
		 Identifying and using attributes of two-dimensional shapes and three-dimensional solids
		• TxCCRS:
		 VII.D. Problem Solving and Reasoning – Real-world problem solving
		 VII.D.1. Interpret results of the mathematical problem in terms of the original real-world situation.
		 IX.A. Connections – Connections among the strands of mathematics
		 IX.A.1. Connect and use multiple key concepts of mathematics in situations and problems.
		 IX.A.2. Connect mathematics to the study of other disciplines.
		 IX.B. Connections – Connections of mathematics to nature, real-world situations, and everyday life
		 IX.B.1. Use multiple representations to demonstrate links between mathematical and real-world situations.
		 IX.B.2. Understand and use appropriate mathematical models in the natural, physical, and social sciences.
		 IX.B.3. Know and understand the use of mathematics in a variety of careers and professions.

Kindergarten Mathematics

TEKS#	TEKS	SPECIFICITY
<u>K.1B</u>	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.	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 Including, but not limited to:
		 Problem-solving model Analyze given information Formulate a plan or strategy Determine a solution Justify the solution Evaluate the problem-solving process and the reasonableness of the solution
		 Note(s): The mathematical process standards may be applied to all content standards as appropriate. TxRCFP: Developing an understanding of whole numbers Developing an understanding of addition and subtraction Identifying and using attributes of two-dimensional shapes and three-dimensional solids TxCCRS: I.B. Numeric Reasoning – Number sense and number concepts

Kindergarten Mathematics

TEKS#	TEKS	SPECIFICITY
		 I.B.1. Use estimation to check for errors and reasonableness of solutions. V.A. Statistical Reasoning – Design a study V.A.1. Formulate a statistical question, plan an investigation, and collect data. VII.A. Problem Solving and Reasoning – Mathematical problem solving VII.A.1. Analyze given information. VII.A.2. Formulate a plan or strategy. VII.A.3. Determine a solution. VII.A.4. Justify the solution. VII.A.5. Evaluate the problem-solving process. VII.D. Problem Solving and Reasoning – Real-world problem solving VII.D.2. Evaluate the problem-solving process.
<u>K.1C</u>	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.	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
		Including, but not limited to: • Appropriate selection of tool(s) and techniques to apply in order to solve problems • Tools • Real objects • Manipulatives • Paper and pencil • Technology

Kindergarten Mathematics

TEKS#	TEKS	SPECIFICITY
		 Techniques Mental math Estimation Number sense Note(s): The mathematical process standards may be applied to all content standards as appropriate. TxRCFP: Developing an understanding of whole numbers Developing an understanding of addition and subtraction Identifying and using attributes of two-dimensional shapes and three-dimensional solids TxCCRS: I.B. Numeric Reasoning – Number sense and number concepts I.B.1. Use estimation to check for errors and reasonableness of solutions. V.C. Statistical Reasoning – Analyze, interpret, and draw conclusions from data V.C.2. Analyze relationships between paired data using spreadsheets, graphing calculators, or statistical software.
<u>K.1D</u>	Communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate.	Communicate MATHEMATICAL IDEAS, REASONING, AND THEIR IMPLICATIONS USING MULTIPLE REPRESENTATIONS, INCLUDING SYMBOLS, DIAGRAMS, AND LANGUAGE AS APPROPRIATE

Kindergarten Mathematics

TEKS#	TEKS	SPECIFICITY
		Including, but not limited to:
		 Mathematical ideas, reasoning, and their implications Multiple representations, as appropriate Symbols Diagrams Language
		Note(s):
		 The mathematical process standards may be applied to all content standards as appropriate. TxRCFP: Developing an understanding of whole numbers Developing an understanding of addition and subtraction Identifying and using attributes of two-dimensional shapes and three-dimensional solids TxCCRS: II.D. Algebraic Reasoning – Representing relationships II.D.1. Interpret multiple representations of equations, inequalities, and relationships.
		 II.D.2. Convert among multiple representations of equations, inequalities, and relationships. VIII.A. Communication and Representation – Language, terms, and symbols of mathematics VIII.A.1. Use mathematical symbols, terminology, and notation to represent given and unknown information in a problem. VIII.A.2. Use mathematical language to represent and communicate the mathematical concepts in a problem.

Kindergarten Mathematics

TEKS# SE#	TEKS	SPECIFICITY
		 VIII.A.3. Use mathematical language for reasoning, problem solving, making connections, and generalizing. VIII.B. Communication and Representation – Interpretation of mathematical work VIII.B.1. Model and interpret mathematical ideas and concepts using multiple representations. VIII.B.2. Summarize and interpret mathematical information provided orally, visually, or in written form within the given context. VIII.C. Communication and Representation – Presentation and representation of mathematical work VIII.C.1. Communicate mathematical ideas, reasoning, and their implications using symbols, diagrams, models, graphs, and words. VIII.C.2. Create and use representations to organize, record, and communicate mathematical ideas. VIII.C.3. Explain, display, or justify mathematical ideas and arguments using precise mathematical language in written or oral communications. IX.B. Connections – Connections of mathematics to nature, real-world situations, and everyday life IX.B.1. Use multiple representations to demonstrate links between mathematical and real-world situations.
<u>K.1E</u>	Create and use representations to organize, record, and communicate mathematical ideas.	Create, Use
		REPRESENTATIONS TO ORGANIZE, RECORD, AND COMMUNICATE MATHEMATICAL IDEAS
		Including, but not limited to:

