Unit 1

Sets

Scheme of Work

Estimated Number of Periods: 14

Specific Learning Outcomes	Number of periods
• Use language, notation, and Venn Diagrams to represent different sets and their elements. (natural numbers, whole numbers, integers, even numbers, odd numbers, prime numbers)	3
• Identify and differentiate between: - subset and superset - proper and improper - equal and equivalent - disjoint and overlapping.	4
• Describe and perform operations on sets (union, intersection, difference and complement).	4
• Verify the following • $A \cap A' = \varnothing$, $A \cup A' = U$, $(A \cup B)' = A' \cap B'$, $(A \cap B)' = A' \cup B'$	3

Prior Knowledge Assessment

Pupils should be able to:

- familiar with basic number systems.
- use basic set notations, such as curly brackets and membership symbols.
- distinguish between universal set and other sets using set vocabulary.
- understand that Venn Diagrams visually represent the relationship between different types of sets and their elements.

Written Assignments

Exercise	Class Assignment	Home Assignment
1.1	1, 3, 4, 5,6, 7, 10, 11, 14, 15	2, 8, 9, 12, 13
1.2	1 (a, c, d, e, f), 2 (a, b), 3, 4 (a, b), 5	1 (b, g, h, i), 2 (c, d), 6

Evaluation

Ways to evaluate teaching and students learning.

- Oral assessment
- Written assessment
- Teacher's assessment
- Peer assessment
- Personal assessment

Unit 2

Rational Numbers

Scheme of Work

Estimated Number of Periods: 10

Specific Learning Outcomes	Number of periods
• With increasing degree of challenge, use the concept of place value for whole numbers, integers, rational numbers and decimal numbers • Round off whole numbers, integers, rational numbers, and decimal numbers to a required degree of accuracy, significance or decimal places (up to 3 decimal places) • Use knowledge of rounding off to give an estimate to a calculation; to check the reasonableness of the solution • Recall - Recognise, identify and represent integers (positive, negative and neutral integers) and their absolute or numerical value • Identify and represent (on a number line) rational numbers • Represent whole numbers, integers, and decimal numbers on a number line • Identify and convert between various types of fractions • Compare (using symbols <, >, =, ≤ and ≥) and arrange (in ascending or descending order) whole numbers, integers, rational numbers and decimal numbers	5
• Recognise the order of operations and use it to solve mathematical expressions involving whole numbers, decimals, fractions, and integers. • Verify associative and commutative properties of rational numbers • Verify associative, commutative, and distributive properties of rational numbers • Solve real-world word problems involving operations on rational numbers	5

Prior Knowledge Assessment

Pupils should be able to:

- differentiate between different classifications of numbers such as whole number, integers, fractional numbers, etc.
- understand place value chart and how each digit in a number has a value.
- apply rounding off rules to different numbers and use rounding off to estimate an answer.
- convert fractions into different types.
- use number line to compare and order numbers.
- differentiate between factors and multiple and use prime factorization and long division methods to find the HCF and LCM of different numbers
- apply proper operations and have basic computing skills.

Written Assignments

Exercise	Class Assignment	Home Assignment
2.1	1(b, d), 2(a, c, d), 3, 4(c), 8(b, d, e), 9 (c, d), 10 (c, d)	1 (a, c, e), 2(b, e), 4(a, b), 6, 7, 8 (a, c), 9 (a, b) and 10 (a, b)
2.2	1(c, d, h, j, k, l), 2, 3, 6, 7, 8, 9(c, d, e, f)	1 (a, b, e, f, g, i), 4, 5, 9 (a, b)

Evaluation

Ways to evaluate teaching and students learning.

- Oral assessment
- Written assessment
- Teacher's assessment
- Peer assessment

Unit 3

Squares and Square Roots

Scheme of Work

Estimated Number of Periods: 5

Specific Learning Outcomes	Number of periods
• Recall H.C.F and L.C.M • Recognise and calculate squares of numbers up to 3-digits • Solve real-world word problems involving squares	2
• Find the square roots of perfect squares of (up to 3-digits) natural numbers, fractions, and decimals • Solve real-world word problems involving square roots	3

Prior Knowledge Assessment

Pupils should be able to:

- multiply two numbers fluently.
- identify and write index notation.
- recognise that notation a^2 as 'squared'.
- find out the prime factors of a number.

