

Lewknor C of E Primary School

Mathematics

October 2017 – Review October 2020

Mathematics equips pupils with the uniquely powerful set of tools to understand and change the world. These tools include logical reasoning, problem solving skills and the ability to think in abstract ways. Mathematics is important in everyday life. It is integral to all aspects of life and with this in mind we endeavour to ensure that children develop a healthy and enthusiastic attitude towards mathematics that will stay with them.

The National Curriculum order for mathematics describes what must be taught in each key stage. Lewknor Primary School follows the National Curriculum (2013), which provides detailed guidance for the implementation of the curriculum for mathematics. This ensures continuity and progression in the teaching of mathematics. In early years the curriculum is guided by the Early Learning Goals.

National Developments

The policy has been written taking into account the programme of study for mathematics. As these national documents are re-written and further guidance is developed reviewing this policy will be necessary.

Aims

At Lewknor School we aim to enable pupils to:

- learn the facts and techniques that they will need to study the subject further and for everyday life
- think logically and clearly
- solve problems using the most appropriate method
- reach the highest standard possible and to think for themselves within the subject
- be creative and imaginative, to appreciate the power, pattern (and beauty) of mathematics, and use appropriate vocabulary
- be confident to talk about their work
- be confident to work using mental methods
- to have good numeracy skills
- to have a fascination of mathematics and promote a way of doing mathematics
- harness their imagination, initiative and flexibility of mind
- build children's confidence in mathematics by creating a culture of 'I can do this!'
- work systematically and to show a respect for accuracy, clarity and meaning
- encourage children to work both independently and co-operatively

Objectives

These may be considered in five main categories. These briefly are:

- Facts - pupils need to know and remember some basic facts at each level if progress is to be made. These include terms, notation conventions and outcomes
- Skills - include not only the use of number facts and computational procedures but also practical skills and the ability to communicate
- Conceptual Structures - interconnecting bodies of knowledge involving understanding relationships, the ability to select to use maths in context and to interpret results.
- General Strategies - the ability to estimate, approximate, simplify, reason, test hypotheses, prove, disprove and identify patterns



- Personal Qualities - foster good work habits and develop confidence in the subject along with a positive attitude

Breadth of Study

Through careful planning and preparation we aim to ensure that throughout the school children are given opportunities for:

- practical activities and mathematical games
- problem solving
- individual, group and whole class discussions and activities
- open and closed tasks
- a range of methods of calculating e.g. mental, pencil and paper and using a calculator
- working with computers as a mathematical tool

Organisation

There is a mathematics lesson every day and we expect this subject to take up at least five hours each week. Mathematics teaching is carried out by each class teacher. In every class children are grouped according to their ability.

Teaching and Learning

Early Years Foundation Stage

Children follow the Early Years Foundation Stage Curriculum. We give all children the opportunity to explore, enjoy, learn about, and use mathematics in a range of situations. Mathematics is planned on a half-termly basis and assessed using the criteria from the Early Learning Goals. Mathematics is taught both as a discrete subject and within the whole Early Years Curriculum to give children opportunities to use their numeracy skills in real life situations.

Key Stages 1 and 2

The class will work on the same unit, allowing the teacher to work with the whole class, with groups of pupils and, at times with individual pupils. Mostly pupils will work in differentiated groups, but at times teachers may group the pupils differently in order to enable different pupils to work together.

Each week every pupil will receive whole class and group teaching. Pupils must be given the opportunity to talk about their mathematics as well as listening to the views of others. In addition the teacher may discuss the children's thinking.

In line with the national curriculum, each lesson will begin with an oral/mental starter lasting approximately 10 minutes. There will then be a main activity lasting 35-40 minutes. This will be followed by a plenary session of between 10-15 minutes. In many of these sessions pupils will talk about their work and be given opportunities to explain their thinking and methods of working. All children should be clear about why they are doing the task set and to be able to talk about their work.

We follow the national curriculum for mathematics which ensures continuity and progression in the teaching of mathematics. The planning structure for each year is organised with reference to Abacus Maths (see 'Overviews for each year group – appendix 1) and progression in matched to this planning structure (see 'Progression of skills – appendix 2).

Much of the planning is sourced from the Abacus Maths scheme and the websites 'Hamilton Trust', 'Twinkl' and 'Click Teacher'. Teachers use this planning as a basis and then adapt them according to their



class, resources and groups. We also use supplementary materials as well as a mixture of games, puzzles and investigations.

Each class has its own SMARTBOARD which is used on a regular basis through a range of packages. This may be for the mental warm-up, the main teaching, a plenary or throughout the lesson.

In addition all classes are equipped with pupil whiteboards which allow the children to work individually or as part of a group. These are available to the children in all sessions.

