Overview of Key Stage One Mathematics at Rose Green Infant School linked to the NCETM Materials

	Unit	Unit name
Autumn 1	1	Previous Reception experiences and counting within 100
Autumn 2	2	Comparison of quantities and part–whole relationships
	3	Numbers 0 to 5
Spring 1	4	Recognise, compose, decompose and manipulate 2D and 3D shapes
	5	Numbers 0 to 10
Spring 2	6	Additive structures
	7	Addition and subtraction facts within 10
Summer 1	8	Numbers 0 to 20
Summer 2	9	Unitising and coin recognition
	10	Position and direction
	11	Time

Year 1

Curriculum map

NCETM
NATIONAL CENTRE for EXCELLENCE in the TEACHING of MATHEMATICS

June 2021

Autumn 1

Counting within 100

Learning outcomes

#	Title
1	Pupils count within 100 in different ways

Autumn 2

Comparison of quantities and part–whole relationships

Learning outcomes

#	Title
1	Pupils explain that items can be compared using length and height
2	Pupils explain that items can be compared using weight/mass and volume/capacity
3	Pupils count a set of objects
4	Pupils compare sets of objects
5	Pupils use equality and inequality symbols to compare sets of objects
6	Pupils use equality and inequality symbols to compare expressions
7	Pupils explain what a whole is
8	Pupils explain that a whole can be split into parts
9	Pupils explain that a whole can represent a group of objects
10	Pupils identify a part of a whole group
11	Pupils explain what a part-whole model is
12	Pupils use a part-whole model to represent a whole partitioned into two parts
13	Pupils use a part-whole model to represent a whole partitioned into more than two parts

Numbers 0 to 5

Learning outcomes

#	Title
1	Pupils explain that numbers can represent how many objects there are in a set
2	Pupils explain that ordinal numbers show a position and not a set of objects
3	Pupils partition numbers one to five in different ways
4	Pupils partition the numbers one to five in a systematic way
5	Pupils find a missing part when one part and the whole is known
6	Pupils show one more and one less than a number using representations. Pupils describe this accurately.
7	Pupils show one more and one less than a number using representations. Pupils describe this accurately.
8	Pupils use a bar model to represent a whole partitioned into two parts

Spring 1

Recognise, compose, decompose and manipulate 2D and 3D shapes

Learning outcomes

#	Title
1	Pupils compose pattern block images
2	Pupils copy, extend and develop repeating and radiating pattern block patterns
3	Pupils compose tangram images
4	Pupils investigate tetromino and pentomino arrangements
5	Pupils investigate ways that four cubes can be composed into different 3D models
6	Pupils explore, discuss and compare 3D shapes
7	Pupils identify 2D shapes within 3D shapes
8	Pupils explore, discuss and compare 2D shapes
9	Pupils explore, discuss and identify circles and shapes that are not circles from shape cut-outs
10	Pupils explore, discuss and identify triangles and shapes that are not triangles from shape cut-outs
11	Pupils explore, discuss and identify rectangles (including squares) from shape cut-outs

Numbers 0 to 10

Learning outcomes

#	Title
1	Pupils count a set of objects and match the spoken number to the written numeral and number name
2	Pupils represent the numbers 6 to 10 using a five and a bit structure
3	Pupils identify the whole and parts of the numbers 6 to 10 using the five and a bit structure
4	Pupils explore the numbers 6 to 10 using the part whole model and the five and a bit structure
5	Pupils explain where 6, 7, 8 and 9 lie on a number line
6	Pupils explain what odd and even numbers are and the difference between them
7	Pupils explain how even and odd numbers can be partitioned
8	Pupils partition numbers 6 to 10 in different ways
9	Pupils partition the numbers 6 to 10 in a systematic way
10	Pupils identify a missing part when a whole is partitioned into two parts

