Grade 1

Mathematics Curriculum Document

2014-2015

Trouble Shooting Guide

***The 2014-15 Mathematics Curriculum Document for Grade 1 includes the following features:**

A.) The NISD Curriculum Document is a TEKS-Based Curriculum

B.) YAG detailing the Curriculum Bundles, Suggested Days of Instruction, & TEKS

C.) Color Coding: Yellow=Supporting Standards, Green=Readiness Standards, & Blue=Process Standards, *Italic Red=Teacher Note,* Purple Text=ELPS, **BOLD=Notations of TEKS Standard Change, Cognitive Change, and Content Change** to Bridge Understanding of New TEKS

D.) TEKS, Understanding, Rigor Questions, Instructional Strategies/Resources, Questions & Stems and Teacher Notes/Resources are Detailed with each Curriculum Bundle. Focus on STAAR Alignment & Supporting of Readiness Connections.

E.) The expectation is that teachers will share additional effective resources with their campus Curriculum Specialist(s) for inclusion in the document.

F.)Since this is Year 1 of a New Mathematics Resource Adoption, inclusion of references to the resource will be included at a later time.

G.) Performance Tasks have been purposefully omitted; however, performance tasks are highly encouraged. The following resource offers tasks and corresponding directive cards (English and Spanish) and rubrics: http://www.rda.aps.edu/MathTaskBank/fi_html/k2tasks.htm. (See example, Pg 7) These activities ARE NOT to be thought of as projects. Project-Based Learning Projects will be included in the document at a later time after further professional development into PBL. Please follow up with your Campus Curriculum Specialists if you need assistance with selecting applicable performance tasks from the Mathematics Performance Task Bank.

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Year at a Glance By Six Weeks/Bundle/TEKS

First Semester	Second Semester
1st Six Weeks	**4th Six Weeks**
• Bundle #1=14 Days: 1.2A (Supporting); 1.2C (Readiness); 1.5A (Supporting); 1.8A (Supporting); 1.8B (Supporting); 1.8C (Readiness) • Bundle #2=14 Days: 1.2C (Readiness); 1.2D (Supporting); 1.2F (Supporting); 1.5B (Supporting); 1.2E (Supporting); 1.5A (Supporting)	• Bundle #7=19 Days: 1.2A (Supporting); 1.2B (Supporting); 1.2C (Readiness); 1.2D (Supporting); 1.2E (Supporting); 1.2G (Readiness); 1.2F (Supporting); 1.3A (Supporting); 1.5C (Supporting) • Bundle #8=14 Days: 1.4A (Supporting); 1.4C (Readiness); 1.4B (Supporting); 1.3A (Supporting); 1.5B (Supporting); 1.5C (Supporting)
2nd Six Weeks	**5th Six Weeks**
Bundle #3=15 Days: 1.2A (Supporting); 1.3C (Supporting); 1.5A (Supporting); 1.5B (Supporting); • Bundle #4=10 Days: 1.3B (Supporting); 1.3E (Supporting); 1.3C (Supporting); 1.5A (Supporting); 1.5B (Supporting); 1.5C (Supporting); 1.5G (Readiness)	• Bundle #9=14 Days: 1.6A (Readiness); 1.6D (Readiness); 1.6C (Supporting); 1.6F (Supporting); 1.6G (Supporting); 1.6H (Supporting) • Bundle #10=19 Days: 1.6B (Supporting); 1.6E (Readiness); 1.8A (Supporting); 1.8B (Supporting); 1.1E (Process); 1.8C (Readiness); 1.9B (Supporting); 1.9C (Supporting)
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Process Standards

1.1A	1.1B	1.1C	1.1D	1.1E	1.1F	1.1G
Apply mathematics to problems arising in everyday life, society, the workplace.	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.	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.	Communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate.	Create and use representations to organize, record, and communicate mathematical ideas.	Analyze mathematical relationships to connect and communicate mathematical ideas.	Display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

*Process Standards MUST be integrated within EACH Bundle to ensure the success of students.

Course: Grade 1 Math	Bundle 1: Recognize & Represent Whole Numbers	August 25 – September 12 (14 days)

Understandings

- Recite, read & write numbers
- Use numbers to represent collected data

Rigor Questions

Why is it important to quickly recognize numbers?
How can we represent numbers with objects and pictures?
How does the representation help someone understand data?

Vocabulary: Cognitive Complexity Verbs for TEKS: **Apply**; **Use**; **Recognize**; **Represent**; **Compare**;

Instantly; **Numbers (0-50)**; **Forward**; **Backward**; **Data**; **Graph**; **Bar-Type Graph**; **Picture Graph**; **Collect**; **Sort**; (**Vertical, Horizontal, Title, Label, More, Most, Fewer, Least**)

TEKS/Student Expectations	TEKS/ELPS Integration	Instructional Strategies/Resources	Clarifications and Examples
The student is expected to: 1.2.A-recognize instantly the quantity of structured arrangements; (! NEW STANDARD-Supporting Standard)	1.2.A **Supports Readiness Standard By:** Being able to recognize the quantity of a structured arrangement will support students in being able to visually compare two numbers.	1.2.A **Instructional Implications:** Students learn to recognize dot arrangements on standard dice due to the board games they have played. Similar instant recognition can be developed for other patterns as well. Quantities up to 10 can be known and named without the routine of counting; Some students may continue to rely on physically counting using one-to-one correspondence to determine the total number of objects; however, with continuous exposure to pattern sets, students will begin to rely less on their counting skills and more on their spatial reasoning.	**Focus** Recognize quantities without counting such as dots on a number cube or ten-frames **Question & Stems** • How can you determine the quantity shown in an image without counting? • Which of these arrangements shows more/less? • Assess using quick images. **Teacher Notes** *This revised SE extends revised SE K.2.F where students are expected to generate a number that is one more or one less than another number up to 20*

TEKS/Student Expectations	TEKS/ELPS Integration	Instructional Strategies/Resources	Clarifications and Examples
The student is expected to: 1.2.C-use objects, pictures, and expanded and standard forms to represent numbers up to 120; (Readiness Standard) **Current Standard**: 1.1D read and write numbers to 99 to describe sets of concrete objects. **Cognitive Change**: Replaced "reading/writing" of numbers with the "representing" of numbers. **Content Change**: Added the use of pictures; Added the use of expanded and standard forms of numbers; Extended representations of 99-120.	1.2.C STAAR Grade 3 Scaffold: 3.2A 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.	1.2.C **Academic Vocabulary Specific To Readiness Standard:** Digit; Expanded Notation; Place Value; Hundreds; Tens; Ones; Standard Form 1.2.C **Instructional Implications:** As students begin representing numbers through 120 using base ten blocks, their understanding should also be associated with writing numbers in standard from (24), word form (twenty-four), and expanded form (24=20=4). This type of representation will allow students to focus on the value of each digit and support the understanding of place value system (i.e. two ten rods represent the value of 20; four unit cubes represent the value of 4; 20+4=24). In represent numbers in word form, be sure to emphasize the correct use of the hyphen (i.e. twenty-three)	**Focus** Represent, compare, and determine relationships between numbers up to 30. **Questions & Stems** • How can you show the number ___? • What do these numbers have in common? (13, 14, 15, 16) • Students will represent a given number **Teacher Notes** **Distractor Factor-***Students may incorrectly use the word "and" to represent numbers in words (i.e. 105 is represented as "one hundred five" NOT "one hundred and five"). The word "and" is applied in the representation of whole number and decimal value (i.e. 3.45 is represented as "three and forty-five hundredths"). Students will confuse the place value a digit has with its value. (i.e. 105; the digit 1 is in the hundreds place value but it is valued as 100). Students may confuse "digit" with "number".* **This is an on-going TEKS. In bundle 2, it will extend to 50.** *Specificity has been added with what students are expected to write with the inclusion of "expanded and standard forms."* *In addition to objects, students may use pictures to represent numbers. Representing numbers has increased from 99 to 120.*

The student is expected to: 1.5.A-recite numbers forward and backward from any given number between 1 and 120; (! NEW STANDARD-Supporting Standard)	1.5.A **Supports Readiness Standard By:** Counting numbers backward and forward from any given number supports the contextual understanding of the value of numbers. This understanding can be associated to the representations of numbers on a number line; The number line can be used as a strategy to compare/order numbers and develop a students' understanding of place value, the relative position of numbers, and the magnitude of numbers; The use of this tool is a crucial support mechanism.	1.5.A **Instructional Implications:** The counting sequence is a rote procedures; however, asking students to begin counting at a particular number relates to the understanding of relative position (37 comes before 38) and asking a student to count forward or backward connects to their understanding of the magnitude of numbers (as I recite numbers forward the numbers become larger; as I recite numbers backward they become smaller).	**Focus** Count ***forward*** from any number up to 120. **Questions & Stems** • Start with ___ and get to ____ • Count on from ____ **Teacher Notes** **This is an on-going TEKS.** **Counting *backward* will be addressed in bundle 2.** *This revised SE extends revised SE K.5 where students are expected to recite numbers up to at least 100 by ones and tens beginning with any given number*
TEKS/Student Expectations	**TEKS/ELPS Integration**	**Instructional Strategies/Resources**	**Clarifications and Examples**
The student is expected to: 1.8.A-collect, sort, and organize data in up to three categories using models / representations such as tally marks or T-charts; (Supporting Standard) **Current Standard**: 1.9 A Collect and sort data. **Cognitive Change**: Added the "organizing" of the data. **Content Change**: Limited the data to three categories; Added examples of the type of models representations of data (i.e. tally marks or T-Charts) 1.8.B-use data to create picture and bar-type	1.8.A **Supports Readiness Standard By:** Having students collect, sort, and organize their own data allows students to interpret data on a graph more effectively. 1.8.B **Supports Readiness Standard By:** Having students collect, sort, and organize their own data assists them in drawing conclusions and making reasonable predictions. Representing student collected data on picture and bar-type graphs enables them to interpret the information more accurately.	1.8.A **Instructional Implications:** It is imperative for students to generate a question before a unit of student on data (i.e. What types of flowers grow in my Grandmother's grade?); Instruction should encourage students to extend beyond two categories, yet restrict the sorting to within three categories. Students collect their own data, so they have a personal connection. Students will use tally marks to collect the data and the information will be organized in T-charts in order to better interpret the data. Ensure that students title and label their models/representations of tally marks and T-chart. 1.8.B **Instructional Implications:** In conjunction with 1.8A, students will represent the data they have collected in a picture and/or bar-type graph. Ensure that students title and	**Focus** Collect data (up to three sets) about everyday situations to answer a question. Use a problem solving model to go through the process of collecting, organizing, and analyzing data. Make a representation to communicate the results of the data collected (tally marks, T-charts, picture, bar-type graphs.) Use appropriate language to make observations, ask, and answer questions using the graphs. **Questions & Stems** • What conclusions can you draw from the data? • How do diagrams/graphs help us to interpret data?

graphs; and (Supporting Standard) **Current Standard**: 1.9B Use organized data to construct real-object graphs, picture graphs, and bar-type graphs. **Cognitive Change**: N/A **Content Change**: Deleted real-object graphs; however, applied in process standard (See 1.1C and 1.1D) 1.8.C-Draw conclusions and generate and answer questions using information from picture and bar-type graphs. (Readiness Standard) **Current Standard**: 1.10A Draw conclusions and answer questions using information organized in real-object graphs, picture graphs, and bar-type graphs. 1.10B Identify events as certain or impossible such as drawing a red crayon from a bag of green crayons. **Cognitive Change**: Added "generating" questions from information within a graph; **Content Change**: Deleted real-object graphs; however, applied in process standards (see 1.1C and 1.1D); Although probability has been removed from the elementary math curriculum, this standard could be a component of "drawing conclusions" from information in a graph (see 1.8C).	1.8.C STAAR Grade 3 Scaffold: 3.8B Solve one- and two-step problems using categorical data represented with a frequency table, dot plot, pictograph or bar graph with scaled intervals. ELPS.3.J - respond orally to information presented in a wide variety of print, electronic, audio, and visual media to build and reinforce concept and language attainment.	label their graphs appropriately. At this stage of development, one-on-one correspondence should be employed for the picture representations and scales on the bar-type graphs. Instruction should emphasize the importance of a title and labeling the categories of the graph. 1.8.C **Instructional Implications:** As students have collected their own data and organized it into graphs, they should reflect on what type of information the graphs provide. Students will be able to better articulate the type of information when it is personal. Students will naturally give factual responses (i.e. My grandmother has 18 daffodils, 4 roses, and 16 carnations in her garden). And inferential responses (i.e. Roses must not grow very well in that type of soil). Instruction should then lead students to create their own questions from the data they have collected and inferential questions that require the students to draw conclusions; Students could then exchange their graphs and ask fellow classmates to answer their self-generated questions.	• Which format would best communicate the data? • When will collecting and organizing data help you to solve problems in everyday life? (lunch choices, voting, etc.) **Teacher Notes** *Complete the data collection and graphing process as a class. Students will complete the graphing process independently in bundle 10.* ***1.8A -** Specificity has been added for sorting data. Data are to be sorted into up to three categories.* *Specificity has been added with organizing data and the "such as" statement suggesting T-charts and tally marks.* ***1.8B -** Data values should align to the Number and operations standards for grade 1.* *Real-object graphs have moved to Kindergarten:Data analysis K.8B* ***1.8C -** Answers to questions should align to the Number and operations standards for grade 1.* *Students are expected to generate questions using information from picture and bar-type graphs.* *Real-object graphs have moved to kindergarten: Data analysis K.8B* 1.8.C **Distractor Factor:** *When representing the same set of data on the two types of graphs, students may interpret the data as different because of the difference in the visual representations; When representing the same set of data vertically and horizontally, students may interpret the data as different because of the difference in the visual representations; When using real-objects to represent data, students may associate the larger the object the more data it represents.*

Course: Grade 1 Math	Bundle 2: Compare Numbers to 50	September 15 – October 2 (14 days)

Understandings

- Quantities can be counted & compared in different ways

Rigor Questions

How can we compare quantities?
How can understanding number patterns be a strategy for solving problems?