Mental Working / Recording

We want pupils to use mental maths skills whenever possible. We teach pupils to choose a suitable paper and pencil method or a calculator method - when working mentally is not possible.

In line with the new curriculum, we set aside approximately ten minutes every day to work with pupils on their mental methods. This helps them to learn number bonds and tables as well as developing their facility and confidence with numbers.

We aim to help pupils develop written methods that reflect their mental processes. Teachers should decide for individuals and groups, how far to encourage them to develop these methods in standard type approaches. We must look carefully at the work of each individual to understand their thinking in order to decide how to help them develop their methods.

Periodically, teachers test number with pupils competing against their previous scores rather than against other pupils. Generally the facts tested will be different for different groups of pupils.

Formal Written Calculation Methods

It is important that pupils experience a consistency of approach in developing formal written methods for calculating. At Lewknor, staff have agreed that there should be a consistent approach and have set guidelines in place to ensure this for addition, subtraction, multiplication and division. For further information see the school's Calculation Policy (appendix 3).

Calculators and other Resources

Pupils use calculators from Key Stage 2 onwards, where it is appropriate to do so. We teach them how to use them, and set tasks that enable them to learn to choose when to use them. When we expect pupils to work with calculators (mentally or to help them develop their pencil and paper methods) we specify this.

Most resources are kept in classrooms and in shared areas, accessible to pupils. We teach pupils how to use them and recognise that we need to teach them to make appropriate choices of equipment.

Assessment and Target Setting

Children are informally assessed daily by the class teacher and during and after a unit of work in order to inform their planning. Formal assessments are completed at least three times a year to assess the children's progress in mathematics. Teachers record each child's progress on tracking sheets and pupil progress meetings are held regularly with the headteacher.

We prepare pupils for Key Stage 1 & 2 SATs so that they can achieve as well as possible.

Information from these formal and informal assessments are recorded by the teachers and at the end of the academic year are recorded on to electronic tracking system, which will then be passed to the next teacher.



Children are set group targets throughout the year, according to their unit of work. The target sheets are stuck on the inside front cover of every child's maths book. When a child has passed a target it is highlighted in discussion with the teacher. Teachers will then discuss the next target with the children.

Equal Opportunities

We aim to provide for all children so that they achieve as highly as they can in mathematics according to their individual abilities. All children have equal access to the mathematics curriculum and to suitable learning opportunities regardless of gender, disability, ethnicity or home background. We aim to identify which pupils or groups of pupils are under-achieving and take steps to improve their attainment through an individually tailored programme of intervention. More able children are also identified and additional provision is mapped. Activities and work are differentiated to enable all to take part. Children with SEND are included in quality first teaching. Children with Pupil Profiles that identify learning difficulties in mathematics have additional provision.

Monitoring

The class teachers will monitor the approaches stated in this policy. In addition the maths co-ordinator and headteacher will monitor maths throughout the school. Strategies used will include sampling children's work and observations, looking at records and plans.

Marking

All work should be marked and appropriate comments recorded relating to performance, presentation, organisation and accuracy. See also the school's Marking Policy and Presentation Policy.

Parental Involvement

We recognise that parental involvement is an important factor in helping children achieve their best and actively encourage parents to become involved with their children's development in mathematics through:

- parents' meetings twice a year, along with opportunities to look at children's work
- the school's open-door attitude to visits from parents/carers, where teachers make themselves available whenever a discussion need is identified
- use of the Home Learning Pack, maths games.

Appendix 1

Lewknor Church of England
Primary School

Overviews for each year group



Year 1 : Autumn 1

Week	Strands	Weekly summary
1	Number and place value (NPV); Mental addition and subtraction (MAS)	Count up to 20 objects (match number to object); estimate and count up to 30 objects; count on and back and order numbers to 10; recognise domino/dice arrays to 6 without counting; identify a number 1 more (next number in count)
2	Mental addition and subtraction (MAS)	Find pairs that make 5; subitise to 5; find pairs that make 6; subitise to 6; find pairs that make 10; subitise fingers to 10; match pairs to 5, 6 and 10 to number sentences; find missing numbers in number sentences
3	Mental multiplication and division (MMD); Mental addition and subtraction (MAS); Number and place value (NPV)	Double numbers 1 to 5; find 1 and 2 more; count back 1 and begin to find 1 less
4	Geometry: properties of shapes (GPS); Statistics (STA)	Recognise, name and describe squares, rectangles, circles and triangles; recognise basic line symmetry; sort 2D shapes according to their properties, using Venn diagrams and Carroll diagrams
5	Number and place value (NPV); Mental addition and subtraction (MAS)	Read and write numbers and number-names to 20; compare and order numbers to 20; identify 1 more and 1 less; estimate sets of objects, count to check and order sets according to size; understand 0 as the empty set

