# Mathletics <br> NCETM Curriculum Prioritisation Alignment 

## Activities and Skill Quests



Years 3-4
Mathletics
June, 2023

## Mathletics

National Centre for Excellence in the Teaching of Mathematics

June 2023
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## Year 3

## Autumn

Unit 1: Adding and subtracting across 10

| 1. Pupils add 3 addends |  |
| :--- | :--- |
| Course Topic | Activities Title |
| Add and Subtract (Mental) | Add 3 Numbers: Bonds to Multiples of 10. |
|  | Add 3 Numbers: Bonds to 100 |
| Add and Subtract Written <br> (Review) | Columns that Add |
| Add and Subtract Written | Add three 2-digit numbers: Regroup (UK) |


| 2. Pupils use a 'First.. Then... Now" story to add 3 addends |  |
| :--- | :--- |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |

3. Pupils explain that addends can be added in any order

| Course Topic |  |
| :--- | :--- |
| Teacher directed | Teacher directed |

4. Pupils add 3 addends efficiently

| 4. Pupils add 3 addends efficiently |  |
| :--- | :--- |
| Course Topic | Activities Title |
| Add and Subtract (Mental) | Add 3 Numbers: Bonds to Multiples of 10. |
|  | Add 3 Numbers: Bonds to 100 |
| Add and Subtract Written <br> (Review) | Columns that Add |
| Add and Subtract Written | Add three 2-digit numbers: Regroup (UK) |

5. Pupils add 3 addends efficiently by finding two addends that total 10

Course Topic
Add and Subtract (Mental) $\quad$ Add 3 Numbers: Bonds to Multiples of 10.

## 6. Pupils add two numbers that bridge through 10

Course Topic $\quad$ Activities Title
Add and Subtract Written $\quad$ Add Two 2-Digit Numbers: Regroup Add 3-Digit Numbers: Regroup
7. Pupils subtract two numbers that bridge through 10

Course Topic
Add and Subtract Written

Activities Title
2-Digit Differences: Regroup
3-Digit Differences: 1 regrouping

Unit 2: Numbers to $\mathbf{1 , 0 0 0}$

| 1. Pupils explain that $\mathbf{1 0 0}$ is composed of ten tens and one hundred ones |  |
| :---: | :--- |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |


| 2. Pupils explain that 100 is composed of 50s 25s and 20s |  |
| :--- | :--- |
| Course Topic |  |
| Teacher directed | Teacher directed |


| 3. Pupils use known facts to find multiples of ten that compose 100 |  |
| :---: | :--- |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |

4. Pupils will use known facts to find a two-digit number and a one- or twodigit number that compose 100

| Course Topic | Activities Title |
| :---: | :--- |
| Add and Subtract Mental | Complements to 100 |


| 5. Pupils use known facts to find correct complements to $\mathbf{1 0 0}$ |  |
| :---: | :--- |
| Course Topic | Activities Title |
| Add and Subtract Mental | Complements to 100 |


| 6. Pupils use known facts to find complements to 100 accurately and |  |
| :---: | :---: |
| efficiently |  |

7. Pupils represent a three-digit number which is a multiple of ten using their numerals and names
Course Topic $\quad$ Activities Title

| 8. Pupils use place value knowledge to write addition and subtraction |  |
| :---: | :---: |
| equations |  |


| 9. Pupils bridge $\mathbf{1 0 0}$ by adding or subtracting in multiples of ten |  |
| :---: | :--- |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |


| 10. Pupils use knowledge of addition and subtraction of multiples of ten |  |
| :---: | :---: |
| bridging the hundreds boundary to solve problems |  |

## 11. Pupils count across and on from 100

Course Topic $\quad$ Activities Title
Teacher directed
Teacher directed

| 12. Pupils represent a three-digit number up to 199 in different ways |  |
| :---: | :---: |
| Skill Quests | Skills |
| Add with 3-digit numbers | Adding a 3-digit number and 1s using models |
| Course Topic | Activities Title |
| Number and Place Value (2) | Place Value 2 |
|  | Model Numbers |
|  | Place Value to Thousands |

13. Pupils bridge 100 by adding or subtracting a single-digit number

Skill Quests
Add with 3-digit numbers

Skills
Adding a 3-digit number and 1 s using models

| 14. Pupils find ten more or ten less than a given number |  |
| :--- | :--- |
| Course Topic | Activities Title |
| Problem Solving | Pick the Next Number |

1. Pupils cross the hundreds boundary when adding and subtracting any two-digit multiple of ten

| Course Topic | Activities Title |
| :--- | :--- |
| Teacher directed | Teacher directed |

16. Pupils become familiar with a metre ruler (marked and unmarked intervals, $1 \times 1 \mathrm{~m}, 10 \times 10 \mathrm{~cm}, 100 \times 1 \mathrm{~cm}$ )

## Skill Quests <br> Skills

Length: measure, compare, add
Introducing formal units for millimetres and subtract

| 17. Pupils measure length and height from zero using whole metres and cm |  |
| :--- | :--- |
| Skill Quests | Skills |
| Measure perimeter of 2-D <br> shapes | Measuring perimeter in cm |
| Course Topic | Activities Title |
| Length, Mass and Volume | Measuring Length |
|  | How Long is That? |


| 18. Pupils measure length and height from zero using cm |  |
| :--- | :--- |
| Skill Quests | Skills |
| Measure perimeter of 2-D <br> shapes | Measuring perimeter in cm |
| Course Topic | Activities Title |
| Length, Mass and Volume | Measuring Length |
|  | How Long is that? |

19. Pupils convert between m and cm (include whole m to $\mathrm{cm}, \mathrm{cm}$ to whole m and cm and vice versa)

| Skill Quests | Skills |
| :--- | :--- |
| Convert units of measure-length | Converting km, m, cm and mm |
| Course Topic | Activities Title |
| Length, Mass and Volume | Centimetres and metres |

20. Pupils become familiar with a ruler in relation to cm and mm (marked and unmarked intervals, knowing $1 \mathrm{~cm}=10 \mathrm{~mm}$ )

| Skill Quests | Skills |
| :---: | :--- |
| Measure perimeter of 2-D shapes | Measuring perimeter in cm |
| Course Topic | Activities Title |
| Length, Mass and Volume | Measuring Length |
|  | How Long is that? |


| 21. Pupils measure length from zero using $\mathbf{~ m m} /$ whole $\mathbf{c m}$ and $\mathbf{~ m m}$ |  |
| :--- | :--- |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |


| 22. Pupils convert between cm and mm (include whole cm to $\mathrm{mm}, \mathrm{mm}$ to whole cm and mm and vice versa) |  |
| :---: | :---: |
| Skill Quests | Skills |
| Convert units of measure-length | Converting $\mathrm{km}, \mathrm{m}, \mathrm{cm}$ and mm |
| Course Topic | Activities Title |
| Length, Mass and Volume | Converting cm and mm |


| 23. Pupils estimate a length/height, measure a length/height and record in a |  |
| :---: | :---: |
| table |  |
| Course Topic | Activities Title |
| Length, Mass and Volume | Measuring Length |
|  | How Long is that? |


| 24. Pupils use knowledge of place value to represent a three-digit number in |  |
| :--- | :--- |
| different ways |  |


| 25. Pupils represent a three-digit number up to 1000 in different ways |  |
| :---: | :---: |
| Skill Quests | Skills |
| Identify and represent <br> numbers | Identifying 3-digit numbers within 1000 |
| Course Topic |  |
| Number and Place Value (2) | Place Value 2 Activities Title |
|  | Model Numbers |
|  | Place Value to Thousands |


| 26. Pupils use knowledge of the additive relationship to solve problems |  |
| :--- | :--- |
| Skill Quests | Skills |
| Solve Problems: add and <br> subtract | Problem solving with addition and subtraction |
| Course Topic |  |
| Problem Solving | Bar Model Problems 1 |
|  | Pyramid Puzzles Title |
|  | Bar Model Problems 2 |


| 27. Pupils count in hundreds and tens on a number line |  |
| :---: | :--- |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |

28. Pupils identify the previous, next and nearest multiple of 100 on a number line for a three-digit multiples of ten
Course Topic
Activities Title
Teacher directed
Teacher directed

| 29. Pupils position three-digit numbers on number lines |  |
| :--- | :--- |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |

30. Pupils estimate the position of three-digit numbers on unmarked number lines
Course Topic
Activities Title
Teacher directed
Teacher directed

| 31. Pupils compare one-, two- and three-digit numbers |  |
| :--- | :--- |
| Skill Quests | Skills |
| Compare and order <br> numbers up to 1000 | Comparing numbers up to 1000 |
| Course Topic | Activities Title |
| Number and Place Value (1) | Compare Numbers to 100 |
|  | Which is Bigger? |
|  | Which is Smaller? |


| 32. Pupils compare two three-digit numbers |  |
| :--- | :--- |
| Skill Quests | Skills |
| Compare and order <br> numbers up to 1000 | Comparing numbers up to 1000 |
| Course Topic |  |
| Number and Place Value | Which is Greater? |
|  | Which is Less? |
|  | Greater than or Less than? Title |


| 33. Pupils order sets of three-digit numbers |  |
| :--- | :--- |
| Skill Quests | Skills |
| Compare and order <br> numbers up to 1000 | Comparing numbers up to 1000 |