Kindergarten Mathematics

TEKS# SE#	TEKS	SPECIFICITY
		Representations of mathematical ideas
		Organize
		Record
		Communicate
		Evaluation of the effectiveness of representations to ensure clarity of mathematical ideas heir representations.
		being communicatedAppropriate mathematical vocabulary and phrasing when communicating mathematical
		ideas
		Note(s):
		The mathematical process standards may be applied to all content standards as
		appropriate.
		TxRCFP:
		Developing an understanding of whole numbers
		Developing an understanding of addition and subtraction
		 Identifying and using attributes of two-dimensional shapes and three-dimensional solids
		• TxCCRS:
		 VIII.B. Communication and Representation – Interpretation of mathematical work
		 VIII.B.1. Model and interpret mathematical ideas and concepts using multiple representations.
		 VIII.B.2. Summarize and interpret mathematical information provided orally, visually, or in written form within the given context.
		 VIII.C. Communication and Representation – Presentation and representation of mathematical work
		 VIII.C.1. Communicate mathematical ideas, reasoning, and their implications using symbols, diagrams, models, graphs, and words.
		 VIII.C.2. Create and use representations to organize, record, and

Kindergarten Mathematics

TEKS# SE#	TEKS	SPECIFICITY
		communicate mathematical ideas.
<u>K.1F</u>	Analyze mathematical relationships to connect and communicate mathematical ideas.	Analyze
		MATHEMATICAL RELATIONSHIPS TO CONNECT AND COMMUNICATE MATHEMATICAL IDEAS
		Including, but not limited to:
		 Mathematical relationships Connect and communicate mathematical ideas Conjectures and generalizations from sets of examples and non-examples, patterns, etc. Current knowledge to new learning
		Note(s):
		 The mathematical process standards may be applied to all content standards as appropriate. TxRCFP: Developing an understanding of whole numbers Developing an understanding of addition and subtraction Identifying and using attributes of two-dimensional shapes and three-dimensional solids TxCCRS: VII.A. Problem Solving and Reasoning – Mathematical problem solving VII.A.1. Analyze given information.

Kindergarten Mathematics

TEKS#	TEKS	SPECIFICITY
		 VIII.A. Communication and Representation – Language, terms, and symbols of mathematics VIII.A.1. Use mathematical symbols, terminology, and notation to represent given and unknown information in a problem. VIII.A.2. Use mathematical language to represent and communicate the mathematical concepts in a problem. VIII.A.3. Use mathematical language for reasoning, problem solving, making connections, and generalizing. VIII.B. Communication and Representation – Interpretation of mathematical work VIII.B.1. Model and interpret mathematical ideas and concepts using multiple representations. VIII.C. Communication and Representation – Presentation and representation of mathematical work VIII.C.1. Communicate mathematical ideas, reasoning, and their implications using symbols, diagrams, models, graphs, and words. VIII.C.2. Create and use representations to organize, record, and communicate mathematical ideas. VIII.C.3. Explain, display, or justify mathematical ideas and arguments using precise mathematical language in written or oral communications. IX.A. Connections – Connections among the strands of mathematics IX.A.1. Connect and use multiple key concepts of mathematics in situations and problems. IX.A.2. Connect mathematics to the study of other disciplines.
<u>K.1G</u>	Display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.	Display, Explain, Justify MATHEMATICAL IDEAS AND ARGUMENTS USING PRECISE MATHEMATICAL LANGUAGE IN WRITTEN OR ORAL COMMUNICATION

Kindergarten Mathematics

TEKS#	TEKS	SPECIFICITY
		Including, but not limited to:
		 Mathematical ideas and arguments Validation of conclusions Displays to make work visible to others Diagrams, visual aids, written work, etc. Explanations and justifications Precise mathematical language in written or oral communication
		Note(s):
		 The mathematical process standards may be applied to all content standards as appropriate. TxRCFP: Developing an understanding of whole numbers Developing an understanding of addition and subtraction Identifying and using attributes of two-dimensional shapes and three-dimensional solids TxCCRS: VII.A. Problem Solving and Reasoning – Mathematical problem solving VII.B. Problem Solving and Reasoning – Proportional reasoning VII.B.1. Use proportional reasoning to solve problems that require fractions, ratios, percentages, decimals, and proportions in a variety of contexts using multiple representations. VII.C. Problem Solving and Reasoning – Logical reasoning VII.C. Problem Solving and evaluate convincing arguments.

Kindergarten Mathematics

TEKS#	TEKS	SPECIFICITY
46.0		 wathematics VIII. A.3. Use mathematical language for reasoning, problem solving, making connections, and generalizing. VIII.B. Communication and Representation – Interpretation of mathematical work VIII.B.1. Model and interpret mathematical ideas and concepts using multiple representations. VIII.B.2. Summarize and interpret mathematical information provided orally, visually, or in written form within the given context. VIII.C. Communication and Representation – Presentation and representation of mathematical work VIII.C.3. Explain, display, or justify mathematical ideas and arguments using precise mathematical language in written or oral communications.
<u>K.2</u>	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:	
<u>K.2A</u>	Count forward and backward to at least 20 with and without objects.	Count Partial Specificity
		FORWARD TO AT LEAST 15 WITH AND WITHOUT OBJECTS
		Including, but not limited to:
		 Counting numbers (1 − 15)

