Number

Understanding Number and Number Notation

Count during number rhymes, jingles and stories.

Count forwards from 1 and from different starting points, using numbers appropriate to the children.

Count backwards from 5/10 and from different starting points using numbers appropriate to the children.

Recognise numerals, initially within 10.

Develop an understanding of one-to-one correspondence *eg, by matching or touch counting,* and know that the size of the set is given by the last number in the count.

Make a variety of sets for a given number, initially within 5.

Match numerals to sets.

Understand that zero means none.

Combine sets of objects to find how many.

Understand the conservation of number.

Order sets of up to 5 objects.

Explore the number that comes after/ before/ between a given number(s).

Sequence the numerals, initially within 10.

Understand and use ordinal terms *eg, first, second and last.*

Explore numbers relevant to children's everyday lives *eg, telephone numbers, ages of relatives, numbers in the school environment.*

Have a feel for the size of a set of objects up to 10, *eg, "Does the set contain more than 5?"*

Investigate and make sets of numbers to 20.

Explore and count numbers within 50/100, *eg count in fives and tens forwards and backwards from a given number.*

Read and write numbers to 50/100.

Shown a set of up to 10 objects, estimate the number to within 2.

Have a feel for the size of a set of objects to 20/50/100, *eg estimate the number of sweets in a jar by thinking how much space 10 sweets take up.*

Explore and use 30/50/100 number lines and arrays to appreciate the order of numbers.

Explore and order numbers within 50/100, *eg identify missing numbers in a sequence.*

Appreciate the concept of grouping and exchanging using random materials and different base materials. Develop the language of grouping and exchanging.

Explore the composition of numbers to 50/100 as tens and units, appreciating the importance of "10" when counting *eg. using 50 array, 100 square, abacus, base 10 materials, calculator, arrow cards.*

Appreciate that the position of a digit indicates its value.

Explore the concept of halves and quarters using whole shapes and sets of objects.

Experience "hundreds" using a variety of materials.

Explore the idea of grouping and exchanging using base 10 materials.

Explore and count numbers within 1000, *eg count in ones, twos, fives, tens and hundreds, forwards and backwards from a given number.*

Read and write numbers within 1000.

Explore and order numbers within 1000, *eg identify the sequence and the missing number.*

Appreciate that the digit on the left of a number has greatest value and the digit on the right has least value. Engage in a range of activities to develop understanding of zero as a placeholder.

Approximate numbers up to 1000:

- to the nearest 10
- to the nearest 100.

Extend the concept of fractions to a wider range of fractions using whole shapes and sets of objects. Appreciate the notation of these fractions, *eg* $\frac{1}{5}, \frac{3}{4}, \frac{2}{3}$. Explore links with division.

Count orally forwards and backwards in halves and then quarters.

Read, write and order whole numbers within 10 000:

- appreciate the value of each digit;
- approximate numbers to the nearest 10, 100, 1000.

Explore the effect of multiplying by 10 and 100.

Use the knowledge of multiplying whole numbers by 10 and 100 to explore division by 10 and 100.

Explore and order fractions:

- with the same denominator, *eg* $\frac{1}{6}, \frac{2}{6}, \frac{5}{6}$;
- where the numerator is 1, *eg* $\frac{1}{3}, \frac{1}{5}, \frac{1}{8}$.

Investigate the equivalence of fractions within fraction families.

Appreciate decimal notation in relation to the concept of tenths through the use of materials.

Read, write and order tenths:

- related to a specific whole number, *eg 2.6, 2.7, 2.8;*
- crossing over a whole number, *eg 0.8, 0.9, 1.0, 1.1;*

Relate fractions to decimals *eg* $\frac{1}{2}$ *is 0.5.*

Appreciate decimal notation in relation to the concept of hundredths through the use of materials.

Read, write and order tenths and hundredths with particular reference to measures.

Investigate the concept of simple percentages and relate to fractions, *eg pictorially using 100 square.*

Read, write and order whole numbers of any size.

Extend the understanding of the equivalence of fractions, *eg* $\frac{1}{5} = \frac{2}{\square} = \frac{4}{\square}$.

Read, write and order decimals to three decimal places in the context of measurement.

Explore percentages:

- out of 100
- appreciate that 1% of 100 is 1

Explore the concept of rounding in the context of decimals:

- to whole numbers;
- to tenths.

Appreciate the relationships between simple fractions, decimals and percentages.

Order fractions with different numerators and denominators *eg* $\frac{1}{3}, \frac{3}{4}, \frac{5}{8}$

Understand and use negative numbers in context, *eg temperature, games, height above and below sea level.*

Patterns, Relationships and Sequences

Look for and talk about patterns in the environment, *eg, butterfly wings, a brick wall, leaves.*

Copy simple patterns using concrete materials or pictures.

Continue a simple pattern.

Create simple repeating patterns.

Explore pattern in number, *eg, setting out a number of objects in twos.*

Compare sets by looking, matching objects and by counting.

Understand and use the terms more than, less than, the same.

Investigate different ways of partitioning sets of 5/10 objects into sub-sets and talk about the outcome.

Explore addition patterns up to 5/10.

Explore subtraction patterns up to 5/10.

