Los Fresnos C.I.S.D.

What We Do Here Shapes the World

Mathematics
Curriculum
4th Grade

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DISTRICT MISSION AND GOALS

District Mission:

"Our mission is to provide a quality educational experience that results in the development of socially responsible life-long learners."

District Goals:

Goal 1: Environment and Culture

The District will maintain a safe and positive school environment where students, parents, employees, and community members feel welcomed and engaged.

Goal 2: Academics

The District's academic programs will take the learning experience beyond state and federal standards in an effort to provide college and career readiness for all students.

Goal 3: Professional Learning

The District will provide professional learning opportunities that allow staff to achieve a higher level of proficiency.

Goal 4: Resources and Operations

The District will effectively manage its resources and operations to maximize the learning potential for all students.

LOS FRESNOS CONSOLIDATED INDEPENDENT SCHOOL DISTRICT

PROFILE of a GRADUATE

Future-ready innovative thinkers and leaders ✓

- Evaluate various sources of information and use sound reasoning when making decisions.
- Solve problems using logic, critical thinking, and deductive reasoning.
- Collaborate with others to build consensus and solve problems.
- Demonstrate perseverance and resilience.
- Embrace technology and creative solutions to everyday problems.

Effective communicators ✓

- Listen and respond respectfully and empathetically.
- Confidently adapt their communication style to the audience.
- Use various medias to engage in productive and positive dialogue.
- Collaborate with others to engage in courageous conversations.

Conscientious citizens ✓

- Exhibit self-discipline, honesty, kindness, and integrity.
- Serve the community as role models and through volunteerism.
- Embrace diversity and cultural awareness.
- Value and participate in the democratic process.

Life-long learners ✓

- Commit to continuous improvement.
- Demonstrate mastery of required curriculum and skills.
- Prepare for college and workforce opportunities.
- Develop personal and professional goals that lead to a healthy, balanced lifestyle.

CONTENT VISION AND CHARACTERISTICS

Content Vision:

At Los Fresnos CISD, our vision is to work in unison and be committed toward providing students with equitable, purposeful, rigorous, and engaging math instruction that will prepare them for the workforce. Ambitious expectations exist for all students, with accommodations for those who need it. The LFCISD Mathematics Curriculum will prepare students to be confident and self-motivated problem-solvers who can collaborate in an ethical manner in order to successfully apply mathematics in their personal and professional life. It is mathematically rich, offering students opportunities to learn important mathematical concepts and procedures with understanding. Both teacher and student value mathematics and actively engage in learning it.

Content Characteristics:

Teacher Behaviors: Teachers demonstrate acceptance of students' divergent ideas and challenge students to think deeply about the problems they are solving, reaching beyond the solutions and algorithms required to solve the problem. By doing this, the teacher ensures that students are explaining both how they found their solution and why they chose a particular method. Teachers influence learning by posing challenging and interesting questions that not only stimulate students' innate curiosity but also encourage them to investigate further.

Teachers instruct for conceptual understanding, developing children's procedural literacy, and promoting strategic competence through meaningful problem-solving investigations.

Teachers present topics in a sequence and manner appropriate for the developmental level of the students.

The teacher constantly builds students' sense of efficacy and instills in his or her students a belief that the goal of "doing mathematics" is attainable and that they are personally capable of reaching that goal.

CONTENT VISION AND CHARACTERISTICS

The teacher differentiates instruction through the use of tiered assignments and varying question levels. Scaffolding is practiced to make connections to concepts, procedures, and understanding as well as using students' experiences and prior knowledge to build new knowledge.

Student Behaviors: Students are actively engaged in doing mathematics. They are metaphorically rolling up their sleeves and "doing mathematics" themselves, not watching others do the mathematics for them or in front of them.

Students are solving challenging problems. They are investigating meaningful real-world problems whenever possible. Mathematics is not a stagnant field of textbook problems; rather, it is a dynamic way of constructing meaning about the world around us, generating new knowledge and understanding about the real world every day.

Students are making interdisciplinary connections. Mathematics is not a field that exists in isolation. They learn best when they connect mathematics to other disciplines, including art, architecture, science, health, and literature. Such connections help students develop an understanding of the academic vocabulary required to "do mathematics" and connect the language of mathematical ideas with numerical representations.

```
               SOLVE PROBLEMS
                   ANALYZE DATA
          EXPLAIN THEIR THINKING
              CHECK THEIR WORK
                    PERSEVERE
                 MAKE MODELS
       USE APPROPRIATE TOOLS
             THINK ABSTRACTLY
       MAKE CONNECTIONS
       ATTEND TO PRECISION
               THINK CRITICALLY
                  FIND PATTERNS
       APPLY PRIOR KNOWLEDGE
                     ESTIMATE
```

Students are sharing mathematical ideas. It is essential that they have the opportunity to discuss mathematics with one another, refining and critiquing each other's ideas and understandings. Communication can occur through paired work, small group work, or class presentations.

CONTENT VISION AND CHARACTERISTICS

Students are using multiple representations to communicate mathematical ideas. They should have multiple opportunities to use a variety of representations to communicate their mathematical ideas, including drawing a picture, writing in a journal, or engaging in meaningful whole-class discussions.

Students are using manipulatives and other tools. In the beginning stages of a new concept, they are just beginning to develop their sense of abstract reasoning. Concrete models, such as manipulatives, can provide them with a way to bridge from the concrete understandings of mathematics to the abstract understandings that will be required of them as they further explore the mathematical concepts.

Environment: The math classrooms have goals defined for students. The daily objectives are listed in the classroom along with the teachers explaining the expectations for the day's learning to let students know what they need to learn for the day. In the math classroom, students are aware of daily routines and expectations.

The math classrooms have students working in different types of groups and individually. The classroom setup is flexible enough to allow students to work with the teacher for instruction or with a partner playing a game. Places set up in the classroom for individual work as well as group work are important.

The teacher circulates in the classroom as the children work together on cooperative problems and games or work individually on concepts and math fluency to help promote an effective and safe environment. Many voices are part of the conversation, and every student feels that they have something unique to contribute. Thorough and detailed feedback is rich with both positive commendations and recommendations. Mistakes are embraced and treated as rich learning opportunities. A growth mindset permeates the atmosphere.

COURSE OVERVIEW DOCUMENTS

Course Overview: The primary focal areas in Grade 4 are use of operations, fractions, and decimals and describing and analyzing geometry and measurement. These focal areas are supported throughout the mathematical strands of number and operations, algebraic reasoning, geometry and measurement, and data analysis. In Grades 3-5, the number set is limited to positive rational numbers. In number and operations, students will apply place value and represent points on a number line that correspond to a given fraction or terminating decimal. In algebraic reasoning, students will represent and solve multi-step problems involving the four operations with whole numbers with expressions and equations and generate and analyze patterns. In geometry and measurement, students will classify two-dimensional figures, measure angles, and convert units of measure. In data analysis, students will represent and interpret data.

TEA Documents:

- **TEA Texas Essential Knowledge and Skills (TEKS)**: This TEA webpage provides information on the state standards for what students should know and be able to do for this course.

- **TEA Vertical Alignment Document**: This TEA webpage provides information on content standard alignment across the grade levels.

- **STAAR Assessed Curriculum**   **English | Spanish:** This TEA document identifies TEKS eligible for testing and identifies them by Reporting Category and as Readiness or Supporting Standards.

- **STAAR Blueprint**   **English | Spanish:** This TEA document identifies the number of STAAR questions asked per Reporting Category.

- **STAAR Released Questions**   **English | Spanish:** This TEA webpage provides sample test questions from the STAAR Item Bank that may or may not have previously been administered. Also included are test forms, which is a set of released questions, previously administered together which reflects the STAAR test blueprints.

Lead4ward Documents:

- **Lead4ward TEKS Snapshot**: This is a PDF file that color coordinates and divides the readiness, supporting, and process standards for each grade level and content area. (Find 4th grade and click on Math under the Snapshot column)

COURSE OVERVIEW DOCUMENTS

- **Lead4ward TEKS Scaffold**: This document shows all of the related TEKS that build up to and extend the learning clustered by concept. (Find 4th grade and click on Math under the Scaffold column)

- **Lead4ward Academic Vocabulary**: This document shows important vocabulary for concept development, including new and previously introduced words. (Find 4th grade and click on Math under the Academic Vocab column)

- **Lead4ward Instructional Strategies Playlist**: This document provides descriptions of instructional strategies to engage learners, provide practice without penalty, encourage interaction among students, and see and hear students' thinking across contents. (Located on the Instructional Tools tab)

- **Lead4ward Frequency Distribution**: This document provides the number of times a TEKS was tested over the past four test administrations. (Click on the Data Tools tab)

- **Lead4ward IQ Released Item Analysis Tool:** This document breaks down STAAR Released questions and helps teachers to conduct error analysis based on state and local data. (Click on IQ Button on top of Content Builder Resources tab)

- **Lead4ward Field Guides:** The Field Guides for Teachers succinctly organizes the information teachers and PLCs need to effectively plan meaningful instruction for students. These are purchased for every campus by the district and require login information. Please do not print, as documents are frequently updated.

- **Lead4ward Learning Videos:** These are short videos that explain how to use the resources listed above. (Click on the Learning Videos tab)

YEAR-AT-A-GLANCE (YAG)

The YAG informs all stakeholders of the learning concepts presented throughout this course. Teachers use this overview to create daily lessons that meet the unique needs of their students.

Units	Subunits	Modules
1 Computations, Algebraic Relationships, and Data Analysis	**1** Computations	**1** Add and Subtract Whole Numbers and Decimals
	2 Multiplication	**1** Strategies and Algorithms to Multiply Up to 1 by 4 Digits
		2 Area Models and Partial Products to Multiply 2 by 2 Digits
		3 Problem Solve by Multiplying 2 by 3 Digits
	3 Division	**1** Represent Division
		2 Standard Division
	4 Problem Solving	**1** One- and Two-Step Problems
	5 Multi-Step Problems	**1** Use the Four Operations
	6 Input and Output Tables	**1** Represent Problems Using Input and Output
	7 Data Analysis	**1** Create, Interpret, and Analyze Data
2 Geometry and Measurement	**1** Perimeter and Area	**1** Models and Problem Solve
	2 Lines and Angles	**1** Geometry Concepts
	3 Measurement of Angles	**1** Create and Measure
		2 Adjacent Angles
	4 Measurement	**1** Customary and Metric
		2 Conversions
		3 Time and Money
3 Numerical Representations and Relationships	**1** Whole Number Place Value	**1** Compare and Round
	2 Decimal Place Value	**1** Represent Place Value Using Models
		2 Compare Decimals
		3 Relate Fractions to Number Lines
	3 Fractions	**1** Fraction Concepts
		2 Compare Fractions
		3 Add and Subtract Fractions
	1 Fixed and Variable Expenses	**1** Classify Expenses
	2 Profit	**2** Calculate Profit

5 **The Art of** **Problem Solving**	**1** Anchor the Learning and Problem Solve	**1** Anchor Computations, Algebraic Relationships, and Data
		2 Anchor Geometry and Measurement
		3 Anchor Numerical Representations and Relationships
		4 Anchor Personal Finance

INSTRUCTIONAL UNITS

Unit I: Computations, Algebraic Relationships, and Data Analysis (10 Weeks)

Unit Description:

In Unit I, students will apply mathematical process standards to develop and use strategies and methods for whole number computations and decimal sums and differences in order to solve problems with efficiency and accuracy. The student will also apply mathematical process standards to develop concepts of expressions and equations. The student applies mathematical process standards to solve problems by collecting, organizing, displaying, and interpreting data.

Mastery Learning Objectives:

- **Demonstrate** an understanding of how to perform operations, represent algebraic relationships, and analyze data.
- **Use** mathematical processes to acquire and demonstrate mathematical understanding.
- ELPS: The students will **develop** their receptive and expressive skills. (reading, writing, speaking, and listening)

Essential Questions:

- How do you use a problem solving model that incorporates analyzing given information, formulate a plan, determine a solution, and justify the solution?
- How can I apply mathematics to problems arising in everyday life, society and the workplace?
- How can I create and use representations to organize, record, and communicate mathematical ideas?

Real World/Cross-Curricular Connections:

- Have students research different professions in which math is used to be able to perform the job. For instance, a chef, an architect, someone in computer science, etc.
- Discuss how every ten years the U.S. Census counts every citizen and all data that is collected is analyzed and represented in different graphs.
- To help students understand which computation to use, post large, blank strip diagrams on a bulletin board so students can select the most appropriate one from the options.
- Provide constant opportunities for students to translate word problems to strip diagrams and equations and relate the context of the problems to real life.

INSTRUCTIONAL UNITS

Subunit 1 of 7 (5 Days):
Computations

Subunit Description:

- **use** standard algorithm to **add** and **subtract** whole numbers
- **use** standard algorithm to **add** and **subtract** decimal numbers to the hundredths place

Before	Now	After
• solve with fluency one-step and two-step problems involving addition and subtraction within 1,000 using strategies based on place value, properties of operations, and the relationship between addition and subtraction (3.4A)	• add and subtract whole numbers and decimals to the hundredths place using the standard algorithm (4.4A)	• add and subtract positive rational numbers fluently (5.3K) • estimate to determine solutions to mathematical and real-world problems involving addition, subtraction, multiplication, or division (5.3A)

Materials/Texts/Resources:
(* available in Spanish)

- TX Go Math*
- TEKSas Target Board
- Imagine Math*
- Reflex Math*
- Education Galaxy
- Fast Focus* (recommended)
- Gauntlet* (recommended)
- Math Solutions Activities
- *Think Up***

Recommended Manipulatives
- Base ten blocks
- Dice
- Deck of cards
- Dominoes

*If available on campus***

very long# INSTRUCTIONAL UNITS

|	
Module 1 of 1 (5 Days): **Add and Subtract Whole Numbers and Decimals**	
TEKS (R) Readiness, (S) Supporting, (P) Process	4.4A **add** and **subtract** whole numbers and decimals to the hundredths place **using** the standard algorithm (R) English Language Proficiency Standards The student uses mathematical processes to acquire and demonstrate mathematical understanding. **Process Standards: 4.1A, 4.1B, 4.1C, 4.1D, 4.1E, 4.1F**
Content and Language Objectives	*The Learner Will (TLW):* • **use** the standard algorithm to **demonstrate** an understanding of addition and subtraction of whole numbers and decimals • Student linguistic accommodations should reflect listening, speaking, reading, and writing. Learning Intentions for Emergent Bilinguals
Misconceptions	• Not aligning the appropriate place values when adding/subtracting decimals • Not understanding adding and subtracting decimals as joining and separating parts of the same whole • Not understanding the context of the problem and missing a step when multiple quantities are involved (e.g., Josh bought 1 soda and 2 candy bars. The soda cost $1.29 and the candy bars cost $1.15 each. What was the total cost?)
Content Connections	• Students need to correctly align place-value positions when adding and subtracting numbers. • Explain that hundredths can be subtracted from tenths by expressing the tenths as hundredths, or writing a zero after the digit in the tenths place (Eg., 0.9 - 0.87 is the same as 0.90 - 0.87) • Be sure to vary the context of the problems.

INSTRUCTIONAL UNITS
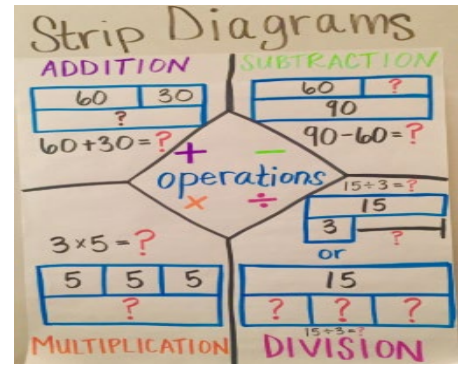
| Academic Vocabulary *new to grade level	- Add - Addends - Addition - Compose - Decimal number - Decimal point - Decompose - Difference - Equation - Hundredth - Minuend - Operation - Place value - Regroup - Subtract - Subtrahend - Sum - Tenth - Whole number

Instruction and Student Engagement

- **Anchor Charts:**
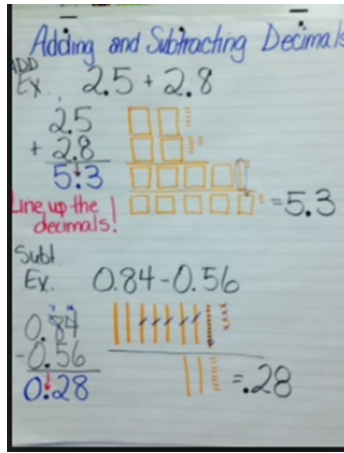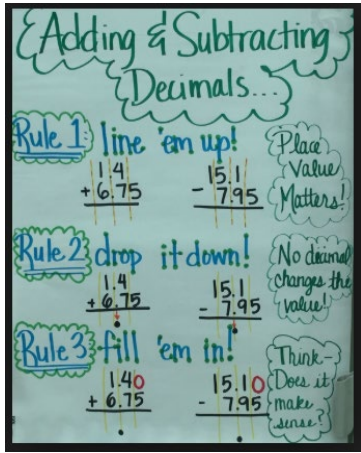
*Optional- begin introducing

- **Math Warm-up:** TEKSas Target Board - Set 1 Week 1

- [LFCISD Problem Solving Method](#) and [Problem Solving Bookmarks](#)
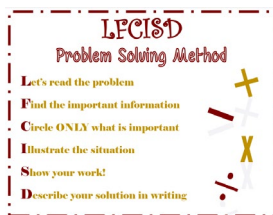
- **TX Go Math**
  Module 6: Add and Subtract Whole Numbers and Decimals Lessons 1-5.
  [L6.1](#), [L6.2](#), [L6.3](#), [L6.4](#), [L6.5](#)

- *Think Up!* **SE**
  Unit 15 Pg. 150; 151 #1-5, 155 #1-6

- **Vocabulary Activity** Think Up TE pg. 184
  Vocabulary Rock Students work in small groups to create poems, songs, or raps about adding and subtracting decimal numbers. Groups must incorporate a minimum of six vocabulary terms in the original creations. Students share original works with the class.