Kindergarten Mathematics

TEKS#	TEKS	SPECIFICITY
		 Counting (natural) numbers – the set of positive numbers that begins at one and increases by increments of one each time {1, 2, 3,, n} Number word sequence has a correct order. Count forward orally by ones. With objects starting with one One-to-one correspondence – each object counted is matched accurately with a number word in correct sequence Tagging with synchrony, meaning when one object is touched it is matched with the correct word Arrangement and order of counting objects does not matter as long as the proper number sequence is used. Conservation of set – if the same number of objects are counted and then rearranged, the quantity of objects in the set does not change Cardinality – the last counting number identified represents the number of objects in the set regardless of which object was counted last Cardinal number – a number that names the quantity of objects in a set Hierarchical inclusion – concept of nested numbers, meaning each prior number in the counting sequence is included in the set as the set increases (e.g., 15 is 14 increased by 1; 15 decreased by 1 is 14; etc.) Without objects starting with any counting number Proper number counting sequence Hierarchical inclusion – concept of nested numbers, meaning each prior number in the counting sequence is included in the set as the set increases (e.g., 15 is 14 increased by 1; 15 decreased by 1 is 14; etc.) Patrial Specificity
		Count

Kindergarten Mathematics

TEKS# SE#	TEKS	SPECIFICITY
		BACKWARD FROM AT LEAST 15 WITH AND WITHOUT OBJECTS
		Including, but not limited to:
		 Counting numbers (1 – 15) Counting (natural) numbers – the set of positive numbers that begins at one and increases by increments of one each time {1, 2, 3,, n} Number word sequence has a correct order. Count backward orally by ones. With objects starting from any given counting number Objects provided must match the number count (e.g., if counting backwards from 15, then provide 15 counters; etc.). One-to-one correspondence – each object counted is matched accurately with a number word in correct sequence Tagging with synchrony, meaning when one object is touched it is matched with the correct word Arrangement and order of counting objects does not matter as long as the proper number sequence is used. Conservation of set – if the same number of objects are counted and then rearranged, the quantity of objects in the set does not change Cardinality – the last counting number identified represents the number of objects in the set regardless of which object was counted last Cardinal number – a number that names the quantity of objects in a set Hierarchical inclusion – concept of nested numbers, meaning each prior number in the counting sequence is included in the set as the set increases (e.g., 15 is 14 increased by 1; 15 decreased by 1 is 14; etc.) Without objects starting with any counting number Proper number counting sequence

Kindergarten Mathematics

TEKS# SE#	TEKS	SPECIFICITY
		 Hierarchical inclusion – concept of nested numbers, meaning each prior number in the counting sequence is included in the set as the set increases (e.g., 15 is 14 increased by 1; 15 decreased by 1 is 14; etc.)
		Note(s):
		 Grade Level(s): Grade 1 will recite numbers forward and backward from any given number between 1 and 120. Various mathematical process standards will be applied to this student expectation as appropriate. TXRCFP: Developing an understanding of whole numbers Developing an understanding of addition and subtraction TXCCRS: I.A. Numeric Reasoning – Number representations and operations I.A.1. Compare relative magnitudes of rational and irrational numbers, and understand that numbers can be represented in different ways. I.B. Numeric Reasoning – Number sense and number concepts I.B.2. Interpret the relationships between the different representations of numbers.
<u>K.2B</u>	Read, write, and represent whole numbers from 0 to at least 20 with and without objects or pictures.	Read, Write, Represent
		WHOLE NUMBERS FROM 0 TO AT LEAST 15 WITH AND WITHOUT OBJECTS OR PICTURES

Kindergarten Mathematics

TEKS#	TEKS	SPECIFICITY
		Including, but not limited to:
		 Whole numbers (0 – 15) Counting (natural) numbers – the set of positive numbers that begins at one and increases by increments of one each time {1, 2, 3,, n} Whole numbers – the set of counting (natural) numbers and zero {0, 1, 2, 3,, n} Numeric form Numeric form Number of objects in a set communicated orally Number of objects in a set written in numerals Number of objects in a set written in numerals Number presented orally represented with a set of objects Number presented out of sequence (e.g., represent 15; represent 9; represent 2; represent 7; etc.) Arrangement and order of counting objects does not matter as long as the proper number is used. Conservation of set – if the same number of objects are counted and then rearranged, the quantity of objects in the set does not change Relationship between number words and numerals to quantities Quantity in terms of "How many?" Concrete models begin to develop recognition of magnitude (relative size) of number. With pictures Number of objects in a picture communicated orally Number of objects in a picture written in numerals Number presented orally represented with a set of pictures Number presented orally represented with a set of pictures Number presented orally represented with a set of pictures Numbers presented out of sequence (e.g., represent 15; represent 9; represent 2;

Kindergarten Mathematics

TEKS# SE#	TEKS	SPECIFICITY
		represent 7; etc.) Arrangement and order of pictures does not matter as long as the proper number is used. Conservation of set – if the same number of pictures are counted and then rearranged, the quantity of pictures in the set does not change Relationship between number words and numerals to quantities Quantity in terms of "How many?" Pictorial models begin to develop recognition of magnitude (relative size) of number. Without objects or pictures Number presented in written form communicated orally Number presented orally written in numerals Numbers presented out of sequence (e.g., write 15; write 9; write 2; write 7; etc.) Quantity in terms of "How many?"
		Note(s):
		 Grade Level(s): Kindergarten students read, write, and represent whole numbers numerically. Kindergarten students should be exposed to the word form of numbers along with the numeric form. Grade 1 students will begin reading numbers both in numeric and word form. Various mathematical process standards will be applied to this student expectation as appropriate. TxRCFP: Developing an understanding of whole numbers
<u>K.2C</u>	Count a set of objects up to at least 20 and	Partial Specificity