34. Pupils use known facts to add or subtract multiples of 100 within 1000 Course Topic Activities Title
Teacher directed
Teacher directed

| 35. Pupils write a three-digit multiple of $\mathbf{1 0}$ as a multiplication equation |  |
| :---: | :---: |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |

## 36. Pupils partition three-digit numbers in different ways

Course Topic
Activities Title
Number and Place Value (2) $\quad$ Partition and Rename 1
Place Value Partitioning

| 37. Pupils use known facts to solve problems involving partitioning numbers |  |
| :--- | :--- |
| Course Topic | Activities Title |
| Number and Place Value (1) | Repartition two-digit numbers |
| Problem Solving | Partition Puzzles |


| 38. Pupils use known facts to add or subtract to/from multiples of $\mathbf{1 0 0}$ in |  |
| :--- | :--- |
| tens |  |$|$| Course Topic |  |
| :--- | :--- |
| Teacher directed | Teacher directed |


| 39. Pupils use known facts to add or subtract to/from multiples of $\mathbf{1 0 0}$ in |  |
| :--- | :--- |
| ones |  |$|$| Course Topic | Tetivities Title |  |
| :--- | :--- | :--- |
| Teacher directed | Teacher directed |  |


| 40. Pupils add/subtract multiples of ten bridging $\mathbf{1 0 0}$ |  |
| :--- | :--- |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |


| 41. Pupils add/subtract to/from a three-digit number in ones bridging $\mathbf{1 0 0}$ |  |
| :---: | :---: |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |


| 42. Pupils find $\mathbf{1 0}$ more or less across any hundreds boundary |  |
| :--- | :--- |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |


| 43. Pupils use knowledge of adding or subtracting to/from three-digit <br> numbers to solve problems |  |
| :---: | :---: |
| Skill Quests | Skills |
| Sole problems: add and <br> subtract | Problem solving with addition and subtraction |


| 44. Pupils count forwards and backwards in multiples of 2, 20,5,50 and 25 |  |
| :--- | :--- |
| Skill Quests | Skills |
| Count in multiples of 4, 8, <br> 50 and 100 | Counting in multiples of 4 |
| Course Topic |  |
| Number and Place Value (1) | Skip Counting With Coins Title |

45. Pupils use knowledge of counting in multiples of $2,20,5,50$ and 25 to solve problems

| Course Topic | Activities Title |
| :---: | :--- |
| Number and Place Value (1) | Skip Counting With Coins |

46. Pupils become familiar with different weighing scales up to 1 kg (intervals of $100 \mathrm{~g}, 200 \mathrm{~g}, 250 \mathrm{~g}$ and 500 g )

| Course Topic | Activities Title |
| :--- | :--- |
| Length, Mass and Volume | How Heavy? |
| Problem Solving | Which Unit of Measurement? |
|  | Mass Word Problems |

47. Pupils become familiar with the tools to measure volume and capacity up to 1 litre (intervals of $100 \mathrm{ml}, 200 \mathrm{ml}, 250 \mathrm{ml}$ and 500 ml )
Course Topic
Activities Title
Length, Mass and Volume Which Measuring Tool?

| 48. Pupils measure mass from zero up to 1 kg using grams |  |
| :--- | :--- |
| Course Topic | Activities Title |
| Length, Mass and Volume | How Heavy? |
| Problem Solving | Mass Word Problems |

49. Pupils measure mass from zero above 1 kg using whole kg and grams

| Course Topic | Activities Title |
| :--- | :--- |
| Length, Mass and Volume | How Heavy? |
| Problem Solving | Mass Word Problems |

50. Pupils measure volume from zero up to 1 litre using ml

Course Topic
Activities Title
Length, Mass and Volume
Using a Litre
51. Pupils measure volume from zero above 1 litre using whole litres and ml

Course Topic
Teacher directed
Teacher directed

Activities Title

| 52. Pupils estimate mass in grams and volume in ml |  |
| :--- | :--- |
| Course Topic |  |
| Teacher directed | Teacher directed |


| 53. Pupils estimate a mass/volume, measure a mass/volume and record in a |  |
| :---: | :---: |
| table |  |
| Course Topic | Activities Title |

## Spring

Unit 3: Right angles

| 1. Pupils rotate two lines around a fixed point to make different sized angles |  |
| :---: | :---: |
| Skill Quests | Skills |
| Recognise turns and angles | Recognising turns and angles |


| 2. Pupils draw triangles and quadrilaterals and identify vertices |  |
| :--- | :---: |
| Skill Quests | Skills |
| Compare and describe 2-D <br> shapes | Comparing and describing 2-D shapes |
| Course Topic | Activities Title |
| Properties of Shape | Sides, Angles and Diagonals |

3. Pupils learn that a right angle is a 'square corner' and identify them in the environment
Course Topic $\quad$ Activities Title
Identify right angles
Identifying right angles in shapes

| 4. Pupils learn that a rectangle is a 4-sided polygon with four right angles |  |
| :--- | :--- |
| Skill Quests | Skills |
| Compare and describe 2-D <br> shapes | Comparing and describing 2-D shapes |
| Course Topic |  |
| Properties of Shape | Collect the Polygons |


| 5. Pupils learn that a square is a rectangle in which the four sides are equal length |  |
| :---: | :---: |
| Skill Quests | Skills |
| Compare and describe 2-D shapes | Comparing and describing 2-D shapes |
| Course Topic | Activities Title |
| Properties of Shape | Collect the Polygons |


| 6. Pupils cut rectangles and squares on the diagonal and investigate the |  |
| :--- | :--- |
| shapes they make |  |


| 7. Pupils join four right angles at a point using different right-angled |  |
| :--- | :--- |
| polygons |  |


| 8. Pupils investigate and draw other polygons with right angles |  |
| :--- | :--- |
| Skill Quests | Skills |
| Identify right angles | Identifying right angles in shapes |

Unit 4: Manipulating the additive relationship and securing mental calculation

| 1. Pupils add two 3-digit numbers using partitioning |  |
| :--- | :--- |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |


| 2. Pupils add two 3-digit numbers using adjusting |  |
| :---: | :--- |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |


| 3. Pupils add a pair of 2- or 3-digit numbers using redistribution |  |
| :--- | :--- |
| Course Topic |  |
| Teacher directed | Teacher directed |


| 4. Pupils subtract a pair of 2- or 3-digit numbers, bridging a multiple of 10, |  |
| :---: | :---: |
| using partitioning |  |$\quad$ Activities Title

5. Pupils subtract a pair of 2-digit numbers, crossing a ten or hundreds boundary, by finding the difference between them

| Course Topic | Activities Title |
| :--- | :---: |
| Add and Subtract Written | 2-Digit Differences: Regroup |


| 6. Pupils subtract a pair of three-digit multiples of 10 within 1000 by finding <br> the difference between them |  |
| :--- | :--- |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |


| 7. Pupils evaluate the efficiency of strategies for subtracting from a 3-digit |  |
| :--- | :---: |
| number |  |$|$| Skill Quests | Skills |
| :---: | :---: |
| Estimate Calculations | Recognising and using inverse relationship |


| Course Topic | Activities Title |
| :--- | :--- |
| Add and Subtract Written <br> (Review) | Column Subtraction |
| Add and Subtract | 3-Digit Differences |
|  | 3-Digit Differences: 1 Regrouping |
|  | 3-Digit Differences: 2 Regroupings |


| 8. Pupils explain why the order of addition and subtraction steps in a multi- <br> step problem can be chosen |  |
| :--- | :--- |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |


| 9. Pupils accurately and efficiently solve multi-step addition and subtraction <br> problems |  |
| :--- | :--- |
| Skill Quests | Skills |
| Solve problems: add and <br> subtract | Problem solving with addition and subtraction |


| 10. Pupils understand and can explain that both addition and subtraction <br> equations can be used to describe the same additive relationship (2-digit <br> numbers) |  |
| :--- | :--- |
| Skill Quests | Skills |
| Estimate Calculations | Recognising and using inverse relationship |


| 11. Pupils understand and can explain that both addition and subtraction <br> equations can be used to describe the same additive relationship (3-digit <br> numbers) |  |
| :--- | :--- |
| Skill Quests | Skills |
| Estimate Calculations | Recognising and using inverse relationship |


| 12. Pupils use knowledge of the additive relationship to rearrange equations |  |
| :---: | :---: |
| Skill Quests | Skills |
| Commutativity in addition | Commutativity in addition |