Autumn 2

Week	Strands	Weekly summary
6	Number and place value (NPV)	Understand and make teen numbers (10 and some 1s); compare and order numbers to 20, then 30; find the number between two numbers with a difference of 2; understand and use ordinal numbers
7	Mental addition and subtraction (MAS)	Revise bonds to 5, 6 and 10; find pairs which make 7; use addition facts for 5, 6 and 10 to solve subtractions; use number facts for 5, 6 and 10 to solve word problems
8	Geometry: position and direction (GPD); Measurement (MEA)	Describe position and direction using common words (including half turns); compare lengths and heights; estimate, compare and measure lengths using uniform non-standard and standard units
9	Mental addition and subtraction (MAS); Mental multiplication and division (MMD)	Add 1, 2 and 3 by counting on; subtract 1, 2, 3 or more by counting back; begin to add three small numbers by spotting bonds to 10 or doubles (1–6)
10	Number and place value (NPV); Measurement (MEA)	Compare and order numbers to 20; recognise coins and know values (up to £2); begin to make amounts in pence; understand teen numbers are 10 and some 1s

Notes:



Year 1 : Spring 1

Week	Strands	Weekly summary
11	Number and place value (NPV); Mental addition and subtraction (MAS)	Say the number one more or less and two more or less using a number line or a 100 grid; locate 2-digit numbers on a 100 grid and a 1-100 bead string; read, write and say 2-digit numbers and understand them as some tens and some ones
12	Mental addition and subtraction (MAS); Mental multiplication and division (MMD)	Revise pairs to 5, 6, 7, 10 and doubles to double 6; derive subtraction facts; understand a symbol being used for an unknown; use number facts to solve simple addition and subtraction word problems; find pairs of numbers with a total of 8
13	Mental addition and subtraction (MAS)	Add by putting the larger number first and counting on (numbers up to 100), spotting unit patterns; count on from 2-digit numbers; add a 1-digit number to a 2-digit number
14	Geometry: properties of shapes (GPS); Measurement (MEA)	Name, recognise and know the properties of 3D shapes: cube, cuboid, cone, cylinder and sphere; begin to sort 3D shapes according to properties; order and name the days of the week and months of the year; recognise and name the seasons
15	Number and place value (NPV); Mental multiplication and division (MMD)	Count on and back in tens from any number; begin to count in 5s and 2s recognising multiples of 5 end in 5 and 0; chn begin to count in 2s; estimate a number of objects within a range and count by grouping into 10s or 5s

Spring 2

Week	Strands	Weekly summary
16	Number and place value (NPV); Mental multiplication and division (MMD); Fractions, ratio and proportion (FRP)	Recognise odd and even numbers; count objects in 5s and 10s and begin to say 5 lots and 10 lots; find half, quarter and three quarters of shapes; begin to know that two halves and four quarters are a whole and that two quarters is a half
17	Mental addition and subtraction (MAS); Mental multiplication and division (MMD); Number and place value (NPV)	Find and begin to know doubles to double 10; revise pairs to 5, 6, 7, 8, 9 and 10 and derive related subtraction facts; use knowledge of pairs of 10 to make pairs to 20; use number facts to solve word problems
18	Measurement (MEA)	Relate units of time weeks, days, hours; divide the days up into parts; read and write times to the hour; begin to have a notion of how long an hour is and how long a minute is; tell the time (o'clock & half past) on analogue and digital clocks; measure using uniform units (cubes and rulers)
19	Mental addition and subtraction (MAS)	Add a 1-digit number by counting on from a 2-digit number, not crossing 10s at first, then beginning to cross 10s; subtract a 1-digit number by counting back initially from numbers up to 30 (not crossing 10s) and then generally from a 2-digit number (not crossing 10s) and from multiples of 10
20	Mental addition and subtraction (MAS); Number and place value (NPV); Measurement (MEA)	Locate 2-digit numbers on a 100 grid; begin to recognise 2-digit numbers as some tens and some ones; make 2-digit numbers using 10p and smaller coins; find 1 more or 1 less than any number to 100; find 10 more than any number to 90; find 10 less than any number to 100

Notes:

Year 1: Summer 1

Week	Strands	Weekly summary
21	Number and place value (NPV)	Find 1 more, 1 less, 10 more, 10 less than any 2-digit number; explore patterns on the 100 grid; understand place value in 2-digit numbers and identify tens and ones
22	Mental addition and subtraction (MAS)	Use number facts to add and subtract 1-digit numbers; add pairs of 1-digit numbers with totals above 10; sort out additions into ones children 'just know' and ones they need to work out
23	Mental addition and subtraction (MAS)	Add three small numbers, spotting pairs to 10 and doubles; add and subtract 10 to and from 2-digit numbers
24	Measurement (MEA); Statistics (STA)	Compare weights and capacities using direct comparison; measure weight and capacity using uniform non-standard units; complete tables and block graphs, recording results and information; make and use a measuring vessel for capacity
25	Mental multiplication and division (MMD); Fractions, ratio and proportion (FRP); Measurement (MEA); Number and place value (NPV)	Find half of all numbers to 10 and then to 20; identify even numbers and begin to learn halves; recognise halves and quarters of shapes, begin to know $2/2=1$, $4/4=1$ and $2/4=1/2$; recognise, name and know value of coins 1p-£2 and £5 & £10 notes; solve repeated addition problems using coins; make equivalent amounts using coins

Summer 2

Week	Strands	Weekly summary
26	Number and place value (NPV)	Locate 2-digit numbers on a beaded line and 100 grid; compare and order 2-digit numbers up to 100 and say a number between; identify tens and ones in 2-digit numbers and solve place value additions
27	Mental multiplication and division (MMD); Number and place value (NPV); Fractions, ratio and proportion (FRP)	Recognise odd and even numbers; count in 2s, 5s and 10s, look for patterns; multiply by 2, 5, 10 by counting in groups/sets; find doubles to double 10 and related halves; halve odd numbers up to 10
28	Measurement (MEA); Statistics (STA); Geometry: properties of shapes (GPS); Geometry: position and direction (GPD)	Tell the time to the half hour and quarter hour on analogue and digital clocks; revise months of the year; read and interpret a pictogram; create a pictogram practically; recognise and read block graphs; measure lengths using non-standard, uniform units; recognise and name simple 2D shapes; recognise and continue repeating patterns
29	Mental addition and subtraction (MAS)	Use number facts to add and subtract 1-digit numbers to 2-digit numbers; find change from 10p and from 20p
30	Number and place value (NPV); Mental multiplication and division (MMD)	Locate 2-digit numbers on a bead string and a 1-100 grid; order numbers to 100; identify tens and ones in 2-digit numbers; say or write one more and one less and ten more and ten less than any number to 100; explore patterns in 10s, 5s and 2s on a 9x9 grid; count in tens from any given number

Notes:

Year 2: Autumn 1

Week	Strands	Weekly summary
1	Number and place value (NPV)	Estimate and count a number of objects up to 100; locate numbers on 0–100 beaded lines and 1–100 squares; compare pairs of numbers and find a number in between; order three numbers; order 2-digit numbers
2	Mental addition and subtraction (MAS)	Revise number bonds to 6, 7, 8, 9 and 10; know number bonds to 10 and begin to learn related subtraction facts; know multiple of 10 number bonds to 100; learn bonds to 20; rehearse number bonds to 10 and 20 using stories
3	Mental addition and subtraction (MAS); Mental multiplication and division (MMD)	Double numbers to double 15; use patterns in number bonds; use number bonds to solve more difficult additions, subtractions and to solve additions bridging 10
4	Geometry: properties of shapes (GPS); Statistics (STA)	Sort 2D shapes according to symmetry properties using Venn diagrams; identify right angles and sort shapes using Venn diagrams; recognise squares, rectangles, circles, triangles, ovals and hexagons and discover which tessellate; sort shapes and objects using a two-way Carroll diagram
5	Number and place value (NPV); Mental addition and subtraction (MAS)	Mark numbers on a landmarked line; compare and order numbers, using < and > signs; find 1 and 10 more or less using the 100-square; find 10 more and 10 less than any 2-digit number

Autumn 2

Week	Strands	Weekly summary
6	Number and place value (NPV); Mental addition and subtraction (MAS); Measurement (MEA)	Know and use ordinal numbers; understand that 2-digit numbers are made from some 10s and some 1s; understand place value using 10p and 1p coins; find 10p more and 10p less; find 10 more and 10 less
7	Number and place value (NPV); Mental addition and subtraction (MAS)	Add and subtract 10, 20 and 30 to any 2-digit number; add and subtract 11, 21, 12 and 22 to any 2-digit number; solve addition and subtractions by counting on and back in 10s then in 1s
8	Geometry: position and direction (GPD); Measurement (MEA)	Understand and use terms and vocabulary associated with position, direction and movement; measure lengths using uniform units; begin to measure in centimetres and metres
9	Mental addition and subtraction (MAS); Mental multiplication and division (MMD)	Add and subtract 2-digit numbers; add near doubles to double 15; add several small numbers spotting near doubles or pairs to 10
10	Mental multiplication and division (MMD); Measurement (MEA)	Count in 2s, 5s and 10s from zero; count in multiples of 2p, 5p and 10p; number sequences of 2s, 5s and 10s; find the totals of coins and ways to make an amount; use coins to make given amounts of money