- **Math Solutions:**

-[Digit Place](#)
-[Math Talks](#)

- **Literature Connections Videos:**
  o Study Jams! [Addition and Subtraction of Decimals](#)
  o [Alexander, Who Used to Be Rich Last Sunday](#) – Judith Viorst
  o [How the Second Grade Got $8,205.50 to Visit the Statue of Liberty](#) – Nathan Zimelman
  o [Pigs Will Be Pigs: Fun with Math and Money](#) – Amy Axelrod
  o [Sluggers' Car Wash](#) – Stuart J. Murphy
  o The $1.00 Word Riddle Book – Marilyn Burns

- **Online Games**
  [Rags to Riches Adding Decimals](#)
  [Decimal Mania – Addition and Subtraction](#)
  [Soccer Math – Adding Decimals Game](#)

- **Differentiated Instruction**
  o **GT/ Extensions:** Have students use store receipts to write word problems for other students to solve. Encourage them to select items that have different numbers of digits.
  Think Up SE pg. 154- Math Challenge
  Think Up TE pg. 190- Students create restaurant menus, including pictures and prices for the items. Students may draw pictures, cut pictures from magazines, or print pictures from electronic sources. Students prepare a possible bill for a customer by listing items ordered with a total spent. Students share the menu and bill with the class.

  o **Interventions:** Have students use decimal models to work addition and subtraction problems. Show them how to shade units (squares) in a 10x10 grid to represent decimals.
  Show number line, counting on, and strip diagrams. [Teachley Add and Subtract](#) Video

  o **EBs**: Strategy- Model Concepts   Materials- Base-ten blocks
  -Use base-ten blocks to model addition with regrouping.
  -Read the problem and model how to solve it, showing how to regroup 14 ones

as 1 ten 4 ones.

There are 118 children at the concert. There are 446 adults at the concert. How many people are at the concert?

-Read the problem again. Have students use base-ten blocks to solve the problem. Then have them say or write the answer. 564

Strategy- Creative Grouping   Materials- Index cards, markers

-Group beginning and intermediate English Learners with advanced English Learners to help with language practice.

-Have students write decimal numbers on index cards.

-Have students choose two cards, write the numbers, and explain the steps to subtract the decimals.

-Make sure students explain how 0.3 is equivalent to 0.30.

| 5.6 | 0.41 | 3.02 | 14.1 |
| 9.09 | 0.3 | 10.5 | 1.01 |

Linguistic Accommodations

Evidence of Learning

Checking for Understanding

- I must align according to the place value because...
- If I had a $10 and bought a juice for 1.97, I could determine my change by…
- When adding 1 tenth and 1 hundredth, I must remember…
- Adding whole numbers and adding decimals are similar/different because…

Learning Intentions for Emergent Bilinguals

Sample Assessment Items

Samples from Lead4ward TEKS 4.4A

21 Kristine has a $10 bill to spend at a book fair. She buys one book for $4.95, two bookmarks for $0.65 each, and a key chain for $1.85.

How much change should Kristine receive from her $10 bill?

A $2.55

B $2.10

C $3.45

D $1.90

2016 – Q15

15 The list shows the number of trees Isaiah planted in three years.

- He planted 521 trees in the first year.
- He planted 387 trees in the second year.
- He planted 438 trees in the third year.

Isaiah wants to plant a total of 2,000 trees. How many more trees does Isaiah need to plant?

A 654

B 1,346

C 874

D 764

INSTRUCTIONAL UNITS

Subunit 2 of 7 (15 Days): Multiplication

Subunit Description:

- **determine** products of numbers multiplied by 10 or 100
- **represent** the product of numbers using arrays, area models, and equations
- **multiply** up to four-digit numbers by one-digit **using** strategies and algorithms
- **multiply** two-digit by two-digit numbers **using** strategies and algorithms

Before	Now	After
• represent multiplication facts by using a variety of approaches such as repeated addition, equal sized groups, arrays, area models, equal jumps on a number line, and skip counting. (3.4E) • recall facts to multiply up to 10 by 10 with automaticity and recall the corresponding division facts (3.4F) • use strategies and algorithms, including the standard algorithm, to multiply a two-digit number by a one-digit number (3.4G)	• 4.4B determine products of a number and 10 or 100 using properties of operations and place value understandings (4.4B) • use strategies and algorithms, to multiply up to a four-digit number by a one-digit number and to multiply a two-digit number by a two-digit number and represent the product of 2 two-digit numbers using arrays, area models, or equations, including perfect squares through 15 by 15 (4.4DC)	• multiply with fluency a three-digit number by a two-digit number using the standard algorithm (5.3B)

Materials/Texts/Resources:
(* available in Spanish)

- TX Go Math*
- TEKSas Target Board
- Imagine Math*
- Reflex Math*
- Education Galaxy
- Fast Focus* (recommended)
- Gauntlet* (recommended)
- Math Solutions Activities
- *Think Up***

Recommended Manipulatives

INSTRUCTIONAL UNITS

- Base ten blocks
- Dice
- Deck of cards
- Dominoes

If available on campus**

INSTRUCTIONAL UNITS

<table>
<tr>
<td colspan="2" align="center">Module 1 of 3 (5 Days):
Strategies and Algorithms to Multiply Up to 1 by 4 Digits</td>
</tr>
<tr>
<td>TEKS
(R) Readiness, (S) Supporting, (P) Process</td>
<td>4.4B determine products of a number and 10 or 100 using properties of operations and place value understandings (S)
4.4D use strategies and algorithms, including the standard algorithm, to multiply up to a four-digit number by a one-digit number and to multiply a two-digit number by a two-digit number. Strategies may include mental math, partial products, and the commutative, associative, and distributive properties (S)
4.4C represent the product of 2 two-digit numbers using arrays, area models, or equations, including perfect squares through 15 by 15 (S)

English Language Proficiency Standards

The student uses mathematical processes to acquire and demonstrate mathematical understanding.
Process Standards: 4.1A, 4.1B, 4.1C, 4.1D, 4.1E, 4.1F</td>
</tr>
<tr>
<td>Content and Language Objectives</td>
<td>The Learner Will (TLW):

represent multiplication using arrays, area models, and equations
use strategies and algorithms to multiply one-digit by up to four-digit numbers

Student linguistic accommodations should reflect listening, speaking, reading, and writing. Learning Intentions for Emergent Bilinguals
</td>
</tr>
<tr>
<td>Misconceptions</td>
<td>

Using the standard algorithm as an efficient means to find the product of a number and 10 or 100
Reverting to past experience with base-ten models and using them to add instead of multiply
Not connecting multiplication with area
Forgetting to add a regrouped digit or adding the regrouped digit and then multiplying by that sum
</td>
</tr>
</table>

INSTRUCTIONAL UNITS

Content Connections	• Recognizing patterns in multiplying by 10 or 100 supports students in developing multiplication/division algorithms and being able to estimate products/quotients of multiplication/division problems. • The automaticity of multiplying by 10 and 100 is essential for the development of strategies/algorithms for multiplying multiple-digit numbers • This standard (4.4C) builds the conceptual knowledge of two-digit multiplication. Stu- dents should use a variety of methods to represent their understanding: arrays, area models, and equations. • Instruction should include examples of perfect squares where the two factors are the same value (e.g., 12 x 12). • The use of mental math, partial products, and operational properties allows students to build their flexibility in the use of numbers. It is imperative to relate those actions to the steps found in the standard algorithm.
Academic Vocabulary *new to grade level	• Algorithms • Area Model • Array • Associative Property • Base -10 Place value system • Commutative Property • Compose • Decompose • Distributive Property • Equation • Expanded form/notation • Factor • Hundreds • Multiples • One-digit number (two, three, four) • Partial Products • Patterns • Place value • Product • Properties of Operations

Instruction and Student Engagement

- **Anchor Charts:**
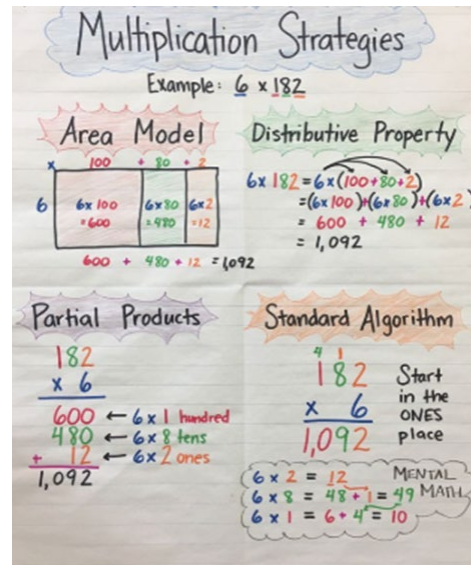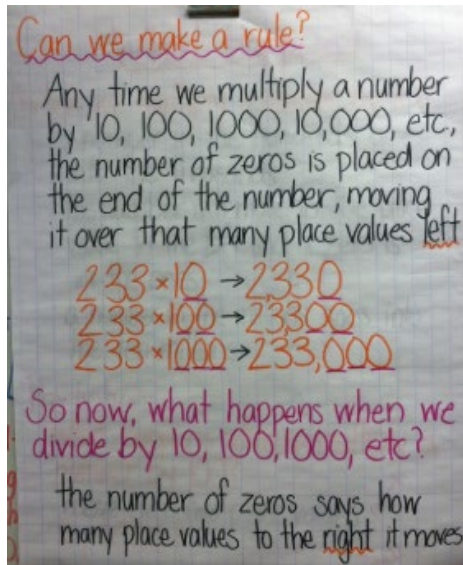
- **Math Warm-up:** TEKSas Target Board - Set 1 Week 2

- [LFCISD Problem Solving Method](#) and [Problem Solving Bookmarks](#)
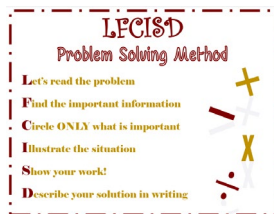
- **TX Go Math** Module 7
  Multiply by 1-digit Numbers Lessons: 1-8
  [L7.1](#), [L7.2](#), [L7.3](#), [L7.4](#), [L7.5](#), [L7.6](#), [L7.7](#), [L7.8](#)

- *Think Up! SE*
  Unit 18 pg. 180 (left side of page- Multiply a One-Digit Number); 181 #2; 182 #5
  Unit 16 pg. 158; 160; 161 #5, 6; 162 #1, 3, 4

- **Math Solutions:**
  -[Target 300](#)
  -[Math Talks](#)

- **Literature Connections:**

  Multiplying Menace: The Revenge of Rumpelstiltskin- Pam Calvert

- **Videos:**

  Study Jams! Multiplication

  Area Model Multiplication Song-Multiplying with Partial Products

  Area Model Multiplication Explained!

- **Differentiated Instruction**

  o **GT/ Extensions:** Challenge students to create multiplication puzzles for classmates to solve. Give them blank templates for multiplying 1-digit by 4-digit numbers.

  o **Interventions:** Give students base 10 blocks to model numbers. Say a number less than 10 and instruct students to model the number. Then, ask to model 10 times that number.

    Show an array or area model to students. Have them write an equation to match the model and solve it. Use grid paper to model area models.

  o **EBs**: Strategy- Describe

    • Students can practice their comprehension by describing in words and in writing what they have seen.

    • Draw a quick picture of a multiplication problem involving tens, hundreds, and thousands by a whole number through 10. Have students describe the picture. Accept all reasonable responses.

    • Once students understand that the picture shows multiplication, ask them to state it using place value and write a multiplication sentence to match.

    • Draw other quick pictures for students to describe.

    Linguistic Accommodations

    2×4 hundreds = 8 hundreds
    or $2 \times 400 = 800$
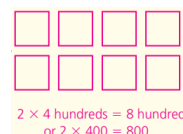
- **Literature Connections and Videos:**

  Multiplying Menace: The Revenge of Rumpelstiltskin- Pam Calvert

Evidence of Learning

Checking for Understanding

- The word "factor" represents…
- One strategy that I can use to multiply is…
- When I multiply times 10, I can extend the pattern by…(Show an example)
- In order to multiply by 10 and 100, I must remember,
- I can share what I learned to a 3rd grade student by…
- What are some other numbers that might generate this type of multiplication pattern?

Learning Intentions for Emergent Bilinguals

Sample Assessment Items

4.4D

2016 – Q7

7 A basketball team plays 82 games each year. How many games will the team play in 25 years?

   A 1,050

   B 2,040

   C 2,090

   D 2,050

2017 – Q4

4 There are 27 teams in a hockey league. There are 16 players on each team. How many players are in the hockey league?

   F 162

   G 189

   H 432

   J Not here

INSTRUCTIONAL UNITS
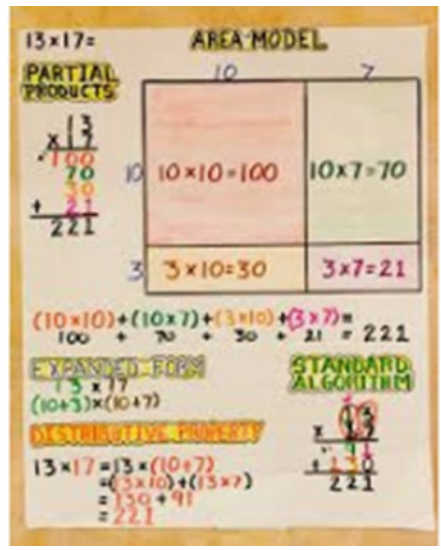
Module 2 of 3 (5 Days):
Area Models and Partial Products to Multiply 2 by 2 Digits

<table>
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<td>TEKS
(R) Readiness, (S) Supporting, (P) Process</td>
<td>

4.4C **represent** the product of 2 two-digit numbers using arrays, area models, or equations, including perfect squares through 15 by 15 (S)

English Language Proficiency Standards

The student uses mathematical processes to acquire and demonstrate mathematical understanding.
Process Standards: 4.1A, 4.1B, 4.1C, 4.1D, 4.1E, 4.1F

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<tr>
<td>Content and Language Objectives</td>
<td>

The Learner Will (TLW):

- **draw** area models, **make** arrays, and **write** equations to represent the products of two-digit numbers by two-digit numbers

- Student linguistic accommodations should reflect listening, speaking, reading, and writing. Learning Intentions for Emergent Bilinguals

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<td>Misconceptions</td>
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- Reverting to past experience with base-ten models and using them to add instead of multiply
- Not connecting multiplication with area
- Students may not apply place-value concepts when finding partial products in area models
- Students may not correctly align numbers when adding partial products

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</table>

Content Connections	- It is critical for students to develop the conceptual understanding of multiplying two-digit numbers before moving to the abstract understanding of the standard algorithm. This supporting standard provides that development progression. - This standard builds the conceptual knowledge of two-digit multiplication. - Students should use a variety of methods to represent their understanding: arrays, area models, and equations - Instruction should include examples of perfect squares where the two factors are the same value (e.g., 12 x 12). - Through the use of arrays and/or area models, students begin to understand the relationship between perfect squares and equal side lengths. - Before students sketch arrays or area models to find products, they use counters or base-ten blocks to model the products. - Students translate equations to arrays or area models. They should know the convention to model *a x b* is "*a* rows of *b* objects/"
Academic Vocabulary *new to grade level*	- Algorithms - Area Model - Array - Associative Property - Base -10 Place value system - Commutative Property - Compose - Decompose - Distributive Property - Equation - Expanded form/notation - Factor - Multiples - one-digit number (two, three, four) - Partial Products - Patterns - Perfect square* - Place value - Product - Properties of Operations

Instruction and Student Engagement

- **Anchor Charts:**

- **Math Warm-up:** TEKS as Target Board - Set 2 Week 3

- [LFCISD Problem Solving Method](#) and [Problem Solving Bookmarks](#)
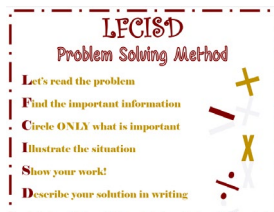
- **Go Math** Module 8
  Lessons: 1-7 [L8.1](#), [L8.2](#), [L8.3](#), [L8.4](#)

- *Think Up!*
  Think Up TE:
  Unit 17 Pg. 205 Concept Exploration ([Each Orange Had 8 Slices](#))

  Think Up SE: Unit 18 Pg. 180 (right side of page- Multiply 2 Two-Digit Numbers); 181 #1, 4,
  Unit 17 Pg. 168; 170; 171 #1,3, 4; 172 #1, 2, 4

- **Vocabulary Activity:** Think Up! TE pg. 208 – [Fill It In](#)

INSTRUCTIONAL UNITS

- **Math Solutions:**
  -[Target 300](#)
  -[Math Talks](#)

- **Literature Connection:**
  [365 Penguins!](#) By Jean Luc Fromental
  [Minnie's Diner: A Multiplying Menu](#) by Dayle Ann Dodds

- **Videos:**
  [Area Model Multiplication – A Different Way to Multiply!](#)
  [Long Multiplication Song – Multi-Digit Multiplication](#)
  [Turtlehead Multiplication](#)

- **Differentiated Instruction**
  - **GT/ Extensions:** Challenge students to use what they know about area models to create a model for a three-digit number multiplied by a two-digit number. Ask students to connect their models to the distributive property.

  - **Interventions: Think Up TE** p. 210- Activity 3: Students use Lego bricks to find the product of 2 two-digit numbers by creating an array of posts.
    Think Up TE p. 210- Activity 1: Students repeatedly practice the first steps involved in solving a multiplication using area model. Students should only attempt to find the product when they fully understand the decomposing process.

