**ROMAN CATHOLIC BISHOP OF NOVALICHES**
**EDUCATIONAL SYSTEM (RCBN-ES, Inc.)**
Quirino Hi-way cor. P. dela Cruz St., Novaliches, Quezon City
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# 3rd Quarter MATHEMATICS Pointers to Review

S.Y. 2017 – 2018

## Grade 1

### Grouping

- Count groups of equal quantity using concrete objects up to 50 and writes an equivalent expression. e.g. 2 groups of 5
- Visualizes, represents, and separates objects into groups of equal quantity using concrete objects up to 50. e.g. 10 grouped by 5s

### Fractions

- Visualizes and identifies ½ and ¼ of a whole object.
- Visualizes, represents, and divides a whole into halves and fourths.
- Visualizes, and divides the elements of sets into two groups of equal quantities to show halves.
- Visualizes, represents, and divides the elements of sets into four groups of equal quantities to show fourths
- Visualizes and draws the whole region or set given its ½ and/or ¼.

### Shapes and patterns

- Identifies, names, and describes the four basic shapes (square, rectangle, triangle and circle) in 2-dimensional (flat/plane) and 3-dimensional (solid) objects
- Draw the four basic shapes.
- Compares and classifies 2-dimensional (flat/plane) and 3-dimensional (solid) figures according to common attributes.
- Constructs three dimensional objects (solid) using manipulative materials.
- Determines the missing term/s in a given continuous pattern using one attribute (letters/ numbers/events).
- Determines the missing term/s in a given repeating pattern using one attribute(letters, numbers, colors, figures, sizes, etc.).
- Constructs equivalent number expression using addition and subtraction. e.g. 6 + 5 = 12 - 1
- Identifies and creates patterns to compose and decompose using addition. e.g. 7 = 0 + 7, 1 + 6, 2 + 5, 3 + 4, 4 + 3, 5 + 2, 6 + 1, 7 + 0
- Visualizes and finds the missing number in an addition or subtraction sentence using a variety of ways e.g.
  n + 2 = 5
  5 – n = 3

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## Grade 2

### Division of Whole Numbers

- visualizes and represents division
- illustrates that multiplication and division are inverse operations
- visualizes and represents division as:
  a. Repeated Subtraction
  b. Sharing
  c. Dividing Using Partitioning
  d. Dividing Using Number Line
- visualizes division of numbers up to 100 by 2,3,4,5, and 10
- solves routine and non-routine problems involving division

### Fraction

- visualizes, represents and identifies unit fractions
- compares unit fractions using relation symbols
- arranges unit fractions in increasing or decreasing order
- identifies other fractions less than one with denominators 10 and below
- visualizes similar fractions
- compares similar fractions using relation symbols
- arranges similar fractions in increasing or decreasing order
- Visualizes and represents proper fractions

## Geometry, Algebra and Patterns

- Visualizes, identifies, classifies and describes half-circles and quarter circles
- Constructs squares, rectangles, triangle, circles, half-circles and quarter circles
- Identifies shapes/figures that show symmetry in a line
- Recognizes shapes that can tessellate
- Identify and explain the differences between straight lines and curved lines
- Visualizes common space figures
- determines the missing term/s in a given continuous pattern
- visualizes and finds the missing value in a number

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## Grade 3
**Numbers and number sense, Geometry**

* Identifies odd and even numbers.
* Visualizes and represents fractions that are equal to one and greater than one.
* Reads and writes fractions that are equal to one and greater than one in symbols and in words.
* Represents fractions using regions, sets, and the number line.
* Visualizes and represents dissimilar fractions.
* Visualizes, represents, and compares dissimilar fractions.
* Compares unit fractions using relation symbols.
* Visualizes, represents, and arranges dissimilar fractions in increasing or decreasing order.
* Visualizes and generates equivalent fractions.
* Recognizes and draws a point, line, line segment and ray.
* Recognizes and Draws perpendicular lines, parallel lines and intersecting lines
* Visualizes, identifies and draws congruent line segments.
* Completes a symmetric figure with respect to a given line of symmetry.
* Tessellates the plane using triangles, squares and other shapes that can tessellate.
* Determines the missing term/s in a given combination of continuous and repeating pattern.