13. Pupils use knowledge of the additive relationship to identify what is known and what is unknown in an equation

| Skill Quests | Skills |
| :--- | :--- |
| Solve problems: add and subtract | Problem solving with addition and subtraction |
| Course Topic | Activities Title |
| Add and Subtract Mental | Missing Numbers |
| Problem Solving | Bar Model Problems 1 |
|  | Pyramid Puzzles 1 |
|  | Bar Model Problems 2 |


| 14. Pupils use knowledge of the additive relationship to rearrange equations |  |
| :--- | :--- |
| before solving |  |
| Skill Quests | $\quad$ Skills |
| Solve problems: add and <br> subtract | Problem solving with addition and subtraction |
| Course Topic |  |
| Add and Subtract Mental | Missing Numbers Title |
| Problem Solving | Bar Model Problems 1 |
|  | Pyramid Puzzles 1 |
|  | Bar Model Problems 2 |

Unit 5: Column addition

| 1. Pupils identify the addends and the sum in column addition |  |
| :--- | :--- |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |


| 2. Pupils use their knowledge of place value to correctly lay out column |  |
| :--- | :--- |
| addition |  |


| 3. Pupils add a pair of 2-digit numbers using column addition |  |
| :--- | :---: |
| Skill Quests | Skills |
| Formal addition up to 3 <br> digits | Adding numbers up to 3 digits (no exchanging) |
| Course Topic | Activities Title |
| Add and Subtract Written <br> (Review) | Add Two 2-Digit Numbers |
| Add and Subtract Written | Add Two 2-Digit Numbers: Regroup |


| 4. Pupils add using column addition |  |
| :--- | :--- |
| Skill Quests | Skills |
| Formal addition up to 3 <br> digits | Adding numbers up to 3 digits (no exchanging) |
| Course Topic |  |
| Add and Subtract Written <br> (Review) | Columns that Add |
|  | Colivities Title |
|  | Add Addition |
| Adw and Subtract Written 2-Digit Numbers |  |
|  | Add Two 2-Digit Numbers: Regroup |
|  | Add Three 2-Digit Numbers: Regroup (UK) |
|  | Add 3-Digit Numbers |


|  | Add Multi-Digit Numbers |
| :--- | :--- |
|  | Add 3-Digit Numbers: Regroup |
|  | Strategies for Column Addition |
|  |  |
| 5. Pupils use their knowledge of column addition to solve problems |  |
| Skill Quests | Skills |
| Solve problems: add and <br> subtract | Problem solving with addition and subtraction |


| 6. Pupils add a pair of 2-digit numbers using column addition with |  |
| :---: | :---: |
| regrouping in the ones column |  |

7. Pupils add a pair of 2-digit numbers using column addition with regrouping in the tens column
Course Topic Activities Title
Teacher directed
Teacher directed

| 8. Pupils add using column addition with regrouping |  |
| :--- | :--- |
| Course Topic | Activities Title |
| Add and Subtract Written | Add Two 2-Digit Numbers: Regroup |
|  | Add Three 2-Digit Numbers: Regroup (UK) |
|  | Add Multi-Digit Numbers |
|  | Add 3-Digit Numbers: Regroup |
|  | Strategies for Column Addition |

9. Pupils use known facts and strategies to accurately and efficiently calculate and check column addition

| Skill Quests | Skills |
| :--- | :--- |
| Estimate Calculations | Recognising and using inverse relationship |
| Course Topic | Activities Title |
| Add and Subtract Written | Strategies for column addition |

10. Pupils use their knowledge of column addition to solve problems

Skill Quests
Solve problems: add and subtract

Unit 6: 2,4,8 times tables

1. Pupils represent counting in fours as the 4 times table

Course Topic
Activities Title
Number and Place Value (1)
Counting up in 4s

| 2. Pupils use knowledge of the 4 times table to solve problems |  |  |
| :--- | :--- | :---: |
| Course Topic | Activities Title |  |
| Multiply and Divide | Groups of 4 |  |


| 3. Pupils explain the relationship between adjacent multiples of four |  |
| :---: | :---: |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |


| 4. Pupils explain the relationship between multiples of $\mathbf{2}$ and multiples of $\mathbf{4}$ |  |
| :---: | :--- |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |


| 5. Pupils use knowledge of the relationships between the $\mathbf{2}$ and $\mathbf{4}$ times |  |
| :--- | :--- |
| tables to solve problems |  |


| 6. Pupils represent counting in eights as the 8 times table |  |
| :--- | :--- |
| Course Topic | Activities Title |
| Number and Place Value (1) | Counting up in 8s |
| Multiply and Divide | Groups of 8 |

7. Pupils explain the relationship between adjacent multiples of eight

| Course Topic | Activities Title |
| :---: | :--- |
| Teacher directed | Teacher directed |


| 8. Pupils explain the relationship between multiples of $\mathbf{4}$ and multiples of $\mathbf{8}$ |  |
| :---: | :--- |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |

9. Pupils use knowledge of the relationships between the 4 and 8 times tables to solve problems

| Course Topic |  |
| :--- | :--- |
| Teacher directed | Teacher directed Activities Title |


| 10. Pupils explain the relationship between multiples of $\mathbf{2 , 4}$ and multiples of |  |  |  |
| :--- | :---: | :---: | :---: |
| $\mathbf{8}$ |  |  |  |
| Course Topic |  |  |  |
| Teacher directed | Teacher directed |  |  |


| 11. Pupils use knowledge of the relationships between the $\mathbf{2 , 4}$ <br> tables to solve problems |  |
| :--- | :--- |
| Course Topic 8 times |  |
| Teacher directed | Teacher directed |


\left.| 12. Pupils use knowledge of the divisibility rules for divisors of 2 and 4 to |  |
| :--- | :--- |
| solve problems |  |$\right] \quad$ Activities Title | Course Topic | Teacher directed |
| :---: | :---: |
| Teacher directed |  |


| 13. Pupils use knowledge of the divisibility rules for divisors of 8 to solve |  |
| :--- | :--- |
| problems |  |


| 14. Pupils scale known multiplication facts by $\mathbf{1 0}$ |  |
| :--- | :---: |
| Course Topic | Activities Title |
| Multiply and Divide | Multiply multiples of 10 |


| 15. Pupils scale division derived from multiplication facts by $\mathbf{1 0}$ |  |
| :--- | :--- |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |

## Unit 7: Column subtraction

| 1. Pupils identify the minuend and the subtrahend in column subtraction |  |
| :--- | :--- |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |


| 2. Pupils explain the column subtraction algorithm |  |
| :--- | :--- |
| Course Topic |  |
| Teacher directed | Teacher directed $\quad$ Activities Title |

3. Pupils subtract from a 2-digit number using column subtraction with exchanging from tens to ones
Course Topic
Add and Subtract Written
Activities Title 2-Digit Differences: Regroup
4. Pupils subtract from a 3-digit number using column subtraction with exchanging from hundreds to tens (1)
Course Topic
Activities Title
Add and Subtract Written
3-digit differences: Regrouping 2 ( T to O and H to T )
5. Pupils subtract from a 3-digit number using column subtraction with exchanging from hundreds to tens (2)
Course Topic Activities Title
Add and Subtract Written
3-digit differences: Regrouping 2 ( T to O and H to T )

| 6. Pupils evaluate the efficiency of strategies for subtraction |  |
| :---: | :---: |
| Skill Quests | Skills |
| Estimate calculations | Recognising and using inverse relationship |

