

# Mathematics

## Grade 5



### QUARTER 1

#### Processes of Mathematics

*(These processes are the structure for delivery of mathematics content objectives.)*

Objectives – The students will be able to:

- a. Select and apply appropriate strategies to solve a problem. (Problem Solving) (3.7.A.1.a-h)
- b. Justify solutions to problems with logic and evidence. (Reasoning and Proof) (3.7.B.1.a-d)
- c. (Representation): Represent mathematical concepts in a variety of ways including visual, concrete, and abstract. (Representation)
- d. Write about and discuss mathematical concepts. (Communication) (3.7.C.1.a-h)
- e. Connect mathematical concepts to related concepts and/or connect mathematical concepts to real-world applications. (Connections) (3.7.D.1.a-d)

#### Algebra, Patterns, and Functions

Objectives - The students will be able to:

- a. Interpret, complete, and write a rule for a one-operation function table. (5.1.A.1.c)
- b. Analyze patterns and generalize rules illustrated in patterns and function tables. (5.1.A.1.a)
- c. Construct a function table to solve a problem. (5.1.A.1.b)
- d. Determine the value of algebraic expressions. (5.1.B.1.b)
- e. Write and identify expressions to represent unknown quantities with one unknown and one-operation (+, -, x, ÷ with no remainders). (5.1.B.1.a)
- f. Find the unknown in an equation using one operation (+, -, x, ÷ with no remainders). (5.1.B.2.b)
- g. Identify, write or solve inequalities. (5.1.B.2.a)
- h. Use parenthesis to evaluate numeric expressions. (5.1.B.1.C)

#### Number Relationships and Computation (Whole Numbers)

Objectives - The students will be able to:

- a. Identify place value and state the value of each digit in a given numeral to 1,000,000,000
- b. Write numerals using expanded notation.
- c. Identify prime numbers and composite numbers through 100. (5.6.B.1.a)
- d. Multiply a three-digit number by a two-digit number. (5.6.C.1.a)
- e. Use divisibility rules to determine if numbers are divisible by 2, 3, 5, 6, and 10. (5.6.B.1.b)
- f. Divide a four-digit number by a one- or two-digit divisor. (5.6.C.1.b)
- g. Solve problems using addition, subtraction, multiplication, and/or division.
- h. Interpret the remainder for a given situation. (5.6.C.1.c)
- i. Estimate products and quotients. (5.6.C.2.b)

## **Statistics (Analyze and Interpret Data)**

Objectives - The students will be able to:

- a. Analyze, interpret, and make predictions (in oral and written form) based on tables, frequency tables, single and double bar graphs, line plots, single and double line graphs, stem and leaf plots, and circle graphs. (5.4.B.1.a, 5.4.B.1.b, 5.4.B.1.c, 5.4.B.1.d, 5.4.B.1.e)
- b. Describe the shape and important features of a data set (using the terms cluster, range, and outlier).
- c. Find the mean, median, mode, and range of a data set. (5.4.B.2.a)
- d. Interpret a data set based on the mean, median, mode, and range. (5.4.B.2.b)

## **QUARTER 2**

### **Processes of Mathematics**

*(These processes are the structure for delivery of mathematics content objectives.)*

Objectives – The students will be able to:

- a. Select and apply appropriate strategies to solve a problem. (Problem Solving) (3.7.A.1.a-h)
- b. Justify solutions to problems with logic and evidence. (Reasoning and Proof) (3.7.B.1.a-d)
- c. (Representation): Represent mathematical concepts in a variety of ways including visual, concrete, and abstract. (Representation)
- d. Write about and discuss mathematical concepts. (Communication) (3.7.C.1.a-h)
- e. Connect mathematical concepts to related concepts and/or connect mathematical concepts to real-world applications. (Connections) (3.7.D.1.a-d)

### **Number Relationships and Computation (Fractions)**

Objectives - The students will be able to:

- a. Read, write, and represent a fraction for a given region or part of a set. (5.6.A.1.a)
- b. Compare and order fractions with like and unlike denominators. (5.6.A.1.d)
- c. Find factors, common factors, and greatest common factors of numbers. (5.6.B.1.c)
- d. Simplify fractions.
- e. Identify and determine equivalent forms of proper fractions. (5.6.A.1.c)
- f. Find multiples and least common multiples of numbers. (5.6.B.1.d)
- g. Rename mixed numerals as improper fractions and improper fractions as mixed numerals.
- h. Add and subtract fractions with like and unlike denominators with sums greater than and less than one. (5.6.C.1.d)
- i. Add and subtract mixed numerals with like and unlike denominators with and without renaming.