Investigate simple function machines, *eg,*

Add 1	
2	→ *3*
3	→ *4*
4	→ □

Appreciate the commutative nature of addition, *eg 2 + 3 = 3 + 2.*

Explore and use patterns in addition and subtraction facts to 20.

Count from a given number forwards and backwards in ones, twos, fives, and tens to/from 20/50/100. Investigate these patterns on a number array.

Understand the use of a symbol to represent an unknown number, *eg 5 +* □ *= 12.*

Explore simple number sequences, *eg 8, 10, 12, _, _, _.*

Investigate and talk about odd and even numbers using practical materials. Recognise odd and even numbers.

Explore and explain number patterns in the 50 array and 100 square, *eg add 9, 10, 11 to a number.*

Explore and use extended addition patterns, *eg*

3 + 2 = 5
13 + 2 = 15
23 + 2 = 25

Explore and use subtraction patterns.

Investigate simple function machines for addition and subtraction using appropriate language – "input", "output", "function".

Explore and use number patterns and equivalent forms of 2-digit numbers, *eg*

23 + 65 = 20 + 60 + 3 + 5
= 80 + 8
= 88

41 – 27
= 41 – 20– 7
= 21 – 7
= 14

Appreciate addition and subtraction as inverse operations.

Appreciate the commutative nature of multiplication, *eg 4 × 5 = 5 × 4.*

Investigate and explain patterns which arise in various situations, *eg multiplication patterns of 2, 3, 4, 5 on the 100 square, calendar patterns.*

Recognise that division is repeated subtraction.

Investigate simple function machines for multiplication and division.

Recognise whole numbers exactly divisible by 2, 5 and 10.

Explore multiplication patterns on the 100 square:

- 2, 4, 8 times tables;
- 5, 10 times tables;
- 3, 6, 9 times tables;
- 7 times tables. g

Extend function machines to include two operations, eg

Input → +3 × 7 → Output
7

Examine patterns and sequences in number to predict missing and subsequent terms.

Explore patterns and number sequences through spatial investigations.

Explore and understand multiples and factors.

Appreciate that multiplication and division are inverse operations.

Describe a given situation using simple formulae expressed in words, eg *"The perimeter of a square is . . ."*

Investigate and use doubling and halving to explore number properties, eg:

17 × 8 =

34 × 4 =

68 × 2 =

136 × 1.

Understand and use the constant facility on a calculator to create a function machine.

Investigate numbers exactly divisible by 3.

Explore square, cube, triangular and prime numbers through investigations/spatial arrangements.

Understand and use terms multiple, factor, prime, square, cube and triangular.

Follow sets of instructions to generate number sequences.

Discuss possible rules for generating a sequence from given terms, *eg:*

	Rule	
7	→	*19*
8	→	*21*
11	→	*27*

Express, in words and/or symbolic form, rules for generating sequences.

Understand that a letter can represent an unknown number, *eg c ÷ 6 = 7.*

Money

- Use money in the context of play.
- Understand the idea of exchanging goods for money, *eg in the £1 shop.*
- Talk about things they would like to spend money on.
- Recognise coins in everyday use.
- Sort coins in a variety of ways *eg, sort Euro and our coins into sets.*
- Talk about why and how we should keep money safe.
- Talk about ways we can pay for goods *eg cash, cheque, credit/debit cards.*

Carry out simple practical "shopping" activities using coins within 10p requiring no change using:

- 1p and 2p coins.
- 1p, 2p and 5p coins.

Appreciate relationships between coins up to10p, *eg by playing games.*

Investigate ways of making different amounts of money up to 10p.

Carry out shopping activities and games requiring giving change out of:

- 10p;
- 15p;

by counting on.

Understand relationships between coins up to 50p.

Explore different ways of finding the value of a collection of coins.

Share ideas on possible ways of spending pocket money.

Talk about ways of keeping money safe, *eg by giving it to a responsible adult or locking it away.*

Investigate how to spend a specific amount of money up to 50p in two or more ways.

Explore ways of paying an exact amount of money using different coins within:

- 20p;
- 50p.

Give change out of:

- 20p;
- 50p

Understand relationships between coins up to £1.

Consider a variety of ways in which to spend money. Begin to talk about the value of money and the cost of different items.

Carry out shopping activities with money values up to £1:

- no change;
- with change.

Investigate amounts of money up to £1.00 using the least/a specific number of coins.

Discuss other ways of keeping money safe, *eg by putting it into a bank, building society or post office.*

Recognise and use banknotes in shopping transactions and games.

Use the correct notation of money.

Calculate using addition, subtraction, and simple multiplication and division, *eg shopping bills to at least £10.*

Estimate costs by rounding to the nearest 10p/50p/£1.

Discuss how different countries use different coins and notes including the use of the Euro.

Carry out calculations involving multiplication/division of money using practical, mental, calculator or written methods.

Discuss other forms of money transactions: cheque, credit/debit cards and understand how the payments are made using them.

Understand that you must have money in a bank to obtain cash using a cash card.

Interpret a calculator display when solving money problems.

Through discussion and practical activities:

- explore the concept of "earning";
- develop an awareness of everyday expenses and the need for budgeting.

Apply knowledge of percentage calculations to problem solving activities in money, eg 25% off in a sale, 10% extra for the same money.

Discuss and be able to assess "value for money" in relation to shopping, *eg three for the price of two, economy packets.*