

# 2017-2018 CSISD Mathematics Year At A Glance for Grade 4

## Big Ideas and Topics in Fourth Grade Mathematics

The big ideas and topics in Fourth Grade are the use of operations, fractions, and decimals and describing and analyzing geometry and measurement.

- Students will apply place value and represent points on a number line that correspond to a given fraction or terminating decimal.
- Students will represent and solve multi-step problems involving the four operations with whole numbers with expressions and equations and generate and analyze patterns.
- Students will classify two-dimensional figures, measure angles, and convert units of measure.
- Students will represent and interpret data.

For additional information about the Fourth 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><b><u>Bundle 1: Understand and Apply Whole Numbers</u></b> Students will be able to represent and understand the value of each place and can use that knowledge to compare and order whole numbers through the billions place.</p> <ul style="list-style-type: none"> <li>• Represent the value of digits through 1,000,000,000.</li> <li>• Compare and order whole numbers up to 100,000,000 using <math>&gt;</math>, <math>&lt;</math>, <math>=</math> symbols.</li> <li>• Round whole numbers to a given place through 100,000.</li> <li>• Add/Subtract whole numbers using standard algorithm.</li> <li>• Round numbers to estimate solutions involving whole numbers (to nearest 10, 100, 1,000).</li> </ul> <p><b><u>Bundle 2: Understand and Apply Decimals and Fractions</u></b> Students will be able to understand the relationship between whole numbers, fractions and decimals. Students will be able to represent decimals on a number line.</p> <ul style="list-style-type: none"> <li>• Represent the value of digits through 1,000,000,000 (including tenths and hundredths).</li> <li>• Represent decimals using multiple models.</li> <li>• Use models to compare and order decimals.</li> <li>• Relate decimals to fractions.</li> <li>• Name a decimal point on a number line (tenths, hundredths).</li> <li>• Represent decimals as distances from zero on a number line.</li> <li>• Add/Subtract decimals to the hundredths place using standard algorithm.</li> </ul> <p><b><u>Bundle 3: Represent Fractions and Find Equivalent Fractions</u></b> Students will be able to use a variety of methods to determine if two fractions are equivalent. Students will be able to use a variety of methods to compare two fractions.</p> <ul style="list-style-type: none"> <li>• Relate decimals to fractions that name tenths and hundredths.</li> <li>• Determine if two given fractions are equivalent using various methods.</li> <li>• Compare and order fractions and represent the comparison with <math>&gt;</math>, <math>&lt;</math>, or <math>=</math> symbols.</li> <li>• Represent fractions and decimals as distances from zero on a number line.</li> </ul>	<p><b><u>Bundle 4: Add and Subtract Fractions</u></b> Students will be able to develop a strong understanding of fractional concepts (including fractions that are greater than 1) and be able to compose and decompose fractions into the sum of other fractions.</p> <ul style="list-style-type: none"> <li>• Students will be able to apply a variety of strategies to add and subtract fractional values with equal denominators and evaluate reasonableness using benchmark fractions.</li> <li>• Represent fractions as a sum. (<math>2/3=1/3+1/3</math>).</li> <li>• Combine and separate fractions using concrete, pictorial and symbols.</li> <li>• Solve addition and subtraction of fractions with equal denominators, with and without models.</li> <li>• Evaluate the reasonableness of sums and differences of fractions with equal denominators.</li> </ul> <p><b><u>Bundle 5: Understand and Apply Multiplication</u></b> Students will be able to use strategies 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 estimations, algorithm, mental math, partial product and associative/commutative/distributive properties.)</p> <ul style="list-style-type: none"> <li>• Students will be able to use input/output tables to generate a number pattern.</li> <li>• Determine products of a number and 10 or a number and 100.</li> <li>• Represent the product of 2 two-digit numbers using models through <math>15 \times 15</math>.</li> <li>• Multiply up to a four-digit number by a one-digit number and two-digit by two-digit numbers using a variety of strategies.</li> <li>• Solve with fluency one- and two-step problems involving multiplication.</li> <li>• Round to the nearest 10, 100, and/or 1000 to estimate solutions.</li> <li>• Represent multi-step problems using strip diagrams and equations.</li> <li>• Represent problems in a table and generate a number pattern that represents the relationship between the numbers in the table.</li> <li>• Describe the relationship within the base-ten system as 10 times or <math>1/10</math> the values to the left and right.</li> </ul>

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- Represent the value of digits through 1,000,000,000 using expanded notation (including tenths and hundredths).