  - **EBs**: Strategy: Identify Patterns　　Materials: [1-Centimeter Grid Paper](#) (see eTeacher Resources), color pencils
    • Students identify patterns in math to communicate about math concepts.
    • Have students use grid paper to find 5×12.
    • They should then use grid paper to find 15×12.
    • How was finding 15×12 like finding 5×12? Accept reasonable responses.
    [Linguistic Accommodations](#)
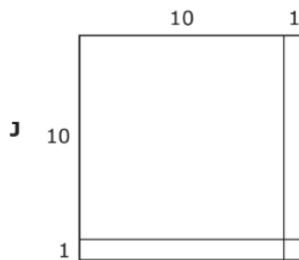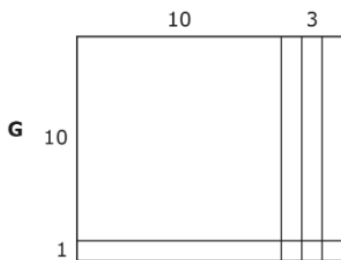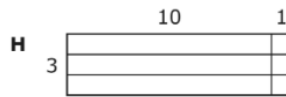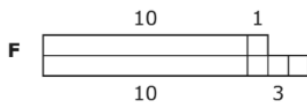
Evidence of Learning

Checking for Understanding

- Area models are similar to counting…
- I think area model is helpful when…
- Can you use a visual model to help with computation?
- Why is knowledge of place value important when multiplying two-digit numbers?
- What are some real-life situations in which you must multiply two-digit numbers?

Learning Intentions for Emergent Bilinguals

Sample Assessment Items

2019 – Q18

Which model represents $11 \times 13 = 143$?

INSTRUCTIONAL UNITS

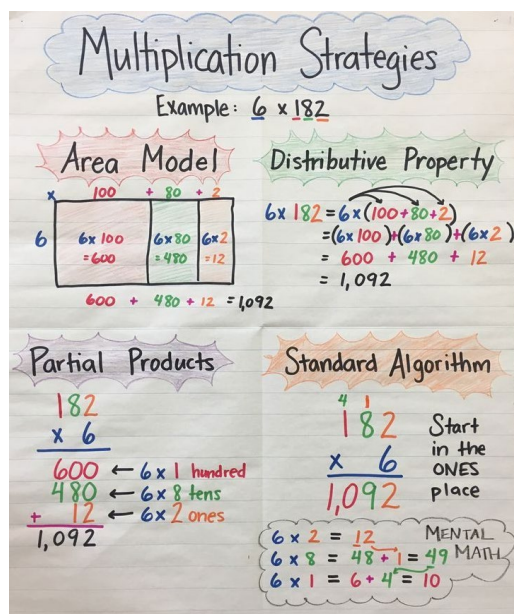|	**Module 3 of 3 (5 Days):** **Problem Solve by Multiplying 2 by 2 Digits**
TEKS (R) Readiness, (S) Supporting, (P) Process	4.4D **use** strategies and algorithms, including the standard algorithm, to **multiply** up to a four-digit number by a one-digit number and to **multiply** a two-digit number by a two-digit number. Strategies may include mental math, partial products, and the commutative, associative, and distributive properties (S) 4.4C **represent** the product of 2 two-digit numbers using arrays, area models, or equations, including perfect squares through 15 by 15 (S) English Language Proficiency Standards The student uses mathematical processes to acquire and demonstrate mathematical understanding. **Process Standards: 4.1A, 4.1B, 4.1C, 4.1E, 4.1F**
Content and Language Objectives	*The Learner Will (TLW):* • **sketch** arrays, area models and/or **write** equations to **represent** products of two-digit numbers • **solve** problems by **multiplying** two- by two-digit numbers using strategies such as properties, mental math, partial products, and the standard algorithm • Student linguistic accommodations should reflect listening, speaking, reading, and writing. Learning Intentions for Emergent Bilinguals
Misconceptions	• Reverting to past experience with base-ten models and using them to add instead of multiply • Not connecting multiplication with area • Forgetting to add a regrouped digit or adding the regrouped digit and then multiplying by that sum

INSTRUCTIONAL UNITS

Content Connections	• It is critical for students to develop their flexibility with multiplying multi-digit numbers by employing different strategies before moving to the abstract understanding of the standard algorithm. • This supporting standard (4.4D) provides that development progression. • The use of mental math, partial products, and operational properties allows students to build their flexibility in the use of numbers (e.g., 23 x 12 = (20 + 3) x (10 + 2) = (20 x 10) + (20 x 2) + (3 x 10) + (3 x 2) = 200 + 40 + 30 + 6 = 276). • It is imperative to relate those actions to the steps found in the standard algorithm. • Encourage students to demonstrate their understanding in more than one way.
Academic Vocabulary *new to grade level	• Algorithms • Area Model • Array • Associative Property • Base -10 Place value system • Commutative Property • Compose • Decompose • Distributive Property • Equation • Expanded form/notation • Factor • Multiples • one-digit number (two, three, four) • Partial Products • Patterns • Perfect square* • Place value • Product • Properties of Operations

Instruction and Student Engagement

- **Anchor Charts:**

- **Math Warm-up:** TEKS as Target Board - Set 2 Week 4

- [LFCISD Problem Solving Method](#) and [Problem Solving Bookmarks](#)
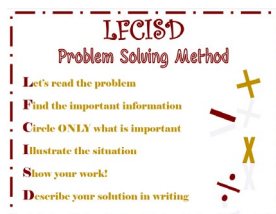
- **Go Math** Module 8
  Lessons: 1-7 [L8.5](#), [L8.6](#), [L8.7](#)

- *Think Up! SE* (Teacher selected items)
  Unit 16 Pg. 165-166
  Unit 17 Pg. 175-176
  Unit 18 Pg. 185-186

- **Math Solutions:**
  -[Target 300](#)
  -[Math Talks](#)

- **Literature Connections and Videos:**
  Moira's Birthday by Robert Munsch
  The Best of Times: Math Strategies That Multiply by Greg Tang
  The Grapes of Math: Mind-Stretching Math Riddles by Greg Tang

- **Differentiated Instruction**
  - **GT/ Extensions:**
    Challenge students to create multiplication puzzles for classmates to solve. Give them blank templates for multiplying 1-digit by 4-digit numbers.
    Think Up! TE pg. 226
    Students use the Internet or other resources to investigate the F-O-I-L method of multiplying 2 two-digit numbers using expanded notation and a more advanced application of the distributive property. Students should find and explain a sequence similar to the one shown below.
    - ✓ Decompose the two factors using expanded notation: 36 x 53 = (30 + 6) x (50 + 3)
    - ✓ Explain that FOIL means First, Outer, Inner, Last, and demonstrate to show the distributive property.

    First   Last

    (30 + 6) × (50 + 3)
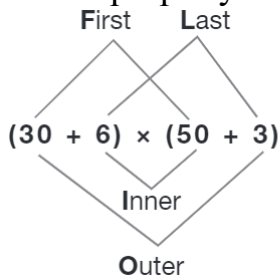
    Inner

    Outer

    First: 30 × 50 = 1,500
    Outer: 30 × 3 =   90
    Inner: 6 × 50 =   300
    Last: 6 × 3 =   18
                       1,908

  - **Interventions:**
    Think Up! TE pg. 224 Interventions Activities
    Give students base 10 blocks to model numbers. Say a number less than 10 and instruct students to model the number. Then ask to model 10 times that number.
    Show an array or area model to students. Have them write an equation to match the model and solve it. Use grid paper to model area models.

  - **EBs**: Strategy- Rephrase   Materials: 1-Centimeter Grid Paper
    - • Students can demonstrate an understanding of math contexts by rephrasing situations in their own words.
    - • Read the context: In 2010, an average of 42 bald eagles were counted in each

of 20 locations throughout Alaska. Use graph paper to model one location. Draw 42 x's for the bald eagles counted. Have students describe what 20 locations, each with 42 bald eagles, might look like.

• Have students rephrase the situation in their own words or by using drawings. Possible answer: in 2010, in one place, people counted 42 bald eagles. This happened in 20 places in all.

Linguistic Accommodations

Evidence of Learning

Checking for Understanding

- The word "factor" represents…
- One strategy that I can use to multiply is…
- When I multiply times 10, I can extend the pattern by… (Show an example)
- In order to multiply by 10 and 100, I must remember,
- I can share what I learned to a 3rd grade student by…
- What are some other numbers that might generate this type of multiplication pattern?
- Reflect on My Learning Think Up! TE pg. 225

Learning Intentions for Emergent Bilinguals

Sample Assessment Items

2017 – Q4

4 There are 27 teams in a hockey league. There are 16 players on each team. How many players are in the hockey league?

F 162

G 189

H 432

J Not here

INSTRUCTIONAL UNITS

Subunit 3 of 7 (10 Days):
Division

Subunit Description:

- **represent** quotients **using** arrays, area models, or equations
- **divide** up to four-digit dividends by one-digit divisor **using** different strategies and algorithms

Before	Now	After
• solve one-step and twostep problems involving multiplication and division within 100 using strategies based on objects; pictorial models, including arrays, area models, and equal groups; properties of operations; or recall of facts (3.4K)	• represent the quotient of up to a four-digit whole number divided by a one-digit whole number using arrays, area models, or equations (4.4E) • use strategies and algorithms, including the standard algorithm, to divide up to a four-digit dividend by a one-digit divisor (4.4F)	• solve with proficiency for quotients of up to a four-digit dividend by a two-digit divisor using strategies and the standard algorithm (5.3C)

Materials/Texts/Resources:
(* available in Spanish)

- TX Go Math*
- TEKSas Target Board
- Imagine Math*
- Reflex Math*
- Education Galaxy
- Fast Focus* (recommended)
- Gauntlet* (recommended)
- Math Solutions Activities
- *Think Up***

Recommended Manipulatives
- Array Mats
- Cuisenaire Rods
- Place Value Chart
- Base ten blocks

INSTRUCTIONAL UNITS

- Dice
- Dominoes
- Deck of cards

If available on campus**

INSTRUCTIONAL UNITS

Module 1 of 2 (5 Days): Represent Division

TEKS (R) Readiness, (S) Supporting, (P) Process	4.4E **represent** the quotient of up to a four-digit whole number divided by a one-digit whole number **using** arrays, area models, or equations (S) English Language Proficiency Standards The student uses mathematical processes to acquire and demonstrate mathematical understanding. **Process Standards: 4.1A, 4.1C, 4.1D, 4.1E, 4.1F, 4.1G**
Content and Language Objectives	***The Learner Will (TLW):*** • **use** arrays, area models, or equations to **represent** quotients of up to four-digit whole number divides by one-digit whole number • verbally **explain** strategies used to **represent** quotients • Student linguistic accommodations should reflect listening, speaking, reading, and writing. Learning Intentions for Emergent Bilinguals
Misconceptions	• Reverting to past experience with base-ten models and using them to add instead of multiply • Failing to see the inverse relationship between multiplication and division when working with different representations • Ignoring place value and/or misjudging work alignment in columns for division equations • Not recognizing the need to preserve place value in the quotient, especially when the dividend includes a zero

Content Connections

- It is critical for students to develop the conceptual understanding of division of multi-digit numbers before moving to the abstract understanding of the standard algorithm.
- Equations can include the use of partial quotients.

Equations
(e.g., partial quotient)

```
5 ) 2.425
  - 2,000 | 400
    425
  - 250   | 50
    175
  - 125   | 25
    50
  - 50    | x 10
    0     | 485
```

- Students represent the quotient using arrays and area models by connecting the factors as length and width and the product as the area.
- Limit instruction to division of four-digit by one-digit.
- It is critical for students to develop an efficient way to divide multi-digit numbers by a one-digit divisor. This learning extends to interpreting the remainder in a division problem.
- Watch for students who may be confused by the action of repeatedly removing equal groups and recording the number of groups removed.
- Use place value language when referring to the dividends (e.g. For 312 divided by 6 refer to dividing 31 tens by 6 rather than 31 by 6)
- When introducing long division, ask students to record a multiplication expression next to the number being subtracted.
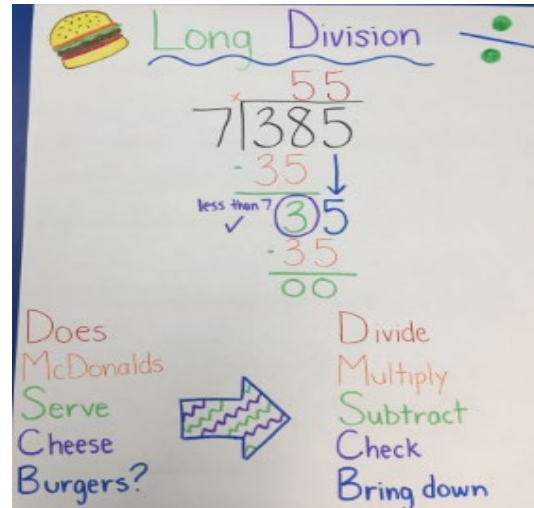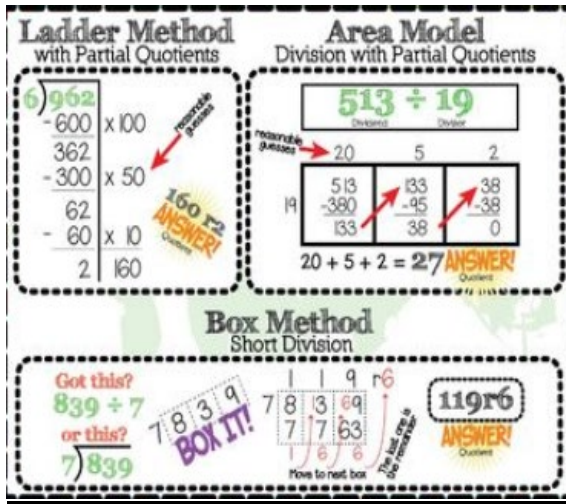
INSTRUCTIONAL UNITS

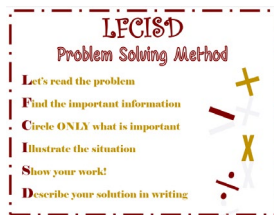|	
Academic Vocabulary *new to grade level*	• Algorithm • Area model • Array • Divide • Dividend • Division • Divisor • Equation • Expression • Partial quotient* • Quotient • Remainder* • Whole numbers

Instruction and Student Engagement

- **Anchor Charts:**

- **Math Warm-up:** TEKS as Target Board - Set 3 Week 5

- [LFCISD Problem Solving Method](#) and [Problem Solving Bookmarks](#)

- **Go Math** Module 10
  Divide by 2-digit number - Lessons:1-5
  [L10.1](#), [L10.2](#), [L10.3](#), [L10.4](#), [L10.5](#)

- *Think Up! SE*
  Unit 20 Concept Development pg. 200
  Think Up! TE pg. 245 [Concept Development Activities](#)

- **Vocabulary Activity:** Division Song
  Think Up! TE pg. 232 – Students sing a song to a well-known tune to reinforce the meaning of vocabulary terms in this module. An example is shown below.

> **Parts of Division**
> (may be sung to the tune of "Yankee Doodle")
>
> Partition into equal shares—
> One way to show division,
> The inverse is to multiply—
> Related to division.
>
> Start out with the dividend
> Split by the divisor.
> The answer is the quotient and
> What's left is the remainder.

- **Math Solutions:**
  - -[Target 300](#)
  - -[Math Talks](#)

- **Literature Connections and Videos:**
  [The Multiplying Menace Divides](#) by Pam Calvert
  [Division](#) (step by step for intervention)
  [Division](#) Brainpop

- **Differentiated Instruction**
  - **GT/ Extensions:**
    Think Up TE Pg. 236 Extended Student Thinking "You get the Leftovers!" Students will need 100 pennies and a die. Students arrange pennies in the number of rows given on a die. (Eg. student rolls a 3, so student makes 3 rows of 33 and keeps the leftovers.) Students with the most leftovers wins the game.

  - **Interventions:**
    Provide base 10 blocks to students. State the number to be the dividend, and have the students use the base 10 blocks to models that number. Roll a die to determine the divisor. Have students model the division by making the same number of groups as rolled on the die.

    Guide students to find quotients by stating each step (divide, multiply compare and bring down) as they perform it. Monitor student work and correct actions as needed.

	o **EBs**: Strategy- Rephrase Materials: color pencils, grid paper, base-10 blocks
	  • Students can demonstrate an understanding of the Distributive Property for division by rephrasing the definition. Explain the Distributive Property for division using a model.
	  • Have students rephrase it in their own way, either verbally or in drawings or with models.
	  • If students need additional help, provide this sentence starter: The Distributive Property for division says that when dividing $63 \div 3$, you can _.
	Linguistic Accommodations

Evidence of Learning	**Checking for Understanding**
	
	• Knowing my multiplication facts helps me in division when…
	• I can use division in my daily life when…
	• How can you determine if your answer is reasonable?
	• What is the most challenging part when dividing a four-digit number by one-digit number?
	• How does an area model help you see division from a different point of view?
	• What is a concrete model that can be used to show the division problem?
	
	Learning Intentions for Emergent Bilinguals
	
	Sample Assessment Items
	  4.4E
	  Maggie likes to collect bills. Maggie's purse contains only $2 bills.
	  The total of the $2 bills is $1,842.
	  Which equation can be used to find the number of $2 bills are in Maggie's purse?
	
	  A. $1,842 \div 2 = 921$
	  B. $1,842 \times 2 = 3,684$
	  C. $1,842 + 2 = 1,844$
	  D. $1,842 - 2 = 1,840$

INSTRUCTIONAL UNITS

| Module 2 of 2 (5 Days):
Standard Division |
|---|

<table>
<tr>
<td>TEKS
(R) Readiness, (S) Supporting, (P) Process</td>
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4.4F **use** strategies and algorithms, including the standard algorithm, to **divide** up to a four-digit dividend by a one-digit divisor (S)

4.4H **solve** with fluency one- and two-step problems involving multiplication and division, including **interpreting** remainders (R)

English Language Proficiency Standards

The student uses mathematical processes to acquire and demonstrate mathematical understanding.

