Grade 3 Pacing Guide (2016-2017)

Alief Independent School District

This pacing guide was created as a general framework of concepts and skills to be taught in each grading period at this grade level as specified in the Texas Essential Knowledge and Skills. This guide is not a resource for teaching mathematics on a daily basis.

This guide addresses the Texas Essential Knowledge and Skills that will be addressed in each unit of study, the approximate timeline of each unit and the sequence of the units for the grade level.

It is expected that the guidelines for a Alief Balanced Mathematics Program are followed.

- Core Instruction (45-60 minutes)
- Daily Review (15-20 minutes)
- EveryDay Counts (10-15 minutes)
- Mental Math / Math Facts / Number Talks (5-10 minutes)

Student understandings will be assessed by the District Common Assessments (DCAs), Unit Assessments, and STAAR Assessments, which are based on the Texas Essential Knowledge and Skills (TEKS) and generalization statements in this guide.

Critical Corollary Questions:

1. What do you want students to know and understand?
2. How will you know if they do?
3. What will you do if they do not?
4. What will you do if they do?

Grade 3 Pacing Guide (2016-2017)

Alief Independent School District

1st Grading Period	Unit Name	Texas Essential Knowledge and Skills
Ongoing	**Process Standards**	**3.1 Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:** (A) apply mathematics to problems arising in everyday life, society, and the workplace; (B) use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution; (C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems; (D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate; (E) create and use representations to organize, record, and communicate mathematical ideas; (F) analyze mathematical relationships to connect and communicate mathematical ideas; and (G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.
12 days	**Unit 1:** **Numbers to 10,000**	**3.2 Number and operations. The student applies mathematical process standards to represent and compare whole numbers and understand relationships related to place value. The student is expected to:** (A) compose and decompose numbers up to 100,000 as a sum of so many ten thousands, so many thousands, so many hundreds, so many tens, and so many ones using objects, pictorial models, and numbers, including expanded notation as appropriate; ***Readiness*** (B) describe the mathematical relationships found in the base-10 place value system through the hundred thousand place; ***Supporting*** (C) represent a number on a number line as being between two consecutive multiples of 10; 100; 1,000; or 10,000 and use words to describe relative size of numbers in order to round whole numbers; and ***Supporting*** (D) compare and order whole numbers up to 100,000 and represent comparisons using the symbols >, <, or =. ***Readiness*** **3.4 The student applies mathematical process standards to develop and use strategies and methods for whole number computations in order to solve problems with efficiency and accuracy. The student is expected to:** (B) round to the nearest 10 or 100 or use compatible numbers to estimate solutions to addition and subtraction problems;
8 days	**Unit 2:**	**3.2 Number and operations. The student applies mathematical process standards to represent and compare whole**

Grade 3 Pacing Guide (2016-2017)

	Addition up to 10,000	**numbers and understand relationships related to place value. The student is expected to:** (A) compose and decompose numbers up to 100,000 as a sum of so many ten thousands, so many thousands, so many hundreds, so many tens, and so many ones using objects, pictorial models, and numbers, including expanded notation as appropriate; ***Readiness*** (B) describe the mathematical relationships found in the base-10 place value system through the hundred thousand place; ***Supporting*** **3.4 Number and operations. The student applies mathematical process standards to develop and use strategies & methods for whole number computations in order to solve problems with efficiency and accuracy. The student is expected to:** (A) 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; ***Readiness*** **3.5 Algebraic reasoning. The student applies mathematical process standards to analyze and create patterns and relationships. The students is expected to:** (A) represent one- and two-step problems involving addition and subtraction of whole numbers to 1,000 using pictorial models, number lines, and equations; ***Readiness***
9 days	**Unit 3:** **Subtraction up to 10,000**	**3.2 Number and operations. The student applies mathematical process standards to represent and compare whole numbers and understand relationships related to place value. The student is expected to:** (A) compose and decompose numbers up to 100,000 as a sum of so many ten thousands, so many thousands, so many hundreds, so many tens, and so many ones using objects, pictorial models, and numbers, including expanded notation as appropriate; ***Readiness*** (B) describe the mathematical relationships found in the base-10 place value system through the hundred thousand place; ***Supporting*** **3.4 Number and operations. The student applies mathematical process standards to develop and use strategies & methods for whole number computations in order to solve problems with efficiency and accuracy. The student is expected to:** (A) 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; ***Readiness*** **3.5 Algebraic reasoning. The student applies mathematical process standards to analyze and create patterns and relationships. The student is expected to:** (A) represent one- and two-step problems involving addition and subtraction of whole numbers to 1,000 using pictorial models, number lines, and equations; ***Readiness***
10 days	**Unit 4:** **Using Bar Models – Addition & Subtraction**	**3.4 Number and operations. The student applies mathematical process standards to develop and use strategies & methods for whole number computations in order to solve problems with efficiency and accuracy. The student is expected to:** (A) 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; ***Readiness*** **3.5 Algebraic reasoning. The student applies mathematical process standards to analyze and create patterns and relationships. The student is expected to:** (A) represent one- and two-step problems involving addition and subtraction of whole numbers to 1,000 using pictorial models, number lines, and equations; ***Readiness***