Notes:

Year 2: Spring 1

Week	Strands	Weekly summary
11	Number and place value (NPV); Mental addition and subtraction (MAS)	Place value and ordering 2-digit numbers; place value additions and subtractions; add and begin to subtract 9, 10, and 11
12	Mental addition and subtraction (MAS)	Revise number bonds to 10; begin to bridge 10; subtract from 10 and 20; use number facts to find the complement to ten; find a difference between two numbers by counting on
13	Mental addition and subtraction (MAS)	Rehearse complements to multiples of 10; find differences using a number line; find change from 10p and 20p, and from £10 to £20 by counting up and using bonds to 10 and 20; add two 2-digit numbers by counting on
14	Geometry: properties of shapes (GPS); Measurement (MEA); Geometry: position and direction (GPD)	Recognise and identify properties (including faces and vertices) of 3D shapes; sort according to properties including number of faces; name the 2D shapes of faces of 3D shapes; tell the time to the nearest quarter on analogue and digital clocks
15	Number and place value (NPV)	Order 2-digit numbers and revise the < and > signs; locate 2-digit numbers on a landmarked line and grid; round 2-digit numbers to nearest 10; estimate a quantity <100 within a range

Spring 2

Week	Strands	Weekly summary
16	Fractions, ratio and proportion (FRP); Mental multiplication and division (MMD)	Revise doubles and corresponding halves to 15; find half of odd and even numbers to 30; Revise and recognise 1/2s, 1/4s, 1/3s and 2/3s of shapes; place 1/2s on a number line; count in 1/2s and 1/4s; understand and write mixed numbers
17	Mental multiplication and division (MMD)	Count in 2s, 5s and 10s to solve multiplication problems and find specified multiples; introduce the \times sign; record the 2, 5 and 10 times tables; find multiplications with the same answer; write multiplications to go with arrays, rotate arrays to show they are commutative
18	Measurement (MEA); Statistics (STA)	Tell the time to the nearest quarter of an hour using analogue and digital clocks; understand units of time; express hours in minutes and minutes in seconds; interpret and complete a pictogram where one symbol represents one or two things
19	Mental multiplication and division (MMD)	Revise 2, 5 and 10 times tables; revise arrays and hops on the number line; multiply by numbers other than 2, 5 and 10; arrange objects into arrays and write the corresponding multiplications; make links between grouping and multiplication to begin to show division; write divisions as multiplications with holes in and use the \div sign
20	Measurement (MEA); Mental addition and subtraction (MAS)	Recognise all coins, know their value, and use them to make amounts; recognise £5, £10, £20 notes; make amounts using coins and £10 note; write amounts using £.p notation; order coins 1p-£2 and notes £5 - £20; add several coins writing totals in £.p notation (no zeros in 10p place); add two amounts of pence, using counting on in tens and ones; add two amounts of money, beginning to cross into £s

Notes:

Year 2: Summer 1

Week	Strands	Weekly summary
21	Number and place value (NPV); Mental addition and subtraction (MAS)	Locate, order and compare 2-digit numbers on 0-100 landmarked lines and on the 1-100 grid; use < and > signs; locate numbers on an empty 0-100 line; introduce numbers 101 to 200 and count in 100s to 1000; add 2-digit numbers by counting on in 10s and 1s; subtract 2-digit numbers by counting back in 10s and 1s
22	Mental addition and subtraction (MAS); Mental multiplication and division (MMD)	Use doubles and number bonds to add three 1-digit numbers; use number facts to 10 and 20 in number stories; find complements to multiples of 10; understand subtraction as difference and find this by counting up; find small differences either side of a multiple of 10
23	Mental addition and subtraction (MAS); Written addition and subtraction (WAS)	Add and subtract 1-digit numbers to and from 2-digit numbers; subtract 2-digit numbers by counting back in tens and ones; add two 2-digit numbers by counting in 10s, then adding 1s; add 2-digit numbers using 10p and 1p coins (partitioning, answers less than 100); add 2-digit numbers using place value cards (partitioning, answers more than 100)
24	Measurement (MEA); Statistics (STA)	Measure weight using standard or uniform non-standard units; draw a block graph where one square represents two units; weigh items using 100g weights using scales marked in multiples of 1kg or 100g; measure capacity using uniform non-standard units; measure capacity in litres and in multiples of 100ml
25	Mental multiplication and division (MMD); Fractions, ratio and proportion (FRP)	Double multiples of 10 and 5 (answers less than 100); double 2-digit numbers ending in 1, 2, 3 or 4 (answers less than 100); find a quarter of numbers up to 40 by halving twice; begin to find 3/4 of numbers; find 1/2 1/4 and 1/3 of amounts (sharing); find patterns

