Year 1 Previous Reception experiences and counting within 100 1NPV-1 Count within 100, forwards and backwards, starting with any number. • 1.9 Composition of numbers: 20-100 Comparison of quantities and part-whole relationships 1NPV-1 Count within 100, forwards and backwards, starting with any number. 1NPV-2 Reason about the location of numbers to 20 within the linear number system, including comparing using < > and =. 1.1 Comparison of quantities and measures • 1.2 Introducing 'whole' and 'parts': part-part-whole Numbers 0 to 5 1NPV-2 Reason about the location of numbers to 20 within the linear number system, including comparing using < > and =. 1AS-1 Compose numbers to 10 from 2 parts, and partition numbers to 10 into parts, including recognising odd and even numbers. 1.3 Composition of numbers: 0-5 Recognise, compose, decompose and manipulate 2D and 3D shapes 1G-1 Recognise common 2D and 3D shapes presented in different orientations, and know that rectangles, triangles, cuboids and pyramids are not always similar to one another. 1G-2 Compose 2D and 3D shapes from smaller shapes to match an example, including manipulating shapes to place them in particular orientations. Numbers 0 to 10 1NPV-2 Reason about the location of numbers to 20 within the linear number system, including comparing using < > and =. 1AS-1 Compose numbers to 10 from 2 parts, and partition numbers to 10 into parts, including recognising odd and even numbers. 1.4 Composition of numbers: 6-10 Additive structures 1AS-2 Read, write and interpret equations containing addition (+), subtraction (-) and equals (=) symbols, and relate additive expressions and equations to real-life contexts. 1.5 Additive structures: introduction to aggregation and partitioning 1.6 Additive structures: introduction to augmentation and reduction Addition and subtraction facts within 10 • 1NF-1 Develop fluency in addition and subtraction facts within 10. • 1.7 Addition and subtraction: strategies within 10 Numbers 0 to 20 1NPV-2 Reason about the location of numbers to 20 within the linear number system, including comparing using < > and =. 1.10 Composition of numbers: 11–19 Unitising and coin recognition 1NF-2 Count forwards and backwards in multiples of 2, 5 and 10, up to 10 multiples, beginning with any multiple, and count forwards and backwards through the odd numbers. 2.1 Counting, unitising and coins Position and direction

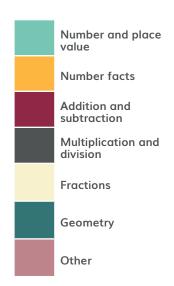
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Time



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Numbers 10 to 100

- 2NPV-1 Recognise the place value of each digit in two-digit numbers, and compose and decompose two-digit numbers using standard and non-standard partitioning.
- 2NPV-2 Reason about the location of any two-digit number in the linear number system, including identifying the previous and next multiple of 10.
- 1.8 Composition of numbers: multiples of 10 up to 100
- 1.9 Composition of numbers: 20–100

Calculations within 20

- 2AS-1 Add and subtract across 10.
- 2AS-2 Recognise the subtraction structure of 'difference' and answer questions of the form, "How many more...?".
- 1.11 Addition and subtraction: bridging 10
- 1.12 Subtraction as difference

Fluently add and subtract within 10

- 2NF-1 Secure fluency in addition and subtraction facts within 10, through continued practice.
- 1.7 Addition and subtraction: strategies within 10

Addition and subtraction of two-digit numbers (1)

- 2AS-3 Add and subtract within 100 by applying related one-digit addition and subtraction facts: add and subtract only ones or only tens to/from a two-digit number.
 - 1.13 Addition and subtraction: two-digit and single-digit numbers
 - 1.14 Addition and subtraction: two-digit numbers and multiples of ten

Introduction to multiplication

- 2MD-1 Recognise repeated addition contexts, representing them with multiplication equations and calculating the product, within the 2, 5 and 10 multiplication tables.
- 2.2 Structures: multiplication representing equal groups
- 2.3 Times tables: groups of 2 and commutativity (part 1)
- 2.4 Times tables: groups of 10 and of 5, and factors of 0 and 1
- 2.5 Commutativity (part 2), doubling and halving

Introduction to division structures

- 2MD–2 Relate grouping problems where the number of groups is unknown to multiplication
 equations with a missing factor, and to division equations (quotitive division).
 - 2.6 Structures: quotitive and partitive division

Shape

 2G-1 Use precise language to describe the properties of 2D and 3D shapes, and compare shapes by reasoning about similarities and differences in properties.