Vocabulary: Cognitive Complexity Verbs for TEKS: **Use**; **Generate**; **Analyze**; **Compare; Determine**

Numbers (0-50)(0-120); **forward; backward; standard form**; **expanded form**; **whole number**; **place value**; **one**; **ten**; **hundred**; **one digit number**; **two digit number**; **three digit number**; **greater than**; **less than**; **open number line**; **skip count**; **count by**; **twos**; **fives**; **tens**

TEKS/Student Expectations	TEKS/ELPS Integration	Instructional Strategies/Resources	Clarifications and Examples
The student is expected to: 1.2.C-use objects, pictures, and expanded and standard forms to represent numbers up to 120; (Readiness Standard) **Current Standard**: 1.1D read and write numbers to 99 to describe sets of concrete objects. **Cognitive Change**: Replaced "reading/writing" of numbers with the "representing" of numbers. **Content Change**: Added the use of pictures; Added the use of expanded and standard forms of numbers; Extended representations of 99-120.	1.2.C STAAR Grade 3 Scaffold: 3.2A 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.	1.2.C **Academic Vocabulary Specific To Readiness Standard:** Digit; Expanded Notation; Place Value; Hundreds; Tens; Ones; Standard Form 1.2.C **Instructional Implications:** As students begin representing numbers through 120 using base ten blocks, their understanding should also be associated with writing numbers in standard from (24), word form (twenty-four), and expanded form (24=20=4). This type of representation will allow students to focus on the value of each digit and support the understanding of place value system (i.e. two ten rods represent the value of 20; four unit cubes represent the value of 4; 20+4=24). In represent numbers in word form, be sure to emphasize the correct use of the hyphen (i.e. twenty-three)	**Focus** Represent, compare, and determine relationships between numbers up to 50. **Question & Stems** • How can you show the number ___ ? • What do these numbers have in common (15/25)? **Teacher Notes** **Distractor Factor-***Students may incorrectly use the word "and" to represent numbers in words (i.e. 105 is represented as "one hundred five" NOT "one hundred and five"). The word "and" is applied in the representation of whole number and decimal value (i.e. 3.45 is represented as "three and forty-five hundredths"). Students will confuse the place value a digit has with its value. (i.e. 105; the digit 1 is in the hundreds place value but it is valued as 100). Students may confuse "digit" with "number".* *This TEKS is on-going. Mastery will be expected in bundle 7. Expanded notation is no longer just a district expectation, but a state requirement.*

			Specificity has been added with what students are expected to write with the inclusion of "expanded and standard forms." *In addition to objects, students may use pictures to represent numbers. Representing numbers has increased from 99 to 120.*
TEKS/Student Expectations	**TEKS/ELPS Integration**	**Instructional Strategies/Resources**	**Clarifications and Examples**
The student is expected to: 1.2.D-generate a number that is greater than or less than a given whole number up to 120; (Supporting Standard) **Current Standard**: 1.1A Compare and order whole number up to 99 (less than, greater than, or equal to) using sets of concrete objects and pictorial models **Cognitive Change**: Replaced "comparing/ordering" of whole numbers to "generating" of numbers that are greater than or less than a given number. **Content Change**: Extended comparisons from 99 to 120; Deleted the term equal to; Deleted the use of objects and pictorial models although found in process standard 1.1C. 1.2.E-use place value to compare whole numbers up to 120 using comparative language; (Supporting Standard) **Current Standard**: 1.1A Compare and order whole numbers up to 99 (less than, greater than, or equal to) using sets of concrete objects and pictorial models; 1.5C Compare and order whole numbers using place value (Patterns, Relationships, and Algebraic Thinking Strand) **Cognitive Change**: Deleted "ordering" of whole	**1.2.D Supports Readiness Standard By**: Generating a number greater than or less than a given whole number will allow students to focus on the value of various digits in a number before moving to the abstract use of comparison symbols (<, >, =). 1.2.E **Supports Readiness Standard By:** As students compare the value of numbers, they need to be able to relate their understanding of place value and use the appropriate academic vocabulary (greater than, less than, equal to) before moving to the abstract use of comparison symbols (<, >, =). 1.2.F **Supports Readiness Standard By:** A number line can be used as a strategy to compare/order numbers as well as develop a students' understanding of place value, the relative position of numbers, and the magnitude of numbers; The use of this tool will be a critical support mechanism.	**1.2.D Instructional Implications:** As students become more fluid with their use of the place value system in using the base-ten blocks and expanded notation, instruction should include students generating a number "greater than" or "less than" a given whole number; Students should be able to explain that the position of each digit in an numeral determines the quantity of a given number; This concept is important to ask of children before they begin to abstractly comparing two given numbers to clarify student's understanding of place value. 1.2.E **Instructional Implications:** Students will compare two numbers using the academic vocabulary correctly (i.e. 42 is greater than 26). It is important for students to recognize the inverse comparison statement as well (i.e. 26 is less than 42); Encourage students to articulate both comparison statements during activities; The use of the comparative language is critical before moving to the symbolic	**Focus** Generate a number that is greater than/less than a given number up to 50. Use comparative language to compare numbers up to 50. Order whole numbers to 50 using place value and number lines. **Question & Stem** • How does place value help us order numbers? **Teacher Notes** *Use number lines as a tool to compare and order numbers. Open number lines will be introduced and utilized in later bundles. These TEKS are on-going,* mastery *of skill will be expected in bundle 7.* ***1.2D -** This revised SE extends revised SE K.2F where students are expected to generate a number that is one more or one less than another number up to 20* ***1.2E -** Specificity is added regarding the use of comparative language instead of symbols with this revised SE.* *Specificity has been added for the numbers being*

numbers. **Content Change**: Changed strand from "Patterns, Relationships, and Algebraic Thinking" to "Number and Operations"; Defined comparisons through 120; Added the use of comparative language. 1.2.F-order whole numbers up to 120 using place value and open number lines; (Supporting Standard) **Current Standard**: 1.1A Compare and order whole numbers up to 99 (less than, greater than, or equal to) using sets of concrete objects and pictorial models; 1.5C Compare and order whole numbers using place value (Patterns, Relationships, and Algebraic Thinking Strand) **Cognitive Change**: N/A **Content Change**: Extended comparisons from 99 to 120; Added the use of open number lines; Deleted the use of objects and pictorial models although found in process standard (see 1.1C)	ELPS.1.E - 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;	representation; Be sure to relate how the value of the digits determined which number was larger/smaller. **1.2 F Instructional Implications:** In conjunction with 2.2E, students will order three or more numbers from least to greatest or greatest to least through the use of an open number line; An open number line does not have landmark number earmarked, does not have to begin at zero, and should include the use of arrows on both ends of the number line to indicate how the numbers continue beyond what is marked; Students will apply their understanding of the place value system in relation to the relative position on an open number line; By locating three or more numbers on an open number line, you will be able to assess students' understanding of place value, the position of numbers, and the magnitude of the numbers.	*compared as "whole numbers up to 120." In comparing numbers up to 120, one may use the hundreds, tens, and ones places with a set of whole numbers like 118, 108, 98, and 89.* *The revised SE 1.2E focuses on comparing whole numbers.* ***1.2F -** Specificity has been added for the numbers being ordered as "whole numbers up to 120."* *The revised SE 1(2)(F) focuses on ordering whole numbers. Students are expected to use open number lines.*
TEKS/Student Expectations	**TEKS/ELPS Integration**	**Instructional Strategies/Resources**	**Clarifications and Examples**
The student is expected to: 1.5.A-recite numbers forward and backward from any given number between 1 and 120; (! NEW STANDARD-Supporting Standard)	1.5.A **Supports Readiness Standard By:** Counting numbers backward and forward from any given number supports the contextual understanding of the value of numbers. This understanding can be associated to the representations of numbers on a number line; The number line can be used as a strategy to compare/order numbers and develop a students' understanding of place value, the relative position of numbers, and the magnitude of numbers; The use of this tool is a crucial support mechanism.	1.5.A **Instructional Implications:** The counting sequence is a rote procedures; however, asking students to begin counting at a particular number relates to the understanding of relative position (37 comes before 38) and asking a student to count forward or backward connects to their understanding of the magnitude of numbers (as I recite numbers forward the numbers become larger; as I recite numbers backward they become smaller).	**Focus** Count forward from any number to 120. Count backward from any number between 0 and 50. **Questions & Stems** • Start with __ and get to ___ . • Count on/back from ___. **Teacher Notes** This TEKS is on-going. Mastery of this skill is expected in bundle 4.

The student is expected to: 1.5.B-skip count by twos, fives, and tens to determine the total number of objects up to 120 in a set; (Supporting Standard) **Current Standard**: 1.5A Use patterns to skip count by twos, fives, and tens (Number and Operations Strand) **Cognitive Change**: Added the need for skip counting to determine total number of objects. **Content Change**: Changed strand from "Number, Operation, and Quantitative Reasoning" to "Algebraic Reasoning"; Extended skip counting to 120.	1.5.B **Supports Readiness Standard By:** Associating skip counting by twos, fives, and tens is a foundational skill to determining the value of a collection of coins.	1.5.B **Instructional Implications:** Students use skip counting by twos fives, tens to count the number of objects more efficiently; Instruction should move between skip counting by tens, fives, and twos (i.e. counting the value of a set of 4 ten rods and 8 unit cubes; 10,20,30,40,42,44,46,48 or counting a collection of unlike coins.	**Focus** Skip count by 2's to determine the number of objects in a set up to 20. Skip count by 5's to determine the number of objects in a set up to 50. Skip count by 10's to determine the number of objects in a set up to 120. **Questions & Stems** • How can skip counting allow us to find the total of a set faster? • When would skip counting help us to solve problems in every day life? • What patterns do you see in skip counting? **Teacher Notes** *This TEKS is on-going, mastery of this skill is expected in bundle 4. Using a 100's chart may be beneficial when looking for number patterns.* *Specificity has been added to the number to which a student counts as up to 120.* *When the revised SE is paired with 1(1)(F), students may still use patterns to connectmathematical ideas related to skip counting.* *The focus of the counting is on determining the total number of objects in a set.*

Course: Grade 1 Math	Bundle 3: Compose & Decompose Numbers	October 6 -24 (15 days)

Understandings

- Numbers represent quantities which can be combined or taken apart.

Rigor Questions

How can the same quantity be represented in different ways?
How can knowing the composition of 10 helps us compose and decompose other numbers?

Vocabulary: Cognitive Complexity Verbs for TEKS: **Recognize**; **Analyze**

Numbers (0-80)(0-120); **forward; backward; standard form**; **expanded form**; **whole number**; **place value**; **skip count**; **count by**; **twos**; **fives**; **tens**; **compose**; **addends**; **tools**; **mental math**; **estimation**; **number sense**

TEKS/Student Expectations	TEKS/ELPS Integration	Instructional Strategies/Resources	Clarifications and Examples
The student is expected to: 1.2.A-recognize instantly the quantity of structured arrangements ; (! NEW STANDARD-Supporting Standard)	1.2.A **Supports Readiness Standard By:** Being able to recognize the quantity of a structured arrangement will support students in being able to visually compare two numbers.	1.2.A **Instructional Implications:** Students learn to recognize dot arrangements on standard dice due to the board games they have played. Similar instant recognition can be developed for other patterns as well. Quantities up to 10 can be known and named without the routine of counting; Some students may continue to rely on physically counting using one-to-one correspondence to determine the total number of objects; however, with continuous exposure to pattern sets, students will begin to rely less on their counting skills and more on their spatial reasoning.	**Focus** Recognize quantities without counting, such as dots on a number cube or ten-frames. **Questions & Stems** • How can you determine the quantity shown in an image without counting? • Which of the arrangements shows more/less? **Teacher Notes** *This TEKS is a review from bundle 1.*

TEKS/Student Expectations	TEKS/ELPS Integration	Instructional Strategies/Resources	Clarifications and Examples
The student is expected to: 1.3.C-compose 10 with two or more addends with and without concrete objects; (! NEW STANDARD-Supporting Standard)	1.3.C **Supports Readiness Standard By:** Being able to compose ten in more than one way will support the students' flexible use of numbers; Becoming fluid with manipulating numbers is critical in moving students toward developing strategies for solving addition and subtraction. ELPS.2.D - monitor understanding of spoken language during classroom instruction and interactions and seek clarification as needed;	1.3.C **Instructional Implications:** Instruction should begin with two different colored manipulatives where students create as many different color patterns for a train of ten; Students should then associate a given number sentence for each of the different representations(i.e. seven blue and three yellow represents 7+3=10 and/or 10=7+3); Students may begin to informally discover the commutative property; As students become comfortable with understanding the many ways the sum of ten be represented with two colors (addends), provide students with a set of another color and ask them to now build different color patterns with three different colors; Again students should associate a given number sentence for each of the different representations; Challenge students to create as many different number sentences with three addends for the sum of 10; Students will begin developing their own variations without the use of manipulatives.	**Focus** Compose ten in a variety of ways using real objects, then transition to paper/pencil. **Questions & Stems** • How many different ways can you make 10? **Teacher Note** *This TEKS will be continued in bundle 4.*
The student is expected to: 1.5.A-recite numbers forward and backward from any given number between 1 and 120; (! NEW STANDARD-Supporting Standard)	1.5.A **Supports Readiness Standard By:** Counting numbers backward and forward from any given number supports the contextual understanding of the value of numbers. This understanding can be associated to the representations of numbers on a number line; The number line can be used as a strategy to compare/order numbers and develop a students' understanding of place value, the relative position of numbers, and the magnitude of numbers; The use of this tool is a crucial support mechanism.	1.5.A **Instructional Implications:** The counting sequence is a rote procedures; however, asking students to begin counting at a particular number relates to the understanding of relative position (37 comes before 38) and asking a student to count forward or backward connects to their understanding of the magnitude of numbers (as I recite numbers forward the numbers become larger; as I recite numbers backward they become smaller).	**Focus** Count forward from any given number to 120. Count backward from any given number to 80. **Questions & Stems** • Start with __ and get to __ • Count on/back from __ **Teacher Notes** *This TEKS is on-going. Mastery of this skill is expected in bundle 4.*
The student is expected to: 1.5.B-skip count by twos, fives, and tens to determine the total number of objects up to 120 in a set; (Supporting Standard) **Current Standard**: 1.5A Use patterns to skip count by twos, fives, and tens (Number and Operations	1.5.B **Supports Readiness Standard By:** Associating skip counting by twos, fives, and tens is a foundational skill to determining the value of a collection of coins.	1.5.B **Instructional Implications:** Students use skip counting by twos fives, tens to count the number of objects more efficiently; Instruction should move between skip counting by tens, fives, and twos (i.e. counting the value of a set of 4 ten rods and 8 unit cubes; 10,20,30,40,42,44,46,48 or	**Focus** Skip count by 2's to determine the number of objects in a set up to 50. Skip count by 5's to determine the number of objects in a set up to 120. Skip count by 10's to determine the number of objects in a set up to 120.