Kindergarten Mathematics

TEKS# SE#	TEKS	SPECIFICITY
	demonstrate that the last number said tells the number of objects in the set regardless of their arrangement or order.	Count A SET OF OBJECTS UP TO AT LEAST 15
		Including, but not limited to:
		 Set of objects (1 – 15) Counting (natural) numbers – the set of positive numbers that begins at one and increases by increments of one each time {1, 2, 3,, n} Number word sequence has a correct order. Arrangement and order of counting objects does not matter as long as the proper number is used. One-to-one correspondence – each object counted is matched accurately with a number word in correct sequence Tagging with synchrony, meaning when one object is touched it is matched with the correct word
		Demonstrate
		THE LAST NUMBER SAID TELLS THE NUMBER OF OBJECTS IN THE SET REGARDLESS OF THEIR ARRANGEMENT OR ORDER
		Including, but not limited to:
		 Counting (natural) numbers – the set of positive numbers that begins at one and increases by increments of one each time {1, 2, 3,, n} Cardinality – the last counting number identified represents the number of objects in the

Kindergarten Mathematics

TEKS# SE#	TEKS	SPECIFICITY
		set regardless of which object was counted last Cardinal number – a number that names the quantity of objects in a set Conservation of set – if the same number of objects are counted and then rearranged, the quantity of objects in the set does not change
		Note(s):
		 Grade Level(s): Various mathematical process standards will be applied to this student expectation as appropriate. TxRCFP: Developing an understanding of whole numbers TxCCRS: I.A. Numeric Reasoning –Number representations and operations I.A.1. Compare relative magnitudes of rational and irrational numbers, and understand that numbers can be represented in different ways. I.B. Numeric Reasoning – Number sense and number concepts I.B.2. Interpret the relationships between the different representations of numbers.
K.2D	Recognize instantly the quantity of a small group of objects in organized and random arrangements.	Recognize Instantly
		THE QUANTITY OF A SMALL GROUP OF OBJECTS IN ORGANIZED AND RANDOM ARRANGEMENTS
		Including, but not limited to:

Kindergarten Mathematics

TEKS#	TEKS	SPECIFICITY
		 Group of objects (0 to 10) 0 – 5 objects 5 – 10 objects Subitizing— the ability to name the number of objects in a set without counting but rather by identifying the arrangement of objects Perceptual subitizing – the recognition of a quantity without using any other knowledge to determine the count Quantities of 5 or fewer Conceptual subitizing – recognition of a quantity based on a spatial arrangement, pattern, parts of the arrangement, etc. Organized arrangements Organization of objects aids in the instant recognition of the quantity based on the composition and decomposition of the parts. Various organized arrangements of objects (e.g., one or two five frame mats, a Rekenrek counting rack, fingers, number cubes, playing cards, dominoes, random number generators, etc.) Random arrangements Spatial arrangements of objects perceived in a variety of ways to aid in the instant recognition of a quantity based on the composition and decomposition of the parts Instant recognition of smaller quantities within the random arrangement aids in determining the total quantity of the random arrangement.
		 Various random arrangements of objects Note(s): Grade Level(s): Grade 1 recognizes instantly the quantity of structured arrangements. Various mathematical process standards will be applied to this student expectation as appropriate.

Kindergarten Mathematics

TEKS# SE#	TEKS	SPECIFICITY
		 TxRCFP: Developing an understanding of whole numbers TxCCRS: I.B. Numeric Reasoning – Number sense and number concepts I.B.2. Interpret the relationships between the different representations of numbers.
<u>K.2E</u>	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 .	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 15
		Including, but not limited to:
		 Whole numbers (0 – 15) Counting (natural) numbers – the set of positive numbers that begins at one and increases by increments of one each time {1, 2, 3,, n} Whole numbers – the set of counting (natural) numbers and zero {0, 1, 2, 3,, n} Quantity represented by concrete models, pictorial models, oral presentations, and symbolic representations Concrete and pictorial models begin to develop recognition of magnitude (relative size) of number. Concrete models Given number presented orally and symbolically Counting strategies used to create the set Relationship of the set to the given number Comparative language

Kindergarten Mathematics

TEKS#	TEKS	SPECIFICITY
		 Describes the relationship between the concrete model and the given
		number
		 Greater than, more than
		 Less than, fewer than
		 Equal to, same as
		Pictorial models
		 Given number presented orally and symbolically
		 Counting strategies used to create the set
		 Relationship of the set to the given number
		 Comparative language
		 Describes the relationship between the pictorial model and the given number
		 Greater than, more than
		 Less than, fewer than
		 Equal to, same as
		Note(s):
		Grade Level(s):
		 Grade 1 will generate a number that is greater than or less than a given whole
		number up to 120.
		 Grade 1 will represent the comparison of two numbers to 100 using the symbols >,
		<, or =.
		 Various mathematical process standards will be applied to this student expectation as appropriate.
		• TxRCFP:
		Developing an understanding of whole numbers
		TxCCRS:
1		 I.A. Numeric Reasoning –Number representations and operations