Summer 2

Week	Strands	Weekly summary
26	Number and place value (NPV); Measurement (MEA); Mental addition and subtraction (MAS)	Revise place value in 2-digit numbers; understand place value in numbers between 100 and 200; understand place value of 3-digit numbers (no zeros and then including zeros in the 10s and 1s places); record amounts of money using £.p notation
27	Mental multiplication and division (MMD); Number and place value (NPV)	Count in 3s, recognising numbers in the 3x table; write multiplications to go with arrays; understand that multiplication is commutative; understand that division and multiplication are inverse operations; solve divisions as multiplications with a missing number; count in 2s, 3s, 5s and 10s to solve divisions
28	Measurement (MEA)	Measure and estimate lengths in centimetres; tell the time involving multiples of 5 minutes past the hour and 5 minutes to the hour; tell time to five minutes; say the time 10 minutes later
29	Mental multiplication and division (MMD); Written addition and subtraction (WAS); Mental addition and subtraction (MAS)	Partition to add two 2-digit numbers; find a difference between two 2-digit numbers; multiply two numbers using counting in steps; solve division problems by counting in steps of 2, 3, 5 and 10
30	TBC	TBC

Notes:

Year 3: Autumn 1

Week	Strands	Weekly summary
1	Mental addition and subtraction (MAS)	Use multiple of 5 and 10 bonds to 100 to solve additions and subtractions; add and subtract 1-digit numbers to and from 2-digit numbers
2	Number and place value (NPV); Mental addition and subtraction (MAS)	Compare and order 2- and 3- digit numbers; count on and back in 10s and 1s; add and subtract 2-digit numbers
3	Mental multiplication and division (MMD)	Know multiplication and division facts for the 5, 10, 2, 4 and 3x tables; doubling and halving
4	Measurement (MEA); Geometry: properties of shapes (GPS)	Know and understand the calendar, including days, weeks, months, years; tell the time to the nearest 5 minutes on analogue and digital clocks; know the properties of 3D shapes
5	Number and place value (NPV); Mental addition and subtraction (MAS)	Compare, order and understand place value of 2- and 3-digit numbers; subtract from 2- and 3-digit numbers; using prediction to estimate calculations

Autumn 2

Week	Strands	Weekly summary
6	Mental multiplication and division (MMD); Fractions, ratio and proportion (FRP)	Double and halve numbers up to 100 using partitioning; understand fractions and fractions of numbers
7	Mental addition and subtraction (MAS); Measurement (MEA)	Use money to add and subtract and record using the correct notation and place value; add and subtract 2-digit numbers using partitioning; add three 2-digit numbers by partitioning and recombining
8	Measurement (MEA)	Choose an appropriate instrument to measure a length and use a ruler to estimate, measure and draw to the nearest centimetre; know 1 litre = 1000 ml; estimate and measure capacity in millilitres
9	Number and place value (NPV); Mental addition and subtraction (MAS)	Place 2- and 3-digit numbers on a number line; round 3-digit numbers to nearest 100; use counting up to do mental subtractions with answers between 10 and 20, 10 and 30, and either side of 100
10	Mental addition and subtraction (MAS); Mental multiplication and division (MMD)	Revise times-tables learned and derive division facts; perform division with remainders; choose a mental strategy to solve additions and subtractions; solve word problems

Notes:

Year 3: Spring 1

Week	Strands	Weekly summary
11	Number and place value (NPV)	Rehearse place value in 3-digit numbers, order them on a number line and find a number in between; compare number sentences; solve additions and subtractions using place value; multiply and divide by 10 (whole number answers); count in steps of 10, 50 and 100
12	Mental addition and subtraction (MAS); Mental multiplication and division (MMD)	Add pairs of 2-digit numbers using partitioning (crossing 10s, 100 or both) and then extend to add two 3-digit numbers (not crossing 1000); recognise and sort multiples of 2, 3, 4, 5, and 10; double the 4 times table to find the 8 times table; derive division facts for the 8 times table; multiply and divide by 4 by doubling or halving twice
13	Fractions, ratio and proportion (FRP)	Identify $\frac{1}{2}$ s, $\frac{1}{3}$ s, $\frac{1}{4}$ s, $\frac{1}{6}$ s, and $\frac{1}{8}$ s; realise how many of each make a whole; find equivalent fractions; place fractions on a 0 to 1 line; find fractions of amounts
14	Geometry: properties of shapes (GPS); Geometry: position and direction (GPD); Measurement (MEA)	Recognise right angles and know they are 90° ; understand angles are measured in degrees; recognise $^\circ$ as the symbol for the measurement of degrees; name and list simple properties of 2D shapes; begin to understand and use the term perimeter to mean the length/distance around the edge (border) of a 2D shape; begin to calculate using a ruler; know a right angle is a quarter turn; know 360° is a full turn; begin to understand angles and identify size of angles in relation to 90°
15	Number and place value (NPV); Mental addition and subtraction (MAS)	Place 3-digit numbers on empty 100 number lines; begin to place 3-digit numbers on 0-1000 landmarked and empty number lines; round 3-digit numbers to the nearest ten and to the nearest hundred; use counting up as a strategy to perform mental subtraction (Frog); subtract pounds and pence from five pounds; use counting up (Frog) as a strategy to perform mental subtraction of amounts of money; subtract pounds and pence from ten pounds