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## Grade 4

## GEOMETRY, PATTERNS & ALGEBRA & MEASUREMENT

- Describes and illustrates different geometric figures
- Describes and illustrates different kinds of lines
- Describes and illustrates different angles and angle pairs
- Identifies, describes and illustrates different polygons
- Identifies and describes triangles according to sides and angles
- Identifies and describes different kinds of quadrilaterals
- Identify symmetrical figures
- Identifies and describes common solids particularly cube and rectangular prism
- Identify patterns from a given set of objects
- Determines the missing object in a given set
- Identify patterns from a given set of numbers
- Determines the missing term in a sequence
- Determines the missing term in an equation
- Convert one unit of time to another
- Identify the elapsed time
- Solve word problems involving time
- Measures the perimeter of any given figure
- Solve word problems involving perimeter
- Measures the perimeter of any given figure
- Solve word problems involving perimeter
  - ❖ Differentiate perimeter from area
  - ❖ Convert square cm to square m and vice versa

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**Grade 5**
**Percent, Geometry, Patterns and Algebra, Measurement**

- visualizes percent and its relationship to fractions, ratios and decimal numbers using models
- defines percentage, rate or percent, and base
- identifies the base, percentage, and rate in the problem
- finds the percentage in a given problem
- solves routine and non-routine problems involving percentage using appropriate strategies and tools
- creates problems involving percentage with reasonable answers
- solves routine and non-routine problems involving percentage using appropriate strategies and tools
- creates problems involving percentage with reasonable answers
- visualizes, names, and describes polygons with 5 or more sides
- describes and compares properties of polygons (regular and irregular polygons)
- visualizes congruent polygons
- draws polygons with 5 or more sides
- visualizes and describes a circle
- identifies the terms related to a circle
- draws circles with different radii using a compass
- visualizes and describes solid figures
- make models of different solid figures: cube, prism, pyramid, cylinder, cone, and sphere using plane figures
- formulates the rule in finding the next term in a sequence
- uses different strategies (looking for a pattern, working backwards, etc.) to solve for the unknown in simple equations involving one or more operations on whole numbers and fractions
- formulates the rule in finding the next term in a sequence
- uses different strategies (looking for a pattern, working backwards, etc.) to solve for the unknown in simple equations involving one or more operations on whole numbers and fractions
- measures time using a 12-hour and a 24-hour clock (P)
- calculates time in the different world time zones in relation to the Philippines
- solves problems involving time
- visualizes circumference of a circle
- measures circumference of a circle using appropriate tools
- derives a formula in finding the circumference of a circle
- finds the circumference of a circle
- solves routine and non-routine problems involving circumference of a circle

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## Grade 6

## Solid Figures, Patterns and Algebra and Measurement

- Visualizes and describes the different solid figures: cube, prism, pyramid, cylinder, cone, and sphere.
- Differentiates solid figures from plane figures.
- Illustrates the different solid figures using various concrete and pictorial models.
- Identifies the faces of a solid figure.
- Identifies the nets of the following space figures: cube, prism, pyramid, cylinder, cone, and sphere using plane figures.
- formulates the rule in finding the nth term using different strategies (looking for a pattern, guessing and checking, working backwards)
- differentiates expression from equation
- gives the translation of real-life verbal expressions and equations into letters or symbols and vice versa
- defines a variable in an algebraic expression and equation
- represents quantities in real-life situations using algebraic expressions and equations.
- solves routine and non-routine problems involving different types of numerical expressions and equations such as 7+ 9 =___ + 6.
- creates routine and non-routine problems involving numerical expressions and equations.
- Calculates speed, distance, and time.
- solves problems involving average rate and speed
- finds the area of composite figures formed by any two or more of the following: triangle, square, rectangle, circle, and semi-circle.
- solves routine and non-routine problems involving area of composite figures formed by any two or more of the following: triangle, square, rectangle, circle, and semi-circle
- visualizes and describes surface area and names the unit of measure used for measuring the surface area of solid/space figures
- derives a formula for finding the surface area of cubes, prisms, pyramids, cylinders, cones, and spheres.
- finds the surface area of cubes, prisms, pyramids, cylinders, cones, and spheres.
- solves word problems involving measurement of surface area.

