Course Curriculum - Grade 4 Mathematics – IB Program

Welcome to Grade 4 Mathematics in the IB Program: Mastering Math!

Our Grade 4 Mathematics course is designed to empower young learners by helping them develop a solid understanding of fundamental mathematical principles and apply these in various everyday contexts. This course offers a dynamic mix of interactive activities, comprehensive lessons, and practical exercises to foster an appreciation of math's role in everyday life. Our approach focuses on developing students' problem-solving skills, analytical thinking, and enhancing their ability to apply mathematical principles creatively.

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Throughout this course, students will engage in a dynamic mix of interactive activities, comprehensive lessons, and practical exercises designed to promote an appreciation of math's role in everyday life. Our approach is focused on developing the student's problem-solving skills, analytical thinking, and enhancing their ability to apply mathematical principles creatively.

Curriculum Highlights:

1. Number Sense and Operations: Students will enhance their understanding of the place-value system, and master the four basic operations - addition, subtraction, multiplication, and division with multi-digit numbers. For example, students will learn to multiply a two-digit number by a two-digit number and long division.

2. Fractions: We will introduce students to the fascinating world of fractions. They will learn to compare, order, add, and subtract fractions, and understand the relationship between fractions and decimals.

3. Geometry: Students will learn to identify, classify, and measure various two-dimensional shapes (like squares, rectangles, triangles) and three-dimensional shapes (like cubes, spheres).

4. Data Analysis: The course introduces students to basic data interpretation skills through the usage of bar graphs and line plots.

5. Algebra: We will introduce basic algebraic concepts where students will learn to solve simple equations and understand the use of variables.

6. Measurement: Students will become familiar with measurements and learn how to calculate the area and perimeter of basic shapes, and understand the concept of volume.

By the end of the course, the child will attain a robust understanding of these concepts, equipping them with the skills needed to tackle more advanced mathematical challenges in the future. This course will lay a strong foundation for future math learning, while also helping students see the real-world relevance of the math concepts they're studying.

Therefore, Equip your child with the right tools for math success today with our Grade 4 Mathematics course, "Mastering Math".

The content of the Course:

Place value, Rounding, Addition, and Subtraction:
Students learn to compare numbers, round to any place, work towards fluency with the standard algorithms for adding and subtracting, and solve multi-step word problems involving addition and subtraction.

Multi-Digit Multiplication:
Students are introduced to multi-digit multiplication and its applications, including multiplicative comparison.

Multi-Digit Division:
Students explore multi-digit division and its applications, which include interpreting a remainder in division word problems and using division to interpret a repeating pattern.

Fraction Equivalence and Ordering:
Students are exposed to factors and multiples, then develop general methods and strategies to recognize and generate equivalent fractions, as well as learn to compare fractions with different numerators and different denominators.

Fraction Operation: ((Advanced Topic))
Students start to operate on fractions, learning how to add fractions with like denominators and multiply a whole number by any fraction.

Decimal Fractions:
Students expand their concept of what a “number” is as they are introduced to an entirely new category of number, decimals, which they learn to convert, compare, and add in simple cases.

Unit Conversions:
Students build their competencies in measurement, relating multiplication to the conversion of measurement units and exploring strategies for solving measurement problems.

Shapes and Angles:
Students build their competencies in measurement, relating multiplication to the conversion of measurement units and exploring strategies for solving measurement problems.

The table below clarifies the course content, the chapters and the main skills in each chapter:

#	Chapter	Skills
1	Chapter One: Place Value, Rounding - Whole Numbers	• Learning about numbers with up to 7 place values, • Learning to read and write numbers with 7 place values, • Learning the place values for numbers, learning what each number represents in a number of 6 place values, • Learning what each number represents in a number of 7 place values and solving related problems, • Using place values to break down numbers up to a million, • Learning the different ways in which numbers can be written, • solving problems related to place values, • multiplying any number by 10, 100, & 1000, • dividing any number by 10, 100, & 1000, • solving problems related to multiplying and dividing by 10, 100, & 1000, • rounding a number made up of 7 place values to the nearest 10, 100, & 1000, • specifying the place value that is being rounded to, using < & > to compare and arrange numbers up to a million, • using place values to compare and arrange numbers and solve related problems, • learning about odd and even numbers, • learning the multiples of 5, 10, 25, 50, 100, • making generalizations about sums, differences and multiples, • learning the basic terminology (skipping and patterns, ascending & descending patterns, • forming patterns using one calculation, • describing numerical patterns & finding their rule, • writing patterns and solving related problems)
2	Chapter Two: Fraction Equivalence and Ordering - Decimals	• Understanding fractions, • representing a fraction on the fraction table, • representing a fraction on a number line and solving related problems, • writing parts of 10, 100, & 1000 as decimals, • understanding what each number represents in a decimal, • counting up and down using numbers as parts of 10, 100, & 1000 and knowing when these parts are shown, • using the decimal point to represent numbers as parts of 10, 100, & 1000, • writing decimals using the breaking down method, • comparing decimals up to 1 and 2 decimal places, • arranging numbers up to two decimal places, • comparing and organizing numbers up to 3 decimal places,