Process Standards: 4.1A, 4.1B, 4.1C, 4.1D, 4.1E, 4.1F

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<tr>
<td>Content and Language Objectives</td>
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The Learner Will (TLW):

- **use** a variety of strategies to **divide** up to four-digit by one-digit divisor
- **interpret** the remainders when solving problems that involve division

- Student linguistic accommodations should reflect listening, speaking, reading, and writing. Learning Intentions for Emergent Bilinguals

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<td>Misconceptions</td>
<td>

- Trying to apply "key words" to select the appropriate operation instead of understanding the context of the problem
- Not recognizing a number sentence and its inverse as being equivalent (e.g., not recognizing $42 \div 6 =$ ___ is the same thing as $6 \times$ ___ $= 42$)
- Not understanding the context of a remainder in a real-world division problem
- Ignoring place value and/or misjudging work alignment in columns for division equations
- Not recognizing the need to preserve place value in the quotient, especially when the dividend includes a zero
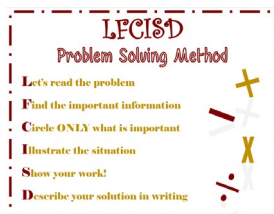
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Content Connections	• as students become more comfortable with the conceptual understanding of multiplication and division, instruction moves to a more abstract representation • Students need to interpret and apply the use of the remainder of division problems in different ways (e.g., There are 225 cupcakes. If 8 cupcakes fit on a plate, how many plates will be filled with cupcakes? How many cupcakes will be leftover and not on a plate? How many plates will be needed for all of the cupcakes to fit on plates?).
Academic Vocabulary *new to grade level	• Divide • Dividend • Divisor • Division • Quotient • Remainder* • Equation • Expression
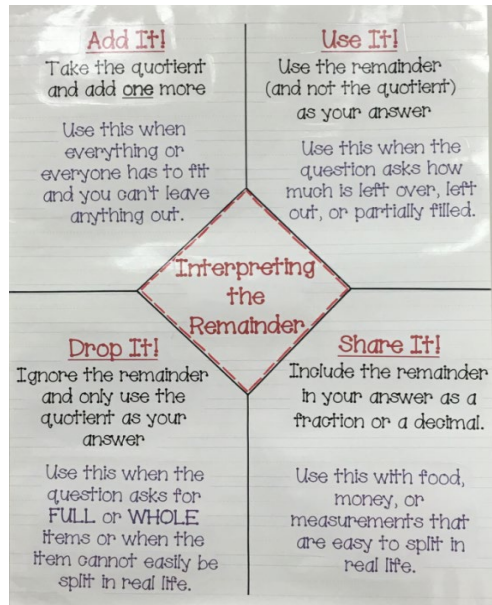
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<td rowspan="2">Instruction and Student Engagement</td>
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- **Anchor Charts:**

- **Math Warm-up:** TEKS as Target Board - Set 3 Week 6

- [LFCISD Problem Solving Method](#) and [Problem Solving Bookmarks](#)

- **Go Math** Module 9
  Division Strategies - Lessons: 1-5
  [L9.1](#), [L9.2](#), [L9.3](#), [L9.4](#), [L9.5](#)

- *Think Up! SE* (teacher selected items)
  Unit 19 Pg. 191-196
  Unit 20 Pg. 201-206
  Unit 22 Pg. 220 (right side of page – Interpret remainders) #2; 221 #4

- **Literature Connections and Videos:**
  A Remainder of One by Elinor J. Pinczes

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Interpreting Remainders

- **Math Solutions:**
  -Target 300
  -Math Talks

- **Differentiated Instruction**
  o **GT/ Extensions:**
    Think Up TE Pg. 248 Extending Student Thinking- Students work in small groups to write a skit and film a video that shows how to divide a four-digit number by a one-digit number. Student groups present videos to classmates.

  o **Interventions:**
    Think Up TE Pg. 234 Activity 1
    Use drawing tools to create and print arrays in the computer lab or in class. Students write the equation for the arrays created in two more ways to later play "Array Match."
    Motivation TE Pg. 124 Use a mnemonic to remember the steps in the standard algorithm. (Divide, Multiply Subtract, Compare, Bring down) (Does McDonalds Sell Cheese Burgers)

  o **EBs**: Strategy- Creative Grouping
    • Pair advanced English learners or students who are fluent in English with beginning and intermediate English learners.
    • Have them read a division story problem together and discuss how to interpret the answer. Make sure English learners can explain how to interpret the answer with words or drawings.
    • Students find the answer to the story problem using multiples, counters, or a quick picture to divide. Encourage students to discuss which method they prefer and why.
    Linguistic Accommodations

Evidence of Learning

Checking for Understanding

- Place value is important when dividing because…
- If there is a remainder, I should…
- What strategy to you prefer to use when dividing four-digit numbers by one-digit number?
- How do you remember the steps in the division process?
- I can use division in my daily life when…
- How can you determine if your answer is reasonable?

Learning Intentions for Emergent Bilinguals

Sample Assessment Items

2017 – Q26

26 Mr. Evans will deliver a total of 168 cases of soda to 7 different grocery stores today. He will deliver the same number of cases to each store.

How many cases of soda will Mr. Evans deliver to each store?

Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

2018 – Q26

26 A teacher put 378 marbles into 9 containers. He put the same number of marbles into each container.

How many marbles did the teacher put into each container?

Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

INSTRUCTIONAL UNITS

Subunit 4 of 7 (5 Days): Problem Solving

Subunit Description:

- **solve** one- and two-step division problems and **recognize** when the quotient remains unchanged regardless of the remainder in a problem situation
- **recognize** when the remainder answers the question in a problem situation
- **recognize** when the quotient needs to be **increased** by one to **address** the remainder in a problem situation
- **identify** compatible numbers for any operation and **use** strategies to estimate answers to whole number operations

Before	Now	After
• solve one-step and two-step problems involving multiplication and division within 100 using strategies based on objects; pictorial models, including arrays, area models, and equal groups; properties of operations; or recall of facts (3.4K) • round to the nearest 10 or 100 or use compatible numbers to estimate solutions to addition and subtraction problems (3.4B)	• solve with fluency one- and two-step problems involving multiplication and division, including interpreting remainders (4.4H) • round to the nearest 10, 100, or 1,000 or use compatible numbers to estimate solutions involving whole numbers (4.4G)	• multiply with fluency a three-digit number by a two-digit number using the standard algorithm (5.3B) • round decimals to tenths or hundredths (5.2C)

Materials/Texts/Resources:
(* available in Spanish)

- TX Go Math*
- TEKSas Target Board
- Imagine Math*
- Reflex Math*
- Education Galaxy
- Fast Focus* (recommended)
- Gauntlet* (recommended)
- Math Solutions Activities
- *Think Up***

INSTRUCTIONAL UNITS

Recommended Manipulatives
- Base ten blocks
- Dice
- Deck of cards
- Dominoes

If available on campus**

INSTRUCTIONAL UNITS

Module 1 of 1 (5 Days):
One- and Two-Step Problems
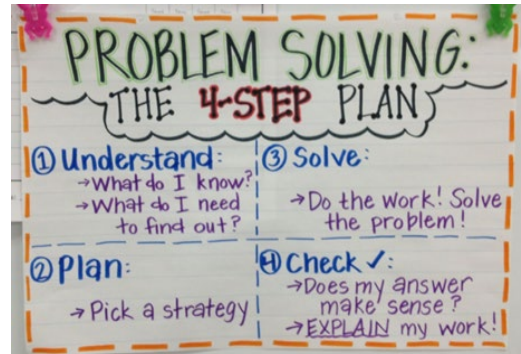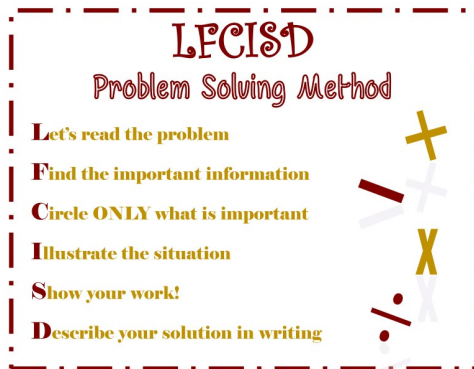
TEKS (R) Readiness, (S) Supporting, (P) Process	4.4H **solve** with fluency one- and two-step problems involving multiplication and division, including **interpreting** remainders (R) 4.4G **round** to the nearest 10, 100, or 1,000 or **use** compatible numbers to **estimate** solutions involving whole numbers (S) English Language Proficiency Standards The student uses mathematical processes to acquire and demonstrate mathematical understanding. **Process Standards: 4.1A, 4.1B, 4.1C, 4.1D, 4.1E, 4.1F**
Content and Language Objectives	*The Learner Will (TLW):* • **multiply** or **divide** to solve one-or two-step problems by following a problem-solving strategy and **understand** how to use the remainder (eg. ignore, as an answer, or increasing the quotient by one.) • Student linguistic accommodations should reflect listening, speaking, reading, and writing. Learning Intentions for Emergent Bilinguals
Misconceptions	• Students may not know which operation to use • Be aware that students may work division problems and stop after finding the quotient and remainder even when the question requires interpreting remainder. • Trying to apply "key words" to select the appropriate operation instead of understanding the context of the problem • Not recognizing a number sentence and its inverse as being equivalent (e.g., not recognizing 42 ÷ 6 = ___ is the same thing as 6 x ___ = 42) • Not understanding the context of a remainder in a real-world division problem • Only solving the first step in a multi-step problem

|	
Content Connections	- Encourage students to fully read the problem before starting to solve. - Students need to interpret and apply the use of the remainder of division problems in different ways (e.g., There are 225 cupcakes. If 8 cupcakes fit on a plate, how many plates will be filled with cupcakes? How many cupcakes will be leftover and not on a plate? How many plates will be needed for all of the cupcakes to fit on plates?). - Instruction should include one- and two-step problems. - As students are asked to solve problems using all four operations, it is important to estimate solutions prior to solving. - Rounding and the use of compatible numbers supports students in estimating solutions and evaluating the reasonableness of their solutions.
Academic Vocabulary *new to grade level	- Divide - Dividend - Divisor - Equation - Expression - Factor - Multiply - Product - Quotient - Remainder*

Instruction and Student Engagement

- **Anchor Charts:**

- **Math Warm-up:** TEKS as Target Board - Set 4 Week 7

- [LFCISD Problem Solving Method](#) and [Problem Solving Bookmarks](#)
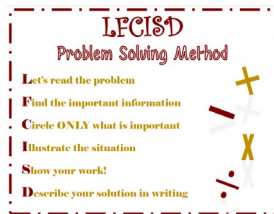
- **Go Math** Modules 7, 8, and 9
  Lessons [7.2](#); [8.2](#); [9.1](#); [9.2](#); [9.4](#)

- [Interpreting Solutions](#)

- *Think Up! SE*
  Unit 21 Pg. 211 #4, 212 #2-3
  Unit 22 Pg. 221
  Unit 22 Pg. 225

  [Concept Development Activities](#) (Think Up! TE)

- **Literature Connections and Videos:**
  [*Divide and Ride*](#) by Stuart J. Murphy
  [*Shark Swimathon*](#) by Stuart J. Murphy
  [How to Solve Multiplication and Division Word Problems](#)

- **Math Solutions:**
  -Target 300
  -Math Talks

- **Differentiated Instruction**
  - **GT/ Extensions:** Think Up! TE Pg. 274
    Extending Student Thinking

  - **Interventions:**
    Think Up! TE pg. 272

    Distribute copies of word problems to students. Guide them through the problems one at a time. First, replace the numbers in the problem with numbers that make it easy for students to act out the situation in the problem. Discuss the operations needed to solve the problem. Student may create a sketch to solve a problem.

  - **EBs**: Strategy- Creative Grouping
    • Pair advanced English learners or students who are fluent in English with beginning and intermediate English learners.
    • Have them read a division story problem together and discuss how to interpret the answer. Make sure English learners can explain how to interpret the answer with words or drawings.
    • Students find the answer to the story problem using multiples, counters, or a quick picture to divide. Encourage students to discuss which method they prefer and why.
    Linguistic Accommodations

Evidence of Learning

Checking for Understanding

- How can you use remainders in division problems?
- How can you use compatible numbers to estimate quotients?
- How does using estimation makes it easier to solve multiplication and division problems?

Learning Intentions for Emergent Bilinguals

Sample Assessment Items

2017 – Q28

28 Valerie had a jug that contained 128 fl oz of salsa to put into bowls at a restaurant. She filled each bowl with 6 fl oz of salsa until there was not enough salsa left in the jug to completely fill another bowl.

How many fluid ounces of salsa were left in the jug?

F 22 fl oz

G 21 fl oz

H 122 fl oz

J 2 fl oz

2017 – Q24

24 The table shows the number of cartons of milk the school cafeteria sold each day last week.

Milk

Day	Number of Cartons Sold
Monday	352
Tuesday	426
Wednesday	449
Thursday	373
Friday	402

Which of these is the best estimate of the number of cartons of milk the cafeteria sold last week?

F 400

G 1,800

H 2,000

J 2,500

INSTRUCTIONAL UNITS

Subunit 5 of 7 (5 Days):
Multi-Step Problems

Subunit Description:

- **represent** multi-step problems involving the four operations
- **use** strip diagrams and equations when representing multi-step word problems

Before	Now	After
• represent one and two-step problems involving addition and subtraction of whole numbers to 1,000 using pictorial models, number lines, and equations 3.5A	• represent multi-step problems involving the four operations with whole numbers using strip diagrams and equations with a letter standing for the unknown quantity 4.5A	• represent and solve multi-step problems involving the four operations with whole numbers using equations with a letter standing for the unknown quantities 5.4B

Materials/Texts/Resources:
(* available in Spanish)

- TX Go Math*
- TEKSas Target Board
- Imagine Math*
- Reflex Math*
- Education Galaxy
- Fast Focus* (recommended)
- Gauntlet* (recommended)
- Math Solutions Activities
- *Think Up***

*If available on campus***

INSTRUCTIONAL UNITS

Module 1 of 1 (5 Days):
Use the Four Operations

<table>
<tr>
<td rowspan="1">TEKS
(R) Readiness, (S) Supporting, (P) Process</td>
<td>

4.4H **solve** with fluency one- and two-step problems involving multiplication and division, including interpreting remainders (R)

4.5A **represent** multi-step problems involving the four operations with whole numbers using strip diagrams and equations with a letter standing for the unknown quantity (R)

English Language Proficiency Standards

The student uses mathematical processes to acquire and demonstrate mathematical understanding.
Process Standards: 4.1A, 4.1B, 4.1C, 4.1D, 4.1E, 4.1F

</td>
</tr>
<tr>
<td>Content and Language Objectives</td>
<td>

The Learner Will (TLW):

- **select** appropriate operations to **solve** multi-step problems using strip diagrams, writing equations and using variables for unknown numbers.

- Student linguistic accommodations should reflect listening, speaking, reading, and writing. Learning Intentions for Emergent Bilinguals

</td>
</tr>
<tr>
<td>Misconceptions</td>
<td>

- Not understanding the context of the problem and incorrectly representing the expression/equation (e.g., there are two times as many girls than boys in the classroom; $2 \times B = G$ not $2 \times G = B$)

- Trying to apply "key words" to select the appropriate operation instead of understanding the context of the problem

- Confusing the relationship of parts with the total when representing with strip diagrams

</td>
</tr>
</table>

Content Connections	- Watch for students who are able to represent a problem with a strip diagram but are not able to translate the model to an equation. - Be aware that students may consistently associate language with specific operations. Point out that students need to consider the context of the problem, not specific words, before determining which operations to use. - Post large, blank strip diagrams on a bulletin board so that students can select the most appropriate one from the options. - Provide opportunities for students to translate strip diagrams to equations.
Academic Vocabulary *new to grade level	- Difference - Equation - Expression - Product - Quotient - Strip diagram - Sum - Variable

Instruction and Student Engagement

- **Anchor Charts:**
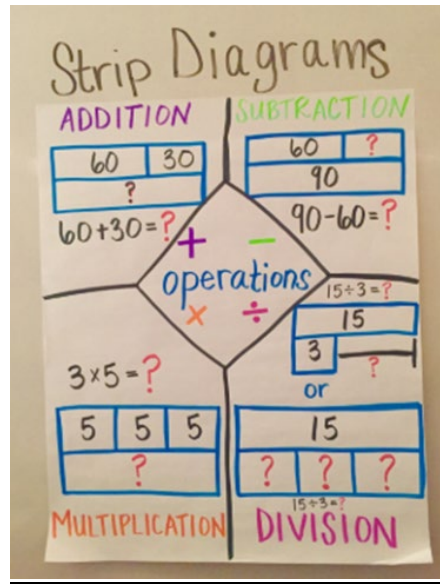
- **Math Warm-up:** TEKS as Target Board - Set 4 Week 8

- [LFCISD Problem Solving Method](#) and [Problem Solving Bookmarks](#)
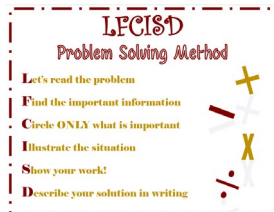
- **Go Math Module 11:**
  Algebra: Multi-Step Problems - Lessons:1-4
  [L11.1](#), [L11.2](#), [L11.3](#), [L11.4](#)

- *Think Up! Unit 23*
  Concept Exploration page 228
  Concept Development page 230
  Concept Application page 231 #s 1,2,4
  Concept Practice page 232 #s 1,4

- **Math Solutions:**
  -[Target 300](#)

-[Math Talks](#)

- **Differentiated Instruction**
  - **GT/ Extensions:**
    Challenge students to create an original game that can be used to practice representing word problems with strip diagrams or equations.

  - **Interventions:**
    Distribute word problems to students. Have them use small pieces of paper or sticky notes to build strip diagrams that model the problem. Inform students that they should act out the problem with the numbers on paper.

    Think Up TE Pg. 282 Activity 1 The teacher displays an equation such as $3 + 5 + ? = 12$. The teacher writes the same equation using strip diagrams.
  - **EBs**: [Linguistic Accommodations](#)

- **Literature Connections and Videos:**
  Title: *[Math-terpieces: The Art of Problem Solving](#)* by Greg Tang

  Title: *[Mystery Math: A First Book of Algebra](#)* by David A. Adler

Evidence of Learning

Checking for Understanding

- Use different formative assessments to check for understanding after skills have been reinforced.
- Distribute word problems to students. Have them use small pieces of paper or sticky notes to build strip diagrams that model the problem. Inform students that they should act out the problem with the numbers on paper.
- Do you act out the problem with manipulatives before recording the visual image?
- Do you review the problem to see if your answer is reasonable?
- If I design a flowchart showing plan for problem solving, it would look like…

Learning Intentions for Emergent Bilinguals

Sample Assessment Items

2018 – Q28

28 A business earned $96 for one job and $78 for a second job. The money was divided equally among the 3 partners who own the business.