Strand) **Cognitive Change**: Added the need for skip counting to determine total number of objects. **Content Change**: Changed strand from "Number, Operation, and Quantitative Reasoning" to "Algebraic Reasoning"; Extended skip counting to 120.		counting a collection of unlike coins.	**Questions & Stems** • What patterns do you see in skip counting? In the ones place? In the tens place? **Teacher Notes** *This TEKS is on-going. Mastery of this skill is expected in bundle 4.* *Specificity has been added to the number to which a student counts as up to 120.* *When the revised SE is paired with 1(1)(F), students may still use patterns to connect mathematical ideas related to skip counting. The focus of the counting is on determining the total number of objects in a set.*

Course: Grade 1 Math	Bundle 4: Number Relationships in Addition and Subtraction	October 27 – November 7 (10days)

Understandings

Identify and use addition and subtraction strategies.

Rigor Questions

How can number patterns help you create and use strategies to solve addition and subtraction problems?
What happens to the quantity when you add or subtract?
How do you determine the appropriate strategy for joining, separating, or comparing numbers?

Vocabulary: Cognitive Complexity Verbs for TEKS: **Use**; **Analyze**; **Formulate**; **Apply**; **Determine**;

Numbers (0-120); **forward; backward; standard form**; **word problems**; **joining**; **separating**; **comparing**; **operations**; **skip count**; **count by**; **twos**; **fives**; **tens**; **compose**; **addends**; **strategies**; **addition**; **subtraction**; **number sense**; **10 more**; **10 less**;

TEKS/Student Expectations	TEKS/ELPS Integration	Instructional Strategies/Resources	Clarifications and Examples
The student is expected to: 1.3.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; (Supporting Standard) **Current Standard**: 1.3A Model and create addition and subtraction problem situations with concrete objects and write corresponding number sentences; 1.3B Use concrete and pictorial models to apply basic addition and subtraction facts (up to 9+9=18 and 18-9=9). **Cognitive Change**: Deleted "creating" of problem situations; however, applied in 1.3F; Added the understanding of "joining", "separating", and "comparing" **Content Change**: Limited sums and differences to 20; Added the varying of the unknown; Added different number sentences representations.	1.3.B **Supports Readiness Standard By:** The use of concrete objects and pictorial model to demonstrate joining, separating, and comparison situations will support a student's understanding of the context of addition and subtraction problems; Connecting such actions to their corresponding number sentence will support students as they move from concrete to abstract understanding. 1.3.E **Supports Readiness Standard By:** Being able to relate the manipulation of concrete objects to pictorials to a number sentence is a critical transition to moving students from concrete to abstract understanding of addition and subtraction. ELPS.3.D - speak using grade-level content area vocabulary in context to internalize new English words and build academic language proficiency	1.3.B **Instructional Implications:** Student will use their manipulatives to act out joining, separating, and comparing. Instruction should include how the subtraction symbol represents distance (i.e. 11-3=____. How far away is 3 from 11 on the number line?); This understanding how subtraction represents distance lays the foundation for future leaning of subtraction of integers, the number -3 is 14 spaces away from 11 on the number line. **See Field Guide for Examples of Joining, Separating, and Comparing.**	**Focus** Differentiate between joining, separating, and comparing strategies. Use a problem solving model to determine the appropriate strategy to solve a word problem. Justify the strategy you are using. Solve for the missing part of the equation (within 20). Teach these fluency strategies: ***Counting Up*** *Determine the smaller number in an addition fact and hold up that many fingers. Count up that many fingers from the larger number. (i.e. 7+4 Determine that 4 is the smaller number and hold up 4 fingers. Start with 7 and count up while pointing to each finger. "8, 9, 10, 11" The sum is 11.)* **This strategy could also be taught with manipulatives or a number line.* ***Near-Doubles*** *When adding a number and the number plus one,*

1.3.E-explain strategies used to solve addition and subtraction problems up to 20 using spoken words, objects, pictorial models, and number sentences; and (Supporting Standard) **Current Standard**: 1.12A Explain and record observations using objects, words, pictures, numbers, and technology. **Cognitive Change**: N/A **Content Change**: Included process standard (1.12A) with content standard (1.3E); Deleted the use of technology; however, it can be applied through process standard (see 1.1C)		1.3.E **Instructional Implications:** In conjunction with 1.3D, it is essential that students not only apply the appropriate basic fact strategy, but explain their thought process; Students need to also explain which of the strategies is most appropriate in different contexts.	*double the smaller number and add 1 to determining the sum. (i.e. 7+6 Determine that 6 is the smaller number, double 6 and add 1. 6+6 is 12, and 12 plus 1 is 13.)* **Questions & Stems** • How can you use objects and pictures to help you solve a word problem? • What clues help you determine whether to join, separate, or compare? • What happens to the quantity when you join or separate?
The student is expected to: 1.3.C-compose 10 with two or more addends with and without concrete objects (! NEW STANDARD-Supporting Standard)	1.3.C **Supports Readiness Standard By:** Being able to compose ten in more than one way will support the students' flexible use of numbers; Becoming fluid with manipulating numbers is critical in moving students toward developing strategies for solving addition and subtraction.	1.3.C **Instructional Implications:** Instruction should begin with two different colored manipulatives where students create as many different color patterns for a train of ten; Students should then associate a given number sentence for each of the different representations(i.e. seven blue and three yellow represents 7+3=10 and/or 10=7+3); Students may begin to informally discover the commutative property; As students become comfortable with understanding the many ways the sum of ten be represented with two colors (addends), provide students with a set of another color and ask them to now build different color patterns with three different colors; Again students should associate a given number sentence for each of the different representations; Challenge students to create as many different number sentences with three addends for the sum of 10; Students will begin developing their own variations without the	**Focus** Compose ten in a variety of ways using real objects, then transition to paper/pencil. Make ten using two or more addends. **Questions & Stems** • How many different ways can you make 10?

		use of manipulatives.	
The student is expected to: 1.5.A-recite numbers forward and backward from any given number between 1 and 120; (! NEW STANDARD-Supporting Standard)	1.5.A **Supports Readiness Standard By:** Counting numbers backward and forward from any given number supports the contextual understanding of the value of numbers. This understanding can be associated to the representations of numbers on a number line; The number line can be used as a strategy to compare/order numbers and develop a students' understanding of place value, the relative position of numbers, and the magnitude of numbers; The use of this tool is a crucial support mechanism.	1.5.A **Instructional Implications:** The counting sequence is a rote procedures; however, asking students to begin counting at a particular number relates to the understanding of relative position (37 comes before 38) and asking a student to count forward or backward connects to their understanding of the magnitude of numbers (as I recite numbers forward the numbers become larger; as I recite numbers backward they become smaller).	**Focus** Count ***forward and backward*** from any given number to 120. **Questions & Stems** • Start with __ and get to __ • Count on/back from __
The student is expected to: 1.5.B-skip count by twos, fives, and tens to determine the total number of objects up to 120 in a set; (Supporting Standard) **Current Standard**: 1.5A Use patterns to skip count by twos, fives, and tens (Number and Operations Strand) **Cognitive Change**: Added the need for skip counting to determine total number of objects. **Content Change**: Changed strand from "Number, Operation, and Quantitative Reasoning" to "Algebraic Reasoning"; Extended skip counting to 120.	1.5.B **Supports Readiness Standard By:** Associating skip counting by twos, fives, and tens is a foundational skill to determining the value of a collection of coins.	1.5.B **Instructional Implications:** Students use skip counting by twos fives, tens to count the number of objects more efficiently; Instruction should move between skip counting by tens, fives, and twos (i.e. counting the value of a set of 4 ten rods and 8 unit cubes; 10,20,30,40,42,44,46,48 or counting a collection of unlike coins.	**Focus** Skip count by 2's to determine the number of objects in a set up to 120. Skip count by 5's to determine the number of objects in a set up to 120. Skip count by 10's to determine the number of objects in a set up to 120. **Questions & Stems** • What patterns do you see in skip counting? In the ones place? In the tens place? *Specificity has been added to the number to which a student counts as up to 120.* *When the revised SE is paired with 1(1)(F), students may still use patterns to connect mathematical ideas related to skip counting.* *The focus of the counting is on determining the total number of objects in a set.*

The student is expected to: 1.5.C-use relationships to determine the number that is 10 more and 10 less than a given number up to 120 ; (Supporting Standard) **Current Standard**: 1.5C Compare and order whole numbers using place value; 1.5D Use patterns to develop strategies to solve basic addition and subtraction problems; 2.5A Find patterns in numbers such as in a 100s Chart. **Cognitive Change**: Focus is more on the "use" of place value relationships for "comparing/ordering" of numbers and "solving" basic addition and subtraction problems. **Content Change**: Extended place value to 120; Defined patterns to be that of adding ten more/less.	1.5.C **Supports Readiness Standard By:** Students will begin identifying patterns in determining 10 more/less than a given number. Recognizing the change in the digits will reinforce the tens palace value; This standard will reinforce the concept of place value which is critical for comparing and ordering whole numbers.	1.5.C **Instructional Implications:** In order to adhere to the standard, students must be able to determine 10 more/10 less of a given number. Instruction might begin with the use of a 100s chart to recognize the patterns of 10 more/10 less. Students should begin relating how the digit in the tens place is changing by one with each adding/subtracting of 10. The standard requires students to determine 10 more/1less through 120. In accordance with the TEKS, students also need to connect their findings through the use of properties of numbers and operations. This understanding is also reiterated in 1.3A.	**Focus** Identify patterns in place value to find 10 more/10 less. (12, 22, 32, 42) **Questions & Stems** • What is 10 more/less than ____? • How can understanding place value help me determine 10 more/less? • How are place value patterns repeated in numbers? **Teacher Notes** *Students should be able to connect this skill to counting by 10's. Hundreds charts may be beneficial in showing patterns of 10 more and 10 less*
The student is expected to: 1.5.G-apply properties of operations to add and subtract two or three numbers. (Readiness Standard) **Current Standard**: 1.5E Identify patterns in related addition and subtraction sentences (fact families for sums to 18) **Cognitive Change**: Changed the "identifying" of patterns to the "application" of properties of operations to add and subtract. **Content Change**: Deleted the term "fact families".	STAAR Grade 3 Scaffold:3.4A Solve with fluency one-step and two-step problems involving addition and subtraction within 1,000 using strategies based on place value and properties of operations, and the relationship between addition and subtraction.	1.5.G **Instructional Implications:** Properties of operations include the commutative, associative, and inverse operational properties. Although, instruction may not include the formal academic language, the use of the underlying concepts will be used to solve addition and subtraction problems. **Commutative Property:** 4+3+6=____ (to employ the make ten strategy, one could change the order of the addends and not change the sum.) 4+6+3=13; **Associative Property:** 12+6____(to employ the make ten strategy, one could decompose 12 and it will not change the sum); (10+2)+6=____; 10+(2+6)=18; **Inverse Operational Property:** 12-9=_____(to employ the think addition method, on could employ the inverse property (9+____=12; 9+3=12).	**Focus** Identify the relationship between addition and subtraction. Use knowledge of strategies to add and subtract two numbers. **Questions & Stems** • How are addition and subtraction related? • Why is the order of a number sentence important? **Teacher Notes** *Students should apply this skill to **two** numbers. In bundle 6, students will be expected to apply the properties of operation to **three** number* 1.5.G **Distractor Factor:** *Students may try to apply the commutative property in subtraction; Students may not recognize how to applying addition to solve a subtraction problem may be easier.*

Course: Grade 1 Math	Bundle 5: Represent Addition & Subtraction	November 10 – 21 (10 days)

Understandings

- Mathematical operations can be represented by number sentences
- Recognize and solve problems in addition and subtraction situations
- Symbols have meaning

Rigor Questions

What are the key elements when trying to solve math problems in a real-world situation?
What is the meaning behind each symbol and numeral in a number sentence?
What happens when the order of a number sentence changes?

Vocabulary: Cognitive Complexity Verbs for TEKS: **Use**; **Understand**; **Formulate**; **Apply**; **Determine**; **Organize**

word problems; **joining**; **separating**; **comparing**; **unknown**; **decompose**; **add**; **subtract**; **strategies**; **addition**; **subtraction**; **solve**; **generate**; **fact**; **whole number**; **pictorial models; number sentence**; **symbols**; **diagram**; **graphs**; **equal sign**; **equation**

TEKS/Student Expectations	TEKS/ELPS Integration	Instructional Strategies/Resources	Clarifications and Examples
The student is expected to: 1.3.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; (Supporting Standard) **Current Standard**: 1.3A Model and create addition and subtraction problem situations with concrete objects and write corresponding number sentences; 1.3B Use concrete and pictorial models to apply basic addition and subtraction facts (up to 9+9=18 and 18-9=9). **Cognitive Change**: Deleted "creating" of problem situations; however, applied in 1.3F; Added the	**1.3.B Supports Readiness Standard By:** The use of concrete objects and pictorial model to demonstrate joining, separating, and comparison situations will support a student's understanding of the context of addition and subtraction problems; Connecting such actions to their corresponding number sentence will support students as they move from concrete to abstract understanding.	**1.3.B Instructional Implications:** Student will use their manipulatives to act out joining, separating, and comparing. Instruction should include how the subtraction symbol represents distance (i.e. 11-3=____. How far away is 3 from 11 on the number line?); This understanding how subtraction represents distance lays the foundation for future leaning of subtraction of integers, the number -3 is 14 spaces away from 11 on the number line. **See Field Guide for Examples of Joining, Separating, and Comparing.**	**Focus** Differentiate between joining, separating, and comparing strategies. Use a problem solving model to determine the appropriate strategy to solve a word problem. Solve for the missing part of the equation (within 20). **Questions & Stems** • How can you use objects and pictures to help you solve a word problem? • What clues help you determine whether to join, separate, or compare?