Kindergarten Mathematics

TEKS# SE#	TEKS	SPECIFICITY
		 I.A.1. Compare relative magnitudes of rational and irrational numbers, and understand that numbers can be represented in different ways.
<u>K.2F</u>	Generate a number that is one more than or one less than another number up to at least 20 .	Generate Partial Specificity
		A NUMBER THAT IS ONE MORE THAN OR ONE LESS THAN ANOTHER NUMBER UP TO AT LEAST 15
		Including, but not limited to:
		 Whole numbers (0 – 15) Counting (natural) numbers – the set of positive numbers that begins at one and increases by increments of one each time {1, 2, 3,, n} Whole numbers – the set of counting (natural) numbers and zero {0, 1, 2, 3,, n} Hierarchical inclusion – concept of nested numbers, meaning each prior number in the counting sequence is included in the set as the set increases (e.g., 15 is 14 increased by 1; 15 decreased by 1 is 14; etc.) Comparative language Describes the relationship between the number generated and the given number One more than a given number, including 1 more than 0 and 1 more than 14 One less than a given number, including 1 less than 1 and 1 less than 15 Quantity represented by concrete models, pictorial models, oral presentations, and symbolic representations Concrete and pictorial models begin to develop recognition of magnitude (relative size) of number. Counters, linking cubes, beans, calendar, hundreds chart, etc. Oral presentations and symbolic representations

Kindergarten Mathematics

TEKS#	TEKS	SPECIFICITY
		 Verbal description, numerical recording using words and numbers Quantities presented out of correct sequence (e.g., 1 more than 10; 1 more than 4; 1 less than 14; 1 less than 6; etc.)
		Note(s):
		 Grade Level(s): Grade 1 will generate a number that is greater than or less than a given whole number to 120. Grade 2 will generate a number that is greater than or less than a given whole number to 1,200. Various mathematical process standards will be applied to this student expectation as appropriate. TXRCFP: Developing an understanding of whole numbers Developing an understanding of addition and subtraction TXCCRS: I.A. Numeric Reasoning –Number representations and operations I.A.1. Compare relative magnitudes of rational and irrational numbers, and understand that numbers can be represented in different ways.
<u>K.2G</u>	Compare sets of objects up to at least 20 in each set using comparative language.	Compare Partial Specificity
		SETS OF OBJECTS UP TO AT LEAST 15 IN EACH SET USING COMPARATIVE LANGUAGE
		Including, but not limited to:

Kindergarten Mathematics

TEKS# SE#	TEKS	SPECIFICITY
		 Whole numbers (0 – 15) Counting (natural) numbers – the set of positive numbers that begins at one and increases by increments of one each time {1, 2, 3,, n} Whole numbers – the set of counting (natural) numbers and zero {0, 1, 2, 3,, n} Quantity represented by concrete models, pictorial models, oral presentations, and symbolic representations Concrete and pictorial models begin to develop recognition of magnitude (relative size) of number. Counters, linking cubes, beans, calendar, hundreds chart, etc. Oral presentations and symbolic representations Verbal description, numerical recording using words and numbers Hierarchical inclusion – concept of nested numbers, meaning each prior number in the counting sequence is included in the set as the set increases (e.g., 15 is 14 increased by 1; 15 decreased by 1 is 14; etc.) Compare sets – to consider the value of two sets to determine which set is greater or less in value or if the sets are equal in value Matching or counting strategies to compare sets One-to-one correspondence – each object counted is matched accurately with a number word in correct sequence Tagging with synchrony, meaning when one object is touched it is matched with the correct word Arrangement and order of counting objects does not matter as long as the proper number sequence is used. Conservation of set – if the same number of objects are counted and then rearranged, the quantity of objects in the set does not change Cardinality – the last counting number identified represents the number of objects in the set regardless of which object was counted last Cardinal number – a number that names the quantity of objects in a set

Kindergarten Mathematics

TEKS# SE#	TEKS	SPECIFICITY
		Describes the relationship between the quantities of each set
		 Inequality language (greater than, more than, less than, fewer than, etc.)
		 Equality language (equal to, same as, etc.)
		 Compare two sets of objects up to at least 15.
		 Recognition of the quantity represented by each set
		 Comparative language describing the relationship between 2 sets
		 Comparison of two organized sets
		 Comparison of two unorganized sets
		 Comparison of an organized set to an unorganized set
		 Compare more than two sets of objects up to at least 15.
		 Recognition of the quantity represented by each set
		 Comparative language describing the relationship among more than 2 sets
		 Comparison of organized sets and unorganized sets
		Note(s):
		Grade Level(s):
		 Kindergarten uses comparative language only.
		 Grade 1 will use place value to compare whole numbers up to 120 using comparative language.
		 Grade 1 introduces representing the comparison of two numbers to 100 using the symbols >, <, or =.
		 Various mathematical process standards will be applied to this student expectation as appropriate.
		• TxRCFP:
		Developing an understanding of whole numbers
		TxCCRS:
		I.A. Numeric Reasoning –Number representations and operations
		I.A.1. Compare relative magnitudes of rational and irrational numbers, and