Spring 2

Additive structures

Learning outcomes

#	Title
1	Pupils combine two or more parts to make a whole
2	Pupils explain that addends can be represented in any order. This is called the commutative law
3	Pupils explain that the = sign can be used to show that the whole and the sum of the parts are equal (1)
4	Pupils explain that the = sign can be used to show that the whole and the sum of the parts are equal (2)
5	Pupils add parts to find the value of the whole and write the equation
6	Pupils find the missing addend in an equation
7	Pupils partition a whole into two parts and express this with a subtraction equation
8	Pupils make addition and subtraction stories and write equations to match
9	Pupils represent 'first, then, now' stories with addition equations (1)
10	Pupils represent 'first, then, now' stories with addition equations (2)
11	Pupils represent 'first, then, now' stories with subtraction equations (1)
12	Pupils represent 'first, then, now' stories with subtraction equations (2)
13	Pupils represent different types of stories with subtraction calculations
14	Pupils make addition and subtraction stories, writing equations to match
15	Pupils work out the missing part of an addition story and equation if the other two parts are known
16	Pupils work out the missing part of a subtraction story and equation if the other two parts are known
17	Pupils explain that addition and subtraction are inverse operations (1)
18	Pupils explain that addition and subtraction are inverse operations (2)
19	Pupils use additive structures to think about addition and subtraction equations in different ways

Addition and subtraction facts within 10

Learning outcomes

#	Title
1	Pupils explain that addition is commutative
2	Pupils find pairs of numbers to 10 (1)
3	Pupils find pairs of numbers to 10 (2)
4	Pupils add and subtract 1 from any number
5	Pupils explain what the difference is between consecutive numbers
6	Pupils explain what happens when 2 is added to or subtracted from odd and even numbers
7	Pupils explain what the difference is between consecutive odd and even numbers
8	Pupils explain what happens when zero is added to or subtracted from a number
9	Pupils explain what happens when a number is added to or subtracted from itself
10	Pupils double numbers and explain what doubling means
11	Pupils halve numbers and explain what halving means
12	Pupils use knowledge of doubles and halves to calculate near doubles and halves
13	Pupils represent different types of stories with subtraction calculations
14	Pupils use knowledge and strategies to add 5 and 3 and 6 and 3

Summer 1

Numbers 0 to 20

Learning outcomes

#	Title
1	Pupils explain that the digits in the numbers 11 to 19 express quantity
2	Pupils explain that the digits in the numbers 11 to 19 express position on a number line
3	Pupils identify the quantity shown in a representation of numbers 11 to 19
4	Pupils use knowledge of '10 and a bit' to solve problems
5	Pupils use knowledge of '10 and a bit' to solve problems
6	Pupils explore odd and even numbers within 20
7	Pupils double the numbers 6 to 9 and halve the result, explaining what doubling and halving is
8	Pupils use knowledge of addition facts within 10 to add within 20
9	Pupils use knowledge of subtraction facts within 10 to subtract within 20
10	Pupils use knowledge of addition and subtraction facts within 10 to add and subtract within 20
11	Pupils measure one object with different non-standard measures and record outcomes
12	Pupils measure items using individual cm cubes (Dienes)
13	Pupils measure length from zero cm using a ruler
14	Pupils estimate length in cm
15	Pupils estimate length, measure length and record these values in a table

Summer 2

Unitising and coin recognition

Learning outcomes

#	Title
1	Pupils count efficiently in groups of two
2	Pupils count efficiently in groups of ten
3	Pupils count efficiently in group of five
4	Pupils count efficiently by counting in groups of two, five and ten
5	Pupils explain the value of a 1p coin in pence
6	Pupils recognise and explain the value of 2p, 5p and 10p coins
7	Pupils explain that a single coin can be worth several pennies
8	Pupils use knowledge of the value of coins to solve problems
9	Pupils calculate the total value of the coins in a set of 2p coins
10	Pupils calculate the total value of the coins in a set of 5p coins
11	Pupils calculate the total value of the coins in a set of 10p coins
12	Pupils compare sets of 2p, 5p and 10p coins
13	Pupils relate what they have learnt to a real-life context
14	Pupils work out how many coins are needed to make a value of 10p
15	Pupils work out how many coins are needed to make a total value of 20p
16	Pupils use knowledge of the value of coins to solve problems

Position and direction

National curriculum statutory requirements (p10)

Pupils should be taught to:

- describe position, direction and movement, including whole, half, quarter and three-quarter turns.