understanding of “joining”, “separating”, and “comparing” **Content Change**: Limited sums and differences to 20; Added the varying of the unknown; Added different number sentences representations.			• What happens to the quantity when you join or separate?
TEKS/Student Expectations	**TEKS/ELPS Integration**	**Instructional Strategies/Resources**	**Clarifications and Examples**
The student is expected to: 1.3.D-apply basic fact strategies to add and subtract within 20, including making 10 and decomposing a number leading to a 10; (Supporting Standard) **Current Standard**: 1.5D Use patterns to develop strategies to solve basic addition and basic subtraction problems (Patterns and Algebraic Reasoning Strand); 1.3B Use concrete and pictorial models to apply basic addition and subtraction facts (up to 9+9=18 and 18-9=9). **Cognitive Change**: Replaced “developing” of strategies to solve problems to the “applying” of basic facts. **Content Change**: Changed strand from “Patterns, Relationships, and Algebraic Thinking” to “Number and Operations”; Defined a strategy (i.e. compose 10 and decomposing a number leading to a 10) to be used to solve addition/subtraction problems; Extended sums and differences to 20.	1.3.D **Supports Readiness Standard By:** Being flexible to applying basic facts strategies is critical in moving students toward developing algorithms for solving addition and subtraction problems.	1.3.D **Instructional Implications:** In order to adhere to the standard, students must use their basic facts in order to solve problems though 20; Instruction may include some of the following strategies: **Addition**-Make Ten with the sue of two ten frames as a model; Make Ten with the use of an open number line; Doubles: (i.e. 6+8=___; 6+6+2=____; 12+2=___; 12+2=14); Count On: (i.e. 3+8=___; 8,9,10,11; 3+8=11). **Subtraction-**Think Addition/Count On (i.e. 12-9=_____; 9+___=12; 9+3=12); Make Ten with the use of two ten frames as a model; Make Ten with an open number line; Count Back: (i.e. 12-3=____; 12,11,10,9; 12-3=9).	**Focus** Use knowledge of facts that make ten to help solve more difficult addition and subtraction problems. For example: 8 + 6 is the same as (8 + 2) + 4 13 - 4 is the same as (13 - 3) - 1 Teach these fluency strategies: **Make-Ten** *Determine the larger number, then take from the smaller number to make ten. Then add the ten and however many is left. (i.e. 5+8 Determine that 8 is the larger number; take 2 from the 5 to make 10. What remains is 3, so 10+3 is 13.)* **Back Down Through Ten** *Start with the minuend (the number being subtracted from). Take away enough to get down to ten. Determine how much more needs to be taken away and subtract. (i.e. 16-9 Take away 6 to get down to 10. To take away a total of 9 and additional 3 needs to be taken away, so 10-3 is 7.)* **Questions & Stems** • How can understanding facts that make ten help you to quickly solve other problems? **Teacher Note** *The goal of this TEKS is to help students develop numerical fluency and become more flexible with numbers in addition and subtraction situations. Teachers should explicitly model this skill. This TEKS is on-going. Mastery of this skill will be expected in bundle 6.*

The student is expected to: 1.3.E-explain strategies used to solve addition and subtraction problems up to 20 using spoken words, objects, pictorial models, and number sentences; (Supporting Standard) **Current Standard**: 1.12A Explain and record observations using objects, words, pictures, numbers, and technology. **Cognitive Change**: N/A **Content Change**: Included process standard (1.12A) with content standard (1.3E); Deleted the use of technology; however, it can be applied through process standard (see 1.1C)	1.3.E **Supports Readiness Standard By:** Being able to relate the manipulation of concrete objects to pictorials to a number sentence is a critical transition to moving students from concrete to abstract understanding of addition and subtraction. ELPS.3.J - respond orally to information presented in a wide variety of print, electronic, audio, and visual media to build and reinforce concept and language attainment.	1.3.E **Instructional Implications:** In conjunction with 1.3D, it is essential that students not only apply the appropriate basic fact strategy, but explain their thought process; Students need to also explain which of the strategies is most appropriate in different contexts.	**Focus** Use a variety of strategies to solve addition and subtraction problems. Express the reason for choosing a specific strategy. **Questions & Stems** • How did you solve the addition/subtraction problem? • What would be another way to solve this problem? **Teacher Notes** *This TEKS will be* reviewed *in bundle 12.*
TEKS/Student Expectations	**TEKS/ELPS Integration**	**Instructional Strategies/Resources**	**Clarifications and Examples**
The student is expected to: 1.3.F-generate and solve problem situations when given a number sentence involving addition or subtraction of numbers within 20. (Readiness Standard) **Current Standard**: 1.3A Model and create addition and subtraction problem situations with concrete objects and write corresponding number sentences. **Cognitive Change**: N/A **Content Change**: Added solving a problem for a "given" number sentence; Identified sums and difference to 20; Deleted the use of concrete objects; however, it can be applied through process standard 1.1C.	1.3.F STAAR Grade 3 Scaffold: 3.5A Represent one- and two-step problems involving addition and subtraction of whole numbers to 1,000 using pictorial models, number lines, and equations.	1.3.F **Instructional Implications:** In adherence to the standard, students not only have to solve word problems that are provided for them, but they must also create their own story problems when given a number sentence. In conjunctions with 1.3B, this standard will assess students' conceptual understanding of joining (+), separating (-) or comparison situations (+/-) and how it applies to the appropriate operation. Instruction should provide students opportunities to write story problems (i.e. 12-8=____; ___=12-8; 8+___=12; ___+8=12).	**Focus** Create story problems when given a number sentence. **Questions & Stems** • What story problem could you create for this number sentence? **Teacher Notes** *This TEKS will be reviewed in bundle 12.* **Distractor Factor:** *Students may try to apply "key words" to select the appropriate operation instead of understanding the context of the problem. Students may not recognize a number sentences and its inverse as being equivalent (i.e. 42=18+___is the same thing as 18+___=42). Students may substitute the term "take away" for "minus", creating a misconception that subtraction is only about separating.*

The student is expected to: 1.5.D-represent word problems involving addition and subtraction of whole numbers up to 20 using concrete and pictorial models and number sentences; (Readiness Standard) **Current Standard**: 1.3A Model and create addition and subtraction problem situations with concrete objects and write corresponding number sentences. **Cognitive Change**: Deleted "creating" problem situations although found in 1.3F **Content Change**: Identified whole numbers up to 20; Added pictorial models.	1.5.D STAAR Grade 3 Scaffold: Represent one- and two-step problems involving addition and subtraction of whole numbers to 1,000 using pictorial models, number lines, and equations. ELPS.3.D - speak using grade-level content area vocabulary in context to internalize new English words and build academic language proficiency	1.5.D **Instructional Implications:** In conjunction with 1.3 students continue to demonstrate their understanding of joining, separating, comparing and distance types of problems solving with the associated operations. In adherence to the standard, instruction should require students to act out, draw, and writer number sentences for various story problems. Students should be able to articulate the components of the word problem, to the presented manipulative/drawing, to the values in their number sentence (i.e. 11+8=19 or 19=8+11. These eleven birds in the picture stand for the 11 in the number sentence. These eight red birds in the picture joined the blue birds which is the +8 in my number sentence; there is now a total of 19 birds sitting in the tree which is the same as 19 in the number sentence). Real world situations should be extended beyond two addends (i.e. There were 9 blue birds, 5 red robins, and 6 hummingbirds in the three. How many birds are in the tree?). Instruction should vary the context of +/- type of problems provided to students.	**Focus** Use a problem solving model to solve a word problem using objects, pictures, and number sentences. **Questions & Stems** • How can I represent a word problem with concrete models and pictures? **Teacher Notes** ***1.5D -*** *Specificity has been added regarding the size of the sum or the original amount when subtracting as "up to 20."* 1.5.D **Distractor Factor** *Students may try to apply "key words" to select the appropriate operation instead of understanding the context of the problem; Students may not recognize a number sentence and its inverse as being equivalent (i.e. 42-18=___ is the same thing as 18+____=42); Students may gravitate to one subtraction structure (i.e. separating) and not recognize the other (i.e. comparing or distance).*
The student is expected to: 1.5.E-understand that the equal sign represents a relationship where expressions on each side of the equal sign represent the same value(s); (! NEW STANDARD-Supporting Standard)	1.5.E **Supports Readiness Standard By:** Understanding that the equal sign represents equivalent values is foundational to representing and identifying number sentences/equations in more than one way. ELPS.2.C - learn new language structures, expressions, and basic and academic vocabulary heard during classroom instruction and interactions.	1.5.E **Instructional Implications:** If number sentences are limited to only one type of representation, students develop the misconception that the equal sign stands for "the answer is coming"; Therefore, it is essential for instruction to vary the representation of number sentences (i.e. 7+4=11; 11=7=4); Students need to understand that the equal sign is a symbolic representation of how one side of the equation is "the same" value as the other side of the equation. As students begin to solve multi-step problems, it is essential for them to understand the representation of their work.	**Focus** Explain what the equal sign represents. The order of number sentences can vary. (5 = 2 + 3; 5 = 7 - 2) **Questions & Stems** • What does the equal sign mean in a number sentence? **Teacher Notes** *Students should show mastery of this skill by the end of this bundle.*

Course: Grade 1 Math	Bundle 6: Apply Addition & Subtraction Strategies	December 1 -19 (15 days)

Understandings

Use addition and subtraction strategies to determine an unknown whole number.
We make choices about how we use money.

Rigor Questions

What strategies can we use to determine an unknown whole number?
How are addition and subtraction related?
How can the choices we make about money affect our lives?

Vocabulary: Cognitive Complexity Verbs for TEKS: **Use**; **Analyze**; **Formulate**; **Apply**; **Determine**; **Identify**;

joining; **separating**; **comparing**; **unknown**; **decompose**; **add**; **subtract**; **fact strategies**; **addition**; **subtraction**; **equation terms**; **properties of operations**; **income (goods/services; wants/needs)**; **spending**; **saving**; **charitable giving**

TEKS/Student Expectations	TEKS/ELPS Integration	Instructional Strategies/Resources	Clarifications and Examples
The student is expected to: **1.3.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; (Supporting Standard) **Current Standard**: 1.3A Model and create addition and subtraction problem situations with concrete objects and write corresponding number sentences; 1.3B Use concrete and pictorial models to apply basic addition and subtraction facts (up to 9+9=18 and 18-9=9). **Cognitive Change**: Deleted "creating" of problem situations; however, applied in 1.3F; Added the understanding of "joining", "separating", and "comparing" **Content Change**: Limited sums and differences to 20; Added the varying of the unknown; Added different number sentences representations.	**1.3.B Supports Readiness Standard By:** The use of concrete objects and pictorial model to demonstrate joining, separating, and comparison situations will support a student's understanding of the context of addition and subtraction problems; Connecting such actions to their corresponding number sentence will support students as they move from concrete to abstract understanding.	**1.3.B Instructional Implications:** Student will use their manipulatives to act out joining, separating, and comparing. Instruction should include how the subtraction symbol represents distance (i.e. 11-3=____. How far away is 3 from 11 on the number line?); This understanding how subtraction represents distance lays the foundation for future leaning of subtraction of integers, the number -3 is 14 spaces away from 11 on the number line. **See Field Guide for Examples of Joining, Separating, and Comparing.**	**Focus** Differentiate between joining, separating, and comparing strategies. Use a problem solving model to determine the appropriate strategy to solve a word problem. Solve for the missing part of the equation (within 20). **Questions & Stems** • How can you use objects and pictures to help you solve a word problem? • What clues help you determine whether to join, separate, or compare? • What happens to the quantity when you join or separate

TEKS/Student Expectations	TEKS/ELPS Integration	Instructional Strategies/Resources	Clarifications and Examples
The student is expected to: 1.3.D-apply basic fact strategies to add and subtract within 20, including making 10 and decomposing a number leading to a 10; (Supporting Standard) **Current Standard**: 1.5D Use patterns to develop strategies to solve basic addition and basic subtraction problems (Patterns and Algebraic Reasoning Strand); 1.3B Use concrete and pictorial models to apply basic addition and subtraction facts (up to 9+9=18 and 18-9=9). **Cognitive Change**: Replaced "developing" of strategies to solve problems to the "applying" of basic facts. **Content Change**: Changed strand from "Patterns, Relationships, and Algebraic Thinking" to "Number and Operations"; Defined a strategy (i.e. compose 10 and decomposing a number leading to a 10) to be used to solve addition/subtraction problems; Extended sums and differences to 20.	1.3.D **Supports Readiness Standard By:** Being flexible to applying basic facts strategies is critical in moving students toward developing algorithms for solving addition and subtraction problems.	1.3.D **Instructional Implications:** In order to adhere to the standard, students must use their basic facts in order to solve problems though 20; Instruction may include some of the following strategies: **Addition**-Make Ten with the sue of two ten frames as a model; Make Ten with the use of an open number line; Doubles: (i.e. 6+8=___; 6+6+2=____; 12+2=___; 12+2=14); Count On: (i.e. 3+8=___; 8,9,10,11; 3+8=11). **Subtraction-**Think Addition/Count On (i.e. 12-9=_____; 9+___=12; 9+3=12); Make Ten with the use of two ten frames as a model; Make Ten with an open number line; Count Back: (i.e. 12-3=____; 12,11,10,9; 12-3=9).	**Focus** Use knowledge of facts that make ten to help solve more difficult addition and subtraction problems. For example: 8 + 6 is the same as (8 + 2) + 4 13 - 4 is the same as (13 - 3) - 1 **Questions & Stems** • How can understanding facts that make ten help you to quickly solve other problems? **Teacher Note** *The goal of this TEKS is to help students develop numerical fluency and become more flexible with numbers in addition and subtraction situations.* *Teachers should explicitly model this skill. Students should show mastery of this skill by the end of bundle 6.*
The student is expected to: 1.5.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; (Supporting Standard) **Current Standard**: 1.5D Use patterns to develop strategies to solve basic addition and basic subtraction problems. **Cognitive Change**: N/A **Content Change**: Added the varying of the unknown in a number sentence; Added that the equation could be multiple step as the unknown may be any of the "three or four" terms.	1.5.F **Supports Readiness Standard By:** Relating addition to subtraction number sentences/equations supports a students' ability to represent and solve addition and subtraction problems.	1.5.F **Instructional Implications:** In conjunction with 1.5E, student will apply their understanding of equality to determine the unknown value of a given equation (i.e.___=7+4; 7+4=___=6; 15=4+3+___; ___-7=6). The use of a part-part-whole mat may provide structure to student understanding.	**Focus** Connect addition and subtraction to solve for an unknown in an equation. Teach this fluency strategy: ***Think-Addition*** *Think about the subtraction problem as an addition problem. (i.e. 13 - 4 Think, "What plus 4 equals 13?")* **Questions & Stems** • How can my understanding of addition help me solve a subtraction problem? **Teacher Notes** *An understanding of fact families will help students to see the relationship between addition and subtraction. Fact families are no longer explicitly in the TEKS, but they can be a useful strategy for solving for unknowns.* ***1.5F -** Examples of equations with three terms and one unknown include 6+[ ]=14, 14-[ ]=6, or 14-6=[ ].*

			Examples of equations with four terms include 6+[ ]=4+8.

