

2017-2018 CSISD Mathematics Year At A Glance for Grade 3

Big Ideas and Topics in Third Grade Mathematics

The big ideas and topics Third Grade are place value, operations of whole numbers, and understanding fractional units.

- In number and operations, students will focus on applying place value, comparing and ordering whole numbers, connecting multiplication and division, and understanding and representing fractions as numbers and equivalent fractions.
- In algebraic reasoning, students will use multiple representations of problem situations, determine missing values in number sentences, and represent real-world relationships using number pairs in a table and verbal descriptions.
- In geometry and measurement, students will identify and classify two-dimensional figures according to common attributes, decompose composite figures formed by rectangles to determine area, determine the perimeter of polygons, solve problems involving time, and measure liquid volume (capacity) or weight.
- In data analysis, students will represent and interpret data.

For additional information about the Third Grade mathematics standards, please visit [the Texas Education Agency \(TEA\) website](http://www.tea.state.tx.us).

Fall Semester	
1st Nine Weeks August 28 – October 20	2nd Nine Weeks October 23 – December 22
<p><u>Bundles 1 and 2: Use Place Value to Solve Problems Involving Addition and Subtraction</u> Students will be able to use place value to understand the relationships and patterns between whole numbers. Students will be able to apply multiple strategies to solve problems involving addition and subtraction in a variety of contexts.</p> <ul style="list-style-type: none"> • Represent whole numbers in various ways. (Ex. 500, 200, 80, 7 = 787) • Describe the relationship within the base-ten system when moving from the ones place to the tens place or from the tens place to the thousands place. • Round numbers using a number line, representing the number between two multiples of 10, 100, or 1,000. • Order whole numbers up to 100,000. • Compare whole numbers up to 100,000 using >, <, = symbols. • Solve one-step and two-step problems involving addition and subtraction using a variety of strategies. • Round numbers to the nearest 10 or 100 or use compatible numbers to estimate solutions to addition and subtraction problems. • Determine the value of a collection of coins and bills. • Represent one-step and two-step problems involving addition and subtraction of whole numbers to 1,000 using pictures models, number lines, and equations. • Solve problems involving the addition and subtraction of time intervals in minutes using pictures, models, or tools. (Ex. 15 minute event plus a 30 minute event equals 45 minutes.) <p><u>Bundle 3: Summarize Data to Solve Problems</u> Students will be able to collect and use data to solve problems.</p> <ul style="list-style-type: none"> • Represent one-step and two-step problems involving addition and subtraction of whole numbers to 1,000 using pictures, models, number lines, and equations. • Summarize data using pictographs, bar graphs, frequency tables and dot plot graphs with scaled intervals. 	<p><u>Bundle 4: Solving Problems Involving Multiplication</u> Students will be able to develop an understanding of multiplication of whole numbers using multiple representations.</p> <ul style="list-style-type: none"> • Use arrays when equal sized groups are multiplied up to 10 by 10. • Represent multiplication facts by using a variety of approaches (Ex. Repeated addition, equal sized groups, arrays, area models, equal jumps on a number line, and skip counting.) • Recall multiplication facts with automaticity (Multiplication Facts for 2's, 5's, 10's, 0's, 1's). • Solve one- and two-step problems involving multiplication within 100 using various strategies. Strategies include pictures, objects, arrays, area models, equal groups, properties of operations, or recall of facts. • Represent and solve one- and two-step multiplication problems within 100 using arrays, strip diagrams, and equations. • Describe the relationship within the base-ten system when moving from the ones place to the tens place or from the tens place to the thousands place. • Represent whole numbers in various ways, including expanded notation. Expanded notation for 12,905 is $(1 \times 10,000) + (2 \times 1000) + (9 \times 100) + (5 \times 1)$. <p><u>Bundle 5: Relate Multiplication and Division</u> Students will be able to develop an understanding of multiplication and division of whole numbers using multiple representations.</p> <ul style="list-style-type: none"> • Recall multiplication facts with automaticity (Multiplication Facts for 2's, 5's, 10's, 0's, 1's). • Use models of division to solve problems. (Ex. Grouping and fair sharing) • Using divisibility rules to determine if number is odd or even. (Ex. Divisibility by 2 rule: A number is divisible by 2 if the ones digit is even (0, 2, 4, 6, 8).) • Understand the relationship between multiplication and division. • (Ex. $40 \div 8 = \square$ can be found knowing that $8 \times \square = 40$ so, $\square = 5$.)

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- Solve one- and two-step problems using data represented with pictographs, bar graphs, frequency tables, and dot plot graphs with scaled intervals.

- Solve one- and two-step problems involving multiplication and division within 100 using various strategies. Strategies include pictures, objects, arrays, area models, equal groups, properties of operations, or recall of facts.
- Represent one-step and two-step problems involving addition and subtraction of whole numbers to 1,000 using pictures models, number lines, and equations.
- Represent and solve one- and two-step multiplication and division problems within 100 using arrays, strip diagrams, and equations.
- Determine the unknown whole number in a multiplication or division equation. (Ex. If $12 = \square \div 6$ then $12 \times 6 = \square$, so $\square = 72$.)
- Describe a multiplication expression as a comparison. (Ex. 3×24 is 3 times as much as 24.)
- Use number tables to show relationships within objects. (Ex. 1 insect has 6 legs, 2 insects have 12 legs, and 4 insects have 24 legs, and so forth.)
- Represent whole numbers in various ways, including expanded notation. Expanded notation for 12,905 is $(1 \times 10,000) + (2 \times 1000) + (9 \times 100) + (5 \times 1)$.