Which strip diagram represents m, the amount of money each partner received?

F

m	m	m
$78		$96

H

m	m	m
	$96	

G

m					
$78	$96	$78	$96	$78	$96

J

m	
$78	$96

⚠ 2016 – Q10

10 A factory makes 400 refrigerators every day. The factory makes 125 more stoves per day than refrigerators. Which equation can be used to find x, the total number of refrigerators and stoves the factory makes in one day?

F $x = 400 + 400 + 125$

G $x = 400 + 125$

H $x = 400 + 400 - 125$

J $x = 400 - 125$

INSTRUCTIONAL UNITS

Subunit 6 of 7 (5 Days):
Input and Output Tables

Subunit Description:

- **represent** problems using an input-output table and numerical expressions
- **generate** a number pattern that follows a given rule
- **represent** the relationship of the values in a pattern

Before	Now	After
• represent real-world relationships using number pairs in a table and verbal descriptions 3.5(E)	• Algebraic reasoning. The student applies mathematical process standards to develop concepts of expressions and equations. 4.5	• generate a numerical pattern when given a rule in the form y = ax or y = x + a and graph (R) 5.4(C)

Materials/Texts/Resources:
(* available in Spanish)

- TX Go Math*
- TEKSas Target Board
- Imagine Math*
- Reflex Math*
- Education Galaxy
- Fast Focus* (recommended)
- Gauntlet* (recommended)
- Math Solutions Activities
- *Think Up***

*If available on campus***

INSTRUCTIONAL UNITS

	Module 1 of 1 (5 Days): Represent Problems Using Input-Output Table
TEKS (R) Readiness, (S) Supporting, (P) Process	4.5B **represent** problems using an input-output table and numerical expressions to generate a number pattern that follows a given rule representing the relationship of the values in the resulting sequence and their position in the sequence. (R) English Language Proficiency Standards The student uses mathematical processes to acquire and demonstrate mathematical understanding. **Process Standards: 4.1A, 4.1E, 4.1F**
Content and Language Objectives	*The Learner Will (TLW):* • **use** input-output tables, **write** numerical expressions, and **apply** a rule to generate a pattern to represent number relationships. • Student linguistic accommodations should reflect listening, speaking, reading, and writing. Learning Intentions for Emergent Bilinguals
Misconceptions	• Confusing a multiplicative pattern for an additive pattern as they view multiplication as repeated addition • Identifying a pattern by comparing input to input values and/or output to output values instead of input to output values
Content Connections	• Students may not verify that a rule works for each term in pattern, and thus may determine a rule that works only sometimes. • Have students write an expression for each term in an input-output table. • Make sure students have experience with finding terms in a pattern.

INSTRUCTIONAL UNITS

Academic Vocabulary *new to grade level*	- Term - Expression - Input-Output table - Operation - Pattern - Relationship - Rule

Instruction and Student Engagement

- **Anchor Charts:**

- **Math Warm-up:** TEKS as Target Board- Set 5Week 9

- [LFCISD Problem Solving Method](#) and [Problem Solving Bookmarks](#)

- **Go Math Module 12**: Lessons 1-2
  [L12.1](#), [L12.2](#)

- *Think Up! Unit 24*
  Concept Exploration page 238
  Concept Development page 240
  Concept Application page 241 #s 1,2
  Concept Practice page 242 #s 1-5
  Concept Check pages 245-246 #s 1,2,4,5,6

- **Math Solutions:**
  -[Target 300](#)
  -[Math Talks](#)

- **Differentiated Instruction:**
  - **GT/ Extensions:**

Have students find real-world relationships and record them in input-output tables. Ask them to describe each relationship in words and then make a table for it. Challenge students to write two or three word problems about their relationship.

- o **Interventions:**

  State a rule for students to apply. Have them roll a standard pair of dice. Explain that the number rolled is the input number and they need to find the output number. Have students record their work in input-output tables.

  Think Up TE Pg. 296 Extending Student Thinking
  Title: Growing Patterns: Fibonacci Numbers in Nature by Sarah C. Campbell.
  Think Up SE Math Challenge Pg. 244

- o **EBs:** Linguistic Accommodations

- **Literature Connections and Videos:**
  Title: Two of Everything by Lily Toy Hong
  https://www.youtube.com/watch?v=JML_7tsqlmU

- **Videos:**
  Step by Step
  http://studyjams.scholastic.com/studyjams/jams/math/algebra/function-tables.htm

  Data: Create a Table: Word Problems
  https://www.brainpop.com/math/dataanalysis/wordproblems/

Evidence of Learning

Checking for Understanding

- What are some common errors you have observed in completing input-output tables?
- In what problem/situation might this input-output table be useful?
- I can create my own input-output table when I…
- Display Two problems that can be solved using an input-output table. Ask students to create the table and solve the problem.
- Unit/Subunit Assessment

[Learning Intentions for Emergent Bilinguals](#)

Sample Assessment Items

2018 – Q8

8 A number pattern begins with these values.

6, 12, 18, 24, . . .

Which table correctly represents the relationship between the position of a number in the pattern and the value of that number?

F

Position	Numerical Expression	Value
6	6 × 1	6
12	12 × 1	12
18	18 × 1	18
24	24 × 1	24

H

Position	Numerical Expression	Value
6	6 ÷ 6	1
12	12 ÷ 6	2
18	18 ÷ 6	3
24	24 ÷ 6	4

G

Position	Numerical Expression	Value
1	1 + 6	7
2	2 + 6	8
3	3 + 6	9
4	4 + 6	10

J

Position	Numerical Expression	Value
1	1 × 6	6
2	2 × 6	12
3	3 × 6	18
4	4 × 6	24

INSTRUCTIONAL UNITS

Subunit 7 of 7 (5 Days):
Data Analysis

Subunit Description:

- **represent** data on a frequency table, dot plot, or stem and-leaf plot with whole numbers and fractions
- **solve** one- and two-step problems using data with whole number, decimal, and fraction form in a frequency table, dot plot, or stem-and-leaf plot
- **create, interpret,** and **analyze** data

Before	Now	After
• summarize a data set with multiple categories using a frequency table, dot plot, pictograph, or bar graph with scaled intervals 3.8(A)	• Data analysis. The student applies mathematical process standards to solve problems by collecting, organizing, displaying, and interpreting data 4.9	• represent categorical data with bar graphs or frequency tables and numerical data, including data sets of measurements in fractions or decimals, with dot plots or stem-and-leaf plots 5.9(A)

Materials/Texts/Resources:
(* available in Spanish)

- TX Go Math*
- TEKSas Target Board
- Imagine Math*
- Reflex Math*
- Education Galaxy
- Fast Focus* (recommended)
- Gauntlet* (recommended)
- Math Solutions Activities
- *Think Up***

*If available on campus***

Module 1 of 1 (5 Days):
Create, Interpret, and Analyze Data

TEKS (R) Readiness, (S) Supporting, (P) Process	4.9A **represent** data on a frequency table, dot plot, or stem-and-leaf plot marked with whole numbers and fractions (R) 4.9B **solve** one- and two-step problems using data in whole number, decimal, and fraction form in a frequency table, dot plot, or stem and-leaf plot. (S) English Language Proficiency Standards The student uses mathematical processes to acquire and demonstrate mathematical understanding. **Process Standards: 5.1C, 5.1D, 5.1E**
Content and Language Objectives	*The Learner Will (TLW):* • **record** and **interpret** data, including fractional value on a frequency table, stem and leaf and dot plot. • Student linguistic accommodations should reflect listening, speaking, reading, and writing. Learning Intentions for Emergent Bilinguals

INSTRUCTIONAL UNITS

Misconceptions	• When using the stem-and-leaf plot, having difficulty determining what values represent the stem and leaf*
	• When using the stem-and-leaf plot, not representing repeated values (e.g., math grades: 84, 56, 92, 84, 87, 91; students may only reflect 84 one time on the graph when the value of 84 needs to be recorded twice)
	• When representing the same set of data on all three types of graphs, interpreting the data as different be- cause of the difference in the visual representations • When representing the same set of data vertically and horizontally, interpreting the data as different because of the difference in the visual representations
	• Including a 0 as a leaf in a stem-and-leaf plot when there are no values for the respective stem; not including a 0 as a leaf in a stem-and-leaf plot when there are values for the respective stem • Not representing zero as data on a dot plot
	• When using a frequency table, having difficulty representing data within a span of data (i.e. between 0-5, 6-10, 11-15, etc.)*
	• Not being able to represent data on a scaled dot plot where in-between intervals may not be labeled*
Content Connections	• Demonstrate how one set of data can be displayed in a variety of ways.
	• Personalizing such activities al- lows students to understand and make more sense of the data and summarize more appropriately
	• Data should be represented on a frequency table, dot plot, or stem-and-leaf plot. Instruction should begin with frequency tables and dot plots, as students should have had previous experience with those representations
	• Students may need more support with the development of stem-and-leaf plots. This type of graph distributes the data by separating one place value from the other or the parts from the whole when working with fractions
	• Instruction should include representing the same set of data on all three types of graphs.

INSTRUCTIONAL UNITS

| Academic Vocabulary *new to grade level	- Categorical Data - Data - Dot Plot - Fraction - Frequency - Frequency Table - Length - Number Line - Scaled Intervals - Stem-and-leaf plot - Survey

Instruction and Student Engagement

- **Anchor Charts:**
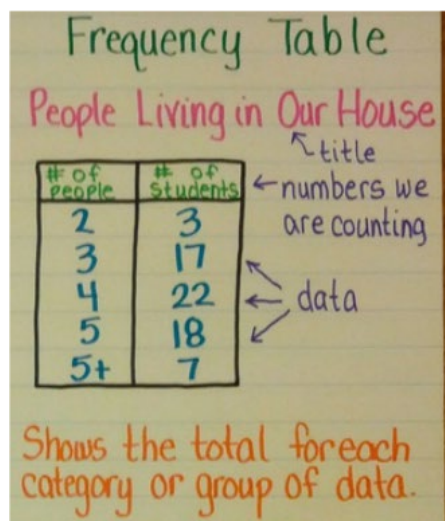
Siblings	Frequency
0	1
1	4
2	6
3	4
4	2
5	1
Total:	18

- **Math Warm-up:** TEKS as Target Board- Set 5 Week 10

- LFCISD Problem Solving Method and Problem Solving Bookmarks
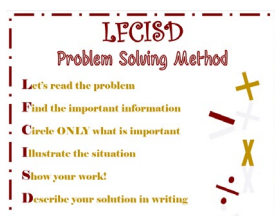
- **Go Math Module 17:**
  Represent and Interpret Data - Lessons 1-6
  L17.1, L17.2, L17.3, L17.4, 17.5, L17.6

- *Think Up! Unit 36*
  Concept Exploration page 358
  Concept Development page 360
  Concept Application page 361
  Concept Practice page 362
  Concept Check pages 365-366

- *Think Up! Unit 37*
  Concept Exploration page 368

Concept Development page 370
Concept Application page 371 #s 1,2,3
Concept Practice page 372 #s 1,2,3,5
Concept Check pages 375-376 #s 5,6,7

- **Math Solutions:**
  -Target 300
  -Math Talks

- **Differentiated Instruction**
  o **GT/ Extensions:**
  Think Up TE Pg. 440 Extended Student Thinking Students will collect data from a minimum of 25 but no more than 50 sources (persons.) After collecting data students will create the data dot plot or stem and leaf. Suggested Topics see TE
  o **Interventions:**
  Think Up TE Pg. 450 The teacher displays the given dot plot and stem-and-leaf to students. Follow suggested questions.
  Display a frequency table, dot plot, or stem and leaf plot. Have students ask questions that can be solved using the data.

  o **EBs**: Linguistic Accommodations

- **Literature Connections and Videos:**
  The Great Graph Contest by Loreen Leedy
  https://www.youtube.com/watch?v=Oy_rJ4FjOt4
  Who's Got Spots? By Linda Williams Aber
  Video:
  https://www.youtube.com/watch?v=6YEtKJGBGmc

- **Videos**
  Guided Practice – Frequency Tables – Data and Graphing
  Stem and Leaf and Dot Plot
  Frequency Table

Evidence of Learning

Checking for Understanding

- What can help you analyze the data?
- If you create your own data, how can you make it easier for others to understand?
- What information are you given in this data?
- To create a stem-and-leaf plot, I (describe the steps to create one)
- How is a frequency table helpful when creating a dot plot?
- The word "plot" in math means…
- The word "table" in math means…
- Why are the phrases less than, greater than and equal to important when you answer a question about the data?
- Display a set of data and have students represent the data in frequency table, dot plot, and stem-and-leaf plot. Instruct students to compare and contrast the different ways.
- District Subunit Assessment

Learning Intentions for Emergent Bilinguals

Sample Assessment Items
Lead4ward TEKS 4.9 A Samples
Lead4ward TEKS 4.9 B Samples

2018 – Q31

31 The stem and leaf plot shows the numbers of tickets Stephen won when he played games at a carnival.

Number of
Tickets Won

Stem	Leaf
8	4 8
9	0 6 8
10	5 5
11	7

9|6 means 96 tickets.

What is the total number of tickets that Stephen won at the carnival?

A 783

B 178

C 81

D 678

2018 – Q1

1 The list shows the number of articles written by different reporters at a newspaper last month.

6, 2, 5, 2, 6, 0, 4, 6, 1, 8, 5, 2, 6, 4, 2

Which dot plot displays the same data?

Articles Written by Reporters

A

0 1 2 3 4 5 6 7 8 9
Number of Articles

Articles Written by Reporters

C

0 1 2 3 4 5 6 7 8 9
Number of Articles

Articles Written by Reporters

B

0 1 2 3 4 5 6 7 8 9
Number of Articles

Articles Written by Reporters

D

0 1 2 3 4 5 6 7 8 9
Number of Articles
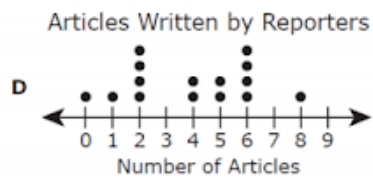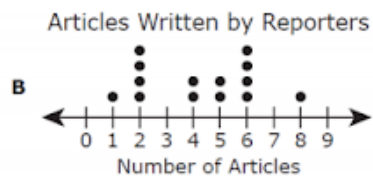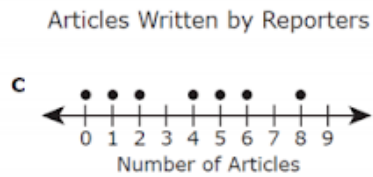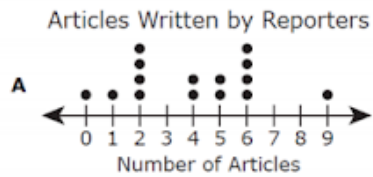
INSTRUCTIONAL UNITS

Unit II: Geometry and Measurement
(8 Weeks)

Unit Description:

In Unit 2, students will apply mathematical process standards to analyze geometric attributes in order to develop generalizations about their properties. The student will also apply mathematical process standards to solve problems involving angles less than or equal to 180 degrees. The student applies mathematical process standards to select appropriate customary and metric units, strategies, and use tools to solve problems involving measurement and solve problems that deal with measurements of length, intervals of time, liquid volumes, mass, and money using addition, subtraction, multiplication, or division as appropriate.

Mastery Learning Objectives:	Essential Questions:
• The student applies mathematical process standards to develop concepts of expressions and equations. • ELPS: The students will develop their receptive and expressive skills. (reading, writing, speaking, and listening)	• What information is given in the problem? What picture might you draw to help solve the problem? • How would you use perimeter, area, units of measure, and your knowledge of angles to create/design floor plans?

Real World/Cross-Curricular Connections:

• Create a floor plan for your dream house. Implement what you have learned throughout this unit to help with your design. In your design, identify the area and perimeter where necessary, locate any right angles, obtuse angles, acute angles, parallel lines, perpendicular lines, lines of symmetry. Identify any units of measure and tools used to measure.