TEKS/Student Expectations	TEKS/ELPS Integration	Instructional Strategies/Resources	Clarifications and Examples
The student is expected to: 1.5.G-apply properties of operations to add and subtract two or three numbers. (Readiness Standard) **Current Standard**: 1.5E Identify patterns in related addition and subtraction sentences (fact families for sums to 18) **Cognitive Change**: Changed the "identifying" of patterns to the "application" of properties of operations to add and subtract. **Content Change**: Deleted the term "fact families".	STAAR Grade 3 Scaffold:3.4A Solve with fluency one-step and two-step problems involving addition and subtraction within 1,000 using strategies based on place value and properties of operations, and the relationship between addition and subtraction. ELPS.3.D - speak using grade-level content area vocabulary in context to internalize new English words and build academic language proficiency	1.5.G **Instructional Implications:** Properties of operations include the commutative, associative, and inverse operational properties. Although, instruction may not include the formal academic language, the use of the underlying concepts will be used to solve addition and subtraction problems. **Commutative Property:** 4+3+6=____ (to employ the make ten strategy, one could change the order of the addends and not change the sum.) 4+6+3=13; **Associative Property:** 12+6____(to employ the make ten strategy, one could decompose 12 and it will not change the sum); (10+2)+6=____; 10+(2+6)=18; **Inverse Operational Property:** 12-9=_____(to employ the think addition method, on could employ the inverse property (9+____=12; 9+3=12).	**Focus** Identify the relationship between addition and subtraction. Use knowledge of strategies to add and subtract two numbers. **Questions & Stems** • How are addition and subtraction related? • Why is the order of a number sentence important? **Teacher Notes** *Students should apply the properties of operations to sets of **two** and **three** numbers.* 1.5.G **Distractor Factor:** *Students may try to apply the commutative property in subtraction; Students may not recognize how to applying addition to solve a subtraction problem may be easier.*
The student is expected to: 1.9.A-define money earned as income; (! NEW STANDARD-Supporting Standard) 1.9.B-identify income as a means of obtaining goods and services, oftentimes making choices between wants and needs; (! NEW STANDARD-Supporting Standard) 1.9.C-destinguish between spending and saving; and (! NEW STANDARD-Supporting Standard) 1.9.D-consider charitable giving (! NEW STANDARD-Supporting Standard)	1.9.A **Supports Readiness Standard By:** Defining money earned as income will support one's ability to manage financial resources more effectively for a lifetime of financial security. 1.9.B **Supports Readiness Standard By:** Identifying income and distinguishing between wants and needs will support one's ability to manage financial resources more effectively for a lifetime of financial security. 1.9.C **Supports Readiness Standard By:** Distinguishing between spending and saving will support one's ability to manage financial resources more effectively for a lifetime of financial literacy.	1.9.A **Instructional Implications:** Students in K discuss the differences between money received as income and money received as a gift. In Grade1 students learn that money that is earned from goods and labor is classified as income. Doing chores to earn money is income, money received from family/friends for birthdays/holidays is a gift. Story problems involving real world situations of money being earned could be incorporated into the Numbers and Operations Strand. 1.9.B **Instructional Implications:** Students in K discussed the difference between wants and needs and how income is	**Focus** Define spending/saving and discuss the purposes of each Discuss opportunities for charitable giving in your community **Questions & Stems** • In your life, when would you choose to spend/save money? • Why do people give to charities? **Teacher Notes** *Financial Literacy is a new strand in the TEKS. These skills should be connected to social studies TEKS. While these TEKS will not be specifically addressed in another bundle, they*

	1.9.D **Supports Readiness Standard By:** Understanding charitable giving will support one's ability to manage financial resource more effectively for a lifetime of financial security.	needed to obtain both. In Grade 1 students continue that understanding with an emphasis on making choices between the two. 1.9.C **Instructional Implications:** Students will need to decipher between spending money and saving. Future grade level discussions extend this learning to why both are necessary. 1.9.D **Instructional Implications:** Instruction should include discussions about what is a charity, identifying types of charities, and benefits of giving to charity.	*should be connected when appropriate to everyday situations in the classroom.*

Course: Grade 1 Math	Bundle 7: Compare & Order Numbers to 120	January 5- 30 (19 days)

Understandings

- Order and compare numbers using place value.
- Use symbols and comparative language to describe numbers.

Rigor Questions

How can place value help you compare and order numbers?
How does the position of a digit in a number affect its value?

Vocabulary: Cognitive Complexity Verbs for TEKS: **Use**; **Recognize**; **Create**; **Organize**; **Generate**; **Determine**;

Instantly; **compose**; **decompose**; **numbers (0-120)**; **ones**; **tens**; **hundreds**; **expanded form**; **standard from**; **greater than**; **less than**; **place value**; **whole number**; **comparative language**; **symbols**; **diagrams**; **graphs**; **<, >, =**; **open number lines**; **tools**; **mental math**; **estimation**; **number sense**; **sum**; **multiple**; **ten more**; **ten less**

TEKS/Student Expectations	TEKS/ELPS Integration	Instructional Strategies/Resources	Clarifications and Examples
The student is expected to: 1.2.A-recognize instantly the quantity of structured arrangements; (! NEW STANDARD-Supporting Standard)	1.2.A **Supports Readiness Standard By:** Being able to recognize the quantity of a structured arrangement will support students in being able to visually compare two numbers.	1.2.A **Instructional Implications:** Students learn to recognize dot arrangements on standard dice due to the board games they have played. Similar instant recognition can be developed for other patterns as well. Quantities up to 10 can be known and named without the routine of counting; Some students may continue to rely on physically counting using one-to-one correspondence to determine the total number of objects; however, with continuous exposure to pattern sets, students will begin to rely less on their counting skills and more on their spatial reasoning.	**Focus** Recognize quantities without counting such as dots on a number cube or ten-frames **Question & Stems** • How can you determine the quantity shown in an image without counting? • Which of these arrangements shows more/less? • Assess using quick images

The student is expected to: 1.2.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; (Supporting Standard) **Current Standard**: 1.1B create sets of tens and ones using concrete objects to describe, compare, and order whole numbers. **Cognitive Change**: Replaced "creating" sets of tens and ones to "composing and decomposing" of numbers. **Content Change**: Added the use of pictorial models; Identified representations of numbers up to 120. 1.2.C-use objects, pictures, and expanded and standard forms to represent numbers up to 120; (Readiness Standard) **Current Standard**: 1.1D read and write numbers to 99 to describe sets of concrete objects. **Cognitive Change**: Replaced "reading/writing" of numbers with the "representing" of numbers. **Content Change**: Added the use of pictures; Added the use of expanded and standard forms of numbers; Extended representations of 99-120.	**1.2.B Supports Readiness Standard By**: Using concrete and pictorial models to represent various numbers will support the student's understanding of place value. The use of visual representations will allow students to develop relationships among the different place values. Begin able to represent a number in more than one way will support students with the ability to rename numbers when having to subtract with regrouping. ELPS.2.C - learn new language structures, expressions, and basic and academic vocabulary heard during classroom instruction and interactions	**1.2.B Instructional Implications**: Developmentally, students may need to work with individual snapping cubes and/or bundled popsicle sticks to create sets of tens and ones. Concrete experiences will allow students to see how 10 ones are bundled in order to create a ten. As students' progress in their understanding, instruction can move to the use of base ten blocks. Through the use of base ten blocks, students will begin to visually understand the magnitude of numbers; Students need to understand that the digit in a given number represents its place value which is different from the value of the number; It is critical for students to represent a number in more than one way. **For 1.2 C Academic Vocabulary** **Specific To Readiness Standard:** Digit; Expanded Notation; Place Value; Hundreds; Tens; Ones; Standard Form **Instructional Implications:** As students begin representing numbers through 120 using base ten blocks, their understanding should also be associated with writing numbers in standard from (24), word form (twenty-four), and expanded form (24=20=4). This type of representation will allow students to focus on the value of each digit and support the understanding of place value system (i.e. two ten rods represent the value of 20; four unit cubes represent the value of 4; 20+4=24). In represent numbers in word form, be sure to emphasize the correct use of the hyphen (i.e. twenty-three)	**Focus** Compose/decompose numbers to 120 using objects and pictures. Use expanded notation to show hundreds, tens, and ones. (115 is 100 + 10 + 5 or 1 flat, 1 ten, and 5 units) Represent compare and determine relationships between numbers up to 120. **Questions & Stems** • How can you show the number ___ with base ten blocks? • Given these base ten blocks, what number do they represent? • What do these numbers have in common (12, 22, 102)? **1.2C Distractor Factor-***Students may incorrectly use the word "and" to represent numbers in words (i.e. 105 is represented as "one hundred five" NOT "one hundred and five"). The word "and" is applied in the representation of whole number and decimal value (i.e. 3.45 is represented as "three and forty-five hundredths"). Students will confuse the place value a digit has with its value. (i.e. 105; the digit 1 is in the hundreds place value but it is valued as 100). Students may confuse "digit" with "number".*

The student is expected to: 1.2.D-generate a number that is greater than or less than a given whole number up to 120; (Supporting Standard) **Current Standard**: 1.1A Compare and order whole number up to 99 (less than, greater than, or equal to) using sets of concrete objects and pictorial models **Cognitive Change**: Replaced "comparing/ordering" of whole numbers to "generating" of numbers that are greater than or less than a given number. **Content Change**: Extended comparisons from 99 to 120; Deleted the term equal to; Deleted the use of objects and pictorial models although found in process standard 1.1C. 1.2.E-use place value to compare whole numbers up to 120 using comparative language; (Supporting Standard) **Current Standard**: 1.1A Compare and order whole numbers up to 99 (less than, greater than, or equal to) using sets of concrete objects and pictorial models; 1.5C Compare and order whole numbers using place value (Patterns, Relationships, and Algebraic Thinking Strand) **Cognitive Change**: Deleted "ordering" of whole numbers. **Content Change**: Changed strand from "Patterns, Relationships, and Algebraic Thinking" to "Number and Operations"; Defined comparisons through 120; Added the use of comparative language. 1.2.G-represent the comparison of two numbers to 100 using the symbols >, <, or =. **Current Standard**: 1.1A Compare and order whole numbers up to 99 (less than, greater than, or equal to) using sets of concrete objects and pictorial models; 1.5C Compare and order whole numbers using place value (Patterns, Relationships, and Algebraic Thanking Strand); 2.1C Use place value to compare and order whole numbers to 999 and record the comparisons using numbers and	**1.2.D Supports Readiness Standard By**: Generating a number greater than or less than a given whole number will allow students to focus on the value of various digits in a number before moving to the abstract use of comparison symbols (<, >, =). 1.2.E **Supports Readiness Standard By:** As students compare the value of numbers, they need to be able to relate their understanding of place value and use the appropriate academic vocabulary (greater than, less than, equal to) before moving to the abstract use of comparison symbols (<, >, =). ELPS.3.E - share information in cooperative learning interactions For 1.2 G STAAR Grade 3 Scaffold: 3.3D 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.	**1.2.D Instructional Implications:** As students become more fluid with their use of the place value system in using the base-ten blocks and expanded notation, instruction should include students generating a number "greater than" or "less than" a given whole number; Students should be able to explain that the position of each digit in an numeral determines the quantity of a given number; This concept is important to ask of children before they begin to abstractly comparing two given numbers to clarify student's understanding of place value. 1.2.E **Instructional Implications:** Students will compare two numbers using the academic vocabulary correctly (i.e. 42 is greater than 26). It is important for students to recognize the inverse comparison statement as well (i.e. 26 is less than 42); Encourage students to articulate both comparison statements during activities; The use of the comparative language is critical before moving to the symbolic representation; Be sure to relate how the value of the digits determined which number was larger/smaller. 1.2G **Instructional Implications**: As students become more comfortable with how to compare two numbers using the correct academic language of greater than, less than, or equal to, instruction can then introduce the comparison symbol. It is important for students to recognize how their language can be communicated using symbols (>, <, =) just like we use the symbols (+/-) to represent joining, separating, and comparing problems. It is	**Focus** Generate a number that is greater than/less than a given number up to 120. Use comparative language *and symbols* (< > =) to compare numbers up to 120. **Questions & Stems** • How does place value help us order numbers? • Why do we use symbols to compare numbers? ***1.2D -*** *This revised SE extends revised SE K.2F where students are expected to generate a number that is one more or one less than another number up to 20* ***1.2E -*** *Specificity is added regarding the use of comparative language instead of symbols with this revised SE.* *Specificity has been added for the numbers being compared as "whole numbers up to 120." In comparing numbers up to 120, one may use the hundreds, tens, and ones places with a set of whole numbers like 118, 108, 98, and 89.* *The revised SE 1.2E focuses on comparing whole numbers.* ***1.2F -*** *Specificity has been added for the numbers being ordered as "whole numbers up to 120."* *The revised SE 1(2)(F) focuses on ordering whole numbers. Students are expected to use open number lines.* 1.2G **Distractor Factor:** *Students that rely on a trick to determine directionality may not be able to read comparison symbols correctly. Students may view a comparison statement and its inverse as two different comparison statements (i.e. 45>41 is the same as 41<45). Students confuse the place value a digit is in with its value (i.e. 45; the digit 4 is the tens place value but is valued at 40).*

symbols (<, =, >). **Cognitive Change**: N/A **Content Change**: The use of comparison symbols (<, =, >) moved from grade 2 to grade 1; Extended comparison from 99 to 100; Deleted the use of objects and pictorial models although found in process standard (use 1.1C).		critical that students do not learn how to read each of the symbols using a trick to remember directionality of the symbols (i.e. the alligator's mouth eats the bigger number). It is important for students to read the number sentence from left to right. Encourage students to write and articulate two comparison statements during activities.	
TEKS/Student Expectations	**TEKS/ELPS Integration**	**Instructional Strategies/Resources**	**Clarifications and Examples**
The student is expected to: 1.2.F-order whole numbers up to 120 using place value and open number lines; (Supporting Standard) **Current Standard**: 1.1A Compare and order whole numbers up to 99 (less than, greater than, or equal to) using sets of concrete objects and pictorial models; 1.5C Compare and order whole numbers using place value (Patterns, Relationships, and Algebraic Thinking Strand) **Cognitive Change**: N/A **Content Change**: Extended comparisons from 99 to 120; Added the use of open number lines; Deleted the use of objects and pictorial models although found in process standard (see 1.1C)	1.2.F **Supports Readiness Standard By:** A number line can be used as a strategy to compare/order numbers as well as develop a students' understanding of place value, the relative position of numbers, and the magnitude of numbers; The use of this tool will be a critical support mechanism. ELPS.2.D - monitor understanding of spoken language during classroom instruction and interactions and seek clarification as needed;	**1.2 F Instructional Implications:** In conjunction with 2.2E, students will order three or more numbers from least to greatest or greatest to least through the use of an open number line; An open number line does not have landmark number earmarked, does not have to begin at zero, and should include the use of arrows on both ends of the number line to indicate how the numbers continue beyond what is marked; Students will apply their understanding of the place value system in relation to the relative position on an open number line; By locating three or more numbers on an open number line, you will be able to assess students' understanding of place value, the position of numbers, and the magnitude of the numbers.	**Focus** Order whole numbers to 120 using place value Order whole numbers on an open number line **Questions & Stems** • What tools can help me to accurately order numbers? **Teacher Notes** *To create open number lines, have the students order and record numbers on a blank line.* *See lesson idea in secondary resources.*
The student is expected to: 1.3.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; (! NEW STANDARD-Supporting Standard)	1.3.A **Supports Readiness Standard By:** Using concrete and pictorial models (i.e. base ten blocks) to represent the sum of a multiple of ten and one-digit number (30+6=36) will support students in developing algorithms based on place value.	1.3.A **Instructional Implications:** As students become comfortable with representing numbers with base ten blocks and associating the concrete representation with the expanded notation of a number, instruction will extend this understanding to addition. Through continued use of the base ten blocks, provide students ample opportunities to act out various addition story problems in which students are joining various tens and ones. In adherence to the	**Focus** Use objects or pictures to add single-digit numbers with multiples of ten. (50 + 8 = 58) **Questions & Stems** • How does understanding place value help me to quickly add numbers?