Bundle 6: Extend Multiplication and Division

Students will be able to develop an understanding of multiplication and division of whole numbers using multiple representations.

- Recall multiplication facts with automaticity (Multiplication Facts for 2's, 5's, 10's, 0's, 1's).
- Use strategies and algorithms to multiply a two-digit number by one-digit number. Strategies include mental math, partial products, and commutative, associative, distributive properties. (Ex. 97×3 , 90×3 and 7×3 , $270 + 21 = 291$.)
- Solve one- and two-step problems involving multiplication and division within 100 using various strategies. Strategies include pictures, objects, arrays, area models, equal groups, properties of operations, or recall of facts.
- Represent and solve one- and two-step multiplication and division problems within 100 using arrays, strip diagrams, and equations.
- Describe a multiplication expression as a comparison. (Ex. 3×24 is 3 times as much as 24.)
- Determine the unknown whole number in a multiplication or division equation. (Ex. If $12 = \square \div 6$ then $12 \times 6 = \square$, so $\square = 72$.)
- Use number tables to show relationships within objects. (Ex. 1 insect has 6 legs, 2 insects have 12 legs, and 4 insects have 24 legs, and so forth.)
- Represent whole numbers in various ways, including expanded notation. Expanded notation for 12,905 is $(1 \times 10,000) + (2 \times 1000) + (9 \times 100) + (5 \times 1)$.

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Spring Semester

3rd Nine Weeks
January 8 – March 9

Bundle 7: Extend Multiplication and Division (Continue from Bundle 6)

Students will be able to develop an understanding of multiplication and division of whole numbers using multiple representations.

- Recall multiplication facts with automaticity (Multiplication Facts for 3's, 6's, 9's, 4's, 8's, 7's).
- Use strategies and algorithms to multiply a two-digit number by one-digit number. Strategies include mental math, partial products, and commutative, associative, distributive properties. (Ex. 97×3 , 90×3 and 7×3 , $270 + 21 = 291$)
- Solve one- and two-step problems involving multiplication and division within 100 using various strategies. Strategies include pictures, objects, arrays, area models, equal groups, properties of operations, or recall of facts.
- Represent and solve one- and two-step multiplication and division problems within 100 using arrays, strip diagrams, and equations.
- Describe a multiplication expression as a comparison. (Ex. 3×24 is 3 times as much as 24.)
- Determine the unknown whole number in a multiplication or division equation. (Ex. If $12 = \square \div 6$ then $12 \times 6 = \square$, so $\square = 72$.)
- Use number tables to show relationships within objects. (Ex. 1 insect has 6 legs, 2 insects have 12 legs, and 4 insects have 24 legs, and so forth.)
- Represent whole numbers in various ways, including expanded notation. Expanded notation for 12,905 is $(1 \times 10,000) + (2 \times 1000) + (9 \times 100) + (5 \times 1)$.

Bundle 8: Represent Fractions

Students will be able to develop an understanding of part/whole relationships and express them as fractions. Students will apply their understanding of unit fractions to compose and decompose fractions.

- Represent fractions using pictorial models, including strip diagrams and numbers lines.
- Locate and name fractions on a number line.
- Describe or explain fractional parts.
- Describe how fractional parts make up a whole. (Ex. $7/8 = 1/8 + 6/8$; $7/8 = 2/8 + 5/8$; and $7/8 = 3/4 + 4/8$.)
- Solve problems using pictorial models that include separating a whole object or set of objects.

Bundle 9: Compare and Find Equivalent Fractions

Students will be able to describe and compare fractional parts of whole objects, set of objects, and points or distances on a number line. Students will be able to construct models of equivalent fractions.

- Solve problems using pictorial models that include separating a whole object or set of objects.

4th Nine Weeks
March 19 – May 31

Bundle 10: Describe Characteristics of Geometric Figures Including Measurable Attributes

Students will be able to decompose composite figures formed by rectangles to determine area and determine the perimeter of polygons. Students will be able to classify quadrilaterals, 2-D shapes and 3-D solids according to their attributes. Students will be able to determine when to measure capacity or weight and select the appropriate units.

- Classify and sort two- and three-dimensional solids using formal geometric language.
- Represent in picture form examples and non-examples of different quadrilaterals.
- Find the area of a figure using principles of multiplication in arrays to the area model of multiplication.
- Segment figures into smaller rectangles, find the area of each rectangle and add to find the sum of the rectangles together to solve for the area of the entire shape.
- Find the perimeter of a shape.
- Understand, use and apply liquid volume (capacity) and weight tools in everyday situations.

Bundle 11: Apply Financial Literacy and Make Mathematical Connections

Students will be able to determine how financial decisions are made.

- Explain the connection between a person's education, abilities, and experience to income.
- Define and describe supply and demand of products.
- Understand a basic budget and what happens when unplanned expenses arise.
- Understand the concept of credit and basic interest.
- Explain why saving money is important.
- Understand how a budget is developed.

Bundle 12: Project Based Learning

Students will be able to apply Grade 3 mathematics to solve problems connected to everyday experiences and activities in and outside of school.

- Students will be asked to demonstrate their level of understanding of the Third Grade TEKS through a project that will incorporate: Choice, Creativity, Customization, Rigor, Relevance, Relationships.

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| <ul style="list-style-type: none">• Create pictorial models of equivalent fractions for fractional parts of whole objects.• Explain two fractions are equivalent when they represent the same point on a number line or the same portion of a whole model.• Compare fractions using symbols, words and pictures.• Show that two congruent shapes can be divided differently and still have the same area.• Locate and name fractions on a number line. | |
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