INSTRUCTIONAL UNITS

Subunit 1 of 4 (5 Days): Perimeter and Area

Subunit Description:

- **solve** problems related to perimeter and area
- **use** models to determine formulas for perimeter and area

Before	Now	After
• determine the perimeter of a polygon or a missing length when given perimeter and remaining side lengths in problems 3.6(C) determine the area of rectangles with whole number side lengths in problems using multiplication related to the number of rows times the number of unit squares in each row 3.7(B)	• Algebraic reasoning. The student applies mathematical process standards to develop concepts of expressions and equations. The student is expected to: (D) solve problems related to perimeter and area of rectangles where dimensions are whole numbers 4.5 (D)	• represent and solve problems related to perimeter and/or area and related to volume 5.4(H)

Materials/Texts/Resources:
(* available in Spanish)

- TX Go Math*
- TEKSas Target Board
- Imagine Math*
- Reflex Math*
- Education Galaxy
- Fast Focus* (recommended)
- Gauntlet (recommended)
- Math Solutions Activities
- *Think Up***

Recommended Manipulatives

- Color Tiles
- Geoboards
- Dice

*If available on campus***

INSTRUCTIONAL UNITS

Module 1 of 1 (5 Days):
Models and Problem Solve

TEKS (R) Readiness, (S) Supporting, (P) Process	4.5D **solve** problems related to perimeter and area of rectangles where dimensions are whole numbers. (R) 4.5C **use** models to **determine** the formulas for the perimeter of a rectangle (l + w + l + w or 2l + 2w), including the special form for perimeter of a square (4s) and the area of a rectangle (l x w) *(not assessed)* English Language Proficiency Standards The student uses mathematical processes to acquire and demonstrate mathematical understanding. **Process Standards**: **4.1A, 1B, 1C, 1D, 1E, 1F, 1G**
Content and Language Objectives	*The Learner Will (TLW):* • **solve** problems related to perimeter and area of rectangles. • Student linguistic accommodations should reflect listening, speaking, reading, and writing. Learning Intentions for Emergent Bilinguals
Misconceptions	• Through the lens of complex real-world problems, confusing when to apply the use of area vs. perimeter • Adding the length and width when determining perimeter • Only using given side lengths when finding perimeter without considering missing dimensions • Having difficulty measuring accurately or determining the correct unit of measure using the ruler provided on the assessment • Having difficulty determining perimeter/area when a visual is not given

INSTRUCTIONAL UNITS

Content Connections	• Students may use the wrong formula for area or perimeter. • Ensure students recognize that perimeter units are linear units and area units are square units. • Give the dimensions of a rectangle, determine the area and perimeter. • Give only some of the side lengths, students must use direct comparisons to determine unknown side lengths to calculate the perimeter/area. • A variety of examples of area and perimeter should be applied, such as the amount of paper needed to cover the bulletin board vs. the amount of border needed to decorate around the bulletin board
Academic Vocabulary *new to grade level*	• Area • Dimension • Formula (area)* • Formula (perimeter)* • Length • Perimeter • Rectangle • Side • Square • Square unit • Width

Instruction and Student Engagement	• **Anchor Charts:** • **Math Warm-up:** TEKS as Target Board- Set 6 Week 11 • LFCISD Problem Solving Method and Problem Solving Bookmarks • **Go Math Module 12:** Number Patterns, Perimeter and Area Lessons 1-5
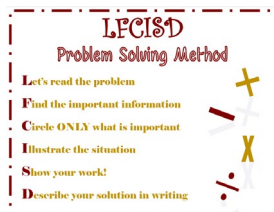
INSTRUCTIONAL UNITS

- ***Think Up! Unit 25***
  Concept Exploration page 248
  Concept Development page 250
  Concept Application page 251 #s 1,2,3,4
  Concept Practice page 252 (all)
  Concept Check pages 255-256 #s 1,2,3,5

- **Math Solutions:**
  -Name Patterns - page 33
  -Math Talks

- **Imagine Math Pathway:**
  LF 4th Number Patterns, Perimeter, and Area

- **Differentiated Instruction:**
  - **GT/ Extensions:**
    Think Up Math Student Edition Page 254

  - **Interventions:**
    Workstations: pages 30-34
    Math Folder Workstations
    Think Up Math Interventions Teacher Edition page 306

- **Literature Connections and Videos:**
  Spaghetti and Meatballs for All by Marilyn Burns Spaghetti and Meatballs
  Think Up Math Teacher Edition page 302 Introduction Activity (for book selection Spaghetti and Meatballs for All)

  - **EBs**: Linguistic Accommodations

- **Videos:**
  Finding Area and Perimeter Song

Checking for Understanding

- When an answer requires square units, you are identifying….?
- Perimeter can be found by …?
- Is it possible for two rectangles to have the same area but different perimeters? Justify your answer.
- How might you restate the problem in your own words?
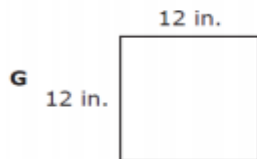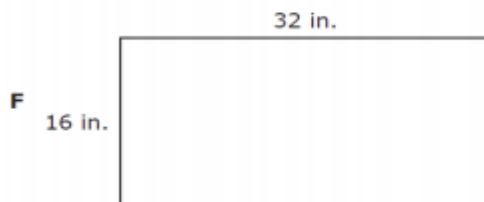- Reflection/Closure Activity Think Up Math U25 TE page 307

Learning Intentions for Emergent Bilinguals

Sample Assessment Items

4.5D STAAR Item

2018 – Q10

10 Keith made a rectangular sign that had a perimeter of 48 inches. Which model could represent the sign Keith made?

32 in.

F

16 in.

12 in.

G

12 in.

12 in.

H

4 in.

48 in.

J

2 in.

Evidence of Learning
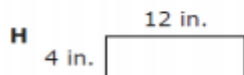
INSTRUCTIONAL UNITS

Subunit 2 of 4 (5 Days):
Lines and Angles

Subunit Description:

- **Identify** points, lines, line segments, rays, angles, and perpendicular and parallel lines
- **Identify** and **draw** one or more lines of symmetry
- **Apply** knowledge of right angles to **identify** acute, right, and obtuse triangles
- **Classify** quadrilaterals

Before	Now	After
• 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 3.6(A)	• classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines or the presence or absence of angles of a specified size 4.6(D)	• classify two-dimensional figures in a hierarchy of sets and subsets using graphic organizers based on their attributes and properties 5.5(A)

Materials/Texts/Resources:
(* available in Spanish)

- Go Math*
- TEKSas Target Board
- Imagine Math*
- Reflex Math*
- Education Galaxy
- Fast Focus* (recommended)
- Gauntlet (recommended)
- *Think Up***

Recommended Manipulatives
- Pattern Blocks
- Geoboards
- Wax paper

INSTRUCTIONAL UNITS

	Module 1 of 1 (5 Days): **Geometry Concepts**
TEKS (R) Readiness, (S) Supporting, (P) Process	**4.6A identify** points, lines, line segments, rays, angles, and perpendicular and parallel lines (S) **4.6B identify** and **draw** one or more lines of symmetry, if they exist, for a two-dimensional figure (S) **4.6C apply** knowledge of right angles to **identify** acute, right, and obtuse triangles (S) **4.6D classify** two-dimensional figures based on the presence or absence of parallel or perpendicular lines or the presence or absence of angles of a specified size (R) English Language Proficiency Standards The student uses mathematical processes to acquire and demonstrate mathematical understanding. **Process Standards:** 4.1A, 4.1B, 4.1C, 4.1D, 4.1E, 4.1F, 4.1G
Content and Language Objectives	*The Learner Will (TLW):* - **classify** two-dimensional figures based on the presence or absence of parallel or perpendicular lines or the presence or absence of angles of a specified size - **identify** points, lines, line segments, rays, angles, and perpendicular and parallel lines - **identify** and **draw** one or more lines of symmetry, if they exist, for a two-dimensional figure - Student linguistic accommodations should reflect listening, speaking, reading, and writing. Learning Intentions for Emergent Bilinguals

INSTRUCTIONAL UNITS

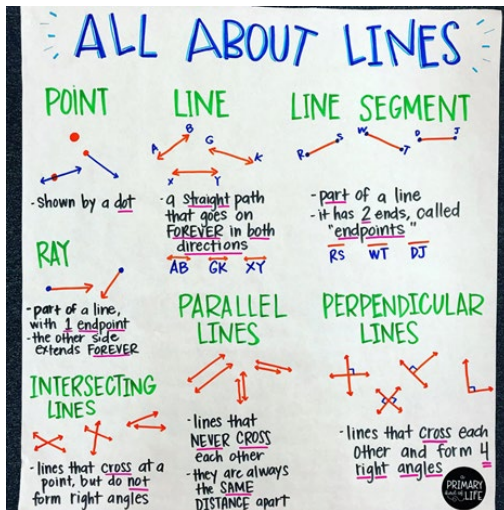|	
Misconceptions	• When identifying parallel lines, not understanding that the lines do not have to be equal in length nor be shown directly above/below each other • Struggling with visualizing geometric figures with given attributes when pictures or images are not provided • Identifying polygons by the way they look instead of by attributes (e.g., not being able to identify a right trapezoid as a type of trapezoid) • Not recognizing a quadrilateral as having more than one classification (e.g., a square is also a polygon, rectangle, parallelogram, quadrilateral, rhombus • Overgeneralizing that all intersecting lines are perpendicular • Not realizing that parallel lines can be different sizes and need not be directly next to each other • Not differentiating between an angle and a ray (e.g., seeing all rays as angles and/or vice versa) • Not differentiating between a line and a line segment • Not realizing that some figures have more than one line of symmetry; especially diagonal lines of symmetry • Misreading the angles on a triangle and selecting the wrong angle measure to name the triangle • Misidentifying angles on a rotated polygon
Content Connections	• All parallelograms can be called quadrilaterals because they have four sides and four angles, but cannot all be called rectangles because not all parallelograms have four right angles. • A trapezoid can be called a quadrilateral because it has four sides and four angles, but cannot be called a parallelogram because it only has one set of parallel sides. • Students must identify and physically draw lines of symmetry. The standard limits the figures to two-dimensional; however, instruction should include regular and irregular two-dimensional shapes. Encourage students to identify and draw more than one line of symmetry, should more than one exist. • Remind students that a line of symmetry divides a figure into two figures that match if folded on the line

INSTRUCTIONAL UNITS

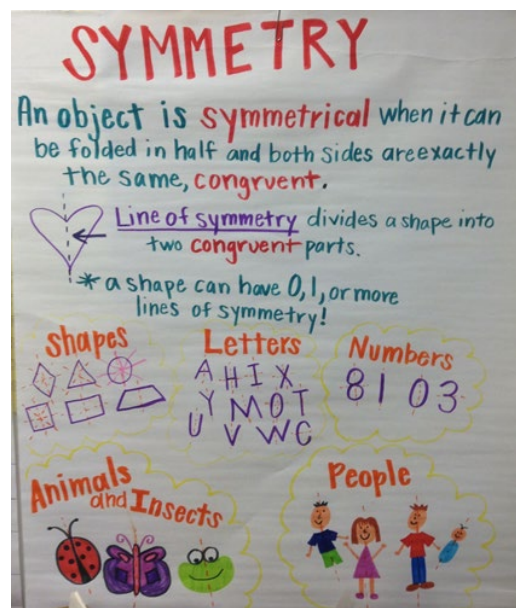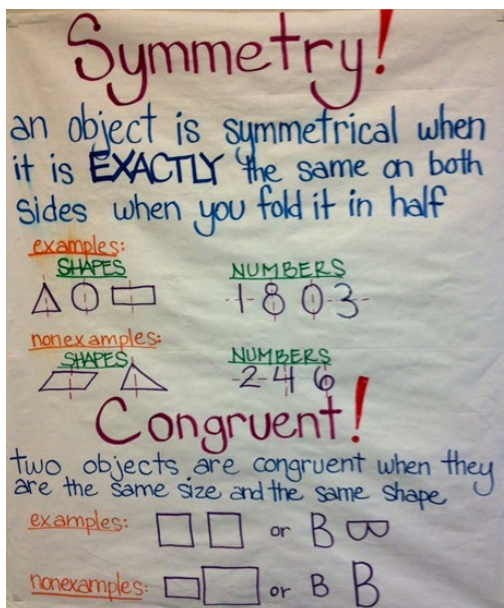**Academic Vocabulary**
new to grade level

- Angle
- Attribute
- Congruent
- Endpoint
- Intersect
- Intersecting Lines
- Line
- Line of Symmetry*
- Line Segment*
- Parallel
- Parallel Lines
- Parallelogram
- Perpendicular
- Perpendicular Lines
- Point
- Polygon
- Quadrilateral
- Ray
- Rhombus
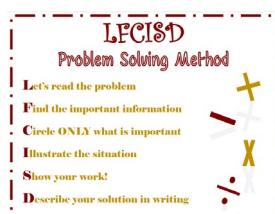- Right Angle
- Symmetry
- Trapezoid
- Triangle

Instruction and Student Engagement

- **Anchor Charts:**

- **Math Warm-up:** TEKS as Target Board- Set 6 Week 12

- LFCISD Problem Solving Method and Problem Solving Bookmarks

INSTRUCTIONAL UNITS

- **Go Math Module 13:**
  Geometry Concepts Lessons 1-6

- *Think Up! Unit 26*
  Concept Exploration page 258
  Concept Development page 260
  Concept Application page 261 (all)
  Concept Practice page 262 (all)
  Concept Check pages 265-266 (all)

- *Think Up! Unit 27*
  Concept Exploration page 268
  Concept Development page 270
  Concept Application page 271 (all)
  Concept Practice page 272 (all)
  Concept Check pages 275-276 (all)

- *Think Up! Unit 29*
  Concept Exploration page 288
  Concept Development page 290
  Concept Application page 291
  Concept Practice page 292 (all)
  Concept Check pages 295-296

- **Imagine Math Pathway:**
  LF 4th Geometry Concepts

- **Math Solutions:**
  -The Tangram Puzzle - Page 3
  -Math Talks

- **Differentiated Instruction:**
  - **GT/ Extensions:**
    Think Up Math Extended Student Thinking, TE page 356
  - **Interventions:**
    Workstations: pages 81-86 and 139-145 for TEKS 4.6D
    Folder Workstation Activities

*Think Up Math **Interventions** - Teacher Edition: U26 Page 318 for TEKS 4.6A; U27 Page 330 for TEKS 4.6B; U29 Page 354 for TEKS 4.6D*
Think Up Math: Introduction Activity TE page 313 for TEKS 4.6A

- o **EBs**: Linguistic Accommodations

- **Literature Connections and Videos:**
  The Greedy Triangle by Marilyn Burns **The Greedy Triangle TEKS 4.6A**
  Seeing Symmetry by Loreen Leed **Seeing Symmetry TEKS 4.6B**

- **Videos:** Parallel, Perpendicular, and Intersecting Lines song

Evidence of Learning

Checking for Understanding

- I can identify a line by ….?
- I can classify a triangle by …
- How would you explain the difference between perpendicular lines and parallel lines?
- What questions do you have about lines of symmetry?
- *Reflection/Closure Activity Think Up Math for 4.6A TE page 319*
- *Reflection/Closure Activity Think Up Math for 4.6B TE page 331*
- *Reflection/Closure Activity Think Up Math for 4.6D TE page 355*

[Learning Intentions for Emergent Bilinguals](#)

Sample Assessment Items

4.6A STAAR Item

2018 – Q32

32 Oscar draws two lines on his paper. The lines are always one inch apart and do not intersect.

Which term can be used to name what Oscar drew?

F Perpendicular lines

G Parallel lines

H Intersecting lines

J Line segments

4.6B STAAR Item

2018 – Q4

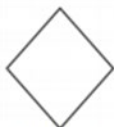4 Which figures appear to have 2 or more lines of symmetry?

Figure K   Figure L   Figure M   Figure N

F Figures K and L only

G Figures M and N only

H Figures K, L, and N only

J Figures K, L, M, and N

4.6D STAAR Item

2018 – Q19

19 Hayden drew a polygon that has exactly two right angles. Which of these could be the polygon Hayden drew?

A Right triangle

B Right trapezoid

C Rectangle

D Rhombus

Subunit 3 of 4 (10 Days):
Measurement of Angles

Subunit Description:

- **apply** knowledge of right angles and **solve** problems involving angles
- **identify** acute, right, and obtuse triangles
- **determine** the measure of angles in degrees
- **draw** an angle with any given measure
- **determin**e the measure of an unknown angle formed by two adjacent angles

Before	Now	After
• N/A	• determine the approximate measures of angles in degrees to the nearest whole number using a protractor 4.7(C)	• classify two-dimensional figures in a hierarchy of sets and subsets using graphic organizers based on their attributes and properties 5.5(A)

Materials/Texts/Resources:
(* available in Spanish)

- TX Go Math*
- TEKSas Target Board
- Imagine Math*
- Reflex Math*
- Education Galaxy
- Fast Focus* (recommended)
- Gauntlet* (recommended)
- Math Solutions Activities
- *Think Up***

Recommended Manipulatives
- Protractor
- Geoboards

*If available on campus***

Module 1 of 2 (5 Days): Create and Measure

TEKS (R) Readiness, (S) Supporting, (P) Process	4.6C **apply** knowledge of right angles to **identify** acute, right, and obtuse triangles (S) 4.7C **determine** the approximate measures of angles in degrees to the nearest whole number using a protractor (R) 4.7D **draw** an angle with a given measure (S) 4.7A **Illustrate** the measure of an angle as the part of a circle whose center is at the vertex of the angle that is "cut out" by the rays of the angle. Angle measures are limited to whole numbers. *(not assessed)* 4.7B **Illustrate** degrees as the units used to measure an angle, where 1/360 of any circle is 1 degree and an angle that "cuts" n/360 out of any circle whose center is at the angle's vertex has a measure of n degrees. Angle measures are limited to whole numbers. *(not assessed)* English Language Proficiency Standards The student uses mathematical processes to acquire and demonstrate mathematical understanding. **Process Standards: 4.1A, 1B, 1C, 1D, 1E, 1F, 1G**
Content and Language Objectives	*The Learner Will (TLW):* • apply knowledge of right angles to identify acute, right, and obtuse triangles • determine the approximate measures of angles in degrees to the nearest whole number using a protractor • will draw an angle with a given measure • Student linguistic accommodations should reflect listening, speaking, reading, and writing. Learning Intentions for Emergent Bilinguals

INSTRUCTIONAL UNITS

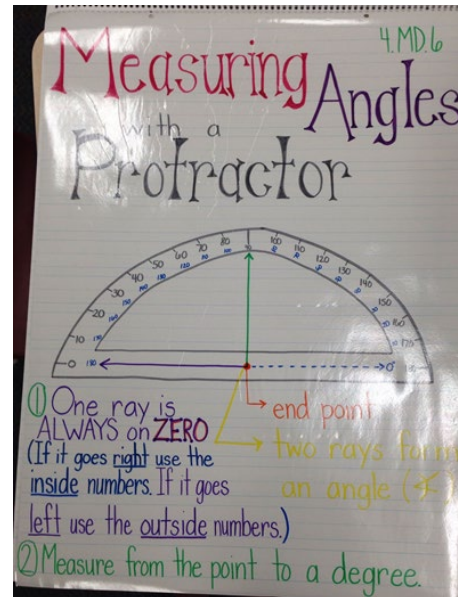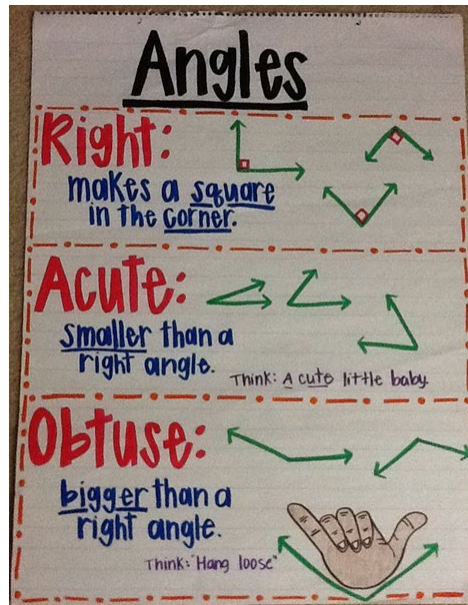|	
Misconceptions	• Misreading the angles on a triangle and selecting the wrong angle measure to name the triangle* • Misidentifying angles on a rotated polygon* • Reading the wrong scale of the protractor (if students are not identifying whether a measurable angle is acute or obtuse) • Having difficulty manipulating a protractor to align rays that may be rotated • Thinking the length of the rays relate to the size of the angle measure • When given an image of a protractor that does not align at the zero edge, looking at where a ray intersects the protractor rather than calculating the angle measure • Misidentifying the type of the angle to be drawn (e.g., when asked to draw a 35-degree angle, not being able to visualize an acute angle) • Misaligning the zero edge of the protractor • Using the wrong scale of the protractor (if students are not identifying whether a measurable angle is acute or obtuse)
Content Connections	• Students should realize that all triangles are named according to their largest angle • Just like a ruler can measure length in inches or a clock can measure time in minutes/hours, a protractor can measure angles in degrees. • Instruction should identify the different components of a protractor (inner scale, outer scale, center mark, zero edge). • In conjunction with 4.6(C), students should first identify a given angle as acute or obtuse and then estimate an angle measurement prior to actually measuring. Instruction should model how to place the center of the protractor on the vertex of the angle and align the zero edge of the pro- tractor with one of the rays of the angle. • Students should notice how the protractor represents a half of a circle or 180°. • Instruction should also include the use of images of a protractor and a given angle to determine the measure of the angle. Examples may or may not align to the zero edge of the protractor.

