Dawn House School: Maths Progression Map

Engage, Develop, Communicate, Aspire

(D1 - D9) Primary 1:	(D1 - D9) Primary 2:	(D1 - D9)Junior:
Number Recognition and Counting: • Recognizing and identifying numerals from 0 to 10. • Counting objects accurately up to at least 10. • Understanding the concept of one-to-one correspondence (i.e., matching each object to one number as it is counted). **Quantity and Number Sense:** • Understanding the concept of more and less, comparing quantities of objects to determine which is greater or fewer. • Recognizing basic shapes and patterns, such as circles, squares, triangles, and simple repeating patterns. **Basic Operations:** • Beginning to understand basic addition and subtraction concepts through hands-on activities and concrete materials (e.g., counting objects, combining sets, taking away objects). • Exploring simple problem-solving situations involving addition and subtraction, such as "How many do you have altogether?" or "How many are left?" **Measurement:** • Exploring and comparing the size, length, weight, and capacity of objects using informal language (e.g., big, small, heavy, light). • Introducing simple measurement tools such as rulers, scales, and measuring cups for hands-on exploration. **Spatial Awareness:**	**Number Sense and Counting:** • Recognizing and writing numerals up to at least 20. • Counting forward and backward from any given number within 20. • Understanding the concept of one-to-one correspondence and counting objects accurately up to at least 20. • Counting in multiples of 2s, 5s, and 10s up to 100. **Basic Operations:** • Understanding the concept of addition as combining two groups and subtraction as taking away from a group. • Using concrete materials and pictorial representations to solve addition and subtraction problems within 20. • Recognizing and understanding the symbols +, -, and =. • Solving simple word problems involving addition and subtraction, such as "There are 8 apples. 3 more apples are added. How many apples are there now?" **Measurement:** • Comparing and ordering objects by length, height, weight, and capacity using informal language (e.g., longer, shorter, taller, heavier, lighter, full, empty). • Introducing standard units of measurement such as centimetres, grams, and millilitres through hands-on activities and comparisons. **Geometry:** • Identifying and naming basic 2D shapes (e.g., circle, square, triangle, rectangle) and 3D shapes (e.g., cube, sphere, cylinder, cone).	**Number Sense and Counting:** • Recognizing and writing numerals up to at least 100. • Counting forward and backward from any given number within 100. • Understanding place value concepts up to 100, including tens and ones. • Identifying and representing odd and even numbers. • Counting in multiples of 2s, 5s, and 10s beyond 100. **Basic Operations:** • Adding and subtracting within 100 using mental math strategies, number bonds, and algorithms. • Understanding and applying the concepts of addition and subtraction to solve word problems involving quantities and situations within 100. • Recognizing and understanding the symbols +, -, and =. • Introducing and exploring the concept of multiplication as repeated addition. **Measurement:** • Estimating and measuring length, weight, capacity, and temperature using standard units (e.g., centimetres, grams, millilitres, degrees Celsius). • Comparing and ordering objects by length, height, weight, and capacity using appropriate measurement tools. • Solving word problems involving measurement, such as "Which object is longer?" or "How much more weight does object A have compared to object B?"

- Developing an understanding of positional language (e.g., above, below, next to, between) through activities like arranging objects in different spatial arrangements.
- Exploring basic concepts of shape and space, such as sorting objects by shape or size and building simple structures with blocks or other materials.

Problem Solving and Reasoning:
- Encouraging curiosity and exploration through open-ended mathematical activities and puzzles.
- Introducing simple mathematical concepts through stories, songs, and games to engage children's interest and develop problem-solving skills.

Language and Communication:
- Developing mathematical language and vocabulary through everyday experiences and discussions (e.g., counting objects during snack time, describing the shapes of toys or objects).

Critical Thinking:
- Encouraging children to explore and experiment with mathematical ideas through hands-on activities and play-based learning experiences.
- Providing opportunities for children to make predictions, test hypotheses, and reflect on their mathematical thinking.

- Describing the properties of shapes, such as the number of sides, vertices, and edges.
- Sorting and classifying objects based on their shape and other attributes.

Patterns and Sequences:
- Recognizing, creating, and extending simple repeating patterns using objects, shapes, colours, and sounds.
- Identifying and describing number patterns (e.g., counting by twos, fives, and tens) and shape patterns.

Time:
- Understanding the concept of time and the sequence of events (e.g., morning, afternoon, evening, night).
- Introducing telling time to the hour and half-hour using analog and digital clocks.
- Sequencing events using terms like before, after, next, and last.