Notes and guidance (non-statutory)

- Pupils use the language of position, direction and motion, including left and right, top, middle and bottom, on top of, in front of, above, between, around, near, close and far, up and down, forwards and backwards, inside and outside.
- Pupils make whole, half, quarter and three-quarter turns in both directions and connect turning clockwise with movement on a clock face.

Time

National curriculum statutory requirements (p9)

Pupils should be taught to:

- sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]
- recognise and use language relating to dates, including days of the week, weeks, months and years
- tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.

	Unit	Unit name
Autumn 1	1	Numbers 10 to 100
	2	Calculations within 20
Autumn 2	3	Fluently add and subtract within 10
	4	Addition and subtraction of two-digit numbers (1)
Spring 1	5	Introduction to multiplication
	6	Introduction to division structures
Spring 2	7	Shape
	8	Addition and subtraction of two-digit numbers (2)
Summer 1	9	Money
	10	Fractions
	11	Time
	12	Position and direction
Summer 2	13	Multiplication and division – doubling, halving, quotitive and partitive division
	14	Sense of measure – capacity, volume, mass

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

Year 2

Curriculum map

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June 2021

Autumn 1

Numbers 10 to 100

Learning outcomes

#	Title
1	Pupils explain that one ten is equivalent to ten ones
2	Pupils represent multiples of ten using their numerals
3	Pupils represent multiples of ten using their numerals and names
4	Pupils represent multiples of ten in an expression or an equation
5	Pupils estimate the position of multiples of ten on a 0-100 number line
6	Pupils explain what happens when you add and subtract ten to a multiple of ten
7	Pupils use knowledge of facts and unitising to add and subtract multiples of ten
8	Pupils add and subtract multiples of ten
9	Pupils explore the counting sequence for counting to 100 and beyond
10	Pupils count a large group of objects by counting groups of tens and the extra ones
11	Pupils count a large group of objects by using knowledge of unitising by counting tens and ones
12	Pupils represent a number from 20-99 in different ways
13	Pupils explain and mark the position of numbers 20-99 on a number line
14	Pupils explain that numbers 20-99 can be represented as a length
15	Pupils compare two, two-digit numbers
16	Pupils partition a two-digit number into tens and ones
17	Pupils add two, two-digit numbers by partitioning into tens and ones

Calculations within 20

Learning outcomes

#	Title
1	Pupils add three addends
2	Pupils use a 'First... Then... Now" story to add 3 addends
3	Pupils explain that addends can be added in any order
4	Pupils add 3 addends efficiently
5	Pupils add 3 addends efficiently by finding two addends that total 10
6	Pupils add two numbers that bridge through 10
7	Pupils subtract two numbers that bridge through 10
8	Pupils compare numbers and describe how many more or less there are in each set
9	Pupils calculate the difference
10	Pupils use knowledge of subtraction to solve problems in a range of contexts
11	Pupils explain what the difference is between consecutive numbers
12	Pupils calculate difference when information is presented in a pictogram
13	Pupils calculate difference when information is presented in a bar chart

Autumn 2

Fluently add and subtract within 10

Learning outcomes

#	Title
1	Pupils demonstrate their fluency of addition and subtraction within ten
2	Pupils practise addition and subtraction strategies as required

Addition and subtraction of two-digit numbers (1)

Learning outcomes

#	Title
1	Pupils add and subtract one to and from a two-digit number
2	Pupils add and subtract one to and from a two-digit number that crosses a tens boundary
3	Pupils add and subtract one from any two-digit number
4	Pupils use number facts to add a single-digit number to a two-digit number
5	Pupils use number facts to subtract a single-digit number from a two-digit number
6	Pupils use a part-part-whole model to represent addition and subtraction
7	Pupils use number bonds to ten to add a single-digit number to a two-digit number
8	Pupils use number bonds to ten to subtract a single-digit number from a two-digit number
9	Pupils use knowledge of 'make ten' to add a one-digit number to a two-digit number
10	Pupils use knowledge of 'make ten' to subtract a multiple of ten or a single-digit from a two-digit number
11	Pupils solve problems using knowledge of addition and subtraction
12	Pupils find ten more or ten less than a two-digit number (1)
13	Pupils find ten more or ten less than a two-digit number (2)
14	Pupils add and subtract ten to/from a two-digit number
15	Pupils explain the patterns when adding and subtracting ten
16	Pupils use knowledge of adding and subtracting ten to solve problems
17	Pupils use number facts to add a multiple of ten to a two-digit number
18	Pupils use number facts to subtract a multiple of ten from a two-digit number
19	Pupils partition a two-digit number into parts in different ways (two and three parts)
20	Pupils use knowledge of adding and subtracting multiples of ten to solve problems