Grade 3 Pacing Guide (2016-2017)

2nd Grading Period	Unit Name	Texas Essential Knowledge and Skills
Ongoing	**Process Standards**	**3.1 Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:** (A) apply mathematics to problems arising in everyday life, society, and the workplace; (B) use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution; (C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems; (D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate; (E) create and use representations to organize, record, and communicate mathematical ideas; (F) analyze mathematical relationships to connect and communicate mathematical ideas; and (G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.
14 days	**Unit 5: Multiplication Tables of 6, 7, 8, and 9**	**3.4 Number and operations. The student applies mathematical process standards to develop and use strategies & methods for whole number computations in order to solve problems with efficiency and accuracy. The student is expected to:** (D) determine the total number of objects when equally-sized groups of objects are combined or arranged in arrays up to 10 by 10; ***Supporting*** (E) 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; ***Supporting*** (F) recall facts to multiply up to 10 by 10 with automaticity and recall the corresponding division facts; ***Supporting*** (H) determine the number of objects in each group when a set of objects is partitioned into equal shares or a set of objects is shared equally; ***Supporting*** (J) determine a quotient using the relationship between multiplication and division; ***Supporting*** (K) 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. ***Readiness*** **3.5 Algebraic reasoning. The student applies mathematical process standards to analyze and create patterns and relationships. The student is expected to:** (B) represent and solve one- and two-step multiplication and division problems within 100 using arrays, strip diagrams, and equations; ***Readiness*** (C) describe a multiplication expression as a comparison such as 3 x 24 represents 3 times as much as 24; ***Supporting***

		(D) determine the unknown whole number in a multiplication or division equation relating three whole numbers when the unknown is either a missing factor or product; and ***Supporting*** (E) represent real-world relationships using number pairs in a table and verbal descriptions. ***Readiness***
8 days	**Unit 6: Multiplication**	**3.4 Number and operations. The student applies mathematical process standards to develop and use strategies & methods for whole number computations in order to solve problems with efficiency and accuracy. The student is expected to:** (E) 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; ***Supporting*** (F) recall facts to multiply up to 10 by 10 with automaticity and recall the corresponding division facts; ***Supporting*** (G) use strategies and algorithms, including the standard algorithm, to multiply a two-digit number by a one-digit number. Strategies may include mental math, partial products, and the commutative, associative, and distributive properties; ***Supporting*** (K) 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. ***Readiness*** **3.5 Algebraic reasoning. The student applies mathematical process standards to analyze and create patterns and relationships. The student is expected to:** (B) represent and solve one- and two-step multiplication and division problems within 100 using arrays, strip diagrams, and equations ***Readiness*** (C) describe a multiplication expression as a comparison such as 3 x 24 represents 3 times as much as 24; ***Supporting*** (D) determine the unknown whole number in a multiplication or division equation relating three whole numbers when the unknown is either a missing factor or product; and ***Supporting***
9 days	**Unit 7: Division**	**3.4 Number and operations. The student applies mathematical process standards to develop and use strategies & methods for whole number computations in order to solve problems with efficiency and accuracy. The student is expected to:** (H) determine the number of objects in each group when a set of objects is partitioned into equal shares or a set of objects is shared equally; ***Supporting*** (I) determine if a number is even or odd using divisibility rules; ***Supporting*** (J) determine a quotient using the relationship between multiplication and division; and ***Supporting*** (K) 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. ***Readiness*** **3.5 Algebraic reasoning. The student applies mathematical process standards to analyze and create patterns and relationships. The student is expected to:** (B) represent and solve one- and two-step multiplication and division problems within 100 using arrays, strip diagrams,

		and equations ***Readiness*** (D) determine the unknown whole number in a multiplication or division equation relating three whole numbers when the unknown is either a missing factor or product; and ***Supporting***
6 days	**Unit 8:** **Personal and Financial Literacy**	**3.9 Personal financial literacy. The student applies mathematical process standards to manage one's financial resources effectively for lifetime financial security. The student is expected to:** (A) explain the connection between human capital/labor and income; ***Supporting*** (B) describe the relationship between the availability or scarcity of resources and how that impacts cost; ***Supporting*** (C) identify the costs and benefits of planned and unplanned spending decisions * (D) explain that credit is used when wants or needs exceed the ability to pay and that it is the borrower's responsibility to pay it back to the lender, usually with interest; ***Supporting*** (E) list reasons to save and explain the benefit of a savings plan, including for college; ***Supporting*** (F) identify decisions involving income, spending, saving, credit, and charitable giving *