Addition and subtraction of two-digit numbers (2)

- 2AS-4 Add and subtract within 100 by applying related one-digit addition and subtraction facts: add and subtract any 2 two-digit numbers.
- 1.15 Addition: two-digit and two-digit numbers
- 1.16 Subtraction: two-digit and two-digit numbers

Money

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Fractions

3.0 Guidance on the teaching of fractions in Key Stage 1

Time

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Position and direction

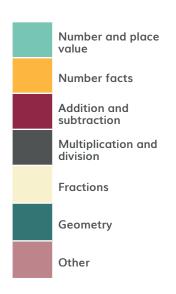
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Multiplication and division – doubling, halving, quotitive and partitive division

- 13 2.5 Commutativity (part 2), doubling and halving
 - 2.6 Structures: quotitive and partitive division

Sense of measure – capacity, volume, mass

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Adding and subtracting across 10

- 2AS-1 Add and subtract across 10.
- 3NF-1 Secure fluency in addition and subtraction facts that bridge 10, through continued practice.
- 1.11 Addition and subtraction: bridging 10

Numbers to 1,000

- 3NPV-1 Know that 10 tens are equivalent to 1 hundred, and that 100 is 10 times the size
 of 10; apply this to identify and work out how many 10s there are in other three-digit
 multiples of 10.
- 3NPV–2 Recognise the place value of each digit in three-digit numbers, and compose and decompose three-digit numbers using standard and non-standard partitioning.
- 3NPV-3 Reason about the location of any three-digit number in the linear number system, including identifying the previous and next multiple of 100 and 10.
- 3NPV-4 Divide 100 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 100 with 2, 4, 5 and 10 equal parts.
- 3AS-1 Calculate complements to 100.
- 3NF-3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 10).
- 1.17 Composition and calculation: 100 and bridging 100
- 1.18 Composition and calculation: three-digit numbers

Right angles

 3G-1 Recognise right angles as a property of shape or a description of a turn, and identify right angles in 2D shapes presented in different orientations.

Manipulating the additive relationship and securing mental calculation

- 3AS-3 Manipulate the additive relationship: Understand the inverse relationship between
 addition and subtraction, and how both relate to the part-part-whole structure. Understand
 and use the commutative property of addition, and understand the related property for
 subtraction.
- 1.19 Securing mental strategies: calculation up to 999

Column addition

- 3AS-2 Add and subtract up to three-digit numbers using columnar methods.
- 1.20 Algorithms: column addition

2, 4, 8 times tables

- 3MD-1 Apply known multiplication and division facts to solve contextual problems with different structures, including quotitive and partitive division.
- 3NF-2 Recall multiplication facts, and corresponding division facts, in the 10, 5, 2, 4
 and 8 multiplication tables, and recognise products in these multiplication tables as
 multiples of the corresponding number.
- 3NF-3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 10).
- 2.7 Times tables: 2, 4 and 8, and the relationship between them

Column subtraction

- 3AS-2 Add and subtract up to three-digit numbers using columnar methods.
 - 1.21 Algorithms: column subtraction

Unit fractions

- 3F-1 Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts.
- 3F–2 Find unit fractions of quantities using known division facts (multiplication tables fluency).
 - 3.1 Preparing for fractions: the part-whole relationship
 - 3.2 Unit fractions: identifying, representing and comparing

Non-unit fractions

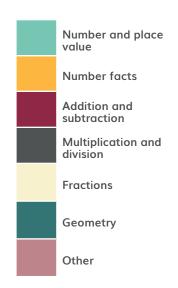
- 3F–1 Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts.
- 3F-3 Reason about the location of any fraction within 1 in the linear number system.
 - 3F-4 Add and subtract fractions with the same denominator, within 1.
 - 3.3 Non-unit fractions: identifying, representing and comparing
 - 3.4 Adding and subtracting within one whole

Parallel and perpendicular sides in polygons

 3G-2 Draw polygons by joining marked points, and identify parallel and perpendicular sides.