Data Handling:
- Collecting and organizing data using simple charts, tables, and pictograms.
- Interpreting data presented in different graphical forms, such as bar graphs and tally charts.

Geometry:
- Identifying and describing properties of 2D shapes (e.g., sides, vertices, angles) including triangles, rectangles, squares, circles, and pentagons.
- Recognizing and describing properties of 3D shapes (e.g., faces, edges, vertices) including cubes, cuboids, spheres, cylinders, and cones.
- Sorting and classifying shapes based on their attributes (e.g., number of sides, curved or straight edges).

Fractions:
- Introducing the concept of halves and quarters as equal parts of a whole.
- Recognizing and representing fractions using visual models such as shapes and number lines.
- Solving simple problems involving fractions, such as sharing objects equally or finding fractional parts of a set.

Time:
- Telling time to the nearest five minutes on analog and digital clocks.
- Understanding the concept of elapsed time and solving simple problems involving durations of time (e.g., how long did an activity take?).

Data Handling:
- Collecting and organizing data using tables, charts, and pictographs.
- Interpreting data presented in different graphical forms, such as bar graphs and tally charts, and drawing conclusions from the data.

(D9 – D11) Key Stage 3:	(D11 - D13) Key Stage 4:
Number Sense and Operations: • Understanding and applying place value concepts up to at least 1,000, including hundreds, tens, and ones. • Adding and subtracting multi-digit numbers with regrouping. • Developing fluency in multiplication and division facts up to 12x12. • Solving multi-step word problems involving addition, subtraction, multiplication, and division. **Fractions and Decimals:** • Recognizing and representing fractions with denominators up to 10 and understanding their relationship to division. • Comparing and ordering fractions and decimals. • Adding and subtracting fractions with like denominators. • Understanding and representing decimals to the hundredths place. **Measurement:** • Measuring length, weight, capacity, and temperature using standard and non-standard units. • Converting between units of measurement within the same system (e.g., meters to centimetres, litres to millilitres). • Solving problems involving perimeter, area, volume, and time. **Geometry:** • Identifying and classifying 2D and 3D shapes based on their properties. • Describing and comparing angles (e.g., right, acute, obtuse) and understanding angle relationships. • Investigating symmetry and transformations (e.g., reflections, rotations, translations). **Data Analysis and Probability:** • Collecting, organizing, and interpreting data using tables, charts, and graphs. • Analysing and drawing conclusions from data representations. • Understanding basic concepts of probability and making predictions based on data. **Patterns, Algebra, and Functions:** • Recognizing and extending number patterns and sequences. • Describing and analysing patterns and relationships using algebraic expressions and equations. • Understanding the properties of operations (e.g., commutative, associative, distributive) and applying them to solve problems.	**Number Sense and Operations:** • Understanding and applying place value concepts up to at least 1,000,000, including thousands, hundreds, tens, and ones. • Performing addition, subtraction, multiplication, and division of multi-digit numbers with fluency and efficiency. • Using mental math strategies and algorithms to solve problems involving whole numbers, fractions, and decimals. • Understanding and applying the order of operations in multi-step calculations. **Fractions, Decimals, and Percentages:** • Adding, subtracting, multiplying, and dividing fractions and decimals, including mixed numbers. • Comparing and ordering fractions, decimals, and percentages. • Understanding the relationship between fractions, decimals, and percentages and converting between them. • Solving problems involving fractions, decimals, and percentages in real-life contexts. **Measurement:** • Measuring and converting units of length, weight, capacity, and volume within the metric and imperial systems. • Calculating perimeter, area, and volume of geometric shapes, including rectangles, triangles, circles, and prisms. • Solving problems involving time, temperature, and money, including calculating change **Geometry:** • Identifying and classifying angles, including acute, obtuse, right, straight, and reflex angles. • Understanding and applying the properties of 2D shapes, including triangles, quadrilaterals, polygons, and circles. • Investigating and describing the properties of 3D shapes, including cubes, cuboids, cylinders, cones, and spheres. • Understanding and applying transformations, including translations, rotations, reflections, and enlargements. **Data Handling and Probability:** • Collecting, organizing, and representing data using tables, charts, graphs, and diagrams. • Calculating and interpreting measures of central tendency and dispersion, including mean, median, mode, and range.

Problem Solving and Reasoning:
- Applying mathematical reasoning to solve a variety of problems across different mathematical domains.
- Developing and justifying mathematical arguments and solutions using mathematical language and representations.
- Engaging in problem-solving strategies such as guess and check, look for a pattern, make a table, and work backward.