		standard, instruction is limited to problems with a multiple of ten for one added and a one digit number for the second addend; Be sure to connect the given number sentence to the base ten representation.	
The student is expected to: 1.5.C-use relationships to determine the number that is 10 more and 10 less than a given number up to 120; (Supporting Standard) **Current Standard**: 1.5C Compare and order whole numbers using place value; 1.5D Use patterns to develop strategies to solve basic addition and subtraction problems; 2.5A Find patterns in numbers such as in a 100s Chart. **Cognitive Change**: Focus is more on the "use" of place value relationships for "comparing/ordering" of numbers and "solving" basic addition and subtraction problems. **Content Change**: Extended place value to 120; Defined patterns to be that of adding ten more/less.	1.5.C **Supports Readiness Standard By:** Students will begin identifying patterns in determining 10 more/less than a given number. Recognizing the change in the digits will reinforce the tens palace value; This standard will reinforce the concept of place value which is critical for comparing and ordering whole numbers.	1.5.C **Instructional Implications:** In order to adhere to the standard, students must be able to determine 10 more/10 less of a given number. Instruction might begin with the use of a 100s chart to recognize the patterns of 10 more/10 less. Students should begin relating how the digit in the tens place is changing by one with each adding/subtracting of 10. The standard requires students to determine 10 more/1less through 120. In accordance with the TEKS, students also need to connect their findings through the use of properties of numbers and operations. This understanding is also reiterated in 1.3A.	**Focus** Identify patterns in place value to find 10 more/10 less. (12, 22, 32, 42) **Questions & Stems** • What is 10 more/less than ____? • How can understanding place value help me determine 10 more/less? • How are place value patterns repeated in numbers? **Teacher Notes** *Students should be able to connect this skill to counting by 10's. Hundreds charts may be beneficial in showing patterns of 10 more and 10 less.*

Course: Grade 1 Math	Bundle 8: Identify and Count Coins	February 2- 20 (14 days)

Understandings

- Determine the values and relationships of coins.
- Use number patterns to count collections of coins.

Rigor Questions

How can skip counting and place value help you count coins efficiently?
Why is it important to know the difference between the coins?

Vocabulary: Cognitive Complexity Verbs for TEKS: **Identify**; **Use**; **Describe**; **Determine**; **Apply**; **Analyze**; **Write**

coins; **penny (ies)**; **nickel(s)**; **dime(s)**; **quarter(s)**; **coin value**; **twos**; **fives**; **tens**; **mathematical relationships**; **cent**; **symbols**; **diagrams**; **graphs**; **sum**; **multiple**; **skip count**; **total**; **set**; **10 more**; **10 less**

TEKS/Student Expectations	TEKS/ELPS Integration	Instructional Strategies/Resources	Clarifications and Examples
The student is expected to: 1.4.A-identify U.S. coins, including pennies, nickels, dimes, and quarters, by value and describe the relationships among them; (Supporting Standard) **Current Standard**: 1.1C Identify individual coins by name and value and describe relationships among them. **Cognitive Change**: N/A **Content Change**: Defined the types of coins (i.e. pennies, dimes, and quarters; Added the use of the cent symbol. 1.4.C-use relationships to count by twos, fives, and tens to determine the value of a collection of pennies, nickels, and/or dimes. (Readiness Standard CHANGE OF GRADE LEVEL) **Current Standard**: 2.3D Determine the value of a collection of coins up to one dollar.	1.4.A **Supports Readiness Standard By:** Being able to identify U.S. coins and describe the relationship between them is critical in solving money transactions. 1.4.C STAAR Grade 3 Scaffold: 3.4C Determine the value of a collection of coins and bills. ELPS.1.C - use strategic learning techniques such as concept mapping, drawing, memorizing, comparing, contrasting, and reviewing to acquire basic and grade-level vocabulary	1.4.A **Instructional Implications:** Students need to be able to identify the coin and its value whether the heads or tails side of the coin is visible; Instruction must also address how various coins are related to each other; The TEKS also requires the students to recognize the need for coins in monetary transactions. 1.4.C **Instructional Implications:** In conjunction with 1.5B,students are to apply their knowledge of skip counting to determine the value of a collections of coins (i.e. skip count by twos to count a collection of pennies; skip count by fives to count a collection of nickels; skip count by tens to count a collection of dimes). As students become comfortable with determining the value of a collection of like coins, instruction should then address a mixture of unlike coins. Again, associating a child's understanding of skip counting will allow	**Focus** Identify and name the value of pennies, nickels, dime, and quarters. Describe how these coins are related to each other. Use skip counting to quickly find the value of a collection (pennies, nickels, and/or dimes) up to 50¢. **Questions & Stems** • How many ___ does it take to make a ____? • How does skip counting allow me to quickly find the value of a collection? **Teacher Notes** This might be an appropriate time to revisit the Financial Literacy TEKS. 1.4.C **Distractor Factor:** *Students may not recognize the heads and/or tails side of a coin; Students may not recognized non-traditional coins; Students may confuse the size of the coin with its*

Cognitive Change: Focus is on the relationship between the value of coins and skip counting to determine value. **Content Change**: Moved the introduction of determining the value of collections of coins from Grade 2 to Grade 1		them to add the value with ease (i.e. given 3 dimes, 4 nickels and 6 pennies students will skip count by tens to add the value of dimes 10, 20, 30; continuing skip counting by fives to add the value of nickels 35, 40, 45, 50; then skip count by twos to add the value of the pennies 52, 54, 56; then skip count by twos to add the value of the pennies 52, 54, 56.	*value (i.e. a nickel is worth more than a dime because it is a larger size); When adding a collection of unlike coins, students may struggle to determine which coins to begin with when skip counting.*
TEKS/Student Expectations	**TEKS/ELPS Integration**	**Instructional Strategies/Resources**	**Clarifications and Examples**
The student is expected to: 1.4.B-write a number with the cent symbol to describe the value of a coin; (Supporting Standard) **Current Standard**: 1.1C Identify individual coins by name and value and describe relationships among them. **Cognitive Change**: N/A **Content Change**: Defined the types of coins (i.e. pennies, dimes, and quarters; Added the use of the cent symbol.	1.4.B **Supports Readiness Standard By:** Being able to symbolically represent the value of a coin is critical in solving monetary transactions. ELPS.3.E - share information in cooperative learning interactions	1.4.B **Instructional Implications:** In conjunction with 1.4A, as students begin to identify U.S. coins and their value, they will use the cent symbol to represent the value>	**Focus** Use the cent symbol when writing coin values **Questions & Stems** • What does the cent symbol mean? • Why do I need to use a cent symbol when writing coin values?
The student is expected to: 1.3.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; (! NEW STANDARD-Supporting Standard)	1.3.A **Supports Readiness Standard By:** Using concrete and pictorial models (i.e. base ten blocks) to represent the sum of a multiple of ten and one-digit number (30+6=36) will support students in developing algorithms based on place value.	1.3.A **Instructional Implications:** As students become comfortable with representing numbers with base ten blocks and associating the concrete representation with the expanded notation of a number, instruction will extend this understanding to addition. Through continued use of the base ten blocks, provide students ample opportunities to act out various addition story problems in which students are joining various tens and ones. In adherence to the standard, instruction is limited to problems with a multiple of ten for one added and a one digit number for the second addend; Be sure to connect the given number sentence to the base ten representation.	**Focus** Use objects or pictures to add single-digit numbers with multiples of ten. (50 + 8 = 58) **Questions & Stems** • How can understanding place value allow me to count collections of dimes and pennies? **Teacher Notes** *Students should transfer to money when representing dimes and pennies as tens and ones. (2 dimes + 5 pennies = 25 cents)*

The student is expected to: 1.5.B-skip count by twos, fives, and tens to determine the total number of objects up to 120 in a set; (Supporting Standard) **Current Standard**: 1.5A Use patterns to skip count by twos, fives, and tens (Number and Operations Strand) **Cognitive Change**: Added the need for skip counting to determine total number of objects. **Content Change**: Changed strand from "Number, Operation, and Quantitative Reasoning" to "Algebraic Reasoning"; Extended skip counting to 120.	1.5.B **Supports Readiness Standard By:** Associating skip counting by twos, fives, and tens is a foundational skill to determining the value of a collection of coins.	1.5.B **Instructional Implications:** Students use skip counting by twos fives, tens to count the number of objects more efficiently; Instruction should move between skip counting by tens, fives, and twos (i.e. counting the value of a set of 4 ten rods and 8 unit cubes; 10,20,30,40,42,44,46,48 or counting a collection of unlike coins.	**Focus** Use skip counting to quickly count collections of coins **Questions & Stems** • How does skip counting allow me to quickly find the value of a collection?
The student is expected to: 1.5.C-use relationships to determine the number that is 10 more and 10 less than a given number up to 120; (Supporting Standard) **Current Standard**: 1.5C Compare and order whole numbers using place value; 1.5D Use patterns to develop strategies to solve basic addition and subtraction problems; 2.5A Find patterns in numbers such as in a 100s Chart. **Cognitive Change**: Focus is more on the "use" of place value relationships for "comparing/ordering" of numbers and "solving" basic addition and subtraction problems. **Content Change**: Extended place value to 120; Defined patterns to be that of adding ten more/less.	1.5.C **Supports Readiness Standard By:** Students will begin identifying patterns in determining 10 more/less than a given number. Recognizing the change in the digits will reinforce the tens palace value; This standard will reinforce the concept of place value which is critical for comparing and ordering whole numbers.	1.5.C **Instructional Implications:** In order to adhere to the standard, students must be able to determine 10 more/10 less of a given number. Instruction might begin with the use of a 100s chart to recognize the patterns of 10 more/10 less. Students should begin relating how the digit in the tens place is changing by one with each adding/subtracting of 10. The standard requires students to determine 10 more/1less through 120. In accordance with the TEKS, students also need to connect their findings through the use of properties of numbers and operations. This understanding is also reiterated in 1.3A.	**Focus** Identify patterns in place value to find 10 more/10 less related to counting coins. **Questions & Stems** • What would the value of this collection be if we added (or took away) one dime?

Course: Grade 1 Math	Bundle 9: 2 Dimensional Shapes	February 23 – March 13 (14 days)

Understandings

- Analyze attributes of shapes.
- Develop generalizations about shapes in order to classify them.
- Describe equal parts of a figure.

Rigor Questions

How do the attributes of a shape define it?
How can you sort and classify shapes based on attributes?
How can you make a new figure by combining or separating shapes?
How can you divide and describe equal parts of a whole?

Vocabulary: Cognitive Complexity Verbs for TEKS: Identify

classify; sort; regular two-dimensional shapes; irregular; attributes; circle; triangle; rectangle; square; rhombus; hexagon; vertex (vertices); polygon; formal geometric language; tools; mental math; estimation; number sense; compose; fair share; equal parts; halves; fourths; examples; nonexamples