## Summer

## Unit 8 Unit fractions

| 1. Pupils identify a whole and the parts that make it up |  |
| :--- | :--- |
| Skill Quests | Skills |
| Recognise, find and write <br> fractions <br> Course Topic <br> Fractions (1) | Recognising, finding and writing fractions |
|  | Activities Title |
|  | Fractions of a Collection |
|  | Model Fractions |
|  | Part Whole Rods 2 |
|  | Fraction Fruit Sets 1 |
|  | Unit Fractions |
|  | What Fraction is Shaded? |


| 2. Pupils explain why a part can only be defined when in relation to a whole |  |
| :---: | :---: |
| Skill Quests | Skills |
| Recognise, find and write <br> fractions | Recognising, finding and writing fractions |


| 3. Pupils identify the number of equal or unequal parts in a whole |  |  |  |  |
| :--- | :--- | :---: | :---: | :---: |
| Skill Quests | Skills |  |  |  |
| Recognise, find and write <br> fractions | Recognising, finding and writing fractions |  |  |  |
| Course Topic |  |  |  |  |
| Fractions (1) | Moctivities Title Fractions |  |  |  |
|  | Part Whole Rods 2 |  |  |  |
|  | Fraction Fruit Sets 1 |  |  |  |
|  | Unit Fractions |  |  |  |
|  | What Fraction is Shaded? |  |  |  |
|  | Thirds and Sixths |  |  |  |
| Fractions (2) | Uneven Partitioned Shapes 2 |  |  |  |
|  | Equivalent Fraction Wall 1 |  |  |  |


| 4. Pupils identify equal parts when they do not look the same (i) |  |
| :--- | :--- |
| Skill Quests | Skills |
| Recognise and show <br> equivalent fractions | Recognise fractions equivalent to 1 |
| Course Topic |  |
| Fractions (2) | Activities Title |


| 5. Pupils explain the size of the part in relation to the whole |  |
| :--- | :--- |
| Skill Quests | Skills |
| Recognise, find and write <br> fractions | Recognising, finding and writing fractions |
| Recognise and show <br> equivalent fractions | Recognise fractions equivalent to 1 |
| Course Topic |  |
| Fractions (1) | Part Whole Rods 2 |


| 6. Pupils construct a whole when given a part and the number of parts |  |
| :--- | :--- |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |


| 7. Pupils identify how many equal parts a whole has been divided into |  |
| :--- | :--- |
| Skill Quests | Skills |
| Recognise, find and write <br> fractions | Recognising, finding and writing fractions |
| Course Topic | Activities Title |
| Fractions (1) | Thirds and Sixths |


$\left.$| 8. Pupils use fraction notation to describe an equal part of the whole |  |
| :--- | :--- |
| Skill Quests |  |$\quad$| Skills |
| :---: | \right\rvert\, | Recognise, find and write |
| :--- | :--- |
| fractions |$\quad$ Recognising, finding and writing fractions


| 9. Pupils represent a unit fractions in different ways |  |
| :---: | :---: |
| Course Topic | Activities Title |
| Fractions (2) | Uneven Partitioned Shapes 2 |


| 10. Pupils identify parts and wholes in different contexts (i) |  |
| :--- | :--- |
| Skill Quests | Skills |
| Recognise and use fractions <br> as numbers | Recognising and using fractions as numbers |
| Course Topic |  |
| Fractions (1) | Fraction Fruit Sets 1 |

11. Pupils identify parts and wholes in different contexts (ii)

Course Topic $\quad$ Activities Title
Fractions (2)
Identifying Fractions on a Number Line

| 12. Pupils identify equal parts when they do not look the same (ii) |  |
| :--- | :--- |
| Skill Quests | Skills |
| Recognise and show <br> equivalent fractions | Recognise fractions equivalent to 1 |
| Course Topic | Activities Title |
| Fractions (2) | Uneven Partitioned Shapes 2 |
|  | Equivalent Fraction Wall 1 |


| 13. Pupils compare and order unit fractions by looking at the denominator |  |
| :--- | :--- |
| Skill Quests | Skills |
| Compare and order simple <br> fractions | Comparing and ordering fractions |
| Course Topic |  |$\quad$ Activities Title

14. Pupils identify when unit fractions cannot be compared

Course Topic
Activities Title
Teacher directed
Teacher directed

| 15. Pupils construct a whole when given one part and the fraction that it |  |
| :--- | :--- |
| represents |  |

16. Pupils use knowledge of the relationship between parts and wholes in unit fractions to solve problems

| Skill Quests | Skills |
| :--- | :--- |
| Solve problems: fractions | Estimating/adding to find fractions of sets |
| Course Topic | Activities Title |
| Fractions (2) | Uneven Partitioned Shapes 2 |

17. Pupils identify the whole, the number of equal parts and the size of each part as a unit fraction

| Skill Quests | Skills |
| :--- | :--- |
| Recognise, find and write <br> fractions | Recognising, finding and writing fractions |
| Recognise and use fractions as <br> numbers | Recognising and using fractions as numbers |
| Course Topic | Activities Title |
| Fractions (1) | Partition into equal parts |
|  | Unit Fractions |
|  | What Fraction is shaded? |


| 18. Pupils quantify the number of items in each part and connect to the unit |  |
| :--- | :---: |
| fraction operator |  |


| 19. Pupils calculate the value of a part by using knowledge of division and |  |
| :--- | :--- |
| division facts |  |$|$| Skill Quests | Skills |
| :--- | :--- |
| Recognise and use fractions <br> as numbers | Recognising and using fractions as numbers |


| 20. Pupils calculate the value of a part by connecting knowledge of division <br> and division facts with finding a fraction of a quantity |  |
| :--- | :--- |
| Skill Quests | Skills |
| Recognise and use fractions as <br> numbers | Recognising and using fractions as numbers |


| 21. Pupils find fractions of quantities using knowledge of division facts with |  |
| :--- | :--- |
| increasing fluency |  |

## Unit 9: Non-unit fractions

| 1. Pupils explain that non-unit fractions are composed of more than one unit <br> fraction |  |
| :---: | :---: |
| Skill Quests |  |
| Count up and down in tenths | Introducing tenths |


| 2. Pupils identify non-unit fractions |  |
| :--- | :--- |
| Skill Quests | Skills |
| Count up and down in <br> tenths | Introducing tenths |


| 3. Pupils identify the number of equal or unequal parts in a whole |  |
| :--- | :--- |
| Skill Quests |  |
| Recognise, find and write <br> fractions | Recognising, finding and writing fractions |
| Course Topic | Activities Title |
| Fractions (1) | Partition into equal parts |
|  | What fraction is shaded? |


| 4. Pupils use knowledge of non-unit fractions to solve problems |  |
| :--- | :--- |
| Skill Quests | Skills |
| Compare and order simple <br> fractions | Comparing and ordering fractions |
| Course Topic |  |
| Fractions (1) | Pactivities Title |
|  | Fraction Fruit sets 1 |
|  | What Fraction is Shaded? |


| 5. Pupils use knowledge of unit fractions to find one whole |  |
| :--- | :--- |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |


| 6. Pupils place fractions between $\mathbf{0}$ and 1 on a numberline |  |
| :---: | :---: |
| Course Topic | Activities Title |
| Fractions (2) | Identifying Fractions on a numberline |


| 7. Pupils use repeated addition of a unit fraction to form a non-unit fraction |  |
| :---: | :--- |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |


| 8. Pupils use repeated addition of a unit fraction to form 1 |  |
| :--- | :--- |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |


| 9. Pupils compare using knowledge of non-unit fractions equivalent to one |  |
| :--- | :--- |
| Skill Quests | Skills |
| Compare and order simple <br> fractions | Comparing and ordering fractions |
| Course Topic | Activities Title |
| Fractions (2) | Equivalent Fractions Wall 1 |


| 10. Pupils compare non-unit fractions with the same denominator |  |  |  |
| :--- | :--- | :---: | :---: |
| Skill Quests |  |  |  |
| Compare and order simple <br> fractions | Comparing and ordering fractions |  |  |
| Course Topic |  |  |  |
| Fractions (2) | Activities Title |  |  |
|  | Subtract: Common Denominator |  |  |
|  | Compare Fractions 1a |  |  |
|  | Compare Fractions 1 |  |  |


| 11. Pupils compare unit fractions |  |
| :--- | :--- |
| Skill Quests | Skills |
| Compare and order simple <br> fractions | Comparing and ordering fractions |
| Course Topic | Activities Title |
| Fractions (2) | Compare Fractions 1a |


| 12. Pupils compare fractions with the same numerator |  |
| :--- | :--- |
| Skill Quests | Skills |
| Compare and order simple <br> fractions | Comparing and ordering fractions |
| Course Topic | Activities Title |
| Fractions (2) | Compare Fractions 1a |
|  | Compare Fractions 1 |


| 13. Pupils add up fractions with the same denominator |  |
| :---: | :---: |
| Skill Quests | Skills |
| Add fractions up to 1 whole | Adding unit fractions with the same denominator |
| Course Topic | Activities Title |
| Fractions (2) | Add: Common Denominator |


| 14. Pupils add on fractions with the same denominator |  |
| :--- | :--- |
| Skill Quests | Skills |
| Add fractions up to 1 whole | Adding unit fractions with the same denominator |
| Course Topic | Activities Title |
| Fractions (2) | Add: Common Denominator |


| 15. Pupils add fractions with the same denominator using a generalised rule |  |
| :--- | :--- |
| Skill Quests | Skills |
| Add fractions up to 1 whole | Adding unit fractions with the same denominator |
| Course Topic | Activities Title |
| Fractions (2) | Add: Common Denominator |

## 16. Pupils subtract fractions with the same denominator

Course Topic
Activities Title
Fractions (2)
Subtract: Common Denominator

| 17. Pupils identify the whole, the number of equal parts and the size of each <br> part as a unit fraction |  |
| :--- | :--- |
| Skill Quests | Skills |
| Recognise, find and write <br> fractions | Recognising, finding and writing fractions |


| Course Topic |  |
| :--- | :--- |
| Fractions (1) | Unit Fractions |



| 19. Pupils subtract fractions from a whole by converting the whole to a |  |
| :---: | :---: |
| fraction |  |
| Course Topic |  |
| eacher directed | Teacher directed |

20. Pupils represent a whole as a fraction in different ways and use this to solve problems involving subtraction

Course Topic
Problem Solving

Activities Title
Fraction Length Models 1
Fraction Word Problems

Unit 10: Parallel and perpendicular sides in polygons

| 1. Pupils make compound shapes by joining two polygons in different ways |
| :--- | :--- |
| (same parts, different whole) |


| 2. Pupils investigate different ways of composing and decomposing a <br> polygon (same whole, different parts) |  |
| :--- | :--- |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |


| 3. Pupils draw polygons on isometric paper |  |
| :--- | :--- |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |

4. Pupils use geostrips to investigate quadrilaterals with and without parallel and perpendicular sides
Course Topic
Activities Title
What Line am I?

