

LEARNING OUTCOMES

MATH (KG1- G12)

Learning outcomes KG1

1. Estimate the number of objects in a set.
2. Recognize and describe the concept of 0.
3. Recite verbally and trace numbers from 0 to 10.
4. Order numbers from 1 to 10.
5. Describe the comparison with appropriate vocabulary such as more, less, greater than, fewer.
6. Begin to construct a sense of time through participation in daily activities (sense of day and night but not clock.)
7. Recognize and create simple patterns in various format.
8. Sort collections of two-dimensional shapes by type (Triangles, rectangles, circles, squares, diamonds, stars, and hearts and compare their features.
9. Show understanding of location and position.
10. Combine two-dimensional shapes to create new shapes.

Learning outcomes KG2

1. Identify circle, square, rectangle, star and heart.
2. Count and write numbers from 1 to 12.
3. Explore different types of extended patterns.
4. Explore the concepts of position.
5. Determine the order of events through problem solving.
6. Estimate and measure length in arbitrary units and through simple problem solving.
7. Order numbers up to 12.
8. Complete a basic bar graph.
9. Relate the three dimensional shapes to the environment.

Learning outcomes KG3

1. Recognize number names
2. Order numbers up to hundred
3. Count to tell the number of objects.
4. Compare numbers up to ten.
5. Add and subtract one digit numbers.
6. Explore place value up to digits
7. Describe and compare measurable attributes
8. Classify objects
9. Draw lines of symmetry
10. Complete a pattern
11. Identify and describe solid shapes.
12. Analyze shapes.
13. Compose shapes.
14. Read and complete graphs using tally marks.
15. Tell time to the hour and half hour.
16. Read and write digital and analogue clock

Learning outcomes Grade 1

1. Count forward and backward.
2. Add and subtract 2 digit numbers.
3. Write fact families.
4. Write number sentences to solve problems.
5. Read and compare bar graphs, pictographs, Venn diagrams using tally marks

6. Determine if an event is more likely, less likely, or equally likely to happen
7. Use tens and ones models to show numbers to 100 (use 1's,10's, 100's blocks and place values)
8. Identify the place and value of 2 digit numbers
9. Show numbers in different forms, words, models and expanded forms(5 tens= 50)
10. Compare two-digit numbers using the symbols greater and less.
11. Identify even and odd numbers.
12. Classify plane shapes and angles.
13. Differentiate between the faces, edges, and vertices of solid shapes
14. Identify the value of US currency.
15. Compare fractions using symbols
16. Count on by 5s to tell time to the minute.

Learning outcomes Grade 2:

1. Use numbers in different ways.
2. Relate one thousand to hundreds and tens.
3. Use place and value to name numbers up to thousands.
4. Compare and order numbers using the number line.
5. Round numbers to the nearest tens and hundreds.
6. Add and subtract whole numbers up to three-digits. numbers,
7. Multiply 2 and 3- digit numbers by 1-digit using multiplication table
8. Divide by 2, 5, and 10.
9. Write a number-sentence to solve a problem.
10. Read and write fractions.
11. Tell digital and analog time.
12. Deduce dates on a calendar using addition and subtraction
13. Reason with plane figures and solid shapes.
14. Use a metric ruler in relation to length and plane shapes.
15. Distinguish between perimeter and area of two dimensional figures.

Learning outcomes Grade 3 :

1. Determine the place and value of numbers up to hundred thousands.
2. Write numbers up to hundred thousand in 4 ways.
3. Compare and order whole numbers up to 7 digits.
4. Round numbers up to 7 digits.
5. Add and subtract whole numbers up to 6 digits.
6. Multiply 2 digit numbers by 2 digit – numbers.
7. Divide two digit numbers by 1 digit number.
8. Measure and draw segments.
9. Identify and write fractions.
10. Add and subtract fractions with like denominators.
11. Organize and display data on different types of graphs.
12. Calculate elapsed time.
13. Classify polygons and angles.
14. Calculate the perimeter and area of polygons.
15. Identify the value of the US currencies.
16. Analyze and convert between units of different measurement systems. (International and American units).

Learning outcomes grade 4:

1. Read numbers up to billion.
2. Compare and order numbers up to ten digits.
3. Round numbers up to 10 digits.

4. Add and subtract whole numbers.
5. Add and subtract decimals.
6. Multiply and divide whole numbers.
7. Add and subtract unlike fractions .
8. Identify equivalent fractions .
9. Evaluate simple expressions .
10. Measure and draw different types of angles .
11. Convert between metric units of mass , length ,and capacity .
12. Calculate the mean , median , mode for a set of data .
13. Draw and identify lines , segments , points and semi-lines .
14. Explore conversion between the American currencies .

Learning outcomes grade 5 :

1. Read and write whole numbers and decimals up to millionth .
2. Order and Compare whole numbers and decimals .
3. Round and estimate the sum, difference, product and quotient of whole numbers and decimals .
4. Multiply and divide whole numbers and decimals by powers of 10.
5. List the factors and the multiples of an integer then find the LCM and GCF of 2 or more integers .
6. Find the equivalent and the simplest form of a fraction .
7. Compare and order fractions and mixed numbers .
8. Perform operations with fractions and mixed numbers.
9. Construct parallel and perpendicular lines .
10. Construct and label different types of angles.
11. Recognize different parts of a circle.
12. Find the perimeter and area of different shapes and Circumference of a circle.
13. Identify quadrilaterals through the properties of their diagonals.
14. Convert among sized standard measurement units within a given measurement system .
15. Make a line plot to display data of measurement in fractions of a unit .
16. Recognize volume as an attribute of solid figures and understand concepts of volume measurement ,
17. Graph points on the coordinate plane to solve real-world problems .