TEKS/Student Expectations	TEKS/ELPS Integration	Instructional Strategies/Resources	Clarifications and Examples
The student is expected to: 1.6.A-classify and sort regular and irregular two-dimensional shapes based on attributes using informal geometric language; (Readiness Standard) **Current Standard**: 1.6C Describe and identify two-and three-dimensional geometric figures in order to sort them according to a given attribute using informal and formal language. **Cognitive Change**: Added "classifying" of two-dimensional shapes based on their attributes. **Content Change**: Added the use of "irregular" shapes; Removed the use of "formal" geometric language; however, 1.6D	1.6.A STAAR Grade 3 Scaffold: 3.6A Classify and sort two-dimensional and three-dimensional figures, including cones, cylinders, spheres, triangular and rectangular prisms, and cubes, based on attributes using formal geometric language. 1.6.D STAAR Grade 3 Scaffold:3.6B 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. ELPS.1.E - 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 .	1.6.A **Instructional Implications:** Students must be given a variety of two-dimensional shapes to sort based on their attributes. Students need to be exposed to both regular (i.e. equilateral triangle) and irregular (right, scalene, isosceles type of triangles) two-dimensional figures. Although students may describe a given two-dimensional shape as having "three sides and three lines" and/or "three pointy corners", teachers should paraphrase student response with "three sides and three vertices". With exposure, students will begin to sue the formal vocabulary on their own. Students will recognize that circles have curved and triangles and rectangles, squares have straight lines. The teacher should model the term polygon for those two-dimensional shapes that are enclosed with straight sides. As	**Focus** Use informal and formal language to describe the attributes of 2-D shapes. Explain your reasoning when sorting 2-D shapes **Questions & Stems** • What is your rule for sorting these shapes? **Teacher Note** *You may include **trapezoid** in your 2-D shape study focusing on the attributes* 1.6.A **Distractor Factor**: *Students may interchange the terms side referencing two-dimensional shapes and edge referencing a three-dimensional shape; Students may not view a square as a rectangle.*

references the identification of shapes using formal geometric language; Deleted three-dimensional geometric figures; however, it can be found in 1.6B and 1.6E. 1.6.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; (Readiness Standard) **Current Standard**: 1.6A Describe and identify two-dimensional geometric figures, including circles, triangles, rectangles, and squares (a special type of rectangle) **Cognitive Change**: N/A **Content Change**: Added rhombus and hexagon to the specific list of shapes; Added the use of formal geometrical language.		students begin to recognize how a rectangle, square, and rhombus all have four sides, the teacher should model the term equadrilateral. 1.6.D **Instructional Implication:** Students should use the attributes of a given two-dimensional figure to correctly identify a shape. A variety of shapes (i.e. equilateral triangle, scalene triangle, right triangle, etc.) and a variety of orientation, color, and size should be used to ensure that students use the geometric attributes (number of sides/vertices; length of sides) to identify a shape. Instruction should identify a square as a rectangle (opposite sides are of equal length) and a rhombus (all four sides are of equal length).	1.6.D **Distractor Factor:** *Students may interchange the terms side referencing two-dimensional shapes and edge referencing a three-dimensional shape; Students may not view a square as a rectangle; Students may only recognize the more common equilateral triangle (i.e. green triangle pattern block) as a triangle.*
TEKS/Student Expectations	**TEKS/ELPS Integration**	**Instructional Strategies/Resources**	**Clarifications and Examples**
The student is expected to: 1.6.C-create two-dimensional figures, including circles, triangles, rectangles, and squares, as special rectangles, rhombuses, and hexagons. (! NEW STANDARD-Supporting Standard)	1.6.C **Supports Readiness Standard By:** Creating two-dimensional shapes given attributes (i.e. the number of sides and vertices) and properties (i.e. all sides are different lengths) allow students to focus on the geometric attributes of a figure. This attention to specific attributes and properties will support the classification and sorting of various figures. ELPS.2.D - monitor understanding of spoken language during classroom instruction and interactions and seek clarification as needed;	1.6.C **Instructional Implications:** This standard requires students to take their ability to identify attributes of two-dimensional shapes and create them. Instruction should vary the materials in order to observe student selection of appropriate materials. Instruction should extend the study of attributes by taking an already created shape and asked to modify it to create a new shape.	**Focus** Students will select an appropriate tool to create 2-D figures **Questions & Stems** • What shape did you create? How do you know? **Teacher Notes** *Suggested tools: geoboards, the shape tool in Paint or Word, pencil & paper*

The student is expected to: 1.6.F-compose two-dimensional shapes by joining two, three, or four figures to produce a target shape in more than one way if possible; (Supporting Standard) **Current Standard**: 1.6D Use concrete models to combine two-dimensional geometric figures to make new geometric figures. **Cognitive Change**: Added the need to demonstrate in more than one way (if possible) **Content Change**: Added the use of two or more figures to produce a specific shape; Added the production of a target shape.	1.6.F **Supports Readiness Standard By:** Joining various two-dimensional shapes to create a target shape. Encourage students to find more than one way of creating a given target shape. The attention to the critical attributes to create a target shape will support the appropriate sorting and classification of two-dimensional figures.	1.6.F **Instructional Implications:** As students begin to recognize and describe the attributes of given two-dimensional figures, instruction will lead to more spatial reasoning development. Students will be given a targeted two-dimensional shape and asked to use their manipulatives to create a targeted shape. Encourage students to find more than one way.	**Focus** Create a new 2-D figure using more than one shape **Questions & Stems** • How can you use these shapes to make a new figure?
The student is expected to: 1.6.G-partition two-dimensional figures into two and four fair shares or equal parts and describe the parts using words; and **Current Standard**: 1.2A Separate a whole into two, three, or four equal parts and use appropriate language to describe the parts such as three out of four equal parts (Number and Operations); 1.2B Use appropriate language to describe part of a set such as three out of the eight crayons are red (Number and Operations Strands) **Cognitive Change**: N/A **Content Change**: Changed strand from "Number, Operation, and Quantitative Reasoning" to "Geometry and Measurement"; Identified the whole as a geometrical figure; Deleted the use of sets as a whole; Limited the partitioning of figures to two and four equal parts, deleted three equal parts. 1.6.H-identify examples and non-examples of halves and fourths. (! NEW STANDARD-Supporting Standard)	1.6.G **Supports Readiness Standard By:** Dividing a figure into two and four equal parts and describing the parts using words supports the foundational understanding of fractions. Observing a figure being divided into two equal parts vs. four equal parts allows the learner to focus on the size of the parts. This will support future learning of comparing fractions. Partitioning the same whole into two and four equal parts will introduce the conceptual understanding of equivalent fractions. 1.6.H **Supports Readiness Standard By:** Identifying examples and non-examples of fractional parts of the same whole will support students in understanding the part-to-whole relationship and the equal size of the parts. This knowledge provides the foundation for visually comparing two fractions and/or concretely	1.6.G **Instructional Implications:** The study of fractions will unveil itself through the lens of geometry. Students will take a two-dimensional shape and divide the figure into tow and/or four equal parts. Encourage students to find more than one way to divide a given shape into equal parts. This will develop a students' understanding of how it is possible for different shapes to represent the same fair share of the whole. In adherence to the standard, instruction should include irregular two-dimensional shapes. The use of geoboards will support the trial and error process of dividing an irregular shape into two and four equal parts. Students should then be able to describe the equal parts in words. 1.6.H **Instructional Implications:** In conjunction with 1.6G, as students are partitioning figures into two and four equal parts and identifying them as halves/fourths, students recognize examples. With the use of geoboards, students verify examples of halves and fourths by comparing the amount of area in	**Focus** Divide 2-D figures into two or four equal parts Use appropriate terms to describe a divided shape **Questions & Stems** • How do you know if the parts of a figure are fair shares (equal)?

	representing equivalent fractions.	each part.	

Course: Grade 1 Math	Bundle 10: 3 Dimensional Shapes and Graphs	March 23 – April 17 (19 days)

Understandings

- Identify and describe attributes of 3D solids.
- Generate and analyze graphs.

Rigor Questions

How can formal language enable us to better describe solid figures?
How can we collect, sort, and organize data to represent information?
What conclusions can you draw from organized data?

Vocabulary: Cognitive Complexity Verbs for TEKS: **Analyze**; **Use**; **Identify**; **Describe**; **Organize**; **Generate**; **Create**

Attributes; **two-dimensional**; **three-dimensional**; **three-dimensional solids**; **sphere**; **cone**; **cylinder**; **rectangular prism**; **triangular prims**; **rectangular prims**; **edges**; **faces**; **vertex**; **vertices**; **geometric language**; **collect**; **categories**; **models**; **data**; **T-Chart**; **Tally Marks**; **Bar Graph**; **Picture Graph**; **income**; **spending**; **sort**

TEKS/Student Expectations	TEKS/ELPS Integration	Instructional Strategies/Resources	Clarifications and Examples
The student is expected to: 1.6.B-distinguish between attributes that define a two-dimensional or three-dimensional figure and attributes that do not define the shape. (! NEW STANDARD-Supporting Standard)	1.6.B **Supports Readiness Standard By:** Defining geometric attributes that define a figure (i.e. number of sides/edges and vertices) and understanding those attributes that do not define a figure (i.e. color, size, orientation) is critical in supporting the appropriate sorting and classifying of two- and three-dimensional figures. ELPS.1.C - use strategic learning techniques such as concept mapping, drawing, memorizing, comparing, contrasting, and reviewing to acquire basic and grade-level vocabulary	1.6.B **Instructional Implications:** Geometric attributes include the study of the sides/edges, vertices, and faces. Color, orientation, and size do not define a geometric figure. It is possible to have a triangle of a different color, different orientation, and a different size. Therefore, students sorting shapes based on color or size ARE NOT describing geometric differences.	**Focus** Communicate properties that do or do not define a given shape (2-D or 3-D) **Questions & Stems** • How could you describe this shape to someone that could not see it?

The student is expected to: 1.6.E-identify three-dimensional solids, including spheres, cones, cylinders, rectangular prisms (including cubes), and triangular prisms, and describe their attributes using formal geometric language; (Readiness Standard) **Current Standard**:1.6B Describe and identify two- and three-dimensional geometric figures, including spheres, rectangular prisms (including cubes), cylinders, and cones. **Cognitive Change**: N/A **Content Change**: Added triangular prisms to the specific list of solids; Added the formal geometrical language.	1.6.E STAAR Grade 3 Scaffold:3.6A 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.	1.6.E **Instructional Implications:** Students should use the attributes (i.e. number of edges, vertices, and faces) of a given three-dimensional figure to correctly identify a solid. Instruction should clearly identify a cube as a rectangular prism as the faces have for sides and four vertices. It is a special rectangular prism as the lengths of all the edges are equal. To distinguish a triangular prism from a rectangular prism, students should recognize that the shape found at the base of the figure defines the type of prism.	**Focus** Use formal language to describe the attributes of 3-D shapes. **Questions & Stems** • What word would a mathematician use to describe ____? • Where would you find this shape in everyday life? 1.6.E **Distractor Factor:** *Students may interchange the terms side referencing two-dimensional shapes and edge referencing a three-dimensional shape; Students may not view a cube as a rectangular prism; Students may identify a triangular prism as a rectangular prism because it is comprised of rectangular faces; Students may confuse the identification of a three-dimensional shape by its two-dimensional attribute (i.e. a cube is mistakenly identified as a square).*
TEKS/Student Expectations	**TEKS/ELPS Integration**	**Instructional Strategies/Resources**	**Clarifications and Examples**
The student is expected to: 1.8.A-collect, sort, and organize data in up to three categories using models / representations such as tally marks or T-charts; (Supporting Standard) **Current Standard**: 1.9 A Collect and sort data. **Cognitive Change**: Added the "organizing" of the data. **Content Change**: Limited the data to three categories; Added examples of the type of models representations of data (i.e. tally marks or T-Charts) 1.8.B-use data to create picture and bar-type graphs; and (Supporting Standard) **Current Standard**: 1.9B Use organized data to construct real-object graphs, picture graphs, and bar-type graphs.	1.8.A **Supports Readiness Standard By:** Having students collect, sort, and organize their own data allows students to interpret data on a graph more effectively. 1.8.B **Supports Readiness Standard By:** Having students collect, sort, and organize their own data assists them in drawing conclusions and making reasonable predictions. Representing student collected data on picture and bar-type graphs enables them to interpret the information more accurately. ELPS.2.D - monitor understanding of spoken language during classroom instruction and interactions and seek clarification as needed; 1.8.C STAAR Grade 3 Scaffold: 3.8B Solve one- and two-step problems using categorical data represented with a frequency table, dot plot, pictograph or bar graph with scaled intervals.	1.8.A **Instructional Implications:** It is imperative for students to generate a question before a unit of student on data (i.e. What types of flowers grow in my Grandmother's grade?); Instruction should encourage students to extend beyond two categories, yet restrict the sorting to within three categories. Students collect their own data, so they have a personal connection. Students will use tally marks to collect the data and the information will be organized in T-charts in order to better interpret the data. Ensure that students title and label their models/representations of tally marks and T-chart. 1.8.B **Instructional Implications:** In conjunction with 1.8A, students will represent the data they have collected in a picture and/or bar-type graph. Ensure that students title and label their graphs appropriately. At this stage of development,	**Focus** Collect data (up to three sets) about everyday situations to answer a question. Use a problem solving model to go through the process of collecting, organizing, and analyzing data. Make a representation to communicate the results of the data collected (tally marks, T-charts, picture, bar-type graphs.) Use appropriate language to make observations, ask, and answer questions using the graphs. **Questions & Stems** • What conclusions can you draw from the data? • How do diagrams/graphs help us to interpret data?

Cognitive Change: N/A **Content Change**: Deleted real-object graphs; however, applied in process standard (See 1.1C and 1.1D) 1.8.C-Draw conclusions and generate and answer questions using information from picture and bar-type graphs. (Readiness Standard) **Current Standard**: 1.10A Draw conclusions and answer questions using information organized in real-object graphs, picture graphs, and bar-type graphs. 1.10B Identify events as certain or impossible such as drawing a red crayon from a bag of green crayons. **Cognitive Change**: Added "generating" questions from information within a graph; **Content Change**: Deleted real-object graphs; however, applied in process standards (see 1.1C and 1.1D); Although probability has been removed from the elementary math curriculum, this standard could be a component of "drawing conclusions" from information in a graph (see 1.8C).	ELPS.3.F - ask and give information ranging from 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, to using abstract and content-based vocabulary during extended speaking assignments	one-on-one correspondence should be employed for the picture representations and scales on the bar-type graphs. Instruction should emphasize the importance of a title and labeling the categories of the graph. 1.8.C **Instructional Implications:** As students have collected their own data and organized it into graphs, they should reflect on what type of information the graphs provide. Students will be able to better articulate the type of information when it is personal. Students will naturally give factual responses (i.e. My grandmother has 18 daffodils, 4 roses, and 16 carnations in her garden). And inferential responses (i.e. Roses must not grow very well in that type of soil). Instruction should then lead students to create their own questions from the data they have collected and inferential questions that require the students to draw conclusions; Students could then exchange their graphs and ask fellow classmates to answer their self-generated questions.	• Which format would best communicate the data? • When will collecting and organizing data help you to solve problems in everyday life? (lunch choices, voting, etc.) **Teacher Notes** *By the end of bundle 10, students should be able to **independently** collect data, choose a format to represent it, and generate/answer questions using a graph.* ***1.8A -** Specificity has been added for sorting data. Data are to be sorted into up to three categories.* *Specificity has been added with organizing data and the "such as" statement suggesting T-charts and tally marks.* ***1.8B -** Data values should align to the Number and operations standards for grade 1.* *Real-object graphs have moved to Kindergarten:Data analysis K.8B* ***1.8C -** Answers to questions should align to the Number and operations standards for grade 1.* *Students are expected to generate questions using information from picture and bar-type graphs.* *Real-object graphs have moved to kindergarten: Data analysis K.8B* 1.8.C **Distractor Factor:** *When representing the same set of data on the two types of graphs, students may interpret the data as different because of the difference in the visual representations; When representing the same set of data vertically and horizontally, students may interpret the data as different because of the difference in the visual representations; When using real-objects to represent data, students may associate the larger the object the more data it represents.*
The student is expected to: 1.9.B-identify income as a means of obtaining goods and services, oftentimes making choices between wants and needs; (! NEW STANDARD-Supporting Standard)	1.9.B **Supports Readiness Standard By:** Identifying income and distinguishing between wants and needs will support one's ability to manage financial resources more effectively for a lifetime of financial security. 1.9.C **Supports Readiness Standard By:**	1.9.B **Instructional Implications:** Students in K discussed the difference between wants and needs and how income is needed to obtain both. In Grade 1 students continue that understanding with an emphasis on making choices between the	**Focus** Determine how we use money to acquire goods and services Define spending/saving and discuss the purposes of each

1.9.C-distinguish between spending and saving; and (! NEW STANDARD-Supporting Standard)	Distinguishing between spending and saving will support one's ability to manage financial resources more effectively for a lifetime of financial literacy.	two. 1.9.C **Instructional Implications:** Students will need to decipher between spending money and saving. Future grade level discussions extend this learning to why both are necessary.	**Questions & Stems** • In your life, when would you choose to spend/save money? • How does your family decide between wants and needs? **Teacher Notes** *These skills should be connected to social studies TEKS.*

Course: Grade 1 Math	Bundle 11: Measurement-Length and Time	April 20 – May 8 (15 days)

Understandings

- Select and use units to describe length and time.

