Math, Grade 3 (IMRA)

Subject: Mathematics
Grade: 03
Expectations: 53
Breakouts: 233

(a) Introduction.

1. The desire to achieve educational excellence is the driving force behind the Texas essential knowledge and skills for mathematics, guided by the college and career readiness standards. By embedding statistics, probability, and finance, while focusing on computational thinking, mathematical fluency, and solid understanding, Texas will lead the way in mathematics education and prepare all Texas students for the challenges they will face in the 21st century.

2. The process standards describe ways in which students are expected to engage in the content. The placement of the process standards at the beginning of the knowledge and skills listed for each grade and course is intentional. The process standards weave the other knowledge and skills together so that students may be successful problem solvers and use mathematics efficiently and effectively in daily life. The process standards are integrated at every grade level and course. When possible, students will apply mathematics to problems arising in everyday life, society, and the workplace. Students will use a problem-

(1)

      (ii)   compose 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 pictorial models

      (iii)   compose 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 numbers, including expanded notation as appropriate

      (iv)   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

      (v)   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 pictorial models

      (vi)   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 numbers, including expanded notation as appropriate

(B) describe the mathematical relationships found in the base-10 place value system through the hundred thousands place;

      (i)   describe the mathematical relationships found in the base-10 place value system through the hundred thousands place

(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

      (i)   represent a number on a number line as being between two consecutive multiples of 10; 100; 1,000; or 10,000

      (ii)   use words to describe relative size of numbers in order to round whole numbers

(D) compare and order whole numbers up to 100,000 and represent comparisons using the symbols >,

      (i)   compare whole numbers up to 100,000

      (ii)   order whole numbers up to 100,000

      (iii)   represent comparisons using the symbols >, <, or =

(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;

      (i)   represent fractions greater than zero and less than or equal to one with denominators of 2 using concrete objects

      (ii)   represent fractions greater than zero and less than or equal to one with denominators of 3 using concrete objects

      (iii)   represent fractions greater than zero and less than or equal to one with denominators of 4 using concrete objects

      (iv)   represent fractions greater than zero and less than or equal to one with denominators of 6 using concrete objects

      (v)   represent fractions greater than zero and less than or equal to one with denominators of 8 using concrete objects

      (vi)   represent fractions greater than zero

(vii)   represent fractions greater than zero and less than or equal to one with denominators of 3 using pictorial models, including strip diagrams

(viii)   represent fractions greater than zero and less than or equal to one with denominators of 4 using pictorial models, including strip diagrams

(ix)   represent fractions greater than zero and less than or equal to one with denominators of 6 using pictorial models, including strip diagrams

(x)   represent fractions greater than zero and less than or equal to one with denominators of 8 using pictorial models, including strip diagrams

(xi)   represent fractions greater than zero and less than or equal to one with denominators of 2 using pictorial models, including number lines

(xii)   represent fractions greater than zero and less than or equal to one with denominators of 3 using pictorial models, including number lines

(xiii)   represent fractions greater than zero and less than or equal to one with denominators of 4 using pictorial models, including number lines

(xiv)   represent fractions greater than zero and less than or equal to one with denominators of 6 using pictorial models, including number lines

(xv)   represent fractions greater than zero and less than or equal to one with denominators of 8 using pictorial models, including number lines

(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;

(i)   determine the corresponding fraction greater than zero and less than or equal to one with [a] denominator of 2 given a specified point on a number line

(ii)   determine the corresponding fraction greater than zero and less than or equal to one with [a] denominator of 3 given a specified point on a number line

(iii)   determine the corresponding fraction greater than zero and less than or equal to one with [a] denominator of 4 given a specified point on a number line

(iv)   determine the corresponding fraction greater than zero and less than or equal to one with [a] denominator of 6 given a specified point on a number line

(v)   determine the corresponding fraction greater than zero and less than or equal to one with [a] denominator of 8 given a specified point on a number line

(C) explain that t

(E)

(iii)   compare two fractions having the same numerator or denominator in problems by reasoning about their sizes and justifying the conclusion using objects

(iv)

      (iii)   solve two-step problems involving multiplication within 100 using strategies based on objects; pictorial models, including arrays, area models, and equal groups; properties of operations; or recall of facts

      (iv)   solve two-step problems involving division within 100 using strategies based on objects; pictorial models, including arrays, area models, and equal groups; properties of operations; or recall of facts

      (v)   solve 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

(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;

      (i)   represent one-step problems involving addition of whole numbers to 1,000 using pictorial models

      (ii)   represent one-step problems involving addition of whole numbers to 1,000 using number lines

      (iii)   represent one-step problems involving addition of whole numbers to 1,000 using equations

      (iv)   represent one-step problems involving subtraction of whole numbers to 1,000 using pictorial models

      (v)   represent one-step problems involving subtraction of whole numbers to 1,000 using number lines

(i) decompose composite figures formed by rectangles into non-overlapping rectangles to determine the area of the original figure using the additive property of area

(E) decompose two congruent two-dimensional figures into parts with equal areas and express the area of each part as a unit fraction of the whole and recognize that equal shares of identical wholes need not have the same shape.

    (i) decompose two congruent two-dimensional figures into parts with equal areas

    (ii) express the area of each part as a unit fraction of the whole

    (iii) recognize that equal shares of identical wholes need not have the same shape

(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;

    (i) represent fractions of halves as distances from zero on a number line

    (ii) represent fractions of fourths as distances from zero on a number line

    (iii) represent fractions of eighths as distances from zero on a number line

(B) determine the perimeter of a polygon or a missing length when given perimeter and remaining side lengths in problems;

    (i) determine the perimeter of a polygon or a missing length when given perimeter and remaining side lengths in problems

(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-

        (i)   solve one-step problems using categorical data represented with a frequency table, dot plot, pictograph, or bar graph with scaled intervals

        (ii)   solve two-step problems using categorical data represented with a frequency table, dot plot, pictograph, or bar graph with scaled intervals

(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;

        (i)   explain the connection between human capital/labor and income

    (B) describe the relationship between the availability or scarcity of resources and how that impacts cost;

        (i)   describe the relationship between the availability or scarcity of resources and how that impacts cost

    (C) identify the costs and benefits of planned and unplanned spending decisions;

        (i)   identify the costs of planned spending decisions

        (ii)   identify the costs of unplanned spending decisions

        (iii)   identify the benefits of planned spending decisions

        (iv)   identify the benefits of 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;

        (i)   explain that credit is used when wants or needs exceed the ability to pay

        (ii)   explain that it is the borrower's responsibility to pay it back to the lender, usually with interest

    (E) list reasons to save and explain the benefit of a savings plan, including for college; and

        (i)   list reasons to save

        (ii)   explain the benefit of a savings plan, including for college

    (F) identify decisions involving income, spending, saving, credit, and charitable giving.

        (i)   identify decisions involving income

        (ii)   identify decisions involving spending

        (iii)   identify decisions involving saving

        (iv)   identify decisions involving credit

        (v)   identify decisions involving charitable giving