Introduction to Multiplication

Learning outcomes

#	Title
1	Pupils add and subtract one to and from a two-digit number
2	Pupils add and subtract one to and from a two-digit number that crosses a tens boundary
3	Pupils add and subtract one from any two-digit number
4	Pupils use number facts to add a single-digit number to a two-digit number
5	Pupils use number facts to subtract a single-digit number from a two-digit number
6	Pupils use a part-part-whole model to represent addition and subtraction
7	Pupils use number bonds to ten to add a single-digit number to a two-digit number
8	Pupils use number bonds to ten to subtract a single-digit number from a two-digit number
9	Pupils use knowledge of 'make ten' to add a one-digit number to a two-digit number
10	Pupils use knowledge of 'make ten' to subtract a multiple of ten or a single-digit from a two-digit number
11	Pupils solve problems using knowledge of addition and subtraction
12	Pupils find ten more or ten less than a two-digit number (1)
13	Pupils find ten more or ten less than a two-digit number (2)
14	Pupils add and subtract ten to/from a two-digit number
15	Pupils explain the patterns when adding and subtracting ten
16	Pupils use knowledge of adding and subtracting ten to solve problems
17	Pupils use number facts to add a multiple of ten to a two-digit number
18	Pupils use number facts to subtract a multiple of ten from a two-digit number
19	Pupils partition a two-digit number into parts in different ways (two and three parts)
20	Pupils use knowledge of adding and subtracting multiples of ten to solve problems

Spring 1

21	Pupils use knowledge of the relationships between the five and ten times tables to solve problems
22	Pupils explain how a factor of zero or one affect the product
23	Pupils represent multiplication equations in different ways
24	Pupils use knowledge of the two, five and ten times tables to solve problems (1)
25	Pupils use knowledge of the two, five and ten times tables to solve problems (2)
26	Pupils explain what each factor represents in a multiplication story
27	Pupils explain what each factor represents in a multiplication story when one of the factors is one
28	Pupils explain how a multiplication equation with two as a factor is related to doubling
29	Pupils double two-digit numbers
30	Pupils multiply efficiently when one of the factors is two
31	Pupils explain how halving and doubling are related
32	Pupils explain the relationship between factors and products
33	Pupils halve two-digit numbers
34	Pupils use knowledge of doubling, halving and the two times table to solve problems

Introduction to division structures

Learning outcomes

1	Pupils explain that objects can be grouped equally
2	Pupils identify and explain when objects cannot be grouped equally
3	Pupils explain the relationship between division expressions and division stories
4	Pupils calculate the number of equal groups in a division story
5	Pupils use their knowledge of skip counting and division to solve problems relating to measure
6	Pupils skip count using the divisor to find the quotient
7	Pupils use their knowledge of division to solve problems
8	Pupils explain that objects can be shared equally
9	Pupils use skip counting to solve a sharing problem
10	Pupils skip count using the divisor to find the quotient
11	Pupils solve a variety of division problems, explaining their understanding

Spring 2

Shape

Learning outcomes

1	Pupils learn that a polygon is a 2D shape with straight sides that meet at vertices
2	Pupils describe polygons and find different ways to sort them
3	Pupils learn that polygons can be sorted and named according to the number of sides and vertices
4	Pupils discuss, and compare by direct comparison, the shape and size of polygons
5	Pupils discuss, and compare by direct comparison, the vertices of polygons
6	Pupils investigate how polygons can be joined and folded to form 3-dimensional shapes
7	Pupils describe 3-dimensional shapes and find different ways to sort them
8	Pupils discuss, and compare by direct comparison, the shape and size of 3-dimensional shapes

Addition and subtraction of two-digit numbers (2)