Properties of Shape

| 5. Pupils make and draw compound shapes with and without parallel and |  |
| :--- | :--- |
| perpendicular sides |  |


| 6. Pupils learn to extend lines and sides to identify parallel and perpendicular |  |
| :--- | :--- |
| lines |  |


| 7. Pupils make and draw triangles on circular geoboards |  |
| :--- | :--- |
| Skill Quests | Skills |
| Compare and describe 2-D <br> shapes | Comparing and describing 2-D shapes |


| 8. Pupils make and draw quadrilaterals on circular geoboards |  |
| :---: | :---: |
| Skill Quests | Skills |
| Compare and describe 2-D <br> shapes | Comparing and describing 2-D shapes |

9. Pupils draw shapes with given properties on a range of geometric grids

Skill Quests

## Skills

Compare and describe 2-D $\quad$ Comparing and describing 2-D shapes shapes

Unit 11: Time

1. Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks

Skill Quests
Tell the time: analogue clock
Course Topic
Time and Money
Time

Skills
Telling the time to 5 minutes on analogue clocks Activities Title
Five minute times
Tell Time to the Half Hour
2. Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight

## Skill Quests

Tell the time: analogue clock
Estimate and read time
Course Topic
Time

## Skills

Telling the time to 5 minutes on analogue clocks Comparing and ordering time in seconds and minutes Activities Title What is the Time?

| 3. Know the number of seconds in a minute and the number of days in each |  |
| :--- | :--- |
| month, year and leap year |  |


| 4. Compare durations of events [for example to calculate the time taken by <br> particular events or tasks] |  |
| :---: | :---: |
| Skill Quests | Skills |
| Compare durations of events | Comparing durations in hours, minutes and seconds |

## Year 4

## Autumn

Unit 1: Review of column addition and subtraction

| 1. Pupils identify the addends and the sum in column addition |  |
| :--- | :--- |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |

2. Pupils use their knowledge of place value to correctly lay out column addition

Course Topic
Add and Subtract Written

Activities Title
Strategies for Column Addition
Add 3-digit Numbers
Add 3-digit Numbers: Regroup (UK)
Add Three 3-digit Numbers: Regroup
Adding Colossal Columns (UK)

| 3. Pupils add a pair of 2-digit numbers using column addition |  |
| :---: | :---: |
| Course Topic | Activities Title |
| Add and Subtract Written | Strategies for Column Addition |

4. Pupils add using column addition

Course Topic
Add and Subtract Written

Activities Title
Strategies for Column Addition
Add 3-digit Numbers
Add 3-digit Numbers: Regroup (UK)
Add Three 3-digit Numbers: Regroup
Adding Colossal Columns (UK)

| 5. Pupils use their knowledge of column addition to solve problems |  |
| :--- | :--- |
| Skill Quests | Skills |
| Solve 2-step problems in <br> context | Solving addition and subtraction two-step problems |
| Course Topic |  |
| Problem Solving | Magic Symbols 1 $\quad$ Activities Title |
|  | Magic Symbols 2 |
|  | Bar Model Problems 2 |
|  | Find the Missing Number 1 |
|  | Pyramid Puzzles 2 |
|  | lam Thinking of a Number! |


| 6. Pupils add a pair of 2-digit numbers using column addition with <br> regrouping in the ones column |  |
| :---: | :---: |
| Course Topic | Activities Title |
| Add and Subtract Written | Strategies for Column Addition |


| 7. Pupils add a pair of 2-digit numbers using column addition with |  |
| :--- | :--- |
| regrouping in the tens column |  |

## 8. Pupils add using column addition with regrouping

Course Topic
Add and Subtract Written

Activities Title
Strategies for Column Addition
Add 3-digit Numbers: Regroup (UK)
Add Three 3-digit Numbers: Regroup
Adding Colossal Columns (UK)

| 9. Pupils use known facts and strategies to accurately and efficiently <br> calculate and check column addition |  |
| :--- | :--- |
| Skill Quests |  |
| Add and Subtract multiples of <br> 100 | Adding and subtracting multiples of 100 |
| Estimate and use inverse <br> operations | Estimating and using inverse operations |

10. Pupils identify the minuend and the subtrahend in column subtraction

| Course Topic |  |
| :---: | :--- |
| Teacher directed | Teacher directed Activities Title |

## 11. Pupils subtract using column subtraction

Course Topic
Add and Subtract Written

Activities Title
3-digit Differences With Zeros Subtracting Colossal Columns
12. Pupils subtract from a 2-digit number using column subtraction with exchanging from tens to ones

| Course Topic | Activities Title |
| :--- | :--- |
| Teacher directed | Teacher directed |

13. Pupils subtract from a 3-digit number using column subtraction with exchanging from hundreds to tens (1)

Course Topic
Add and Subtract Written

Activities Title
3-digit Differences With Zeros

| 14. Pupils subtract from a 3-digit number using a column subtraction with <br> exchanging from hundreds to tens (2) |  |
| :--- | :--- |
| Course Topic |  |
| Add and Subtract Written | 3-digit Differences With Zeros Title |
|  | Subtracting Colossal Columns |


| 15. Pupils evaluate the efficiency of strategies for subtraction |  |
| :---: | :--- |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |

Unit 2: Numbers to 10,000

| 1. Pupils explain how many tens, hundreds and ones 1,000 is composed of |  |
| :--- | :--- |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |

2. Pupils use knowledge of 1,000 to explain common measure conversions

| Skill Quests |  |  |  |  |  |
| :--- | :--- | :---: | :---: | :---: | :---: |
| Convert units of measure - <br> length | Converting - km, m, cm and mm |  |  |  |  |
| Course Topic |  |  |  |  |  |
| Units of Measurement | Kilometre Conversions |  |  |  |  |
|  | Metres and Kilometres Title |  |  |  |  |
|  | Grams and Milligrams |  |  |  |  |
|  | Grams and Kilograms |  |  |  |  |
|  | Kilogram Conversions |  |  |  |  |
|  | Litre Conversions |  |  |  |  |
|  | Millilitres and Litres |  |  |  |  |

## 3. Pupils use knowledge of 1,000 to solve problems

| 3. Pupils use knowledge of 1,000 to solve problems |  |
| :--- | :--- |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |


| 4. Pupils use different strategies to add multiples of $\mathbf{1 0 0}$ |  |
| :---: | :--- |
| Skill Quests | Skills |
| Add and Subtract multiples <br> of 100 | Adding and Subtracting multiples of 100 |


| 5. Pupils use different strategies to subtract multiples of $\mathbf{1 0 0}$ |  |
| :--- | :---: |
| Skill Quests | Skills |
| Add and Subtract multiples <br> of 100 | Adding and Subtracting multiples of 100 |


| 6. Pupils use knowledge of calculation and common measure conversions to |  |
| :--- | :--- |
| solve problems |  |$|$| Skills |
| :--- |
| Skill Quests |
| Measure and calculate <br> perimeter |


| 7. Pupils compose and decompose four-digit numbers in different ways |  |
| :---: | :---: |
| Skill Quests | Skills |
| Recognise place value in 4- <br> digit numbers | Recognising the place value of 4-digit numbers |
| Course Topic | Activities Title |
| Number and Place Value | Place Value to Thousands |
|  | Place Value 3 |
|  | Partition and Rename 3 |
|  | Expanding Numbers |


| 8. Pupils use strategies to make solving calculations more efficient |  |
| :--- | :--- |
| Skill Quests | Skills |
| Round numbers | Rounding numbers to the nearest 10, 100 or 1000 |
| Course Topic |  |
| Number and Place Value | Missities Title |
| Add and Subtract Mental | Estimate Sums 1 $\quad$ Sums |
|  | Estimate Differences |


| 9. Pupils compare and order four-digit numbers |  |
| :---: | :---: |
| Skill Quests | Skills |
| Order and compare <br> numbers beyond 1000 | Ordering numbers beyond 1000 |
| Course Topic |  |
| umber and Place Value | Put in Order 1 $\quad$ Activities Title |