Grade 3 Pacing Guide (2016-2017)

3rd Grading Period	Unit Name	Texas Essential Knowledge and Skills
Ongoing	**Process Standards**	**3.1 Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:** (A) apply mathematics to problems arising in everyday life, society, and the workplace; (B) use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution; (C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems; (D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate; (E) create and use representations to organize, record, and communicate mathematical ideas; (F) analyze mathematical relationships to connect and communicate mathematical ideas; and (G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.
7 days	**Unit 9:** **Geometry**	**3.6 Geometry and measurement. The student applies mathematical process standards to analyze attributes of two-dimensional geometric figures to develop generalizations about their properties. The student is expected to:** (A) 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; ***Readiness*** (B) use attributes to recognize rhombuses, parallelograms, trapezoids, rectangles, and squares as examples of quadrilaterals and draw examples of quadrilaterals that do not belong to any of these subcategories; ***Supporting***
10 days	**Unit 10:** **Using Bar Models – Multiplication & Division**	**3.4 Number and operations. The student applies mathematical process standards to develop and use strategies & methods for whole number computations in order to solve problems with efficiency and accuracy. The student is expected to:** (G) use strategies and algorithms, including the standard algorithm, to multiply a two-digit number by a one-digit number. Strategies may include mental math, partial products, and the commutative, associative, and distributive properties; ***Supporting*** (H) determine the number of objects in each group when a set of objects is partitioned into equal shares or a set of objects is shared equally; ***Supporting*** (J) determine a quotient using the relationship between multiplication and division; ***Supporting*** (K) 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. ***Readiness*** **3.5 Algebraic reasoning. The student applies mathematical process standards to analyze and create patterns and**

		relationships. The student is expected to: (B) represent and solve one- and two-step multiplication and division problems within 100 using arrays, strip diagrams, and equations; ***Readiness*** (C) describe a multiplication expression as a comparison such as 3 x 24 represents 3 times as much as 24; ***Supporting*** (D) determine the unknown whole number in a multiplication or division equation relating three whole numbers when the unknown is either a missing factor or product; and ***Supporting***
9 days	**Unit 11: Measurement and Data Analysis**	**3.5 Algebraic reasoning. The student applies mathematical process standards to analyze and create patterns and relationships. The student is expected to:** (A) represent one- and two-step problems involving addition and subtraction of whole numbers to 1,000 using pictorial models, number lines, and equations; ***Readiness*** (B) represent and solve one- and two-step multiplication and division problems within 100 using arrays, strip diagrams, and equations; ***Readiness*** **3.8 Data analysis. The student applies mathematical process standards to solve problems by collecting, organizing, displaying, and interpreting data. The student is expected to:** (A) summarize a data set with multiple categories using a frequency table, dot plot, pictograph, or bar graph with scaled intervals; and ***Readiness*** (B) solve one- and two-step problems using categorical data represented with a frequency table, dot plot, pictograph, or bar graph with scaled intervals. ***Supporting***
15 days	**Unit 12: Fractions**	**3.3 Number and operations. The student applies mathematical process standards to represent and explain fractional units. The student is expected to:** (A) represent fractions greater than zero and less than or equal to one with denominators of 2, 3, 4, 6, and 8 using concrete objects and pictorial models, including strip diagrams and number lines; ***Supporting*** (B) determine the corresponding fraction greater than zero and less than or equal to one with denominators of 2, 3, 4, 6, and 8 given a specified point on a number line; ***Supporting*** (C) explain that the unit fraction 1/*b* represents the quantity formed by one part of a whole that has been partitioned into *b* equal parts where *b* is a non-zero whole number; ***Supporting*** (D) compose and decompose a fraction *a*/*b* with a numerator greater than zero and less than or equal to *b* as a sum of parts 1/*b*; ***Supporting*** (E) solve problems involving partitioning an object or a set of objects among two or more recipients using pictorial representations of fractions with denominators of 2, 3, 4, 6, and 8; ***Supporting*** (F) represent equivalent fractions with denominators of 2, 3, 4, 6, and 8 using a variety of objects and pictorial models, including number lines; ***Readiness*** (G) explain that two fractions are equivalent if and only if they are both represented by the same point on the number line or represent the same portion of a same size whole for an area model; and ***Supporting*** (H) compare two fractions having the same numerator or denominator in problems by reasoning about their sizes and