### **Number Relationships and Computation (Fractions, Decimals, and Percents)**

Objectives - The students will be able to:

- a. Identify equivalent decimals through thousandths.
- b. Read, write, compare, and order decimals through thousandths and show relationship to common fractions. (5.6.A.1.b)
- c. Represent fractions, mixed numbers, and decimals (through thousandths) on a number line. (5.1.C.1.a)
- d. Represent fractions, decimals, and percents in equivalent forms using a variety of strategies including models and drawings.
- e. Add and subtract decimals through thousandths, including money. (5.6.c.1.e, 5.6.C.1.f)

## Probability

Objectives - The students will be able to:

- a. Determine possible outcomes of independent events. (5.5.A.1.a)
- b. Find the probability of an event with equally likely outcomes and express as a fraction, decimal, or percent. (5.5.A.1.a)

## QUARTER 3

### Processes of Mathematics

*(These processes are the structure for delivery of mathematics content objectives.)*

Objectives – The students will be able to:

- a. Select and apply appropriate strategies to solve a problem. (Problem Solving) (3.7.A.1.a-h)
- b. Justify solutions to problems with logic and evidence. (Reasoning and Proof) (3.7.B.1.a-d)
- c. (Representation): Represent mathematical concepts in a variety of ways including visual, concrete, and abstract. (Representation)
- d. Write about and discuss mathematical concepts. (Communication) (3.7.C.1.a-h)
- e. Connect mathematical concepts to related concepts and/or connect mathematical concepts to real-world applications. (Connections) (3.7.D.1.a-d)

## Geometry

Objectives - The students will be able to:

- a. Identify, describe, label, and draw points, lines, line segments, and rays. (5.2.A.1.a)
- b. Identify, describe, and classify lines as intersecting, parallel, or perpendicular.
- c. Classify, measure (using a protractor), draw and label acute, right, and obtuse angles. (5.3.B.1.a, 5.2.C.1.a)
- d. Identify, define, and classify triangles as equilateral, isosceles, right, or scalene. (5.2.A.2.b)
- e. Identify polygons within a composite figure. (5.2.A.1.b)
- f. Identify the radius, diameter, and circumference of a circle. (5.2.A.1.c)
- g. Compare or classify quadrilaterals by length of sides and measure of angles. (5.2.A.2.a)
- h. Identify and classify pyramids or prisms as triangular pyramids, rectangular pyramids, triangular prisms or rectangular prisms by the number of edges, faces or vertices. (5.2.B.1.a)
- i. Identify and classify pyramids as triangular or rectangular by the base. (5.2.B.1.b)
- j. Analyze the relationship between plane geometric figures and surfaces of solid figures.
- k. Identify and model transformations: translations, reflections, and rotations (5.2.E.1.a)
- l. Identify, describe, and represent similarity and congruency of geometric figures and real-world objects using the appropriate symbols. (5.2.D.1.a)
- m. Identify and graph the ordered pairs for points and locate the points for ordered pairs in the first quadrant of a coordinate grid. (5.1.C.1.b)

## Measurement

Objectives - The students will be able to:

- a. Select and use the appropriate tool/unit for measuring attributes of length (including perimeter, width, height, circumference, and distance) area, weight temperature, time, capacity, volume, and size of angle (using a protractor). (5.3.B.1.a)

- b. Estimate length, height, weight, mass, and capacity. (5.3A.1.a, 5.3.A.1.b)
- c. Use equivalent units within the same system (convert between inches, feet, and yards; millimeters, centimeters, meters; seconds, minutes, hours; pints, quarts, and gallons). (5.3.C.1.b)
- d. Estimate and determine the perimeter of polygons and real world objects. (5.3.C.1.a)
- e. Determine the lengths of the sides of a regular polygon, given the perimeter. (5.3.C.1.a)
- f. Estimate and determine (using formulas) the area of rectangles, squares, triangles, and parallelograms. (5.3.C.1.b)
- g. Determine perimeter and area of irregular polygons.
- h. Estimate and determine the volume of a rectangular prism using manipulatives and formulas ( $V = lwh$ ). (5.3.C.2.a)
- i. Determine volume of irregular objects.
- j. Estimate and determine elapsed time to solve real world problems. (5.3.C.2.a)

## QUARTER 4

### Processes of Mathematics

*(These processes are the structure for delivery of mathematics content objectives.)*

Objectives – The students will be able to:

- a. Select and apply appropriate strategies to solve a problem. (Problem Solving) (3.7.A.1.a-h)
- b. Justify solutions to problems with logic and evidence. (Reasoning and Proof) (3.7.B.1.a-d)
- c. (Representation): Represent mathematical concepts in a variety of ways including visual, concrete, and abstract. (Representation)
- d. Write about and discuss mathematical concepts. (Communication) (3.7.C.1.a-h)
- e. Connect mathematical concepts to related concepts and/or connect mathematical concepts to real-world applications. (Connections) (3.7.D.1.a-d)

### Number Relationships and Computation (Multiplication of Decimals, Ratios, and Proportions)

Objectives - The students will be able to:

- a. Multiply a whole number by a decimal (tenths/hundredths). (5.6.C.1.g)
- b. Divide a decimal by a whole number. (5.6.C.1.h)
- c. Explain and give an example of ratio and equal ratio.
- d. Identify equal ratios by finding equivalent fractions.
- e. Represent fractions, decimals, and percents in equivalent forms using a variety of strategies including models and drawings.
- f. Calculate and estimate the percent of a given number.
- g. Calculate the percent of a number using the % key on a calculator.
- h. Use percent to solve problems involving sales, commissions, and tips.

### Statistics (Organize and Display Data)

Objectives - The students will be able to:

- a. Describe the shape and important features of a data set using the terms cluster, range, median, mode, and outlier.
- b. Collect, organize, and display data using tables (frequency tables), single and double bar graphs, line plots, single and double line graphs, stem and leaf plots, and back-to-back stem and leaf plots. (5.4.A.1.a-f)
- c. Use technology to construct tables and graphs.