		• rounding any number with 3 decimal places to the nearest whole number or first or second decimal place, • specifying equivalent fractions for a given fraction and being able to name it and write it, • using the fraction table to find equivalent fractions, • understanding fractions and equivalent decimals and their use in organizing fractions, • turning improper fractions into decimals, • arranging a set of decimals and solving related problems, comparing fractions and decimals using <,>, & =, • arranging fractions and decimals and solving related problems
3	Chapter Three: Addition & Subtraction	• Counting up or down by thousands, hundreds, tens, and ones to add or subtract, • learning which numbers change and when they change, improving the skill of mental addition and subtraction, • adding sets of two- and three-digit numbers using methods such as counting up, compensation, and partial sums, • subtracting sets of two- or three-digit numbers using methods such as counting down, • compensation, partial differences and friendly numbers, • mental addition for numbers close to the multiples of 10 and 100, • mental subtraction for numbers close to the multiples of 10 and 100, • using the compensation method, finding the difference between numbers close to the multiples of 1000, • choosing the appropriate strategies for adding and subtracting three-digit numbers and learning new strategies, • using the column method to add two or more numbers of up to 7 place values, • using the column method to subtract two or more numbers up to 7 place values, • adding two fractions with one denominator being double the other's denominator, • subtracting two fractions with one denominator being double the other's denominator, • using multiple strategies to mentally add or subtract multiples of 10, 100, & 1000, • adding decimals with one and two decimal places without regrouping, • subtracting decimals with one and two decimal places without regrouping, • subtracting decimals with one and two decimal places using borrowing.

4	Chapter Four: Division & Multiplication	• Searching for divisibility by 2, 3, 5, 10, & 100, • finding multiples of 2, 3, 5, 10 & 100, • finding factors of two-digit numbers, • learning the multiplication table, • writing multiplication equations using a multiplication table and finding the related division equation, • finding sets of factors for two-digit numbers, • understanding prime numbers, understanding composite numbers, • distinguishing between prime and composite numbers, • using prime and composite numbers to solve real life problems, • multiplying a three-digit number with a one-digit number, • multiplying a two-digit number with a two-digit number, • using different strategies to find the product, • dividing three-digit numbers by one-digit numbers, • understanding the division algorithm, • checking the answer, learning division within multiplication facts for numbers up to 10 x 10, • using multiplication & division triangles to find the quotient, • multiplying one-digit numbers by multiples of 10 to 90, • multiplying one-digit numbers by multiples of 100 to 900, • multiplying one-digit numbers by 19 or 21 using the multiplication by 20, • multiplying one-digit numbers by 25 using the multiplication method by 100, • finding sets of factors for numbers, multiplying two two-digit numbers using factor sets, • using multiplication with factor sets to solve real life problems, • multiplying three-digit numbers with two-digit numbers, • using long multiplication to find products, • identifying the four priorities of arithmetic equations, • calculating the value of numerical expressions
5	Chapter Five: Shapes and Angles - Geometry	• Identifying the base and height of a triangle, • drawing the height using a right triangle, • describing parallel, perpendicular and intersecting lines, • identifying parallel, perpendicular and intersecting lines in networks and the environment, • drawing two parallel lines, two perpendicular lines and two intersecting lines, • imagining what a three-dimensional shape will look like based on its net diagram, • identifying net diagrams that form a cube and net diagrams that do not form a cube, • building three dimensional shapes using different materials,

		• drawing skeleton shapes and using them to designate sides and angles, • describing and identifying angles less than 90 degrees, and equivalent angles and larger angles, • estimating angle sizes and arranging them based on their sizes, • classifying angles as right, acute or obtuse, • learning how to use a protractor to measure angles, • measuring angles to the nearest 5 degrees, • drawing right angles, acute angles and obtuse angles and using a protractor to measure to the nearest degree, • drawing two corners at one point on a number line, recognizing and drawing lines of symmetry for a given shape, • identifying the number of lines of symmetry for a given shape, • finding the relationship between the number of sides and the number of lines of symmetry, • specifying the position of a shape after it is reflected and describing it, • estimating a shape's position after it is reflected, • understanding perimeter, finding the perimeter for a shape drawn on a grid, • finding the perimeter of a square and a rectangle • solving problems about perimeters, • learning about area and its unit of measurement (square unit), • finding the area of a shape drawn on a grid, • finding the area of a rectangle and a square, • solving problems about area
6	Chapter Six: Unit Conversions Measurement	• Learning about the units for measuring length, • converting from smaller units for measuring length to larger units and arranging them, • learning about the units for measuring mass (gram, kilogram, ton), • converting between the units for measuring mass and arranging them, • learning a new unit for measuring volume (milliliter), • choosing the appropriate unit for measuring volume, • converting between the units for measuring volume and arranging them
7	Chapter Seven: Data and the Coordinate Plane	• Learning about the axes of a coordinate plane (x, y), • determining the position of an object on an axis on the coordinate plane, • finding the position of a moving object on the coordinate plane, • analyzing data represented on a line graph, • representing data as a line graph, • analyzing two groups of data represented on a bar graph,

		• representing two sets of data on a bar graph, • analyzing data represented on a dot plot, • representing data on a dot plot, • conducting a random experiment and collecting the results, • distinguishing among possible, impossible, and definite events for a simple random experiment