		justifying the conclusion using symbols, words, objects, and pictorial models. ***Readiness*** **3.7 Geometry and measurement. The student applies mathematical process standards to select appropriate units, strategies, and tools to solve problems involving customary and metric measurement. The student is expected to:** (A) represent fractions of halves, fourths, and eighths as distances from zero on a number line; ***Supporting***
4/10 days	**Unit 13: Customary Length, Weight, and Capacity**	**3.7 Geometry and measurement. The student applies mathematical process standards to select appropriate units, strategies, and tools to solve problems involving customary and metric measurement. The student is expected to:** (A) represent fractions of halves, fourths, and eighths as distances from zero on a number line; ***Supporting*** (D) determine when it is appropriate to use measurements of liquid volume (capacity) or weight; and ***Supporting*** (E) determine liquid volume (capacity) or weight using appropriate units and tools. ***Supporting***

Grade 3 Pacing Guide (2016-2017)

4th Grading Period	Unit Name	Texas Essential Knowledge and Skills
Ongoing	**Process Standards**	**3.1 Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:** (A) apply mathematics to problems arising in everyday life, society, and the workplace; (B) use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution; (C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems; (D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate; (E) create and use representations to organize, record, and communicate mathematical ideas; (F) analyze mathematical relationships to connect and communicate mathematical ideas; and (G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.
6/10 days	**Unit 13:** **Customary Length, Weight, and Capacity**	**3.7 Geometry and measurement. The student applies mathematical process standards to select appropriate units, strategies, and tools to solve problems involving customary and metric measurement. The student is expected to:** (A) represent fractions of halves, fourths, and eighths as distances from zero on a number line; ***Supporting*** (D) determine when it is appropriate to use measurements of liquid volume (capacity) or weight; and ***Supporting*** (E) determine liquid volume (capacity) or weight using appropriate units and tools. ***Supporting***
7 days	**Unit 14:** **Time**	**3.7 Geometry and measurement. The student applies mathematical process standards to select appropriate units, strategies, and tools to solve problems involving customary and metric measurement. The student is expected to:** (C) 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; ***Supporting***
11 days	**Unit 15:** **Area and Perimeter**	**3.6 Geometry and measurement. The student applies mathematical process standards to analyze attributes of two-dimensional geometric figures to develop generalizations about their properties. The student is expected to:** (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; ***Readiness*** (D) decompose composite figures formed by rectangles into non-overlapping rectangles to determine the area of the original figure using the additive property of area; and ***Supporting*** **3.7 Geometry and measurement. The student applies mathematical process standards to select appropriate units, strategies, and tools to solve problems involving customary and metric measurement. The student is expected to:** (B) determine the perimeter of a polygon or a missing length when given perimeter and remaining side lengths in problems; ***Readiness***

Grade 3 Pacing Guide (2016-2017)

10 days	**Unit 16: STAAR Review**	
7 days	**Unit 17: Angles and Lines**	**3.6 Geometry and measurement. The student applies mathematical process standards to analyze attributes of two-dimensional geometric figures to develop generalizations about their properties. The student is expected to:** (A) 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; (B) use attributes to recognize rhombuses, parallelograms, trapezoids, rectangles, and squares as examples of quadrilaterals and draw examples of quadrilaterals that do not belong to any of these subcategories;
8 days	**Unit 18: Multi-Operation Bar Models**	**3.4 Number and operations. The student applies mathematical process standards to develop and use strategies & methods for whole number computations in order to solve problems with efficiency and accuracy. The student is expected to:** (A) 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; ***Readiness*** (G) use strategies and algorithms, including the standard algorithm, to multiply a two-digit number by a one-digit number. Strategies may include mental math, partial products, and the commutative, associative, and distributive properties; ***Supporting*** (H) determine the number of objects in each group when a set of objects is partitioned into equal shares or a set of objects is shared equally; ***Supporting*** (J) determine a quotient using the relationship between multiplication and division; ***Supporting*** (K) 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. ***Readiness*** **3.5 Algebraic reasoning. The student applies mathematical process standards to analyze and create patterns and relationships. The student is expected to:** (A) represent one- and two-step problems involving addition and subtraction of whole numbers to 1,000 using pictorial models, number lines, and equations; ***Readiness*** (B) represent and solve one- and two-step multiplication and division problems within 100 using arrays, strip diagrams, and equations; ***Readiness*** (C) describe a multiplication expression as a comparison such as 3 x 24 represents 3 times as much as 24; ***Supporting*** (D) determine the unknown whole number in a multiplication or division equation relating three whole numbers when the unknown is either a missing factor or product; and ***Supporting***