INSTRUCTIONAL UNITS

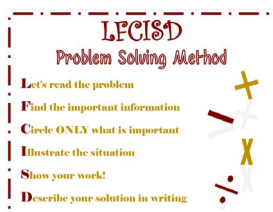| Academic Vocabulary *new to grade level*	• Angle* • Acute Angle* • Acute Triangle* • Obtuse Angle* • Obtuse Triangle* • Right Angle* • Right Triangle* • Straight Angle* • Protractor* • Degree* • Ray* • Perpendicular*

- **Anchor Charts:**

- **Math Warm-up:** TEKS as Target Board- Set 7 Week 13

- [LFCISD Problem Solving Method](#) and [Problem Solving Bookmarks](#)

INSTRUCTIONAL UNITS

- **Go Math Module 14:**
  Measure Angles Lessons 1-5

- *Think Up! Unit 31*
  Concept Exploration page 308
  Concept Development page 310
  Concept Application page 311
  Concept Practice page 312 (all)
  Concept Check pages 315-316 (all)

- **Vocabulary Activity:**
  Think Up pg. 374 TE- Angle Verses or SE pg. 309

- **Imagine Math Pathway:**
  LF 4th Measure Angles

- **Math Solutions:**
  -Math Talks

- **Differentiated Instruction:**
  - **GT/ Extensions:**
    Think Up Math (TE) Extended Student Thinking U31 page 380

  - **Interventions:**
    Math Workstations TEKS 4.7C pages 35-41 and TEKS 4.7CD pages 146-152
    File Folder Workstation Activities TEKS (4.7C, D)
    Think Up Math Interventions TE U31 page 378
    Measuring with Plastic Protractors

  - **EBs:** Linguistic Accommodations

- **Literature Connections and Videos:**
  Title: Sir Cumference and the Great Knight of Angleland by Cindy Neuschwander
  Sir Cumference and the Great Knight of Angleland

- **Videos:**
  Angles and Protractor Song
  Angles Song

Evidence of Learning

Checking for Understanding

- When creating a floor plan, I would measure angles to find …?
- I can use a protractor to …?
- In what real world situation might people need to measure angles?
- Draw three angles of different measures.
- *Reflection/Closure Activity Think Up Math for 4.6C TE page 343*

[Learning Intentions for Emergent Bilinguals](#)

Sample Assessment Items

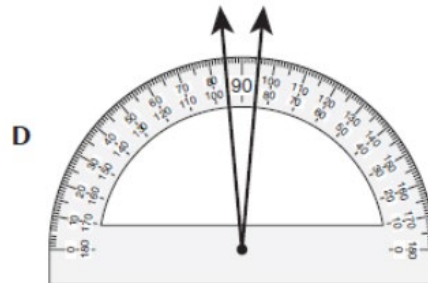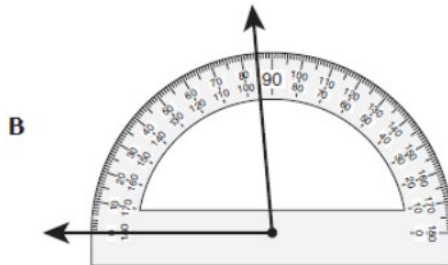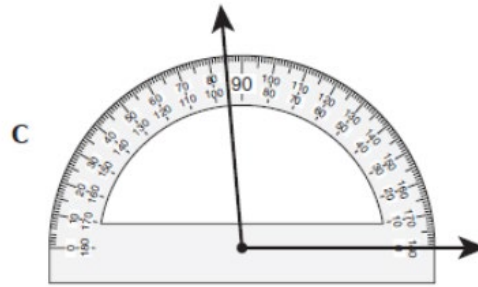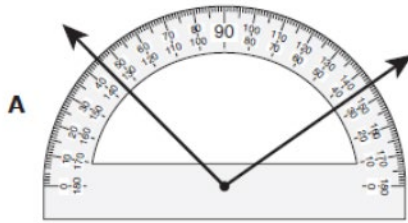[4.6C STAAR Item](#)

2017 – Q29

29 Lela made a triangle that had one 90° angle and two acute angles. Which term describes Lela's triangle?

A Right triangle, because there is one 90° angle

B Acute triangle, because there are two acute angles

C Obtuse triangle, because the largest angle is obtuse

D Right triangle, because all three angles are 90°

[4.7C STAAR Item](#)

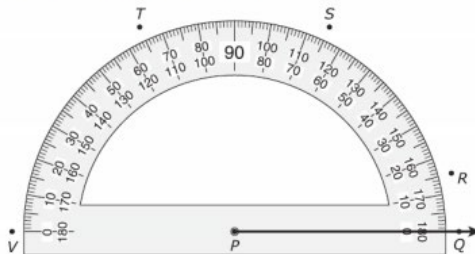**25** Which angle has a measure closest to 95°?

A

C

B

D

4.7D STAAR Item

2015 – Q17 Sample

17 Frank is using a protractor to construct an angle that measures 65°. First he draws ray *PQ*, as shown on the protractor.

To complete the 65° angle, Frank should draw another ray that starts at point *P* and passes through —

A point *R*

B point *S*

C point *T*

D point *V*

INSTRUCTIONAL UNITS

Module 2 of 2 (5 Days):
Adjacent Angles

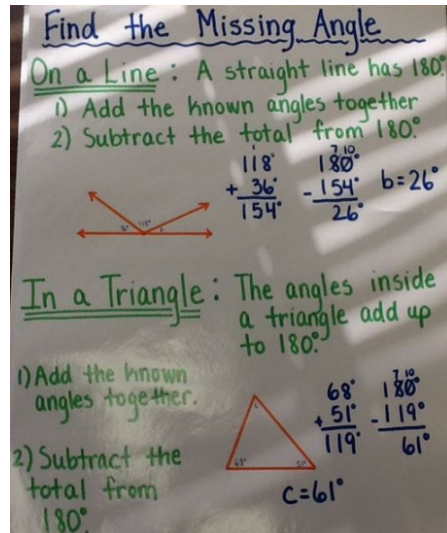|	
TEKS (R) Readiness, (S) Supporting, (P) Process	**4.7E determine** the measure of an unknown angle formed by two non-overlapping adjacent angles given one or both angle measures. English Language Proficiency Standards The student uses mathematical processes to acquire and demonstrate mathematical understanding. **Process Standards: 4.1A, 1B, 1C, 1D, 1E, 1F, 1G**
Content and Language Objectives	*The Learner Will (TLW):* • **determine** the measure of an unknown angle formed by two non-overlapping adjacent angles given one or both angle measures. • Student linguistic accommodations should reflect listening, speaking, reading, and writing. Learning Intentions for Emergent Bilinguals
Misconceptions	• Not realizing that a right angle (or the square symbol for a right angle) measures 90 degrees* • Not realizing that a straight angle (line) measures 180 degrees • Watch for students who may be confused about which operation to use

INSTRUCTIONAL UNITS

|	
Content Connections	• Instruction should define and provide examples and non-examples of non-overlapping adjacent angles. • Adjacent angles are to be defined as two angles that do not overlap but share a common ray and a common point (vertex). • Students should begin to visualize how two adjacent angles yield a larger angle. • As students begin to determine the measure of unknown angles, be sure to vary the context of the problems. This understanding begins to lay the foundation for supplementary and complementary angle measurements. • Given two adjacent angles, determine the measurement of the larger angle. • Given the measurement of the larger angle and one of the adjacent angles, determine the measurement of the other adjacent angle. • Given that the larger angle is a right angle and the measure of one of the adjacent angles, determine the measure of the other adjacent angle. • Given that the larger angle represents half of a circle and the measure of one of the adjacent angles, determine the measure of the other adjacent angle.
Academic Vocabulary *new to grade level	• Angle* • Acute Angle* • Acute Triangle* • Obtuse Angle* • Obtuse Triangle* • Right Angle* • Right Triangle* • Straight Angle* • Protractor* • Degree* • Ray* • Perpendicular*

Instruction and Student Engagement

- **Anchor Charts:**

- **Math Warm-up:** TEKS as Target Board- Set 7 Week 14

- [LFCISD Problem Solving Method](#) and [Problem Solving Bookmarks](#)
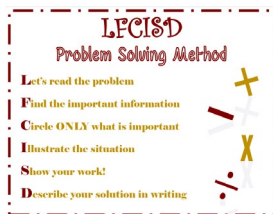
- **Go Math Module 14:**
  Measure Angles [Lessons 4](#) and [Lesson 5](#)

- *Think Up! Unit 32*
  Concept Exploration page 318
  Concept Development page 320
  Concept Application page 321 (all)
  Concept Practice page 322 (all)
  Concept Check pages 325-326 (all)

- **Imagine Math Pathway:**
  LF 4th Measure Angles

- **Math Solutions:**
  -[Math Talks](#)

- **Differentiated Instruction:**
  - o **GT/ Extensions:**
    Think Up Math TE page 392

  - o **Interventions:**
    Think Up Math TE page 390

  - o **EBs:** [Linguistic Accommodations](#)

- **Literature Connections and Connections:**
  Title: What's Your Angle, Pythagoras? By Julie Ellis

- **Video:**
  [What's Your Angle, Pythagoras?](#)

Evidence of Learning

Checking for Understanding

- Two possible given angles are _____ and _____.
- How can you determine the measure on an angle separated into parts?
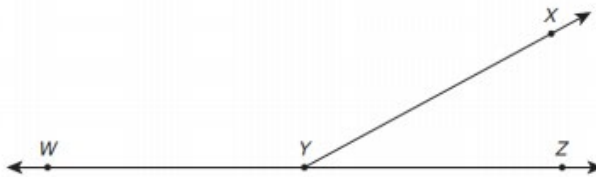- *Reflection/Closure Activity Think Up Math U32 TE page 391*

Learning Intentions for Emergent Bilinguals

Sample Assessment Items

4.7E STAAR Item

2018 – Q7

7 Angle *XYZ* and angle *XYW* have a combined measure of 180°.

The measure of angle *XYZ* is 28°. What is the measure of angle *XYW* in degrees?

Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

INSTRUCTIONAL UNITS

Subunit 4 of 4 (20 Days): Measurement

Subunit Description:

- **solve** problems with measurements of length, intervals of time, liquid volumes, mass, and money
- **identify** relative sizes of measurement units within the customary and metric systems
- **convert** measurements within the same measurement system, customary or metric

Before	Now	After
• determine liquid volume (capacity) or weight using appropriate units and tools determine when it is appropriate to use measurements of liquid volume (capacity) or weight 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 (3.7E, D, C)	• solve problems that deal with measurements of length, intervals of time, liquid volumes, mass, and money using addition, subtraction, multiplication, or division as appropriate (4.8C)	• represent and solve multi-step problems involving the four operations with whole numbers using equations with a letter standing for the unknown quantity (5.4B)

Materials/Texts/Resources:
(* available in Spanish)

- TX Go Math*
- TEKSas Target Board
- Imagine Math*
- Reflex Math*
- Education Galaxy
- Fast Focus* (recommended)
- Math Solutions Activities
- *Think Up***

Suggested Manipulatives
- Meter Sticks
- Rulers
- Measuring Cups

INSTRUCTIONAL UNITS

*If available on campus***

INSTRUCTIONAL UNITS

Module 1 of 3 (5 Days):
Customary and Metric

TEKS (R) Readiness, (S) Supporting, (P) Process	**4.8A identify** relative sizes of measurement units within the customary and metric systems (S) English Language Proficiency Standards The student uses mathematical processes to acquire and demonstrate mathematical understanding. **Process Standards: 4.1A, 1B, 1C, 1D, 1E, 1F, 1G**
Content and Language Objectives	*The Learner Will (TLW):* • **identify** relative sizes of measurement units within the customary and metric systems • **select** appropriate customary and metric units, strategies, and tools to **solve** problems involving measurement • Student linguistic accommodations should reflect listening, speaking, reading, and writing. Learning Intentions for Emergent Bilinguals
Misconceptions	• Difficulty associating a benchmark with a given measurement (e.g., a color tile is approximately an inch in length; an M & M weighs approximately a gram; a jug of milk is approximately a gallon) • Not being able to identify similar objects of relative sizes (e.g., one M & M has a mass of one gram which is much more than the mass of one jelly bean) • Be aware that students may not know which unit of measurement to use when measuring.

INSTRUCTIONAL UNITS

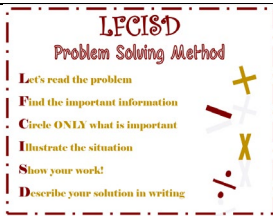|	
Content Connections	• In measurement, students need a point of reference to identify the relative size of measurement units. Benchmarks need to be provided for both customary and metric (e.g., an inch is about the length of the bend of my index finger, a centimeter is the length of a unit cube in the base ten blocks, a foot is the length of a ruler, a decimeter is the length of a ten long in the base ten blocks). • Relative size needs to be applied to length (e.g., an inch is about the length of the bend of my index finger), capacity/liquid volume (e.g., a gallon can relate to a jug of milk), and mass (one M&M candy is approximately one gram). This understanding allows students to better estimate and/or apply reasonableness to solutions.
Academic Vocabulary *new to grade level	• Capacity • Convert* • Customary System • Fluid Ounces (fl. oz.) • Foot/feet (ft.) • Gallon (gal) • Gram (g) • Kilogram (kg) • Liter (L) • Mass • Measure • Metric System • Mile (mi) • Milliliter (mL) • Millimeter (mm.) • Ounce (oz.) • Pint (pt.) • Pound (lb.) • Quart (qt.) • Relative size* • Yard (yd.)