Written Assignments

Exercise	Class Assignment	Home Assignment
3.1	1 (f-i), 2 (d-f), 3 (b, d, f), 4, 5	1 (a-e), 2(a-c), 3(a, c, e), 6
3.2	1 (c, d, e), 2 (b, d, f), 3, 6, 7	4, 5
3.3	1 (b, d, f), 2 (a, c, e), 3, 4	1(a, c, e, g, h, i, j), 2 (b, d), 5

Evaluation

Ways to evaluate teaching and students learning.

- Oral assessment
- Written assessment
- Teacher's assessment
- Peer assessment
- Personal assessment

Unit 4

Rate, Ratio, and Proportion

Scheme of Work

Estimated Number of Periods: 11

Specific Learning Outcomes	Number of periods
• Calculate rate and average rate of quantities.	3
• Calculate increase and decrease in a ratio based on change in quantities	4
• Explain and calculate direct and inverse proportion and solve real-world word problems related to direct and inverse proportion.	4

Prior Knowledge Assessment

Pupils should be able to:

- multiply and divide two numbers fluently.
- simplify fractions.
- recall that rate is a comparison of two quantities.
- work with and simplify ratios.

Resources

Written Assignments

Exercise	Class Assignment	Home Assignment
4.1	1(c, d), 2(e-j), 4, 5, 7, 9, 10	1(a, b), 2(a-d), 3, 6, 8
4.2	1, 3, 4, 5, 8	2, 6, 7
4.3	1 (e-h), 2 (b, c), 6, 7, 8, 9, 13, 14	3, 4, 5, 10, 11, 12
4.4	1, 4, 5, 7, 8	2, 3, 6
4.5	2, 4, 5, 6	1, 3, 7

Evaluation

Ways to evaluate teaching and students learning.

- Oral assessment
- Written assessment
- Teacher's assessment
- Peer assessment
- Personal assessment

Unit 5

Financial Arithmetic

Scheme of Work

Estimated Number of Periods: 10

Specific Learning Outcomes	Number of periods
• Identify and differentiate between selling price, cost price, loss, discount, profit percentage, and loss percentage • Solve real-world word problems involving profit, loss, and discount	4
• Explain income tax, property tax, general sales tax, value-added tax, zakat, and ushr • Solve real-world word problems involving commission and tax	3
• Explain zakat and ushr • Solve real-world word problems involving zakat and ushr	3

Prior Knowledge Assessment

Pupils should be able to:

- add, subtract, multiply and divide successfully.
- calculate percentages.
- convert fractions into decimals and vice versa.
- read and interpret word problems and solve them accordingly.

Written Assignments

Exercise	Class Assignment	Home Assignment
5.1	2, 4, 6, 7, 9	1, 3, 5, 8
5.2	2, 3, 4	1, 5
5.3	2, 4, 5, 7, 8	1, 3, 6
5.4	1, 3, 4	2, 5

Evaluation

Ways to evaluate teaching and students learning.

- Oral assessment
- Written assessment
- Teacher's assessment
- Peer assessment
- Personal assessment

Unit 6

Algebraic Expressions

Scheme of Work

Estimated Number of Periods: 20

Specific Learning Outcomes	Number of periods
• Recall recognizing simple patterns from various number sequences • Recall how to continue a given number sequence and find: - term to term rule - position to term rule • Find terms of a sequence when the general term (nth term) is given • Solve real-life problems involving number sequences and patterns	3
• Students will know Muhammad bin Musa Al- Khwarizmi as the founding father of Algebra • Recall variables as a quantity which can take various numerical values • Recognise open and close sentences, like and unlike terms, variable, constant, expression, equation, and inequality • Recognise polynomials as algebraic expressions in which the powers of variables are whole numbers • Identify a monomial, a binomial, and a trinomial as a polynomial	3
• Add and subtract two or more polynomials • Find the product of: - monomial with monomial - monomial with binomial/trinomial - binomials with binomial/trinomial	4
• Simplify algebraic expressions (by expanding products of algebraic expressions by a number, a variable or an algebraic expression) involving addition, subtraction, and multiplication division	2
• Explore the following algebraic identities and use them to expand expressions: $(a + b)^2 = a^2 + b^2 + 2ab$ $(a - b)^2 = a^2 + b^2 - 2ab$ $a^2 - b^2 = (a + b)(a - b)$	3