| 10. Pupils calculate efficiently by using knowledge of place value, addition |  |
| :--- | :--- |
| and subtraction |  |


| 11. Pupils explain what rounding is |  |
| :--- | :--- |
| Skill Quests | Skills |
| Round Numbers | Rounding numbers to the nearest 10, 100 or 1000 |
| Course Topic |  |
| Number and Place Value <br> Rounding | Nearest 10? |
|  | Nearest 100? |
|  | Nearest 1000? |
|  | Rounding Numbers |


| 12. Pupils round a four-digit number to the nearest thousand |  |
| :--- | :--- |
| Skill Quests | Skills |
| Round Numbers | Rounding numbers to the nearest 10, 100 or 1000 |
| Course Topic | Activities Title |
| Number and Place Value <br> Rounding | Nearest 1000? |


| 13. Pupils round a four-digit number to the nearest hundred and ten |  |
| :--- | :--- |
| Skill Quests | Skills |
| Round Numbers | Rounding numbers to the nearest 10, 100 or 1000 |
| Course Topic | Activities Title |
| Number and Place Vale <br> Rounding | Rounding Numbers |


| 14. Pupils round a four-digit number to the nearest thousand, hundred and |  |
| :---: | :---: |
| ten |  |


| 15. Pupils add up to 3 four-digit numbers using a column addition |  |  |  |  |
| :--- | :--- | :---: | :---: | :---: |
| Course Topic | Activities Title |  |  |  |
| Teacher directed | Teacher directed |  |  |  |


| 2. Pupils subtract four-digit numbers using a column subtraction |  |  |  |
| :--- | :--- | :---: | :---: |
| Course Topic | Activities Title |  |  |
| Teacher directed | Teacher directed |  |  |


| 17. Pupils use strategies to make solving calculations more efficient |  |
| :--- | :--- |
| Skill Quests | Skills |
| Recognise place value in 4- <br> digit numbers | Recognising the place value of 4-digit numbers |
| Estimate and use inverse <br> operations | Estimating and using inverse operations |
| Course Topic |  |
| Add and Subtract Mental | Split add and Subtract |
|  | Bump add and Subtract |
|  | Estimate Sums Title |
|  | Estimate Differences |


| 18. Pupils explain how many '100s' and '200s', 1,000 is composed of |  |
| :--- | :--- |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |

19. Pupils explain how many ' 500 s' and ' 250 s', 1,000 is composed of Course Topic Activities Title
Teacher directed
Teacher directed

Unit 3: Perimeter

1. A regular polygon has sides that are all the same length and interior

Skill Quests
Compare and classify geometric shapes

Skills
Comparing and classifying quadrilaterals
2. Perimeter is the distance around the edge of a two-dimensional shape

Skill Quests
Measure and calculate perimeter

Course Topic
Length, Perimeter and Area

Skills
Measuring and calculating perimeters
Activities Title
Perimeter of Shapes
Perimeter: Squares and Rectangles

## 3. Different shapes can have the same perimeter

| Skill Quests | Skills |
| :---: | :--- |
| Measure and calculate <br> perimeter | Measuring and calculating perimeters |
| Course Topic | Activities Title |
| Length, Perimeter and Area | Perimeter of Shapes |
|  | Perimeter: Squares and Rectangles |


| 4. Perimeter is measured in units of length and can be found by counting |  |
| :---: | :--- |
| units |  |$|$| Skills |
| :---: |
| Skill Quests |
| Measure and calculate <br> perimeter |
| Course Topic |
| Measuring and calculating perimeters |
| Length, Perimeter and Area |


| 5. Perimeter can be calculated by adding together the side lengths of a 2D shape |  |
| :---: | :---: |
| Skill Quests | Skills |
| Measure and calculate perimeter | Measuring and calculating perimeters |
| Course Topic | Activities Title |
| Length, Perimeter and Area | Perimeter of Shapes |
|  | Perimeter: Squares and Rectangles |


| 6. The perimeter of a rectangle can be calculated by addition and |  |
| :--- | :---: |
| multiplication |  |


| 7. Unknown side lengths can be calculated from perimeter and known side |  |
| :---: | :---: |
| lengths |  |$|$| Skills |
| :---: |
| Skill Quests |
| Measure and calculate <br> perimeter |
| Course Topic |
| Mength, Perimeter and Area |


| 8. The perimeter of a regular polygon can be calculated by multiplication |  |
| :---: | :--- |
| Course Topic | Activities Title |
| Length, Perimeter and Area | Perimeter of Shapes |
|  | Perimeter: Squares and Rectangles |


| 9. The side length of a regular polygon can be calculated by division where |  |
| :--- | :--- |
| the perimeter is known |  |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |

Unit 4: 3,6,9 times tables

| 1. Pupils represent counting in threes as the three times table |  |
| :--- | :--- |
| Skill Quests | Skills |
| Multiply by 3 | Exploring multiplication by 3 |
| Course Topic |  |
| Multiply and Divide | Groups of 3 $\quad$ Activities Title |


| 2. Pupils explain the relationship between adjacent multiples of three |  |
| :--- | :--- |
| Skill Quests | Skills |
| Multiply by 3 | Exploring multiplication by 3 |


| 3. Pupils use knowledge of the three times table to solve problems |  |
| :--- | :--- |
| Skill Quests | Skills |
| Solve problems: <br> multiplication/division | Solving correspondence problems |


| 4. Pupils represent counting in sixes as the six times table |  |
| :---: | :---: |
| Skill Quests | Skills |
| Explore multiplication by 6 | Exploring multiplication by 6 |
| Course Topic | Activities Title |
| Multiply and Divide Facts | Groups of Six $\quad$ |


| 5. Pupils explain the relationship between adjacent multiples of six |  |
| :---: | :---: |
| Skill Quests | Skills |
| Explore multiplication by 6 | Exploring multiplication by 6 |


| 6. Pupils use knowledge of the six times table to solve problems |  |
| :--- | :--- |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |


| 7. Pupils use known facts from the five times table to solve problems |  |  |  |
| :--- | :--- | :---: | :---: |
| involving the six times table |  |  |  |
| Course Topic | Activities Title |  |  |
| Teacher directed | Teacher directed |  |  |

8. Pupils explain the relationship between multiples of three and multiples of six
Skill Quests
Skills
Explore multiplication by 3
Exploring multiplication by 3
Explore multiplication by 6
Exploring multiplication by 6
9. Pupils use knowledge of the relationships between the three and six times tables to solve problems

| Course Topic |  |
| :--- | :--- |
| Teacher directed | Teacher directed |

10. Pupils represent counting in nines as the nine times table

Course Topic
Activities Title
Multiply and Divide Facts
Groups of Nine

| 11. Pupils explain the relationship between adjacent multiples of nine (1) |  |
| :--- | :--- |
| Course Topic |  |
| Teacher directed | Teacher directed |


| 12. Pupils explain the relationship between adjacent multiples of nine (2) |  |
| :--- | :--- |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |


| 13. Pupils use known facts from the ten times table to solve problems <br> involving the nine times table |  |
| :--- | :--- |
| Course Topic |  |
| Teacher directed | Teacher directed |


| 14. Pupils explain the relationship between multiples of three and multiples |
| :---: | :---: |
| of nine |

15. Pupils explain the relationship between pairs of three and nine times table facts that have the same product (1)
Course Topic
Activities Title
Teacher directed
Teacher directed

16, Pupils explain the relationship between pairs of three and nine times table facts that have the same product (2)

| Course Topic |  |
| :--- | :--- |
| Teacher directed | Teacher directed Activities Title |

## 17. Pupils use the divisibility rules for divisors of three

| 17. Pupils use the divisibility rules for divisors of three |  |  |
| :--- | :--- | :---: |
| Course Topic | Activities Title |  |
| Multiply and Divide | Dividing Threes |  |


| 18. Pupils use the divisibility rules for divisors of six (1) |  |
| :--- | :--- |
| Course Topic |  |
| Multiply and Divide Facts | Dividing Sixes |