Time

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Review of column addition and subtraction

- 3AS-2 Add and subtract up to three-digit numbers using columnar methods.
- 1.20 Algorithms: column addition
- 1.21 Algorithms: column subtraction

Numbers to 10,000

- 4NPV-1 Know that 10 hundreds are equivalent to 1 thousand, and that 1,000 is 10 times
 the size of 100; apply this to identify and work out how many 100s there are in other
 four-digit multiples of 100.
- 4NPV-2 Recognise the place value of each digit in four-digit numbers, and compose and decompose four-digit numbers using standard and non-standard partitioning.
- 4NPV-3 Reason about the location of any four-digit number in the linear number system, including identifying the previous and next multiple of 1,000 and 100, and rounding to the nearest of each.
 - 4NPV-4 Divide 1,000 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 1,000 with 2, 4, 5 and 10 equal parts.
 - 4NF-3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 100).
 - 1.22 Composition and calculation: 1,000 and four-digit numbers

Perimeter

3

 4G-2 Identify regular polygons, including equilateral triangles and squares, as those in which the side-lengths are equal and the angles are equal. Find the perimeter of regular and irregular polygons.

2.16 Multiplicative contexts: area and perimeter 1

3, 6, 9 times tables

 4NF-1 Recall multiplication and division facts up to 12×12, and recognise products in multiplication tables as multiples of the corresponding number.

• 2.8 Times tables: 3, 6 and 9, and the relationship between them

7 times table and patterns

 4NF–1 Recall multiplication and division facts up to 12×12, and recognise products in multiplication tables as multiples of the corresponding number.

• 2.9 Times tables: 7 and patterns within/across times tables

Understanding and manipulating multiplicative relationships

- 4MD-1 Multiply and divide whole numbers by 10 and 100 (keeping to whole number quotients); understand this as equivalent to making a number 10 or 100 times the size.
- 4MD-2 Manipulate multiplication and division equations, and understand and apply the commutative property of multiplication.
- 4MD-3 Understand and apply the distributive property of multiplication.
- 4NF-3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 100)
- 2.10 Connecting multiplication and division, and the distributive law
- 2.13 Calculation: multiplying and dividing by 10 or 100

Coordinates

 4G-1 Draw polygons, specified by coordinates in the first quadrant, and translate within the first quadrant.

Review of fractions

- 3F–1 Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts.
 - 3.1 Preparing for fractions: the part—whole relationship

Fractions greater than 1

- 4F-1 Reason about the location of mixed numbers in the linear number system.
- 4F–2 Convert mixed numbers to improper fractions and vice versa.
- 4F-3 Add and subtract improper and mixed fractions with the same denominator, including bridging whole numbers.
- 3.5 Working across one whole: improper fractions and mixed numbers

Symmetry in 2D shapes

• 4G—3 Identify line symmetry in 2D shapes presented in different orientations. Reflect shapes in a line of symmetry and complete a symmetric figure or pattern with respect to a specified line of symmetry.

Time

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Division with remainders

• 4NF–2 Solve division problems, with two-digit dividends and one-digit divisors, that involve remainders.

2.12 Division with remainders

Number and place value

Number facts

Addition and subtraction

Multiplication and division

Fractions

Geometry

Other

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Decimal fractions

- 5NPV-1 Know that 10 tenths are equivalent to 1 one, and that 1 is 10 times the size of 0.1. Know that 100 hundredths are equivalent to 1 one, and that 1 is 100 times the size of 0.01. Know that 10 hundredths are equivalent to 1 tenth, and that 0.1 is 10 times the size of 0.01.
- 5NPV-2 Recognise the place value of each digit in numbers with up to 2 decimal places, and compose and decompose numbers with up to 2 decimal places using standard and nonstandard partitioning.
- 5NPV-3 Reason about the location of any number with up to 2 decimals places in the linear number system, including identifying the previous and next multiple of 1 and 0.1 and rounding to the nearest of each.
- 5NPV-4 Divide 1 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in units of 1 with 2, 4, 5 and 10 equal parts.
- 5NF-2 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 1 tenth or 1 hundredth).
- 1.23 Composition and calculation: tenths
- 1.24 Composition and calculation: hundredths and thousandths

Money

1.25 Addition and subtraction: money

Negative numbers

1.27 Negative numbers: counting, comparing and calculating

Short multiplication and short division

- 5MD-3 Multiply any whole number with up to 4 digits by any one-digit number using a formal written method.
- 5MD–4 Divide a number with up to 4 digits by a one-digit number using a formal written method, and interpret remainders appropriately for the context.
- 2.14 Multiplication: partitioning leading to short multiplication
- 2.15 Division: partitioning leading to short division

Area and scaling

 5G–2 Compare areas and calculate the area of rectangles (including squares) using standard units.