• Factorise algebraic expressions (by taking out common terms and by regrouping) • Factorise quadratic expressions (by middle term breaking method)	5

Prior Knowledge Assessment

Pupils should be able to:

- identify and describe simple number patterns.
- find the term-to-term rule and position-to-term rule.
- identify and combine like terms, which is a core concept of simplifying expressions.
- simplify expressions.
- identify common factors of numbers.

Written Assignments

Exercise	Class Assignment	Home Assignment
6.1	2, 3	1
6.2	1, 2(d, e), 3	2(a, b, c)
6.3	1(d, e, f, g, h)	1(a, b, c)
6.4	4, 5, 6, 7, 9, 10	1, 2, 3, 8
6.5	1(c–g), 2(e–p)	1(a, b), 2(a–d)
6.6	1(b, d, e, f)	1(a, c)
6.7	1(b–d), 2(b–d), 3(b–d), 4(d–h)	1(a), 2(a), 3(a), 4(a–c)

Evaluation

Ways to evaluate teaching and students learning.

- Oral assessment
- Written assessment
- Teacher's assessment
- Peer assessment
- Personal assessment

Unit 7

Linear Equations

Scheme of Work

Estimated Number of Periods: 10

Specific Learning Outcomes	Number of periods
• Recall solving linear equations in one variable • Construct linear equations in two variables such as; $ax + by = c$, where a and b are not zero	4
• Introduction to Cartesian coordinate system. • Plot the graph of the linear equation $ax + b = 0$ where $a \neq 0$ and of linear equations in two variables • Find values of 'x' and 'y' from the graph	6

Prior Knowledge Assessment

Pupils should be able to:

- add, subtract, multiply, and divide integers.
- perform arithmetic operations with fractions and decimals.
- solve equations with one variable
- read and interpret a simple word problem and translate it into a mathematical statement or equation.

Written Assignments

Exercise	Class Assignment	Home Assignment
7.1	1(c, d, e, I, j, m, n, o, p, q, r), 2, 5, 6, 7	1(a, b, f, g, h, I, k, l), 3, 4
7.2	I, 4, 5, 7, 8, 9	2, 3, 6

Evaluation

Ways to evaluate teaching and students learning.

- Oral assessment
- Written assessment.
- Teacher's assessment
- Peer assessment
- Personal assessment

Unit 8

Fundamentals of Geometry

Scheme of Work

Estimated Number of Periods: 15

Specific Learning Outcomes	Number of periods
• Differentiate between convex and concave polygons. • Understand the relationship between interior and exterior angles of polygons and between opposite interior and exterior angles in a triangle. • Calculate the interior and exterior angles of a polygon and the sum of interior angles of a polygon.	4
• Recognise quadrilaterals and their characteristics (square, rectangle, parallelogram, rhombus trapezium, and kite). • Calculate unknown angles in a triangle. • Calculate unknown angles in quadrilaterals using the properties of quadrilaterals (square, rectangle, parallelogram, rhombus, trapezium, and kite).	3
• Describe the properties of a circle; centre, radius, diameter, chord, arcs, major and minor arc, semi-circle, and segment of a circle.	3
	5

Prior Knowledge Assessment

Written Assignments

Exercise	Class Assignment	Home Assignment
8.1	1, 2, 4, 5, 6(b, c)	3, 6(a)
8.2	1(c – f), 2(c – f)	1(a, b), 2(a, b)
8.3	1, 2	

Evaluation

Ways to evaluate teaching and students learning.