Mathematical Communication:
- Expressing mathematical ideas orally and in writing using appropriate mathematical language and notation.
- Communicating mathematical reasoning and solutions clearly and effectively to others.
- Collaborating with peers to solve problems and discuss mathematical concepts and strategies.

Life Skills:
- Recognising and using coins/note effectively, including differentiating between different values.
- Counting money to make up specific amounts.
- Completing purchases using the correct coins/notes and if relevant able to establish expected change
- Identifying the value of money by discussing budgeting for purchases and saving money for future needs or wants.
- Measuring items/ingredients effectively using a variety of suitable devices.
- Detailing specific times in the day to routines and activities.
- Understanding concepts of time management while participating in activities e.g. cooking time of a recipe and length of a sport activity.
- Making decisions logically and critically when solving problems, considering different options and predicting outcomes.
- Using a calculator to perform calculations and check answers.

- Understanding basic concepts of probability and using probability models to make predictions and solve problems.

Patterns, Algebra, and Functions:
- Recognizing, describing, and extending number patterns and sequences.
- Understanding and solving equations and inequalities involving addition, subtraction, multiplication, and division.

Problem Solving and Reasoning:
- Applying mathematical reasoning and problem-solving strategies to solve a variety of problems across different mathematical domains.
- Analysing and evaluating mathematical arguments and solutions using mathematical language and representations.
- Communicating mathematical reasoning and solutions clearly and effectively to others.

Life Skills:
- Understanding the concept of budgeting by through activities involving planning expenses.
- Investigating financial amounts using different amounts in real-life contexts.
- Comparing prices of everyday items and demonstrate understanding of best value for money.
- Utilising planning skills to show an understanding of times, timetables and finance to plan activities and events.
- Developing an ability to read and interpret navigational tools – understanding distances and linking to travel time.
- Reading, analysing and interpreting graphs and charts they may encounter in everyday life e.g. weather forecasts, sports statistics and population demographics.
- Making informed decisions through the use of data in a variety of contexts e.g. choosing between transport options based on travel times and costs.
- Using a calculator appropriately and with confidence to perform calculations and check answers.

(D13 - D16)Key Stage 5:

Number Sense and Operations:
- Understanding and applying place value concepts for integers, decimals, and fractions.
- Performing operations with integers, decimals, and fractions, including addition, subtraction, multiplication, and division.
- Understanding and applying the order of operations and solving equations with one or two variables.

Algebra:
- Simplifying algebraic expressions and combining like terms.
- Solving linear equations and inequalities.
- Understanding and graphing linear functions and solving problems involving linear relationships.

Geometry:
- Identifying and classifying angles, triangles, quadrilaterals, and other polygons.
- Understanding and applying properties of parallel lines and perpendicular lines.
- Calculating and solving problems involving perimeter, area, and volume of 2D and 3D shapes.

Measurement:
- Converting units within the metric and imperial systems for length, weight, capacity, and volume.
- Understanding and applying scale factors to solve problems involving similar figures.
- Solving problems involving time, speed, distance, and density.

Statistics and Probability:
- Collecting, organizing, and representing data using tables, charts, histograms, and scatterplots.
- Calculating and interpreting measures, including mean, median, mode, and range.
- Understanding basic concepts of probability and using probability models to make predictions and solve problems.

Ratio and Proportion:
- Understanding and applying concepts of ratio, proportion, and rates.
- Solving problems involving direct and inverse proportionality.
- Using proportional reasoning to solve real-life problems involving rates, proportions, and percentages.

Problem Solving and Reasoning:
- Applying mathematical reasoning and problem-solving strategies to solve a variety of complex problems across different mathematical domains.
- Analysing and evaluating mathematical arguments and solutions using mathematical language and representations.
- Communicating mathematical reasoning and solutions clearly and effectively to others.

Life Skills:
- Creating and managing personal budgets, including income, expenses and savings goals.
- Understanding of banking skills including, interest rates, mortgages, loans, savings accounts and general money management.
- Performing practical projects which develop measuring and estimating skills e.g. construction and renovation projects.
- Applying an understanding of time to devise schedules which allow for effective time management and a healthy work/life balance.

- Participating in a range of real-world scenarios/dilemmas that require mathematical problem solving skills e.g. planning a trip with a budget and analysing data to make decisions
- Making informed decisions by considering multiple options, weighing pros and cons and predicting potential outcomes.
- Drawing conclusions utilising data to provide evidence to support arguments and choices.
- Developing resilience and persistence towards Mathematical challenges through encouraging a growth mindset.