Spring 2

Week	Strands	Weekly summary
16	Number and place value (NPV); Written addition and subtraction (WAS)	Understand place-value in 3-digit numbers; separate 3-digit numbers into hundreds, tens, and ones; add two 3-digit numbers using vertical written addition (expanded); add 2- and 3- digit numbers using vertical written addition (expanded)
17	Mental addition and subtraction (MAS); Written addition and subtraction (WAS)	Add two 2-digit numbers mentally; add 2-digit to 3-digit numbers mentally using place value and rounding; add two 3-digit numbers using expanded written method (answers under 1000); begin to move tens and hundreds moving towards formal written addition; add two 3-digit numbers using expanded column addition; investigate patterns in numbers when adding them; choose to solve addition using a mental method or expanded column addition (written method)
18	Measurement (MEA)	Tell the time to the nearest minute on analogue and digital clocks (minutes past and minutes to); time events in minutes and seconds; find a time after a given interval (not crossing the hour); calculate time intervals; solve word problems involving time
19	Mental addition and subtraction (MAS); Number and place value (NPV)	Order 3-digit numbers and find numbers between; solve subtractions of 3-digit – 3-digit numbers using counting up (Frog); use counting up and counting back as strategies to perform mental subtractions; choose to solve a given subtraction by counting up or counting back
20	Mental multiplication and division (MMD); Number and place value (NPV)	Double and halve numbers up to 100 by partitioning; solve word problems involving doubling and halving; multiply numbers between 10 and 25 by 1-digit numbers using the grid method; divide multiples of 10 by 1-digit numbers using known tables facts; see the relation between multiplication and division

Notes:



Year 3: Summer 1

Week	Strands	Weekly summary
21	Mental addition and subtraction (MAS); Fractions, ratio and proportion (FRP)	Add 3-digit and 1-digit numbers mentally, using number facts; solve 3-digit number subtract 1-digit number subtractions mentally using number facts; add and subtract multiples of ten by counting on and back in tens and using number facts to cross 100s; compare and order fractions with the same denominator; begin to recognise equivalences of $\frac{1}{2}$; add and subtract fractions with the same denominator
22	Written multiplication and division (WMD); Mental multiplication and division (MMD)	Use function machines to multiply by 2, 3, 4, 5 and 8 and see the inverse; use scaling to multiply heights and weights by 2, 4, 8, 5 and 10; use known facts to multiply multiples of 10 by 2, 3, 4 and 5; multiply numbers between 10 and 30 by 2, 3, 4 and 5 using the grid method; multiply 2-digit numbers by 3, 4, 5 and 8 using the grid method
23	Mental multiplication and division (MMD); Written multiplication and division (WMD)	Divide without remainders, just beyond the 12 th multiple; division using chunking, with remainders; use the grid method to multiply 2-digit numbers by 3, 4, 5 and 8; begin to estimate products
24	Statistics (STA); Measurement (MEA)	Draw and interpret bar graphs and pictograms where one square/symbol represents two units; draw tally charts; compare and measure weights in multiples of 100g; know how many grams are in a kilogram; estimate and weigh objects to the nearest 100g; draw and interpret bar graphs where one square represents one hundred units
25	Mental addition and subtraction (MAS); Written addition and subtraction (WAS)	Add 3-digit and 2-digit numbers using mental strategies; add two 3-digit numbers using mental strategies or by using column written addition