Kindergarten Mathematics

TEKS#	TEKS	SPECIFICITY
		understand that numbers can be represented in different ways.
<u>K.2H</u>	Use comparative language to describe two numbers up to 20 presented as written numerals.	Use
		COMPARATIVE LANGUAGE
		Including, but not limited to:
		 Comparative language Describes the relationship between the value of each numeral Inequality language Greater than, more than Less than, fewer than Equality language Equal to, same as
		To Describe
		TWO NUMBERS UP TO 15 PRESENTED AS WRITTEN NUMERALS
		Including, but not limited to:
		 Whole numbers (0 – 15) Counting (natural) numbers – the set of positive numbers that begins at one and increases by increments of one each time {1, 2, 3,, n}

Kindergarten Mathematics

TEKS#	TEKS	SPECIFICITY
		 Whole numbers – the set of counting (natural) numbers and zero {0, 1, 2, 3,, n} Numerals represent quantities Compare numbers – to consider the value of two numbers to determine which number is greater or less or if the numbers are equal in value Compare two numbers Numerals presented out of sequence (e.g., compare 6 and 12; compare 15 and 5; etc.) Transition from comparing numbers by counting objects to comparing numbers without counting.
		Note(s):
		 Grade Level(s): Kindergarten uses comparative language only. Grade 1 will use place value to compare whole numbers up to 120 using comparative language. Grade 1 introduces representing the comparison of two numbers to 100 using the symbols >, <, or =. Various mathematical process standards will be applied to this student expectation as appropriate. TXRCFP: Developing an understanding of whole numbers TXCCRS: I.A. Numeric Reasoning – Number representations and operations I.A.1. Compare relative magnitudes of rational and irrational numbers, and understand that numbers can be represented in different ways.
<u>K.2I</u>	Compose and decompose numbers up to 10 with objects and pictures.	Compose, Decompose

Kindergarten Mathematics

TEKS#	TEKS	SPECIFICITY
		NUMBERS UP TO 10 WITH OBJECTS AND PICTURES
		Including, but not limited to:
		 Whole numbers (0 – 10) Counting (natural) numbers – the set of positive numbers that begins at one and increases by increments of one each time {1, 2, 3,, n} Whole numbers – the set of counting (natural) numbers and zero {0, 1, 2, 3,, n} Compose numbers – to combine parts or smaller values to form a number Decompose numbers – to break a number into parts or smaller values Part to whole relationships Parts of a composed or decomposed number identified Correct number connected to appropriate parts Numeric relationship of one part to the other part Numeric relationship of each part to the whole Missing part determined Composition of a number in more than one way using objects and pictures Total of the parts conserved Composed parts may be listed in any order (commutative property). Relationship of composed parts to create a new set of composed parts Decomposition of a number in more than one way using objects and pictures Original decomposed number conserved Decomposed parts may be listed in any order (commutative property). Relationship of decomposed parts to create a new set of decomposed parts
		Note(s):

Kindergarten Mathematics

TEKS# SE#	TEKS	SPECIFICITY
		Grade Level(s): Grade 1 will 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. Various mathematical process standards will be applied to this student expectation as appropriate. TxRCFP: Developing an understanding of whole numbers Developing an understanding of addition and subtraction TxCCRS: I.A. Numeric Reasoning – Number representations and operations I.A.2. Perform computations with rational and irrational numbers. I.B. Numeric Reasoning – Number sense and number concepts I.B.2. Interpret the relationships between the different representations of numbers.
<u>K.5</u>	Algebraic reasoning. The student applies mathematical process standards to identify the pattern in the number word list. The student is expected to:	
<u>K.5A</u>	Recite numbers up to at least 100 by ones and tens beginning with any given number.	Recite Partial Specificity
		NUMBERS UP TO AT LEAST 90 BY ONES AND TENS BEGINNING WITH ANY GIVEN NUMBER
		Including, but not limited to:

Kindergarten Mathematics

TEKS#	TEKS	SPECIFICITY
		 Counting numbers (1 – 90) Counting (natural) numbers – the set of positive numbers that begins at one and increases by increments of one each time {1, 2, 3,, n} Number word sequence has a correct order Recite – to verbalize from memory Development of automaticity Relationship to counting Cardinal number – a number that names the quantity of objects in a set Hierarchical inclusion – concept of nested numbers, meaning each prior number in the counting sequence is included in the set as the set increases (e.g., 15 is 14 increased by 1; 15 decreased by 1 is 14; etc.) Recite numbers forward up to at least 90 Orally by ones beginning with 1 Orally by ones beginning with any given number By tens beginning with 10
		Note(s):
		 Grade Level(s): Kindergarten introduces reciting numbers by ten. Grade 1 will recite numbers forward and backward from any given number between 1 and 120. Various mathematical process standards will be applied to this student expectation as appropriate. TxRCFP: Developing an understanding of whole numbers

Kindergarten Mathematics

TITLE: TEKS RS Unit 06: Introducing and Developing Numbers 11 – 15 and Reciting Numbers to 90 SUGGESTED DURATION: 15 days

English Language Proficiency Standards

The English Language Proficiency Standards (ELPS), as required by 19 Texas Administrative Code, Chapter 74, Subchapter A, §74.4, outline English language proficiency level descriptors and student expectations for English language learners (ELLs). School districts are required to implement ELPS as an integral part of each subject in the required curriculum.

School districts shall provide instruction in the knowledge and skills of the foundation and enrichment curriculum in a manner that is linguistically accommodated commensurate with the student's levels of English language proficiency to ensure that the student learns the knowledge and skills in the required curriculum.