## **Bundle 6: Understand and Apply Multiplication and Division**

Students will be able to represent the quotient of up to a four digit number divided by a one digit number, with or without remainders, using strategies including arrays, area models, equations, and the standard algorithm.

- Students will be able to use input/output tables to generate a number pattern.
- Divide up to a four-digit number by a one-digit number using a variety of strategies.
- Solve with fluency one- and two-step problems involving multiplication and division, with remainders.
- Represent multi-step problems using strip diagrams and equations.
- Represent problems using a table to generate a number pattern that represents the relationship of the values in the sequence.

## Spring Semester

**3<sup>rd</sup> Nine Weeks**  
January 8 – March 9

**4<sup>th</sup> Nine Weeks**  
March 19 – May 31

### **Bundle 7: Understand and Apply Multiplication and Division (Continue Bundle 6)**

Students will be able to represent the quotient of up to a four digit number divided by a one digit number, with or without remainders, using strategies including arrays, area models, equations, and the standard algorithm. Students will be able to use input/output tables to generate a number pattern.

- Divide up to a four-digit number by a one-digit number using a variety of strategies.
- Solve with fluency one- and two-step problems involving multiplication and division, with remainders.
- Represent multi-step problems using strip diagrams and equations.
- Represent problems using a table to generate a number pattern that represents the relationship of the values in the sequence.

### **Bundle 8: Analyze Data and Apply Financial Literacy**

Students will be able to represent and interpret data. Students will be able to distinguish between fixed and variable expenses. Students will be able to calculate profit and compare the advantages and disadvantages of various savings options.

- Represent data on a table, dot plot or stem-and-leaf plot (whole numbers and fractions).
- Solve one- and two-step problems using data in a table, dot plot or stem-and-leaf plot.
- Distinguish between fixed and variable expenses.
- Calculate profit given a situation.

### **Bundle 10: Measure Angles and Apply the Characteristics of Angles**

Students will apply the knowledge of lines and angles to identify types of triangles (acute, obtuse, right). Students will be able to classify 2-D figures based on lines, angles, and symmetry. Students will be able to illustrate and measure angles using a protractor. They will continue to use their knowledge of angles to determine the measure of an unknown angle formed by two non-overlapping adjacent angles.

- Identify points, lines, 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 two-dimensional figures based on parallel or perpendicular lines and angle measures.
- Illustrate the measure of an angle as the part of a circle.
- Illustrate degrees as the units used to measure an angle.
- Determine the approximate measure of angles using a protractor.
- Draw an angle with a given measure.
- Determine the measure of an unknown angle formed by two adjacent angles.

### **Bundle 11: Measure Angles and Apply the Characteristics of Angles (Continue Bundle 10)**

Students will apply the knowledge of lines and angles to identify types of triangles (acute, obtuse, right). Students will be able to

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- Compare the advantages and disadvantages of various savings options.
- Describe how to allocate a weekly allowance among spending and saving.
- Describe the basic purpose of financial institutions including keeping money safe, borrowing money and lending.

## **Bundle 9: Solve Problems Using Measurement**

Students will be able to understand the relationship among measurement units and apply their knowledge to problem solving situations. Students will be able to solve problems that deal with measurements of length, intervals of time, liquid volumes, mass, and money.

- Use models to determine the formulas for perimeter of rectangle and square and area of rectangle.
- Solve problems related to perimeter and area.
- Identify relative sizes of measurement units (customary and metric).
- Convert measurements within the same measurement system (customary and metric).
- Solve problems that deal with measurements (length, time, mass, money).

classify 2-D figures based on lines, angles, and symmetry. Students will be able to illustrate and measure angles using a protractor. They will continue to use their knowledge of angles to determine the measure of an unknown angle formed by two non-overlapping adjacent angles.

- Identify points, lines, 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 two-dimensional figures based on parallel or perpendicular lines and angle measures.
- Illustrate the measure of an angle as the part of a circle.
- Illustrate degrees as the units used to measure an angle.
- Determine the approximate measure of angles using a protractor.
- Draw an angle with a given measure.
- Determine the measure of an unknown angle formed by two adjacent angles.

## **Bundle 12: Project Based Learning**

Students will be able to apply Grade 4 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 Fourth Grade TEKS through a project that will incorporate: Choice, Creativity, Customization, Rigor, Relevance, Relationships.