2.16 Multiplicative contexts: area and perimeter 1

2.17 Structures: using measures and comparison to understand scaling

Calculating with decimal fractions

- 5MD-1 Multiply and divide numbers by 10 and 100; understand this as equivalent to making a number 10 or 100 times the size, or 1 tenth or 1 hundredth times the size.
- 2.19 Calculation: x/÷ decimal fractions by whole numbers
- 2.29 Decimal place-value knowledge, multiplication and division

Factors, multiples and primes

- 5MD–2 Find factors and multiples of positive whole numbers, including common factors and common multiples, and express a given number as a product of 2 or 3 factors.
- 2.20 Multiplication with three factors and volume
- 2.21 Factors, multiples, prime numbers and composite numbers

Fractions

- 5NPV-5 Convert between units of measure, including using common decimals and fractions.
- 5F–1 Find non-unit fractions of quantities.
- 5F–2 Find equivalent fractions and understand that they have the same value and the same position in the linear number system.
- 5F–3 Recall decimal fraction equivalents for ½, ¼, ½ and ¼₀, and for multiples of these
 proper fractions.
- 3.6 Multiplying whole numbers and fractions
- 3.7 Finding equivalent fractions and simplifying fractions
- 3.10 Linking fractions, decimals and percentages

Converting units

5NPV-5 Convert between units of measure, including using common decimals and fractions.

Angles and transformations

5G–1 Compare angles, estimate and measure angles in degrees (°) and draw angles of a given size.

Number and place value

Number facts

Addition and subtraction

Multiplication and division

Fractions

Geometry

Other

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Year 6 Calculating using knowledge of structures (1) • 6AS/MD—1 Understand that 2 numbers can be related additively or multiplicatively, and quantify additive and multiplicative relationships (multiplicative relationships restricted to multiplication by a whole number). • 6AS/MD—2 Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding. • 1.28 Common structures and the part—part—whole relationship • 1.29 Using equivalence and the compensation property to calculate Multiples of 1,000 • 1.26 Composition and calculation: multiples of 1,000 up to 1,000,000 Numbers up to 10,000,000 • 6NPV—1 Understand the relationship between powers of 10 from 1 hundredth to 10 million, and use this to make a given number 10, 100, 1,000, 1 tenth, 1 hundredth or 1 thousandth times the size (multiply and divide by 10, 100 and 1,000).

- 6NPV-2 Recognise the place value of each digit in numbers up to 10 million, including decimal fractions, and compose and decompose numbers up to 10 million using standard and non-standard partitioning.
- 6NPV-3 Reason about the location of any number up to 10 million, including decimal fractions, in the linear number system, and round numbers, as appropriate, including in contexts.
- 6NPV-4 Divide powers of 10, from 1 hundredth to 10 million, into 2, 4, 5 and 10 equal parts, and read scales/number lines with labelled intervals divided into 2, 4, 5 and 10 equal parts.
- 1.30 Composition and calculation: numbers up to 10,000,000

Draw, compose and decompose shapes

• 6G—1 Draw, compose, and decompose shapes according to given properties, including dimensions, angles and area, and solve related problems.

Multiplication and division

- 6AS/MD-2 Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding.
- 2.18 Using equivalence to calculate
- 2.23 Multiplication strategies for larger numbers and long multiplication
- 2.24 Division: dividing by two-digit divisors
- · 2.25 Using compensation to calculate

Area, perimeter, position and direction

• 2.30 Multiplicative contexts: area and perimeter 2

Fractions and percentages

- 6F-1 Recognise when fractions can be simplified, and use common factors to simplify fractions.
- 6F–2 Express fractions in a common denomination and use this to compare fractions that are similar in value.
- 6F-3 Compare fractions with different denominators, including fractions greater than 1, using reasoning, and choose between reasoning and common denomination as a comparison strategy.
- 3.8 Common denomination: more adding and subtracting
- 3.9 Multiplying fractions and dividing fractions by a whole number
- 3.10 Linking fractions, decimals and percentages

Statistics

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Ratio and proportion

- 6AS/MD-3 Solve problems involving ratio relationships.
- 2.27 Scale factors, ratio and proportional reasoning

Calculating using knowledge of structures (2)

• 6AS/MD—2 Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding.

1.29 Using equivalence and the compensation property to calculate

Solving problems with two unknowns

- 6AS/MD-4 Solve problems with 2 unknowns.
- 1.31 Problems with two unknowns

Order of operations

- 2.22 Combining multiplication with addition and subtraction
 - 2.28 Combining division with addition and subtraction

Mean average

2.26 Mean average and equal shares

Number and place value Number facts Addition and subtraction Multiplication and division Fractions Geometry Other

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