NORTH GOWER PARTNERSHIP

THREAD: Arithmetic

AOLE: Mathematics and Numeracy

Progression Step 1		
Knowledge and Skills	**Vocabulary**	**Experiences and Characteristics**
Confidently recognise number bonds to 10. Finds and uses number facts to compose a number (up to 20) in different ways. Combines two groups of objects to find 'how many altogether?' within a total of 20. Adds or removes one object from a group and counts how many now (up to 20). Explores informal, personal methods of recording, moving towards using symbols. Understands and uses the concept of 'one more' or 'one less' in their play/role play. Explores appropriate mathematics and techniques to use. Experiences grouping and sharing with objects and quantities, and can group or share small quantities into equal-sized groups	Add Subtract Take away Altogether Total How many are left Share One more One less	**Essential** CPA Problem Solving Real life context Using calculators Continuous Provision Outdoor Learning **Enrichment** Handling money Enterprise
Opportunities to develop proficiencies **Conceptual understanding**		

Understanding the concept of adding one more and one less.

Communication with symbols
Recognise the addition, subtraction and equals sign.

Fluency
Accuracy of calculations

Logical reasoning
Talk and discuss the calculation.

Strategic competence
Talk and discuss strategies to solve simple problems.

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Progression Step 2		
Knowledge and Skills	**Vocabulary**	**Experiences and Characteristics**
Using your number bonds to 10 to confidently apply to numbers 20 and 100 Uses a calculator to carry out simple calculations and check. Uses mental strategies to recall number facts within 100. Records addition and subtraction in columns. Recognises the inverse relationships between addition and subtraction and uses this to check calculations or work out missing number problems. Performs mental calculations to solve one-step and two-step problems. Uses partitioning to double, add and halve 2-digit numbers. Adds and subtracts two-digit and three-digit numbers using a range of representations. Recalls 2, 3, 4, 5 and 10 multiplication tables and	Calculate Inverse Estimate Round Multiply Divide Add Subtract Multiples Lots of	**Essential** Problem Solving Real life context Using calculators Continuous Provision Outdoor Learning **Enrichment** Handling money Enterprise

uses to solve multiplication and division problems and can use the term multiple. Recalls division facts to 2, 5 and 10 times tables. Shows that multiplication of 2 numbers can be done in any order (commutative) and division of 1 number by another cannot. Multiplies and divides by 10.		

Opportunities to develop proficiencies

Conceptual understanding
Understanding the concept of the four operations.

Communication with symbols
Ensuring the order of operations is correctly written e.g., 15 – 8 not 8 – 15.

Fluency
Accuracy of calculations.

Logical reasoning
Begin to use verbalise strategies e.g., how did you find that?

Strategic competence
Start to use the four operations to solve simple problems.

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Progression Step 3		
Knowledge and Skills	**Vocabulary**	**Experiences and Characteristics**
Uses a calculator to carry out simple calculations and check. Records calculations appropriately. Verifying calculations by using appropriate methods e.g., inverse operations, estimating and rounding, rules of divisibility. Using the appropriate order of operations (BIDMAS). Performs mental calculations to solve multi-step problems. Multiplying and dividing numbers by 10, 100, 1000 and to use this strategy for multiples of 10. Solves problems that involve mixed operations. Adds and subtracts numbers beyond three digits. Multiply and divide a four-digit number by one digit using a written method.	Calculate Inverse Estimate Round Multiply Divide Add Subtract Multiples Factors Prime numbers Square numbers Cubed numbers Square root Remainder	**Essential** Problem Solving Real life context e.g., buying Using calculators **Enrichment** Outdoor learning Handling money Enterprise

Multiply and divide two-digit and three-digit numbers by a two-digit number. Multiply and divide a four-digit number by a two-digit number by written method including long multiplication. Can divide using a remainder and decimal place. Recalls multiplication and division facts up to at least 12 x 12 with growing speed and accuracy. Explains the term 'prime number'. Explains the term 'factor'. Explains the term 'multiple'. Explains the term 'square number'. Explains the term 'cubed'. Identifies all factors of a number. Identifies prime and square numbers up to 100. Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers.		
Opportunities to develop proficiencies **Conceptual understanding** Interpreting what operation is required.		

Communication with symbols
Ensuring the order of operations is correctly written e.g. 15 – 8 not 8 – 15.

Fluency
Accuracy of calculations.

Logical reasoning
Presenting answers with remainders or decimals depending on the context of a problem (e.g., how many pencils are left over, what is 23 / 8?).
Verbalise strategies e.g. How did you work that out?

Strategic competency
Developing a range of problem-solving strategies to choose from.

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Progression Step 4		
Knowledge and Skills	**Vocabulary**	**Experiences and Characteristics**
Fluent application of the four arithmetic operations with integers. Application of arithmetic rules to decimals, fractions, standard form (See The Number System and Fractions, Decimals and Percentages). Application of arithmetic to money and finance questions regarding budgeting, banking, best buy, profit and loss and interest. Making conclusions to problems following calculations.	Total Sum Difference Loss Profit Conclusion Justify Prove	

Opportunities to develop proficiencies

Conceptual understanding
Interpreting what operation is required from a wordy question.

Communication with symbols
Ensuring calculations are presented with correct mathematical notation.

Fluency
Accuracy of calculations.

Logical reasoning

Justifying answers and drawing appropriate conclusions from findings.

Strategic competence
Extracting information from increasingly complex problems where key information is hidden or presented in abstract format.