School districts shall provide content-based instruction including the cross-curricular second language acquisition essential knowledge and skills in subsection (c) of the ELPS in a manner that is linguistically accommodated to help the student acquire English language proficiency.

http://ritter.tea.state.tx.us/rules/tac/chapter074/ch074a.html#74.4

Choose appropriate ELPS to support instruction.

ELPS.c.1	The ELL uses language learning strategies to develop an awareness of his or her own learning processes in all content areas. In order for the ELL to meet grade-level learning expectations across the foundation and enrichment curriculum, all instruction delivered in English must be linguistically accommodated (communicated, sequenced, and scaffolded) commensurate with the student's level of English language proficiency. The student is expected to:	
ELPS.c.1A	use prior knowledge and experiences to understand meanings in English	
ELPS.c.1B	monitor oral and written language production and employ self-corrective techniques or other resources	
ELPS.c.1C	use strategic learning techniques such as concept mapping, drawing, memorizing, comparing, contrasting, and reviewing to acquire	

Kindergarten Mathematics

ELPS#	SUBSECTION C: CROSS-CURRICULAR SECOND LANGUAGE ACQUISITION ESSENTIAL KNOWLEDGE AND SKILLS.	
	basic and grade-level vocabulary	
ELPS.c.1D	speak using learning strategies such as requesting assistance, employing non-verbal cues, and using synonyms and circumlocution (conveying ideas by defining or describing when exact English words are not known)	
ELPS.c.1E	internalize new basic and academic language by using and reusing it in meaningful ways in speaking and writing activities that build concept and language attainment	
ELPS.c.1F	use accessible language and learn new and essential language in the process	
ELPS.c.1G	demonstrate an increasing ability to distinguish between formal and informal English and an increasing knowledge of when to use each one commensurate with grade-level learning expectations	
ELPS.c.1H	develop and expand repertoire of learning strategies such as reasoning inductively or deductively, looking for patterns in language, and analyzing sayings and expressions commensurate with grade-level learning expectations.	
ELPS.c.2	The ELL listens to a variety of speakers including teachers, peers, and electronic media to gain an increasing level of comprehension of newly acquired language in all content areas. ELLs may be at the beginning, intermediate, advanced, or advanced high stage of English language acquisition in listening. In order for the ELL to meet grade-level learning expectations across the foundation and enrichment curriculum, all instruction delivered in English must be linguistically accommodated (communicated, sequenced, and scaffolded) commensurate with the student's level of English language proficiency. The student is expected to:	
ELPS.c.2A	distinguish sounds and intonation patterns of English with increasing ease	
ELPS.c.2B	recognize elements of the English sound system in newly acquired vocabulary such as long and short vowels, silent letters, and consonant clusters	
ELPS.c.2C	learn new language structures, expressions, and basic and academic vocabulary heard during classroom instruction and interactions	
ELPS.c.2D	monitor understanding of spoken language during classroom instruction and interactions and seek clarification as needed	
ELPS.c.2E	use visual, contextual, and linguistic support to enhance and confirm understanding of increasingly complex and elaborated spoken language	
ELPS.c.2F	listen to and derive meaning from a variety of media such as audio tape, video, DVD, and CD ROM to build and reinforce concept and	

Kindergarten Mathematics

ELPS#	SUBSECTION C: CROSS-CURRICULAR SECOND LANGUAGE ACQUISITION ESSENTIAL KNOWLEDGE AND SKILLS.	
	language attainment	
ELPS.c.2G	understand the general meaning, main points, and important details of spoken language ranging from situations in which topics, language, and contexts are familiar to unfamiliar	
ELPS.c.2H	understand implicit ideas and information in increasingly complex spoken language commensurate with grade-level learning expectations	
ELPS.c.2l	demonstrate listening comprehension of increasingly complex spoken English by following directions, retelling or summarizing spoken messages, responding to questions and requests, collaborating with peers, and taking notes commensurate with content and grade-level needs.	
ELPS.c.3	The ELL speaks in a variety of modes for a variety of purposes with an awareness of different language registers (formal/informal) using vocabulary with increasing fluency and accuracy in language arts and all content areas. ELLs may be at the beginning, intermediate, advanced, or advanced high stage of English language acquisition in speaking. In order for the ELL to meet grade-level learning expectations across the foundation and enrichment curriculum, all instruction delivered in English must be linguistically accommodated (communicated, sequenced, and scaffolded) commensurate with the student's level of English language proficiency. The student is expected to:	
ELPS.c.3A	practice producing sounds of newly acquired vocabulary such as long and short vowels, silent letters, and consonant clusters to pronounce English words in a manner that is increasingly comprehensible	
ELPS.c.3B	expand and internalize initial English vocabulary by learning and using high-frequency English words necessary for identifying and describing people, places, and objects, by retelling simple stories and basic information represented or supported by pictures, and by learning and using routine language needed for classroom communication	
ELPS.c.3C	speak using a variety of grammatical structures, sentence lengths, sentence types, and connecting words with increasing accuracy and ease as more English is acquired	
ELPS.c.3D	speak using grade-level content area vocabulary in context to internalize new English words and build academic language proficiency	
ELPS.c.3E	share information in cooperative learning interactions	
ELPS.c.3F	ask and give information ranging from using a very limited bank of high-frequency, high-need, concrete vocabulary, including key words	