19. Pupils use the divisibility rules for divisors of six (2)

Course Topic
Activities Title
Multiply and Divide Facts
Dividing Sixes

## Spring

Unit 4 (cont.): 3, 6, 9 times tables

| 1. Pupils represent counting in threes as the three times table |  |
| :--- | :--- |
| Skill Quests | Skills |
| Multiply by 3 | Exploring multiplication by 3 |
| Course Topic |  |
| Multiply and Divide | Groups of 3 |


| 2. Pupils explain the relationship between adjacent multiples of three |  |
| :---: | :---: |
| Skill Quests | Skills |
| Multiply by 3 | Exploring multiplication by 3 |


| 3. Pupils use knowledge of the three times table to solve problems |  |
| :---: | :--- |
| Skill Quests | Skills |
| Solve problems: <br> multiplication/division | Solving correspondence problems |


| 4. Pupils represent counting in sixes as the six times table |  |
| :---: | :--- |
| Skill Quests |  |
| Explore multiplication by 6 | Exploring multiplication by 6 |
| Course Topic |  |
| Multiply and Divide Facts | Groups of Six $\quad$ Activities Title |


| 5. Pupils explain the relationship between adjacent multiples of six |  |
| :---: | :---: |
| Skill Quests | Skills |
| Explore multiplication by 6 | Exploring multiplication by 6 |


| 6. Pupils use knowledge of the six times table to solve problems |  |
| :--- | :--- |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |


| 7. Pupils use known facts from the five times table to solve problems |  |
| :--- | :--- |
| involving the six times table |  |


| 8. Pupils explain the relationship between multiples of three and multiples of <br> six |  |
| :---: | :---: |
| Skill Quests | Skills |
| Explore multiplication by 3 | Exploring multiplication by 3 |


| 9. Pupils use knowledge of the relationships between the three and six times <br> tables to solve problems |  |
| :--- | :--- |
| Course Topic |  |
| Teacher directed | Teacher directed $\quad$ Activities Title |


| 10. Pupils represent counting in nines as the nine times table |  |  |  |
| :---: | :--- | :---: | :---: |
| Skill Quests | Skills |  |  |
| Teacher directed | Teacher directed |  |  |
| Course Topic |  | Activities Title |  |
| Multiply and Divide Facts | Groups of Nine |  |  |

11. Pupils explain the relationship between adjacent multiples of nine (1)

| Course Topic | Activities Title |
| :---: | :--- |
| Teacher directed | Teacher directed |

12. Pupils explain the relationship between adjacent multiples of nine (2)
Course Topic

Activities Title
Teacher directed
Teacher directed

| 13. Pupils use known facts from the ten times table to solve problems |  |
| :--- | :--- |
| involving the nine times table |  |


| 14. Pupils explain the relationship between multiples of three and multiples |  |  |
| :--- | :--- | :---: |
| of nine |  |  |$|$| Course Topic |  | Activities Title |
| :--- | :--- | :--- |
| Teacher directed | Teacher directed |  |

15. Pupils explain the relationship between pairs of three and nine times table facts that have the same product (1)

| Course Topic |  |
| :---: | :--- |
| Teacher directed | Teacher directed Activities Title |

16. Pupils explain the relationship between pairs of three and nine times table facts that have the same product (2)

| Course Topic |  |
| :---: | :--- |
| Teacher directed | Teacher directed Activities Title |


| 17. Pupils use the divisibility rules for divisors of three |  |
| :--- | :--- |
| Course Topic | Activities Title |
| Multiply and Divide | Dividing Threes |


| 18. Pupils use the divisibility rules for divisors of six (1) |  |
| :---: | :---: |
| Course Topic |  |
| Multiply and Divide Facts | Dividing Sixes $\quad$ Activities Title |

19. Pupils use the divisibility rules for divisors of six (2)

Course Topic
Activities Title
Multiply and Divide Facts
Dividing Sixes

Unit 5: 7 times table and patterns

| 1. Pupils represent counting in sevens as the 7 times table |  |
| :--- | :--- |
| Course Topic | Activities Title |
| Multiply and Divide Facts | Groups of Seven |

2. Pupils explain the relationship between adjacent multiples of seven

| Course Topic | Activities Title |
| :--- | :--- |
| Teacher directed | Teacher directed |


| 3. Pupils use their knowledge of the 7 times table to solve problems |  |
| :--- | :--- |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |


| 4. Pupils identify patterns of odd and even numbers in the times tables |  |
| :--- | :--- |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |


| 5. Pupils represent a square number |  |
| :--- | :--- |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |


| 6. Pupils use knowledge of divisibility rules to solve problems |  |
| :---: | :---: |
| Skill Quests | Skills |
| Find and use factor pairs | Finding and using factor pairs |

Unit 6: Understanding and manipulating multiplicative relationships

| 1. Pupils explain what each factor represents in a multiplication equation |  |
| :--- | :--- |
| Skill Quests | Skills |
| Find and use factor pairs | Finding and using factor pairs |

2. Pupils explain how each part of a multiplication and division equation relates to a story
Course Topic Activities Title

| Teacher directed | Teacher directed |
| :--- | :--- |

3. Pupils explain where zero can be part of a multiplication or division expression and the impact it has

## Skill Quests

Use place value to multiply and divide

Multiplying by 1 and 0
Skills
$\qquad$

|  Multiply: 2-digit by 1-digit <br> Multiply: 1-digit number <br> Multiply: 1-digit Number, Regroup <br> 9. Pupils explain the relationship between multiplying a number by 10 and  <br> multiples of 10  |
| :--- |
| Course Topic |
| Multiply and Divide |

10. Pupils explain why a zero can be placed after the final digit of a singledigit number when we multiply it by 10

| Course Topic | Activities Title |
| :---: | :--- |
| Teacher directed | Teacher directed |

11. Pupils explain why a zero can be placed after the final digit of a twodigit number when we multiply it by 10

Course Topic
Teacher directed
12. Pupils explain why the final digit zero can be removed from a two-digit multiple of 10 , when we divide by 10

Course Topic
Teacher directed

Activities Title
Teacher directed
13. Pupils explain why the final digit zero can be removed from a three-digit multiple of 10 , when we divide by 10
Skill Quests
Skills

Divide by 10 and 100
Dividing by 10
14. Pupils explain the relationship between multiplying a number by 100 and multiples of 100

| Course Topic |  |
| :---: | :--- |
| Teacher directed | Teacher directed |

15. Pupils explain why two zeros can be placed after the final digit of a single-digit number when we multiply it by 100

## Course Topic

Activities Title
Teacher directed
Teacher directed
16. Pupils explain why two zeros can be placed after the final digit of a twodigit number when we multiply it by 100

| Course Topic |  |
| :---: | :--- |
| Teacher directed | Teacher directed |


| 17. Pupils explain why the last two zeros can be removed from a <br> three-digit multiple of 100 when we divide it by 100 |  |  |
| :--- | :--- | :---: |
| Course Topic | Activities Title |  |
| Teacher directed | Teacher directed |  |

18. Pupils explain why the last two zeros can be removed from a fourdigit multiple of 100 when we divide it by 100

Course Topic
Teacher directed

Activities Title
Teacher directed

| 19. Pupils use knowledge of the composition of $\mathbf{1 0 0}$ to multiply by $\mathbf{1 0 0}$ |  |
| :--- | :---: |
| in different ways |  |


| 20. Pupils use knowledge of the composition of $\mathbf{1 0 0}$ to divide by $\mathbf{1 0 0}$ in |  |
| :--- | :--- |
| different ways |  |


| 21. Pupils explain how making a factor 10 times the size affects the |  |
| :--- | :--- |
| product |  |


| 22. Pupils explain how making the dividend 10 times the size affects |  |
| :--- | :--- |
| the quotient |  |


| 23. Pupils explain how making a factor 100 times the size affects the |  |
| :--- | :--- | :---: |
| product |  |


| 24. Pupils explain how making the dividend 100 times the size affects |  |
| :--- | :--- |
| the quotient |  |

## 25. Pupils scale known multiplication facts by 100

Course Topic
Teacher directed
Activities Title
Teacher directed
26. Pupils scale division derived from multiplication facts by 100

Course Topic
Teacher directed

Activities Title
Teacher directed

Unit 7: Coordinates

| 1. Pupils give directions from one position to another on a grid |  |
| :--- | :--- |
| Skill Quests | Skills |
| Describe position - first <br> quadrant | Describing positions on a 2-D grid as coordinates |
| Describe translations - <br> coordinate grid | Describing movement between positions |
| Course Topic | $\quad$ Activities Title |
| Properties of Shape and <br> Position | Transformations |
|  | Rotations |
|  | Horizontal and Vertical Change |


| 2. Pupils move objects including polygons on a grid according to directions, and mark the new position |  |
| :---: | :---: |
| Skill Quests | Skills |
| Describe position - first quadrant | Describing positions on a 2-D grid as coordinates |
| Describe translations coordinate grid | Describing movement between positions |
| Course Topic | Activities Title |
| Properties of Shape and Position | Transformations |
|  | Rotations |
|  | Horizontal and Vertical Change |

3. Pupils describe translations of polygons drawn on a square grid Skill Quests

Skills

| Describe position - first <br> quadrant | Describing positions on a 2-D grid as coordinates |
| :--- | :--- |
| Describe translations - <br> coordinate grid | Describing movement between positions |


| Course Topic |  |
| :--- | :--- |
| Properties of Shape and <br> Position | Transformations |


| 4. Pupils draw polygons specified by translations |  |
| :--- | :--- |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |


| 5. Pupils mark points specified as a translation from the origin |  |
| :---: | :--- |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |

6. Pupils mark the position of points specified by coordinates in the first quadrant of a coordinate grid, and write coordinates for already-marked points
Skill Quests Skills

Describe position - first quadrant Describing positions on a 2-D grid as coordinates | Find missing coordinates on | Plotting specified points to complete a polygon |
| :--- | :--- | polygons

## 7. Pupils draw polygons specified by coordinates in the first quadrant Skill Quests

| Find missing coordinates on <br> polygons | Plotting specified points to complete a polygon |
| :--- | :--- |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |
| 8. Pupils translate polygons in the first quadrant |  |

## Summer

## Unit 8: Review of fractions

| 1. Pupils identify a whole and the parts that make it up |  |
| :--- | :--- |
| Skill Quests | Skills |
| Solve problems: fractions | Making a whole $\quad$ Activities Title |
| Course Topic | What Fraction is Shaded? |
| Fractions (Something <br> Easier) |  |


| 2. Pupils explain why a part can only be defined when in relation to a whole |  |
| :--- | :--- |
| Skill Quests | Skills |
| Solve problems: fractions | Making a whole $\quad$ Activities Title |
| Course Topic | What Fraction is Shaded? |
| Fractions (Something <br> Easier) | One Take Fraction |
| Fractions |  |


| 3. Pupils identify the number of equal or unequal parts in a whole |  |
| :--- | :--- |
| Skill Quests | Skills |
| Solve problems: fractions | Making a whole $\quad$ Activities Title |
| Course Topic |  |
| Fractions | Shading Equivalent Fractions |
|  | Equivalent Fraction Wall 2 |
|  | One Take Fraction |


| 4. Pupils identify equal parts when they do not look the same |  |
| :--- | :--- |
| Skill Quests | Skills |
| Recognise and show <br> equivalent fractions <br> Course Topic | Investigating common equivalent fractions |
| Fractions |  |
|  | Shading Equivalent |
|  | Fractions |
|  | Equivalent Fraction Wall 2 |


| 5. Pupils explain the size of the part in relation to the whole |  |
| :--- | :--- |
| Skill Quests | Skills |
| Solve problems: fractions | Making a whole Activities Title |
| Course Topic | What Fraction is Shaded? |
| Fractions (Something <br> Easier) | One Take Fraction |
| Fractions |  |


| 6. Pupils construct a whole when given a part and the number of parts |  |
| :---: | :--- |
| Skill Quests | Skills |
| Solve problems: fractions | Making a whole |

## Unit 9: Fractions greater than 1

| 1. Pupils explain how to express quantities made up of both whole numbers |  |  |
| :--- | :--- | :---: |
| and a fractional part |  |  |
| Course Topic | Activities Title |  |
| Fractions | Counting With Fractions on a Number Line |  |
|  | Add Like Fractions |  |
|  | Subtract Like Fractions |  |
|  | Common Denominator |  |
|  | One Take Fraction |  |


\left.| 2. Pupils explain how a quantity made up of whole numbers and a fractional |  |
| :---: | :---: |
| part is composed |  |$\right\}$ Activities Title


| 3. Pupils compose and decompose quantities made of whole numbers and |  |
| :--- | :--- |
| fractional parts |  |


| 4. Pupils accurately label a range of number lines and explain the meaning |  |
| :---: | :---: |
| of each part |  |


| 5. Pupils identify numbers on marked but unlabelled number lines |  |
| :---: | :---: |
| Course Topic | Activities Title |
| Fractions | Counting With Fractions on a Number Line |


| 6. Pupils estimate the position of numbers on a number line using fraction |  |
| :--- | :--- |
| sense |  |$|$| Course Topic | Activities Title |
| :--- | :--- |
| Fractions | Counting With Fractions on a Number Line |


| 7. Pupils compare and order mixed numbers using fraction sense |  |
| :---: | :---: |
| Course Topic | Activities Title |
| Fractions | Counting With Fractions on a Number Line |


| 8. Pupils compare and order mixed numbers when the whole number is the |  |
| :---: | :---: | :---: |
| same |  |


| 9. Pupils compare and order mixed numbers when the whole number and <br> the numerator of the fractional part is the same |  |
| :--- | :--- |
| Course Topic |  |
| Teacher directed | Teacher directed |

10. Pupils make efficient choices about the order they solve an addition problem in

## Skill Quests

Add fractions: same

## Skills

denominator

| Course Topic | Activities Title |
| :--- | :--- |
| Fractions | Add Like Fractions |
|  | Common Denominator |

11. Pupils make efficient choices about the order they solve a subtraction problem in
Course Topic
Activities Title
Fractions
Subtract Like Fractions
Common Denominator
12. Pupils express a quantity as a mixed number and an improper fraction (quarters)

Course Topic
Fractions
Counting with Fractions on a Number Line
13. Pupils convert a quantity from an improper fraction to a mixed number (quarters)
Course Topic
Fractions
Counting with Fractions on a Number Line
14. Pupils express and convert a quantity from an improper fraction to a mixed number (fifths)
Course Topic
Activities Title
Teacher directed
Teacher directed

| 15. Pupils explain how an improper fraction is converted into a mixed |  |
| :--- | :--- |
| number (any unit) |  |


| 16. Pupils explain how a mixed number is converted into an improper |  |
| :--- | :--- |
| fraction |  |


| 17. Pupils add mixed numbers |  |
| :--- | :--- |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |


| 18. Pupils subtract a proper fraction from a mixed number (converting to an |  |
| :---: | :---: |
| improper fraction first) |  |
| Course Topic | Teacher directed |
| Teacher directed |  |


| 19. Pupils subtract a mixed number from a mixed number and explain which |  |
| :--- | :--- |
| strategy is most efficient |  |

20. Pupils use knowledge of subtraction to choose correct and efficient approaches when subtracting mixed numbers

Course Topic
Fractions
Subtract Like Fractions
Common Denominator

Unit 10: Symmetry in 2D shapes

| 1. Pupils complete a symmetrical pattern |  |
| :--- | :--- |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |


| 2. Pupils compose symmetrical shapes from two congruent shapes |  |
| :---: | :---: |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |


| 3. Pupils investigate lines of symmetry in 2D shapes by folding paper shape cut-outs |  |
| :---: | :---: |
| Skill Quests | Skills |
| Identify lines of symmetry in 2-D shapes | Identifying lines of symmetry in 2-D shapes |
| Course Topic | Activities Title |
| Properties of Shape | Symmetry or Not? |


| 4. Pupils find lines of symmetry in 2D shapes using a mirror |  |
| :--- | :--- |
| Skill Quests | $\quad$ Skills |
| Draw lines of symmetry | Drawing lines of symmetry |
| Course Topic | Activities Title |
| Properties of Shape | Symmetry or Not? |

## 5. Pupils reflect polygons in a line of symmetry

| Course Topic |  |
| :--- | :--- |
| Teacher directed | Teacher directed Activities Title |


| 6. Pupils reflect polygons that are dissected by a line of symmetry |  |
| :--- | :--- |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |

Unit 11: Time

| 1. Read, write and convert time between analogue and digital 12- and 24- <br> hour clocks |  |
| :--- | ---: |
| Skill Quests | Skills |
| Read, write and convert units <br> of time | Reading, writing and converting units of time <br> Course Topic |
| Time | Activities Title |

2. Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days

| Course Topic |  |  |  |
| :--- | :--- | :---: | :---: |
| Activities Title |  |  |  |
| Time | Using Timetables |  |  |
|  | Elapsed Time |  |  |
|  | What time will it be? |  |  |
|  | Hours and Minutes |  |  |

Unit 12: Division with remainders

| 1. Pupils interpret a division story when there is a remainder and represent it <br> with an equation (i) |  |
| :--- | :--- |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |

2. Pupils interpret a division story when there is a remainder and represent it with an equation (ii)

| Course Topic |  |
| :---: | :--- |
| Teacher directed | Teacher directed $\quad$ |

3. Pupils interpret a division story when there is a remainder and represent it with an equation (iii)
Course Topic
Activities Title
Teacher directed
Teacher directed

| 4. Pupils explain how the remainder relates to the divisor in a division |  |  |
| :--- | :--- | :---: |
| equation |  |  |


| 5. Pupils explain when there will and will not be a remainder in a division equation |  |
| :---: | :---: |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |


| 6. Pupils use knowledge of division equations and remainders to solve |  |
| :--- | :---: |
| problems |  |


| 7. Pupils interpret the answer to a division calculation to solve a problem (i) |  |
| :---: | :--- |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |


| 8. Pupils interpret the answer to a division calculation to solve a problem (ii) |  |  |
| :---: | :--- | :---: |
| Course Topic | Activities Title |  |
| Teacher directed | Teacher directed |  |

## Mathletics

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