Instruction and Student Engagement

- **Anchor Charts:**
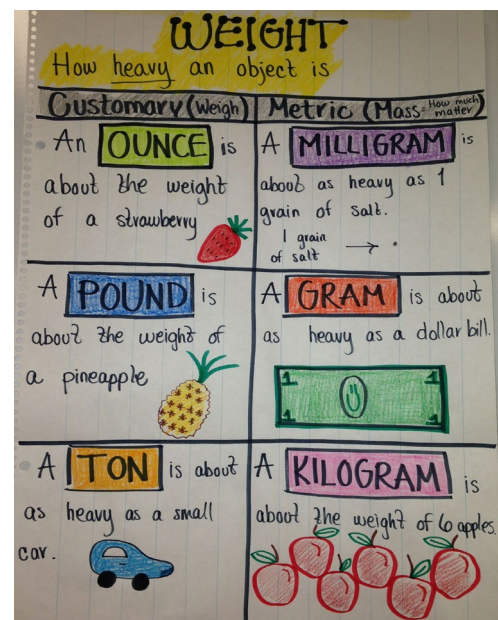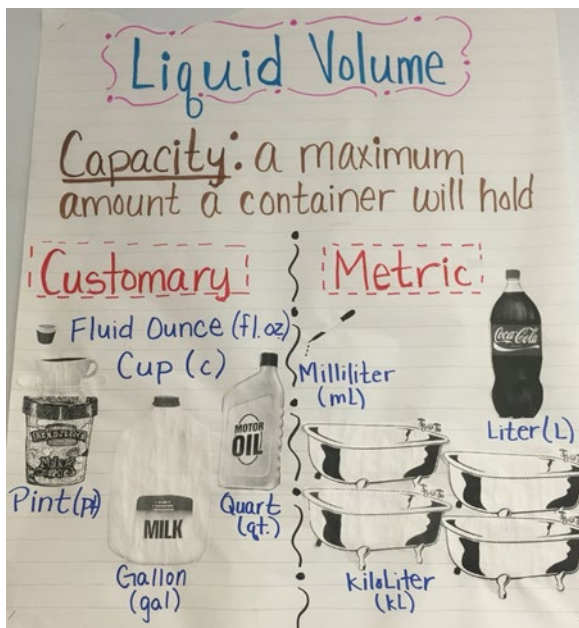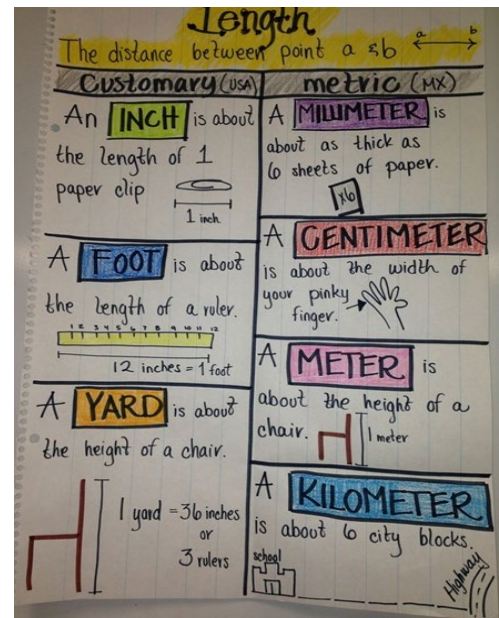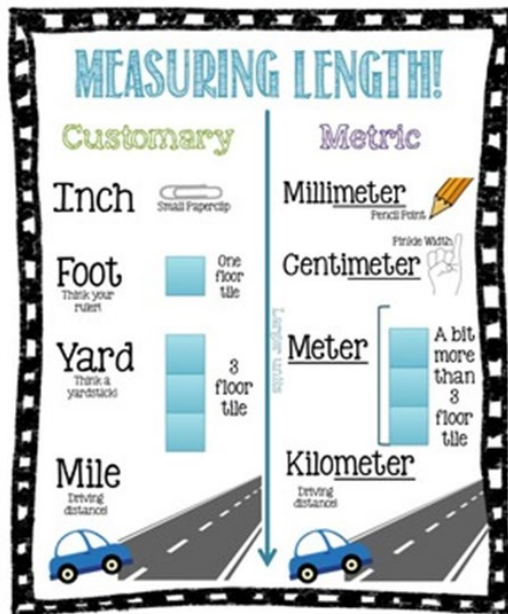
- **Math Warm-up:** TEKS as Target Board- Set 8 Week 15

- LFCISD Problem Solving Method and Problem Solving Bookmarks

**LFCISD
Problem Solving Method**
Let's read the problem
Find the important information
Circle ONLY what is important
Illustrate the situation
Show your work!
Describe your solution in writing

- **Go Math Module 15:**
  Customary and Metric Measures
  L15.1, 15.2, 15.3, 15.4, 15.5, 15.6, 15.7

- *Think Up! Unit 33*
  Concept Exploration page 328
  Concept Application page 331 #s 1,5
  Concept Practice page 332 #s 3,4,5,6,7,8
  Concept Check pages 335 #s 4,5,6 and 336 # 10

- *Think Up! Unit 34*
  Concept Practice page 342 #s 5,6,7
  Concept Check page 345 #s 3,4,5,6

- **Imagine Math Pathway:**
  LF 4th Customary and Metric Measures

- **Math Solutions:**
  -Math Talks

- **Differentiated Instruction:**
  o **GT/ Extensions:**
    Think Up Math U33 Extended Student Thinking - TE page 404
  o **Interventions:**
    Think Up Math U33 Interventions TE page 402 (select activity)
  o EBs: Linguistic Accommodations

- **Literature Connections and Videos:**
  Title: Twelve Snails to One Lizard by Susan Hightower
  Twelve Snails to One Lizard

- **Videos:**
  Benchmark measurement video
  Benchmark measurement video 2

Evidence of Learning

Checking for Understanding

- The following items are about one inch long ….
- What measurement unit might you use to measure your foot?
- Reflection/Closure *Activity Think Up Math TE U34 page 415 (Connect to SE pg.344) SE pg. 344 Reflection on My Learning – will need to build some background knowledge on the book Little House on the Prairie*

Learning Intentions for Emergent Bilinguals

Sample Assessment Items

4.8A STAAR Item

2017 – Q22

22 A dictionary has a mass of about 2.5 kg. Which object has a mass closest to the mass of a dictionary?

F   Bicycle

G   Pair of boots

H   Refrigerator

J   Bag of chips

INSTRUCTIONAL UNITS

Module 2 of 3 (5 Days):
Conversions

TEKS (R) Readiness, (S) Supporting, (P) Process	4.8B **convert** measurements within the same measurement system, customary or metric, from a smaller unit into a larger unit or a larger unit into a smaller unit when given other equivalent measures represented in a table (S) English Language Proficiency Standards The student uses mathematical processes to acquire and demonstrate mathematical understanding. **Process Standards: 4.1A, 1B, 1C, 1D, 1E, 1F, 1G**
Content and Language Objectives	*The Learner Will (TLW):* • **convert** measurements within the same measurement system, customary or metric, from a smaller unit into a larger unit or larger unit into a smaller unit when given other equivalent measures represented in a table. • Student linguistic accommodations should reflect listening, speaking, reading, and writing. Learning Intentions for Emergent Bilinguals
Misconceptions	• Not recognizing the equivalence of a numerical expression and its inverse (e.g., m = n x 1,000 is the same expression as n = m ÷ 1,000) • Confusing which operation to use (e.g., multiplication or division) when moving from larger to smaller units and vice versa* • Confusing customary conversion processes with metric processes and vice versa
Content Connections	• Students apply measurement conversions through the use of a table. In conjunction with 4.5(B), students should employ the use of the process column (a.k.a. what's my rule) to better understand how units convert. Instruction should include both conversions from a smaller to a larger unit and a larger to a smaller unit. • Instruction should include the conversion of customary (e.g., inches to feet; ounces to pounds) and metric (e.g., centimeters to meters; kilograms to grams). In conjunction with 4.8(C), examples of measurement conversions should apply to length, liquid volume, and mass

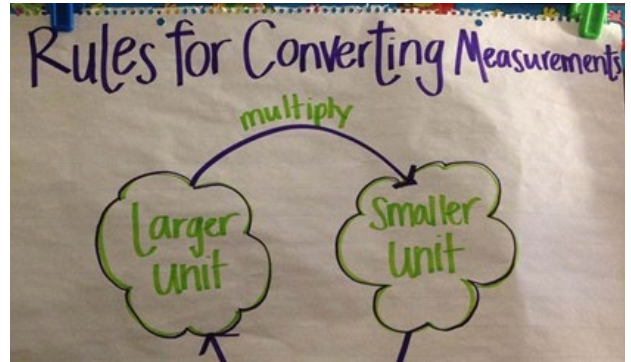| **Academic Vocabulary** *new to grade level*	- Conversion - Convert* - Equivalent - Fluid Ounces (fl. oz.) - Foot/feet (ft.) - Gallon (gal) - Gram (g) - Input/Output - Kilogram (kg) - Liter (L) - Mass - Measure - Metric System - Mile (mi) - Milliliter (mL) - Millimeter (mm.) - Ounce (oz.) - Pint (pt.) - Pound (lb.) - Quart (qt.) - Yard (yd.)

Instruction and Student Engagement

- **Anchor Charts:**
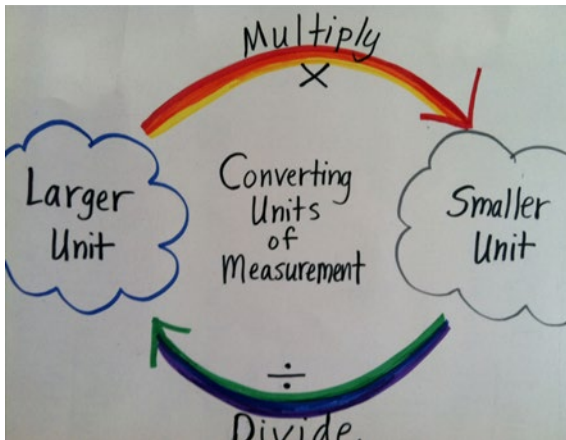
- **Math Warm-up:** TEKS as Target Board- Set 8 Week 16

- LFCISD Problem Solving Method and Problem Solving Bookmarks
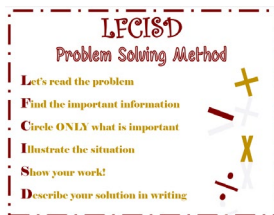
- **Go Math** Module 15
  Customary and Metric Measures
  Lessons L15.1, 15.2, 15.3, 15.4, 15.5, 15.6, 15.7

- *Think Up! Unit 33*
  Concept Development page 330
  Concept Application page 331#s 2,3,4
  Concept Practice page 332 #s 1,2,9
  Concept Check pages 335 #s1,2,3 and 336 #s 7,8,9

- *Think Up! Unit 34*
  Concept Exploration page 338
  Concept Development page 340
  Concept Application page 341 (all)
  Concept Practice page 342 #s 2,3,4

Concept Check page 345 #s 1,2,3,7 and 346 (all)

- **Imagine Math Pathway:**
  LF 4th Customary and Metric Measures

- <u>**Math Solutions:**</u>
  Math Talks

- **Differentiated Instruction:**
  - ○ **GT/ Extensions:**
    Think Up Math U34 Extended Student Thinking - TE page 416
  - ○ **Interventions:**
    Think Up Math U34 Interventions TE page 414 (select activity)

  - ○ **EBs:** Linguistic Accommodations

- **Literature Connections:**
  Title: On the Scale, A Weighty Tale by Brian P. Clearly **On the Scale, A Weighty Tale**

- **Videos:**
  Converting Units

Evidence of Learning

Checking for Understanding

- When converting from a smaller unit to a larger unit, you must _____
- Name one example in everyday life when you might need to convert measurement units.
- *Reflection/Closure Activity Think Up Math TE U33 (SE pg. 334 – Reflection on My Learning)*

[Learning Intentions for Emergent Bilinguals]

Sample Assessment Items

[4.8B STAAR Item]

2018 – Q14

14 The table shows different numbers of feet and the equivalent numbers of yards.

Equivalent Distances

Number of Yards	Number of Feet
5	15
15	45
25	75
35	105

Joey walked 333 feet. How many yards did Joey walk?

F 999 yd

G 363 yd

H 111 yd

J 193 yd

INSTRUCTIONAL UNITS

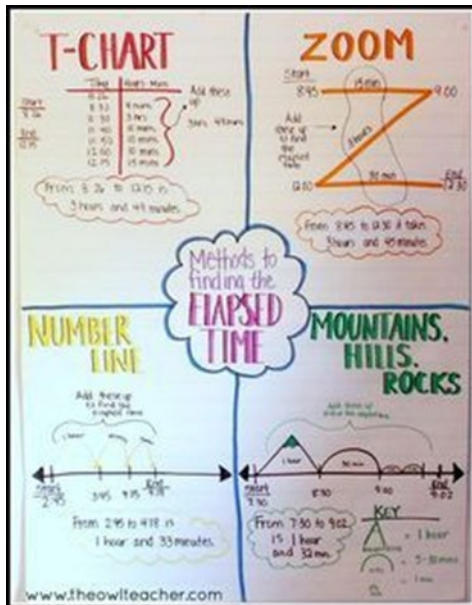|	
Module 3 of 3 (10 Days): **Time and Money**	
TEKS (R) Readiness, (S) Supporting, (P) Process	**4.8C solve** problems that deal with measurements of length, intervals of time, liquid volumes, mass, and money using addition, subtraction, multiplication, or division as appropriate (R) English Language Proficiency Standards The student uses mathematical processes to acquire and demonstrate mathematical understanding. **Process Standards: 4.1A, 1B, 1C, 1D, 1E, 1F, 1G**
Content and Language Objectives	*The Learner Will (TLW):* • **use** addition, subtraction, multiplication, or division as appropriate to **solve** problems that deal with intervals of time • **use** addition, subtraction, multiplication, or division as appropriate to **solve** problems that deal with money • Student linguistic accommodations should reflect listening, speaking, reading, and writing. Learning Intentions for Emergent Bilinguals
Misconceptions	• Not understanding that calculating time is based on 60 minutes in an hour, unlike our base ten system, when adding/subtracting whole numbers* • Relying on "key words" to determine the operation instead of understanding the context of the problem* • Having difficulty using Reference Materials resources provided and/or applying conversions to multi-step problems*

INSTRUCTIONAL UNITS

Content Connections	• In conjunction with 4.5(A), students are asked to represent multi-step word problems in a number sentence/ equation and to solve the problems. Examples should include measurement of length (e.g., perimeter), intervals of time (e.g., elapsed time), liquid volumes (e.g., filling/dispensing of containers), mass (e.g., comparison of mass using metric system), and money (e.g., comparison of money). • Such problems may include the addition/subtraction of fractions [see 4.3(E)/(F)], addition/subtraction of decimals [see 4.4(A)], multiplication of four-digit by one-digit whole numbers [see 4.4(D)], and division of a four-digit whole number divided by a one-digit whole number [see 4.4(F)]. • Instruction should include examples from both metric and customary units of measure. In conjunction with 4.8(B), students should be prepared to solve multi-step measurement problems that involve converting measures within the same measurement system.
Academic Vocabulary *new to grade level	• Convert* • Elapsed Time • Hour • Intervals • Mass • Minutes • Money

Instruction and Student Engagement

- **Anchor Charts:**

- **Math Warm-up:** TEKS as Target Board- Set 9 Week 17

- [LFCISD Problem Solving Method](#) and [Problem Solving Bookmarks](#)
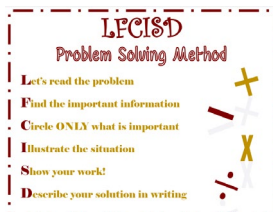
- **Go Math Module 16:**
  Time and Money – [L16.1](#), [L16.2](#), [L16.3](#), [L16.4](#)

- *Think Up! Unit 35*
  Concept Exploration page 348
  Concept Application pages 351 #s 2,3
  Concept Practice page 352 1,2,7
  Concept Check pages 355 #s 3,5 and 356 #s 7,9

- **Imagine Math Pathway:**

LF 4th Time and Money

- **Math Solutions:**
  -Math Talks

- **Differentiated Instruction:**
  - **GT/ Extensions:**
    Think Up Math Extended Student Thinking TE page 428

  - **Interventions:**
    Think Up Math Interventions TE page 426
    Workstations pages 87-92 (4.8C)

  o EBs: Linguistic Accommodations

- **Literature Connections and Videos:**
  Title: How Much is that Guinea in the Window? By Joanne Rocklin
  How Much is that Guinea Pig in the Window?

- **Videos:**
  Z Method video

Evidence of Learning

Checking for Understanding

- I have learned _____ and _____ methods to solve problems involving intervals of time.
- How would you restate the problem in your own words?
- What information is given in the problem and how might you use it?
- *Reflection/Closure Activity Think Up Math TE page 427*

Learning Intentions for Emergent Bilinguals

Sample Assessment Items

4.8C STAAR Item

2018 – Q12

12 The table shows the chores Randy did Saturday morning and the amount of time he spent on each chore.

Randy's Chores

Chore	Amount of Time (minutes)
Sweeping the garage	40
Raking the yard	55
Cleaning tools	35
Washing the car	45
Weeding the garden	30

How much time did Randy spend doing these chores?

F   3 hours 25 minutes

G   3 hours 30 minutes

H   2 hours 5 minutes

J   2 hours 45 minutes

SCOPE AND SEQUENCE

The recommended duration of lessons is less than the number of days in the school year in order to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the LFCISD Curriculum documents.

Units	Subunits	Modules	TEKS	Duration
1 **Computations, Algebraic Relationships, and Data Analysis**	**1** Computations	**1** Add and Subtract Whole Numbers and Decimals	4.4A	5 days
	2 Multiplication	**1** Strategies and Algorithms to Multiply Up to 1 by 4 Digits	4.4BDC	5 days
		2 Area Models and Partial Products to Multiply 2 by 2 Digits	4.4C	5 days
		3 Problem Solve by Multiplying 2 by 2 Digits	4.4DC	5 days
	3 Division	**1** Represent Division	4.4E	5 days
		2 Standard Division	4.4F	5 days
	4 Problem Solving	**1** One- and Two-Step Problems	4.4HG	5 days
	5 Multi-Step Problems	**1** Use the Four Operations	4.5A	5 days
	6 Input and Output Tables	**1** Represent Problems Using Input and Output Tables	4.5B	5 days
	7 Data Analysis	**1** Create, Interpret, and Analyze Data	4.9AB	5 days
2 **Geometry and Measurement**	**1** Perimeter and Area	**1** Models and Problem Solve	4.5D 4.5C¹	5 days
	2 Lines and Angles	**1** Geometry Concepts	4.6ABD	5 days
	3 Measurement of Angles	**1** Create and Measure	4.6C 4.7CD 4.7AB¹	5 days
		2 Adjacent Angles	4.7E	5 days
	4 Measurement	**1** Customary and Metric	4.8A	5 days
		2 Conversions	4.8B	5 days
		3 Time and Money	4.8C	10 days
3 **Numerical Representations and Relationships**	**1** Whole Number Place Value	**1** Compare and Round	4.2BCD	5 days
	2 Decimal Place Value	**1** Represent Place Value Using Models	4.2ABE	5 days
		2 Compare Decimals	4.2F	5 days
		3 Relate to Fractions and Number Lines	4.2GH	5 days
	3 Fractions	**1** Fraction Concepts	4.3AF	5 days
		2 Compare Fractions	4.3CDG	5 days
		3 Add and Subtract Fractions	4.3BEF	5 days
4	**1** Fixed and Variable Expenses	**1** Classify Expenses	4.10AE 4.10CD¹	5 days

SCOPE AND SEQUENCE

Personal Finance	**2** Profit	**1** Calculate Profit	4.10BE	5 days
5 **The Art of Problem Solving**	**1** Anchor the Learning and Problem Solve	**1** Anchor Computations, Algebraic Relationships, and Data	4.4ABCD 4.4EFGH 4.5AB 4.9AB	5 days
		2 Anchor Geometry and Measurement	4.5CD 4.6ABCD 4.7ABCDE 4.8ABC	5 days
		3 Anchor Numerical Representations and Relationships	4.2ABCD 4.2EFGFH 4.3ABCD 4.3EFG	5 days
		4 Anchor Personal Finance	4.10AB 4.10CDE	5 days

Not Assessed[1]