Kindergarten Mathematics

ELPS#	SUBSECTION C: CROSS-CURRICULAR SECOND LANGUAGE ACQUISITION ESSENTIAL KNOWLEDGE AND SKILLS.
	and expressions needed for basic communication in academic and social contexts, to using abstract and content-based vocabulary during extended speaking assignments
ELPS.c.3G	express opinions, ideas, and feelings ranging from communicating single words and short phrases to participating in extended discussions on a variety of social and grade-appropriate academic topics
ELPS.c.3H	narrate, describe, and explain with increasing specificity and detail as more English is acquired
ELPS.c.3I	adapt spoken language appropriately for formal and informal purposes
ELPS.c.3J	respond orally to information presented in a wide variety of print, electronic, audio, and visual media to build and reinforce concept and language attainment.
ELPS.c.4	The ELL reads a variety of texts for a variety of purposes with an increasing level of comprehension in all content areas. ELLs may be at the beginning, intermediate, advanced, or advanced high stage of English language acquisition in reading. In order for the ELL to meet grade-level learning expectations across the foundation and enrichment curriculum, all instruction delivered in English must be linguistically accommodated (communicated, sequenced, and scaffolded) commensurate with the student's level of English language proficiency. For Kindergarten and Grade 1, certain of these student expectations apply to text read aloud for students not yet at the stage of decoding written text. The student is expected to:
ELPS.c.4A	learn relationships between sounds and letters of the English language and decode (sound out) words using a combination of skills such as recognizing sound-letter relationships and identifying cognates, affixes, roots, and base words
ELPS.c.4B	recognize directionality of English reading such as left to right and top to bottom
ELPS.c.4C	develop basic sight vocabulary, derive meaning of environmental print, and comprehend English vocabulary and language structures used routinely in written classroom materials
ELPS.c.4D	use prereading supports such as graphic organizers, illustrations, and pretaught topic-related vocabulary and other prereading activities to enhance comprehension of written text
ELPS.c.4E	read linguistically accommodated content area material with a decreasing need for linguistic accommodations as more English is learned
ELPS.c.4F	use visual and contextual support and support from peers and teachers to read grade-appropriate content area text, enhance and

Kindergarten Mathematics

ELPS#	SUBSECTION C: CROSS-CURRICULAR SECOND LANGUAGE ACQUISITION ESSENTIAL KNOWLEDGE AND SKILLS.	
	confirm understanding, and develop vocabulary, grasp of language structures, and background knowledge needed to comprehend increasingly challenging language	
ELPS.c.4G	demonstrate comprehension of increasingly complex English by participating in shared reading, retelling or summarizing material, responding to questions, and taking notes commensurate with content area and grade level needs	
ELPS.c.4H	read silently with increasing ease and comprehension for longer periods	
ELPS.c.4I	demonstrate English comprehension and expand reading skills by employing basic reading skills such as demonstrating understanding of supporting ideas and details in text and graphic sources, summarizing text, and distinguishing main ideas from details commensurate with content area needs	
ELPS.c.4J	demonstrate English comprehension and expand reading skills by employing inferential skills such as predicting, making connections between ideas, drawing inferences and conclusions from text and graphic sources, and finding supporting text evidence commensurate with content area needs	
ELPS.c.4K	demonstrate English comprehension and expand reading skills by employing analytical skills such as evaluating written information and performing critical analyses commensurate with content area and grade-level needs.	
ELPS.c.5	The ELL writes in a variety of forms with increasing accuracy to effectively address a specific purpose and audience in all content areas. ELLs may be at the beginning, intermediate, advanced, or advanced high stage of English language acquisition in writing. In order for the ELL to meet grade-level learning expectations across foundation and enrichment curriculum, all instruction delivered in English must be linguistically accommodated (communicated, sequenced, and scaffolded) commensurate with the student's level of English language proficiency. For Kindergarten and Grade 1, certain of these student expectations do not apply until the student has reached the stage of generating original written text using a standard writing system. The student is expected to:	
ELPS.c.5A	learn relationships between sounds and letters of the English language to represent sounds when writing in English	
ELPS.c.5B	write using newly acquired basic vocabulary and content-based grade-level vocabulary	
ELPS.c.5C	spell familiar English words with increasing accuracy, and employ English spelling patterns and rules with increasing accuracy as more English is acquired	
ELPS.c.5D	edit writing for standard grammar and usage, including subject-verb agreement, pronoun agreement, and appropriate verb tenses	

Kindergarten Mathematics

TITLE: TEKS RS Unit 06: Introducing and Developing Numbers 11 – 15 and Reciting Numbers to 90 SUGGESTED DURATION: 15 days

ELPS#	SUBSECTION C: CROSS-CURRICULAR SECOND LANGUAGE ACQUISITION ESSENTIAL KNOWLEDGE AND SKILLS.	
	commensurate with grade-level expectations as more English is acquired	
ELPS.c.5E	employ increasingly complex grammatical structures in content area writing commensurate with grade-level expectations, such as:	
ELPS.c.5F	write using a variety of grade-appropriate sentence lengths, patterns, and connecting words to combine phrases, clauses, and sentences in increasingly accurate ways as more English is acquired	
ELPS.c.5G	narrate, describe, and explain with increasing specificity and detail to fulfill content area writing needs as more English is acquired.	

Teacher Notes

District Notes

Kindergarten Mathematics

TITLE: TEKS RS Unit 06: Introducing and Developing Numbers 11 – 15 and Reciting Numbers to 90

SUGGESTED DURATION: 15 days