Preschool (ages 3–5); noncompulsory	136	-	-
Primary	112	57	55
Primary-Intermediate	23	14	9
Intermediate	37	17	20
Secondary	32	13 (2 are intermediate-secondary)	19
Vocational	4	4	
Private	73 (nonsegregated)	-	-

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The Mathematics Curriculum in Primary and Lower Secondary Grades

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Numbers and Operations (whole numbers up to seven digits)	Read, write, and express numbers up to 1,000,000 Represent numbers in different ways Understand place value and the relationship between numbers Order and compare numbers Solve problems involving odd and even numbers Multiples and factors of numbers
Fractions and Decimals	Recognize fractions as parts of a whole unit or parts of a collection Read, write, identify, and determine equivalent fractions Compare and represent fractions on a number line Understand decimal place value and rounding Define decimals using words and numbers Represent decimals on a number line Compare, read, and write decimals Identify the relationship between decimals and fractions
Arithmetic Operations	Understand the four basic arithmetic operations (+, - , ×, ÷) and how they relate to one another Compare arithmetic operations in terms of properties used in calculations Add and subtract simple fractions with like and unlike denominators Solve problems including those set in a real life context Compute with numbers and estimate using the four arithmetic operations
Algebra	Identify number patterns and the relationship between patterns (numbers or terms) Extend and generate patterns Recognize variables Write simple algebraic expressions to solve for one unknown missing number or operation in a number sentence Represent real life situations using models, symbols, pictures, and words

Geometry	Identify and draw points, lines, rays, line segments, angles, triangles, and quadrilaterals Draw and distinguish between parallel, perpendicular, and intersecting lines Explore the properties of two- and three-dimensional geometric shapes Determine the line of symmetry in two-dimensional shapes Recognize congruence with and distinguish between geometric transformations (i.e., translation, reflection, and rotation)
Measurement	Recognize measurement units Choose the appropriate units to measure and estimate lengths, mass, and volume, and to solve problems involving perimeters, areas, and volume for simple figures like a polygon Identify certain types and sizes of units Read scales
Data Analysis and Probability	Collect, organize, represent, and display data in graphs Read and interpret data in pictographs, bar graphs, line graphs, and pie charts Explore and differentiate among certain, possible, and impossible events Conduct probability experiments Observe and record experiment results

Numbers and Operations (integers, rational numbers, and real numbers)	Develop and understand integers Recognize rational, irrational, and real numbers Distinguish between fractions and decimals Represent numbers on a number line Classify, compare, and order numbers Understand ratios, proportions, and percentages Carry out operations when solving problems Use factors and multiples in solving problems Calculate powers of numbers and square roots Compute and estimate using equivalent fractions and percentages; use these computations and estimations in solving problems Compute length, including side lengths of similar triangles, and in solving real life problems
Algebra	Extend and generalize numeric, algebraic, and geometric patterns or sequences including finding the missing terms Use relations and functions Simplify and evaluate algebraic expressions Explore properties of linear functions in tables, words, equations, inequalities, and graphs Solve linear equations, linear inequalities, and simultaneous linear equations algebraically in two variables including real life situations Interpret, relate, and generate representations of nonlinear (quadratic) functions in tables, graphs, or words

Geometry	Recognize the geometric properties of angles and geometric shapes (e.g., triangles, quadrilaterals, and other common polygons) Differentiate between two- and three-dimensional shapes and use their properties in solving problems Use geometric transformations to explore the properties of symmetry, similarity, and congruence Use Pythagorean theorem and properties of shapes in solving problems Use geometric models to represent numerical and algebraic relationships
Measurement	Recognize metric and customary units Demonstrate understanding of relationships among units Identify appropriate units for measuring angles, lines, area, circumference, and volume Compute and estimate area, circumference, perimeters, and volume
Data Analysis and Probability	Read and represent data displayed in different forms (e.g., line plots, tables, and bar graphs) Describe and compare different representations of the same data Calculate the mode, median, and range from a set of data Determine and estimate theoretically and empirically the probability of an outcome Use the probability of a particular outcome to solve problems

The Science Curriculum in Primary and Lower Secondary Grades

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Nature of Science	Develop understanding of the nature of science Use scientific processes and procedures to explore and explain events and phenomena
Physical Science (physics and chemistry)	Identify concepts related to motion and its relationship to force and work, energy, energy forms, sources Relate energy transfer to the state of matters