Rigor Questions

How do we use tools to measure objects?
How does the tool relate to what is being measured?
What procedures help us to measure an object accurately?

Vocabulary: Cognitive Complexity Verbs for TEKS: **Apply**; **Describe**;

measure; **length**; **measuring tools**; **units**; **whole unit**; **unit of measure**; **linear measurement**; **nearest whole unit**; **mental math**; **estimation**; **number sense**; **hour; half-hour**; **digital clock**; **analog clock**; **colon (:)**

TEKS/Student Expectations	TEKS/ELPS Integration	Instructional Strategies/Resources	Clarifications and Examples
The student is expected to: 1.7.A-use measuring tools to measure the length of objects to reinforce the continuous nature of linear measurement; 1.7.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; 1.7.D-describe a length to the nearest whole unit using a number and a unit; and **Current Standard**: 1.7A Estimate and measure length using non-standard units such as paper clips or sides of colored tiles. **Cognitive Change**: Deleted "estimating" of length; however,	1.7.A **Supports Readiness Standard By:** Understanding the linear measurement is continuous in nature provides the foundational understanding of the functionality of the ruler. 1.7.B **Supports Readiness Standard By:** Understanding the appropriate process for measuring objects is a critical foundation component before introducing the use of formal measurement tools such as a ruler. 1.7.D STAAR Grade 3 Scaffold: 3.7B Determine the perimeter of a polygon or a missing length when given perimeter and remaining side lengths in problems. ELPS.2.D - monitor understanding of spoken language during classroom instruction and interactions and seek clarification as needed	1.7.A **Instructional Implications:** As students begin to measure the length of various objects, it is important to understand that linear measurements are continuous in nature. Instruction should become with aligning non-standard units of measure in order for students to grasp the concept of linear measurement being continuous. This will be important when students begin to measure with rulers. 1.7.B **Instructional Implications:** In conjunction with 1.7A, students need to decipher between the object being measured and the unit of measure. As students begin to measure the length of various objects, they need to understand where the measurement begins and ends, the unit of measure be consistent, and manipulatives need to be aligned back-to-back with no gaps or overlaps. As nonstandard units of measure will also be used to determine area in 2nd grade, it is critical to identify that only the length of one of the sides of the manipulative is used, not the	**Focus** Practice strategies for measuring accurately (no gaps between measuring tools, in a straight line, from one endpoint to the other) Use a number and a unit to tell the length of an object **Questions & Stems** • How long is ___? How do you know? • Why do we need a unit label when telling the length of an object? **Teacher Notes** *The emphasis should be on measuring with **nonstandard** units, but rulers can be introduced during this bundle.* 1.7.D **Distractor Factor:** *Students may not align the zero marking of the ruler appropriately; Students may think that an object measuring 12 inches in length is longer than an object measuring*

estimation is a component of process standard 1.1C; Added "describing" measurement to the nearest whole number using a number and unit; Added "illustrating" the understanding of how to measure length. **Content Change**: Added the clarity of measurement being a continuous nature; Deleted the term non-standard units; however, implied with the reference of laying objects end to end with no gaps or overlaps to illustrate lengths; Added measuring to the nearest whole unit.		entire object. 1.7.D **Instructional Implications:** As with most measurements, the length of objects will not always be exact. Students will measure the length or objects to the nearest whole unit of measure (i.e. students will not record measurements as 3 ½ unit cubes). Beware of students that will want to fill in the missing length with smaller units of measure. Remind them that units of measure cannot be mixed. This standard also requires students to record their measurements using a number and unit.	*one foot because 12 is bigger than 1; Students may not estimate a measurement reasonably because they do not have a solid understanding of the size of various measures.*
TEKS/Student Expectations	**TEKS/ELPS Integration**	**Instructional Strategies/Resources**	**Clarifications and Examples**
The student is expected to: 1.7.C-measure the same object/distance with units of two different lengths and describe how and why the measurements differ; **Current Standard**: 1.7C Describe the relationship between the size of the unit and the number of units needed to measure the length of an object. **Cognitive Change**: Added "measuring" the same object with two different units; Added "describing" how and why measurement differ. **Content Change**: N/A	1.7.C **Supports Readiness Standard By:** Measuring the length of objects with a variety of concrete objects supports the understanding that objects can be measured with various units. This supporting standard allows the learner to experience that the shorter the unit of measure the more units are needed to measure the length; the longer the unit of measure, the fewer units needed to measure the length. As students move to measuring with a ruler, this non-standard unit of measurement experience supports their understanding of how objects can be measured in centimeters and inches and how the inverse relationship between the size of the units and the number of units needed to equal the length of the object. ELPS.1.E - 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	1.7.C **Instructional Implications:** Students should measure a given object with more than one unit of measure. Instruction leads the students to discover that the longer the unit of measure, the fewer units of measure is needed, the shorter the units of measure, the more units of measure are needed. This concept leads to future understanding of how an object measuring 2 yards in length is not shorter than an object measuring 6 feet in length.	**Focus** Experience and understand that changing the size of a unit will change the number of units it takes to measure an object Use mathematical language to describe why one object can have two different results when measured with different sizes of units **Questions & Stems** • Why did your answer change when you measured the same length with different units? **Teacher Notes** *The goal is for students to be able to verbalize the connection between the size of a measurement tool and how many units of that tool it will take to find the length of an object. For example, it takes more paper clips than popsicle sticks to measure the length of a desk because paper clips are shorter than popsicle sticks.*

The student is expected to: **1.7.E**-tell time to the hour and half hour using analog and digital clocks. (Readiness Standard) **Current Standard**: 1.8B Read time to the hour and half-hour using analog and digital clocks. **Cognitive Change**: N/A **Content Change**: N/A	**1.7.E** STAAR Grade 3 Scaffold:3.7C 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.	**1.7.E Instructional Implications:** Relate the clock to a circular, closed number line. Create a number line identifying the whole numbers 0-12. Demonstrate how to connect both ends of the number line to create a circular number line pointing out how hour numerals on the clock relate to those on a number line. The telling of time to the nearest hour with only the hour hand shown on the face of a clock will allow students to focus on the positioning of the hour hand and determine the hour when in-between numerals. As instruction moves to the telling time to the half hour, associate the concept to fractions. Be sure to relate the hour and minute hand from the analog clock to the digits represented on a digital clock. Instruction should clarify the use of the colon (:) on the digital clock is to separate the hours (whole) from the minutes (part).	**Focus** Determine the time on an analog or digital clock to the hour and half hour **Questions & Stems** • What time is it? How do you know? • How can knowing time help you in everyday life? **1.7.E Distractor Factor:** *Students may misidentify the hour and minute hands, confuse how to read each one, and /or not understand what each hand measures; Students may not be able to accurately read the hour hand as it falls between two hour points; Students may be able to read time accurately but struggle when asked to represent a given time on a clock.*

Course: Grade 1 Math	Bundle 12: Apply addition and subtraction strategies to word problems	May 11 – June 3 (17 days)

Understandings

- Use addition and subtraction strategies with increasing independence.
- Generate and solve word problems.

Rigor Questions

How can you determine the most effective strategy when solving word problems?
How does procedural fluency make us more efficient mathematicians?

Vocabulary: Cognitive Complexity Verbs for TEKS: **Use**; **Generate**; **Analyze**; **Determine**;

word problems; **joining**; **separating**; **unknown**; **strategies**; **addition**; **subtraction**; **solve**; **generate**; **pictorial models; number sentence**; **term**; **equation**

TEKS/Student Expectations	TEKS/ELPS Integration	Instructional Strategies/Resources	Clarifications and Examples
The student is expected to: 1.3.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; ; (Supporting Standard) **Current Standard**: 1.3A Model and create addition and subtraction problem situations with concrete objects and write corresponding number sentences; 1.3B Use concrete and pictorial models to apply basic addition and subtraction facts (up to 9+9=18 and 18-9=9). **Cognitive Change**: Deleted "creating" of problem situations; however, applied in 1.3F; Added the understanding of "joining", "separating", and "comparing" **Content Change**: Limited sums and differences to 20; Added the varying of the unknown; Added different number sentences representations.	**1.3.B Supports Readiness Standard By:** The use of concrete objects and pictorial model to demonstrate joining, separating, and comparison situations will support a student's understanding of the context of addition and subtraction problems; Connecting such actions to their corresponding number sentence will support students as they move from concrete to abstract understanding. 1.3.E **Supports Readiness Standard By:** Being able to relate the manipulation of concrete objects to pictorials to a number sentence is a critical transition to moving students from concrete to abstract understanding of addition and subtraction. ELPS.3.D - speak using grade-level content area vocabulary in context to internalize new English words and build academic language proficiency For 1.3.F STAAR Grade 3 Scaffold: 3.5A Represent one- and two-step problems involving addition and subtraction	**1.3.B Instructional Implications:** Student will use their manipulatives to act out joining, separating, and comparing. Instruction should include how the subtraction symbol represents distance (i.e. 11-3=____. How far away is 3 from 11 on the number line?); This understanding how subtraction represents distance lays the foundation for future leaning of subtraction of integers, the number -3 is 14 spaces away from 11 on the number line. **See Field Guide for Examples of Joining, Separating, and Comparing**	**Focus** Use strategies to solve addition and subtraction word problems Justify why a strategy is appropriate for solving a given problem Generate word problems from a given number sentence **Questions & Stems** • What story problem could you create for this number sentence? • Why did you choose this strategy to solve the problem? Is there another strategy that would have worked? **Teacher Notes** *Bundle 12 is intended to review problem solving strategies for addition and subtraction. The rigor of the word problems should help students transition to 2nd grade work.*

1.3.E-explain strategies used to solve addition and subtraction problems up to 20 using spoken words, objects, pictorial models, and number sentences; (Supporting Standard) **Current Standard**: 1.12A Explain and record observations using objects, words, pictures, numbers, and technology. **Cognitive Change**: N/A **Content Change**: Included process standard (1.12A) with content standard (1.3E); Deleted the use of technology; however, it can be applied through process standard (see 1.1C) 1.3.F-generate and solve problem situations when given a number sentence involving addition or subtraction of numbers within 20. (Readiness Standard) **Current Standard**: 1.3A Model and create addition and subtraction problem situations with concrete objects and write corresponding number sentences. **Cognitive Change**: N/A **Content Change**: Added solving a problem for a "given" number sentence; Identified sums and difference to 20; Deleted the use of concrete objects; however, it can be applied through process standard 1.1C.	of whole numbers to 1,000 using pictorial models, number lines, and equations. ELPS.4.E - read linguistically accommodated content area material with a decreasing need for linguistic accommodations as more English is learned	1.3.E **Instructional Implications:** In conjunction with 1.3D, it is essential that students not only apply the appropriate basic fact strategy, but explain their thought process; Students need to also explain which of the strategies is most appropriate in different contexts. For 1.3F **Instructional Implications:** In adherence to the standard, students not only have to solve word problems that are provided for them, but they must also create their own story problems when given a number sentence. In conjunctions with 1.3B, this standard will assess students' conceptual understanding of joining (+), separating (-) or comparison situations (+/-) and how it applies to the appropriate operation. Instruction should provide students opportunities to write story problems (i.e. 12-8=____; ___=12-8; 8+___=12; ___+8=12).	For 1.3F **Distractor Factor:** *Students may try to apply "key words" to select the appropriate operation instead of understanding the context of the problem. Students may not recognize a number sentences and its inverse as being equivalent (i.e. 42=18+___is the same thing as 18+___=42). Students may substitute the term "take away" for "minus", creating a misconception that subtraction is only about separating.*

TEKS/Student Expectations	TEKS/ELPS Integration	Instructional Strategies/Resources	Clarifications and Examples
The student is expected to: 1.5.D-represent word problems involving addition and subtraction of whole numbers up to 20 using concrete and pictorial models and number sentences; (Readiness Standard) **Current Standard**: 1.3A Model and create addition and subtraction problem situations with concrete objects and write corresponding number sentences. **Cognitive Change**: Deleted "creating" problem situations although found in 1.3F **Content Change**: Identified whole numbers up to 20; Added pictorial models. 1.5.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; (Supporting Standard) **Current Standard**: 1.5D Use patterns to develop strategies to solve basic addition and basic subtraction problems. **Cognitive Change**: N/A **Content Change**: Added the varying of the unknown in a number sentence; Added that the equation could be multiple step as the unknown may be any of the "three or four" terms.	ELPS.1.C - use strategic learning techniques such as concept mapping, drawing, memorizing, comparing, contrasting, and reviewing to acquire basic and grade-level vocabulary		**Focus** Transition from concrete models to pictures and number sentences for representing word problems. Solve for an unknown in an addition or subtraction equation (up to four terms) 2 + 5 = 3 + ___ 10 - 6 = ___ - 3 **Questions & Stems** • How can my understanding of the equal sign allow me to solve a problem with four terms? • How can I represent a word problem without concrete models? ***1.5D -*** *Specificity has been added regarding the size of the sum or the original amount when subtracting as "up to 20."* ***1.5F -*** *Examples of equations with three terms and one unknown include 6+[ ]=14, 14-[ ]=6, or 14-6=[ ].* *Examples of equations with four terms include 6+[ ]=4+8.*

Resource Categories
The resources included here provide teaching examples and/or meaningful learning experiences to address the District Curriculum. In order to address the TEKS to the proper depth and complexity, teachers are encouraged to use resources to the degree that they are congruent with the TEKS and research-based best practices. Teaching using only the suggested resources does not guarantee student mastery of all standards. Teachers must use professional judgment to select among these and/or other resources to teach the district curriculum.