Learning outcomes

1	Pupils explain strategies used to add
2	Pupils add a two-digit number to a two-digit number
3	Pupils add a two-digit number to a two-digit number when not crossing ten (i)
4	Pupils add a two-digit number to a two-digit number when not crossing ten (ii)
5	Pupils add a two-digit number to a two-digit number when crossing ten
6	Pupils explain strategies used to subtract
7	Pupils subtract a two-digit number from a two-digit number
8	Pupils partition the subtrahend to help with subtraction
9	Pupils subtract a two-digit number from a two-digit number when not crossing ten (i)
10	Pupils subtract a two-digit number from a two-digit number when not crossing ten (ii)
11	Pupils subtract a two-digit number from a two-digit number when crossing ten
12	Pupils subtract efficiently using knowledge of two-digit numbers

Summer 1

Money

National curriculum statutory requirements (p14)

Pupils should be taught to:

- recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value
- find different combinations of coins that equal the same amounts of money
- solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change.

Notes and guidance (non-statutory)

- Pupils become fluent in counting and recognising coins. They read and say amounts of money confidently and use the symbols £ and p accurately, recording pounds and pence separately.

Fractions

Learning outcomes

1	Pupils identify whether something has or has not been split into equal parts
2	Pupils name the fraction 'one-half' in relation to a fraction of a length, shape or set of objects
3	Pupils name the fraction 'one-quarter' in relation to a fraction of a length, shape or set of objects
4	Pupils name the fraction 'one-third' in relation to a fraction of a length, shape or set of objects
5	Pupils read and write the fraction notation ½, ⅓ and ¼ and relate this to a fraction of a length, shape or set of objects
6	Pupils find half of numbers
7	Pupils find ⅓ or ¼ of a number
8	Pupils find ¼ and ¾ of an object, shape, set of objects, length or quantity
9	Pupils recognise the equivalence of ¼ and ½

Time

National curriculum statutory requirements (p14)

Pupils should be taught to:

- compare and sequence intervals of time
- tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times
- know the number of minutes in an hour and the number of hours in a day.

Notes and guidance (non-statutory)

- Pupils use standard units of measurement with increasing accuracy, using their knowledge of the number system. They become fluent in telling the time on analogue clocks and recording it.

Position and Direction

National curriculum statutory requirements (p16)

Pupils should be taught to:

- order and arrange combinations of mathematical objects in patterns and sequences
- use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise).

Notes and guidance (non-statutory)

- Pupils should work with patterns of shapes, including those in different orientations.
- Pupils use the concept and language of angles to describe 'turn' by applying rotations, including in practical contexts (for example, pupils themselves moving in turns, giving instructions to other pupils to do so, and programming robots using instructions given in right angles).

Summer 2

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

Learning outcomes

1	Pupils identify the patterns and relationships between the 5 and 10 times tables
2	Pupils explain the patterns and relationships between the 5 and 10 times tables
3	Pupils use their knowledge of the 5 and 10 times tables to solve problems
4	Pupils identify and explain relationships between the 5 and the 10 times tables
5	Pupils use their knowledge of the 5 and 10 times tables to solve problems
6	Pupils explain how times table facts can help to find the quotient (10 times table)
7	Pupils explain how times table facts can help to find the quotient (5 times table)
8	Pupils explain how times table facts can help to find the quotient (2 times table)
9	Pupils explain how a division equation with 2 as a divisor is related to halving
10	Pupils explain each part of a division equation and know how they can be interchanged
11	Pupils use knowledge of divisibility rules when the divisor is 2 to solve problems
12	Pupils use knowledge of divisibility rules when then divisor is 10 to solve problems
13	Pupils use knowledge of divisibility rules when the divisor is 5 to solve problems
14	Pupils explain how a dividend of zero affects the quotient
15	Pupils explain how the quotient is affected when the divisor is equal to the dividend
16	Pupils explain how a divisor of one affects the quotient

Sense of measure – capacity, volume, mass

National curriculum statutory requirements (p14)

Pupils should be taught to:

- choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels
- compare and order lengths, mass, volume/capacity and record the results using >, < and =

Notes and guidance (non-statutory)

- Pupils use standard units of measurement with increasing accuracy, using their knowledge of the number system. They use the appropriate language and record using standard abbreviations.
- Comparing measures includes simple multiples such as 'half as high', 'twice as wide'.