	Describe light nature Relate physical phenomena (shadows, reflections, and rainbows) to the behavior of light Describe physical phenomena's relationship to the behavior of sound (echoes, object vibrations) Demonstrate knowledge relating to the electricity and simple electrical systems Recognize simple electrical circuits in different shapes (heat, light, and sound) Identify electrical conductors and isolators) Describe a variety of mixtures Explain how mixtures can be prepared physically Define the states and characteristics of matter Explore changes in matter (e.g., through heating and cooling)
Human Health	Relate transmission of common contagious diseases to human contact, symptoms, prevention
Life and Environmental Science	Describe differences between living and nonliving things Identify the structures and functions of living things including common characteristics such as, reproduction, heredity, growth, and the need for water and air Recognize physical and behavioral characteristics, diversity, and adaptation Classify living things into major groups (e.g., mammals, insects, birds, and plants) Develop basic knowledge of human life and the surrounding environment Identify the effects of the environment on physical features of animals and plants Recognize and compare the life cycles stages and reproduction in plants and animals Demonstrate knowledge about plant and animal reproduction and their characteristics Determine and describe strategies that enable plants and animals to reproduce and increase their offspring to survive in different environments Specify features of plants and animals inherited from their parents and acquired

Nature of Science	Develop understanding of the nature of science Use scientific processes and procedures to explore and explain events and phenomena
Life Science and Environment	Identify the characteristics of different groups of organisms and their inherited features Recognize the basics of classifying body structures that help organisms survive in their environment Describe the major organ systems Acquire basic knowledge in the physiological processes in animals Recognize animals' responses to their environment and external responses that maintain their body stable conditions Acquire knowledge regarding structure and functions of cells Explain an organ system forming from groups of cells with specialized structures and functions Determine and understand photosynthesis and cellular respiration

	Recognize variations as the basis for a natural selection Identify fossils as evidence of changes in life over time Explain similarities and differences among species and fossils defining changes that have occurred in living things over time Define and understand the life cycles and patterns of growth and development of different kinds of organisms Recognize sexual reproduction, inheritance, and characteristics in plants and animals Define organisms' traits (DNA) Identify and describe the flow of energy in ecosystems
Science, Technology, and Society	Understand the interaction among science, technology, and society
Physical Science (physics and chemistry)	Identify concepts related to motion, its relationship to force, and its effects Recognize simple machines and their mechanisms Define speed as change in position (distance) and acceleration as change in speed over time Define the relationship between speed and direction Recognize the effect of different forces (e.g., pressure, floating, sinking) Identify Newton's first and second laws of motion and how friction affects motion Explain Newton's third law of motion describing the phenomenon of weightlessness. Develop understanding of forms of energy, conservation of energy, heat transfer, and thermal conductivity Identify the properties of light and sound Describe processes involved in changes in states of matter Relate states of matter to distance and movement among particles Identify particles and molecules Recognize the periodic table of elements Differentiate between the physical and chemical properties of matter Classify substances according to their physical properties Recognize the characteristics of chemical changes, matter and energy, and chemical bonds Describe a variety of mixtures and explain how they can be prepared physically Identify the properties of conductors and the flow of electricity in electrical circuits Recognize the properties of sound and relate them to common phenomena, such as echo Identify and describe the properties of magnets and electromagnets Describe the use of permanent magnets and electromagnets in daily life
Earth and Space Science	Develop understanding of the earth's internal structure and the physical characteristics of the distant parts involved, including the distribution of water on Earth in terms of its physical state Recognize the components of earth's atmosphere and its atmospheric conditions Describe the general geological processes in the rock cycles Specify changes to the Earth's surface resulting from geological events and the formation of fossils and fossil fuels Acquire the concepts of weather and climate Interpret weather map patterns to identify different climates

	Relate climate and seasonal relations in weather patterns to global and local factors and describe evidence for climate changes
	Demonstrate knowledge about managing Earth's resources and discuss the advantages and disadvantages of different energy sources such as coal
	Define methods of conserving Earth's resources and waste management
	Identify the use of land and water and explain the importance of water conservation
	Describe the observable phenomena from Earth resulting from the movement of Earth and the Moon
	Identify the properties of the Sun, Earth, stars and moons

Professional Development Requirements and Programs

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Monitoring Student Progress in Mathematics and Science

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Classroom behavior	Practical performance	Project/report	Oral presentation			
6	4	4	2	10	4	30

Classroom behavior	Practical performance	Project/report	Oral presentation			
5	10	4	2	5	4	30

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Special Initiatives in Mathematics and Science Education

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