List of learning outcomes grade 6:

1. **Evaluate** expressions using order of operations
2. **Perform operations with** integers,.
3. **Graph** points in all quadrants of the coordinate plane
4. **Calculate** the GCF of 2 or more integers or monomials.
5. **Add ,subtract** , multiply and divide decimals and fractions,
6. **Use** the mean ,median, and mode .
7. **Calculate** the circumference and the area of a circle.
8. **State** and **use** the properties concerning the parallelism and the orthogonality of lines.
9. **Comprehend** the properties of a circle and particular lines (diameter- radius- chord etc....)
10. **Draw** the perpendicular bisector of line, and **use** its properties.
11. **Construct** 2 adjacent angles and 2 vertically opposite angles, and **apply** their properties.
12. **Define** and **construct** the bisectors, the heights, the perpendicular bisectors and the medians in a triangle, and **identify** particular triangles.
13. **Determine** the area of different shapes, and **convert** between different units.
14. **Calculate unit rates and ratios** .
15. **Solve one step equations and inequalities** .

By the end of Grade 7 the student will be able to :

- 1-Solve equations in one step or multi-step
- 2 -State proportions and apply percents.
- 3-Draw bisector- perpendicular bisector, adjacent angles,and use their properties for proofs
- 3-Solve inequalities algebraically and graphically,
- 4-Prove congruent triangles using the 3 congruency rules
- 5-Compare angles between parallel and transversal line
- 6-Simplify expressions using multiplication and division properties of exponents,
- 7-Classify, add , subtract and multiply polynomials

By the end of Gr 8 , the students will know how to :

- 1- Master the exponents properties
- 2- Solve complex problem LCM and GCF
- 3- Use and calculate square roots using properties
- 4- Identify parallelograms and the properties of special quadrilaterals
- 5-Solve Compound fraction
- 6-Factor polynomials using the Remarkable identities
- 7-Expand polynomials
- 8- Prove geometric shapes using properties of circles.
- 9- Identify Right triangles using Pythagoras's Theorem

By the end of Gr 9 , the students will know how to :

1. Solve linear function using slope and intercept
2. Solve system of 2 equations
3. Find the solution of system of 2 inequalities graphically
4. Draw quadratic function
5. Identify graphs
6. Factor polynomials completely
7. Expand to the nth power (Pascal's Triangle)
8. Use trigonometric functions to find missing sides and angles
9. Introduce complex numbers and its operations

G9 Brevet:

- Perform operations on rational numbers and square roots.
- Explore polynomials through expanding and factorization.
- Write proofs in geometry.
- Solve problems involving the coordinate plane and vectors.
- Interpret statistical surveys and proportionality.
- Use trigonometry to find missing measures.

G10 Precalculus 1 and geometry

- Solve and analyze word problems using Venn diagrams
- Solve absolute value equations and inequalities and write the answers in interval form
- Find the domain of definition of an expression
- Find the length of an arc and the area of the circular sector formed by a central angle

- Use Chasle's rule to simplify expressions and locate points
- **Represent a survey in a polygon and circular diagram**
- Use the identities to calculate the six trigonometric lines of an angle
- Solve absolute value ,polynomial and rational inequalities .(Sign tables)
- Solve word problems using systems
- Find the roots of polynomials using long division.
- Study the variations and graph a polynomial.

G 11 Calculus AP

- Solve quadratic ,cubic ,quartic, rational and irrational, logarithmic and exponential equations.
- Solve all kinds of inequalities using a sign table.
- Investigate all kinds of limits in graphs and by calculation.
- Discover the rate of change and calculate the derivatives of all kinds of elementary functions.
- Apply the differentiation and limits skills to graph curves of functions.
- Calculate definite and indefinite integrals and apply them to find areas and volumes.
- Explore permutations and combinations and apply them in probability problems.
- Calculate the cross and the scalar product and use these skills in space geometry problems.
- Define arithmetic and geometric sequence and use them in real life situations.
- Perform operations on complex numbers and solve problems in the complex plane.

G12 calculus BC

Same topics of G11 with more depth and practice in addition to:

- Identify series and study their convergence and divergence.
- Apply integration and differentiation with polar coordinates.

G12 Essential math

- *Review the main concept of functions.*
- *Explore the properties of logarithmic and exponential functions*
- *Review the SAT I concepts*
- *Calculate the limits of algebraic and non-algebraic expressions*
- *Operate the derivative of algebraic and non-algebraic functions*
- *Investigate the variation of rational functions through limits , continuity and derivative*
- *Integrate algebraic and non-algebraic expressions*
- *Calculate areas using definite integrals*
- *Apply the derivative and integral to business and economics.*
- *Draw the figure of different conics shape using transformations*
- *Review the topics of SAT II*