- Oral assessment
- Written assessment
- Teacher's assessment
- Peer assessment
- Personal assessment

Unit 9

Practical Geometry

Scheme of Work

Estimated Number of Periods: 10

Specific Learning Outcomes	Number of periods
• Construct different types of triangles (equilateral, isosceles, scalene, acute-angled, right-angled, and obtuse-angled	6
• Recognise, identify, and draw lines of symmetry in 2D shapes and rotate objects using rotational symmetry. • Find the order of rotational symmetry. • Translate an object and give precise description of transformation. • Know that the perpendicular distance from a point to a line is the shortest distance to the line.	4

Prior Knowledge Assessment

Written Assignments

Exercise	Class Assignment	Home Assignment
9.1	2, 3, 5, 7, 8	1, 4, 6
9.2	1, 2, 3(b, c), 4(b)	3(a), 4(a)

Evaluation

Ways to evaluate teaching and students learning.

- Oral assessment
- Written assessment
- Teacher's assessment
- Peer assessment
- Personal assessment

Unit 10

Measurement

Scheme of Work

Estimated Number of Periods: 15

Specific Learning Outcomes	Number of periods
• Convert between standard units of area (m^2, cm^2, mm^2 and vice versa) and volume (m^3, cm^3 and mm^3 and vice versa) • Convert different units of distance • Convert 12-hour clock to 24-hour clock and vice versa • Convert between different units of time and speed • Calculate arrival time, departure time, and journey time in a given situation (on the previous day and the next day) • Solve real-world word problems involving distance, time, and average speed • Differentiate between uniform and average speeds	4
• Calculate the circumference and area of a circle	3
• Calculate the area and perimeter of the shaded/unshaded region in composite shapes	3
• Calculate the surface area and volume of any simple 3-D shape including right prisms and cylinders • Solve real-life word problems involving the surface area and volume of right prisms and cylinders	5

Prior Knowledge Assessment

Pupils should be able to:

- understand the relationship between different units of measurement.
- find the perimeter of basic 2D shapes.
- apply the formulae for the area of basic 2D shapes.
- identify and differentiate 3D objects as cubes, cuboids, and cylinders.
- Recognize the properties of 3D objects.

Written Assignments

Exercise	Class Assignment	Home Assignment
10.1	1(c, d), 2(c, d), 3(c, d), 4(c, d), 5(c, d), 7, 9, 10	1(a, b), 2(a, b), 3(a, b), 4(a, b), 5(a, b), 6, 8
10.2	2, 4, 5, 6	1, 3
10.3	1(b, c), 2(b, c), 3, 4(a, b, d)	1(a), 2(a), 4(c)
10.4	1, 3, 5, 7, 8, 9	2, 4, 6

Evaluation

Ways to evaluate teaching and students learning.

- Oral assessment
- Written assessment
- Teacher's assessment
- Peer assessment
- Personal assessment

Unit 11

Data Handling

Scheme of Work

Estimated Number of Periods: 16

Specific Learning Outcomes	Number of periods
• Recognise drawing and interpreting of bar graphs, line graphs, and pie charts • Recognise the difference between discrete, continuous, grouped and ungrouped data	4
• Construct frequency distribution tables for given data (i.e., frequency, lower class limit, upper class limit, class interval and mid-point) and solve related real-world problems • Differentiate between a histogram and a bar graph • Construct and compare histograms for both discrete and continuous • Select and justify the most appropriate graph(s) for a given data set and draw simple conclusions based on the shape of the graph	5
• Calculate the mean, median, and mode for ungrouped data and the mean for grouped data and solve related real-world problems; Compare, choose, and justify the appropriate measures of central tendency for a given set of data	4
• Explain and compute the probability of: certain events, impossible events, and complement of an event (including real-world word problems	3

Prior Knowledge Assessment

Written Assignments

Exercise	Class Assignment	Home Assignment
11.1	1, 3, 5, 6, 8	2, 4, 7
11.2	2, 4, 5, 7, 8	1, 3, 6
11.3	1(c, d), 2(c, d), 3(c), 4, 5, 6	1(a, b), 2(a, b), 3(a, b)

Evaluation

Ways to evaluate teaching and students learning.

- Oral assessment
- Written assessment
- Teacher's assessment
- Peer assessment
- Personal assessment