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## Grade 7

### 1st degree equations and inequalities

- Differentiates between algebraic expressions and equations.
- translates English sentences to mathematical sentences and vice versa.
- finds the solution of linear equation or inequality in one variable.
  a. Solving Equations Using Addition or Subtraction Property of Equality (APE and SPE)
  b. Solving Equations Using Multiplication or Division
  c. Solving Multi-step Equations
- Solves problems involving equations in one variable.
  a. Number Problems
  b. Consecutive Integers Problems
  c. Age Problems
  d. Solutions Problems
  e. Investment Problems
- Solves linear equation or inequality in one variable involving absolute value by: (a) graphing; and (b) algebraic methods
- Solving linear inequalities in one variable

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## Grade 8

### Axiomatic Development of Geometry (Reasoning & Proofs)

- Determine if the given sentence is a true or false statement or not a statement.
- Write a negation statement.
- Determines the relationship between the hypothesis and the conclusion of an if-then statement.
- Transforms a statement into an equivalent if-then statement.
- Writes the inverse, converse, and contrapositive of an if-then statement.
- Uses inductive or deductive reasoning in an argument.
- Writes a proof (both direct and indirect).
- Describes a mathematical system.
- Illustrates the need for an axiomatic structure of a mathematical system in general, and in Geometry in particular: (a) defined terms; (b) undefined terms; (c) postulates; and (d) theorems.

### Triangle Congruence

- Define and illustrate congruent figures and triangle congruence
- State, illustrate and prove triangle congruence using SSS postulate.
- State, illustrate and prove triangle congruence using SAS and ASA postulates
- State, illustrate and prove triangle congruence using SAA theorem and perpendicular bisector theorem and the previous triangle
- Applies postulate and theorems on right triangle congruence to prove statements on congruence involving parts of a right triangle
- Applies theorems on isosceles triangle to prove congruent triangle.
- Applies the knowledge and skills in triangle congruence and inequalities in real life situations.

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## Grade 9

### Quadrilaterals

- Determine the conditions that make a quadrilateral a parallelogram.
- Use properties to find measures of angles, sides, and other quantities involving parallelograms.
- Identify quadrilaterals that are parallelograms
- Prove theorems in the different kinds of parallelogram
- Prove theorems on trapezoids and kites (S)
- Solve problems involving parallelograms, trapezoids and kites.

### Triangle Similarities

- Describe a proportion
- Apply the fundamental theorems of proportionality to solve problems involving proportions.
- Illustrate similarity of figures.
- Prove the conditions for similarity of triangles.
- Apply the theorems to show that given triangles are similar.
- Solve problems that involve triangle similarity and right triangles.
- Illustrate proportional segments in triangles
- Apply the theorems on proportional segments to solve problems involving similarity.
- Proves the Pythagorean Theorem.
- Solve problems that involve triangle similarity and right triangles.

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## Grade 10
## Circles

1. Defines, identifies and illustrates the parts of a circle: the center, radius, diameter, interior and exterior, chord, arc, central angle, inscribed angle.
2. Derives the relation among chords, arcs, central angles and inscribed angles.
3. States and proves the theorems relating chords, arcs, central angles and inscribed angles.
4. Defines secant and tangent lines and segments, segment and sector of a circle.
5. States and proves the theorems on secant and tangent lines and segments.
6. Solves problems that involve parts of circles.
7. Derives the distance formula between two points on the plane.
8. Applies the distance formula to derive and prove some geometric properties.
9. Derives and states the center-radius form of the equation of a circle.
10. Finds the center and radius of a circle given its equation and vice versa.