Summer 2

Week	Strands	Weekly summary
26	Written addition and subtraction (WAS); Mental addition and subtraction (MAS)	Use column addition to add three 2 and 3-digit numbers together and four 2 and 3-digit numbers together; subtract 3-digit numbers using counting up (Frog) with answers under 50 and then under 70; solve word problems choosing an appropriate method
27	Written addition and subtraction (WAS); Mental addition and subtraction (MAS); Measurement (MEA)	Add 3-digit numbers using column addition; solve problems involving measures; solve subtractions of 3-digit numbers using counting up on a line (Frog); choose an appropriate strategy to solve addition or subtraction (either mentally, using column addition or counting up on a number line)
28	Measurement (MEA); Geometry: properties of shapes (GPS)	Identify, name and draw: angles in 2D shapes and horizontal, vertical, parallel and perpendicular lines; identify horizontal, vertical, parallel, perpendicular and diagonal lines in 2D shapes; identify symmetry in 2D shapes; measure the perimeter of 2D shapes, including the use of counting and of measuring using a ruler; tell the time on analogue and digital clocks to the nearest minute; begin to tell time 5/10/20 minutes later; begin to recognise am and pm; tell the time on analogue and digital clocks to the nearest 5 minutes, begin to tell the time to the minute; begin to recognise 24 hour clock times
29	Written multiplication and division (WMD); Fractions, ratio and proportion (FRP); Decimals, percentages and their equivalence to fractions (DPE)	Use the grid method to multiply 2-digit numbers by 3, 4, 5, 6 and 8; estimate products; divide using chunking, with and without remainders; solve word problems, first deciding whether they need multiplication or division to solve them; recognise tenths and equivalent fractions; find one tenth of multiples of ten, find several tenths of multiples of ten, find one tenth of 1-digit numbers
30	Written addition and subtraction (WAS); Mental addition and subtraction (MAS); Written multiplication and division (WMD)	Revise column written addition for adding three 3-digit numbers; revise mental strategies for addition; revise written subtraction (Frog); find change using counting up; check subtractions using addition; multiply numbers between 10 and 25 by 1-digit numbers using the grid method; solve division problems just above the tables facts

Notes:



Year 4: Autumn 1

Week	Strands	Weekly summary
1	Mental addition and subtraction (MAS)	Find pairs with a total of 100; add to the next multiple of 100 and subtract to the previous multiple of 100; subtract by counting up to find a difference; adding several numbers
2	Number and place value (NPV); Mental addition and subtraction (MAS)	Read, write 4-digit numbers and know what each digit represents; compare 4-digit numbers using < and > and place on a number line; add 2-digit numbers mentally; subtract 2-digit and 3-digit numbers
3	Mental multiplication and division (MMD); Fractions, ratio and proportion (FRP)	Learn \times and \div facts for the 6 and 9x tables and identify patterns; multiply multiples of 10 by 1-digit numbers; multiply 2-digit numbers by 1-digit numbers (the grid method); find fractions of amounts
4	Measurement (MEA); Mental addition and subtraction (MAS); Decimals, percentages and their equivalence to fractions (DPE)	Tell and write the time to the minute on analogue and digital clocks; calculate time intervals; measure in metres, centimetres and millimetres; convert lengths between units; record using decimal notation
5	Written addition and subtraction (WAS)	Add two 3-digit numbers using column addition; subtract a 3-digit number from a 3-digit number using an expanded column method (decomposing only in one column)

Autumn 2

Week	Strands	Weekly summary
6	Mental multiplication and division (MMD); Fractions, ratio and proportion (FRP)	Double 3-digit numbers and halve even 3-digit numbers; revise unit fractions; identify equivalent fractions; reduce a fraction to its simplest form; count in fractions (each fraction in its simplest form)
7	Number and place value (NPV); Written addition and subtraction (WAS); Decimals, percentages and their equivalence to fractions (DPE)	Look at place value in decimals and the relationship between tenths and decimals; add two 4-digit numbers; practise written and mental addition methods; use vertical addition to investigate patterns
8	Measurement (MEA); Statistics (STA)	Convert multiples of 100g into kilograms; convert multiples of 100ml into litres; read scales to the nearest 100ml; estimate capacities; draw bar charts, record and interpret information
9	Number and place value (NPV); Mental addition and subtraction (MAS); Written addition and subtraction (WAS)	Round 4-digit numbers to the nearest: 10, 100 and 1000; subtract 3-digit numbers using the expanded written version and the counting up mental strategy and decide which to use
10	Mental multiplication and division (MMD); Written multiplication and division (WMD)	Use the grid method to multiply 3-digit by 1-digit numbers and introduce the vertical algorithm; begin to estimate products; divide numbers (up to 2 digits) by 1-digit numbers with no remainder, then with a remainder

Notes:

Year 4: Spring 1

Week	Strands	Weekly summary
11	Number and place value (NPV)	Place 4-digit numbers on landmarked lines; 0-10,000 and 1000-2000; round 4-digit numbers to the nearest 10, 100 and 1000; mentally add and subtract to/from 4-digit and 3-digit numbers using place-value; count on and back in multiples of 10, 100 and 1000; count on in multiples of 25 and 50; add and subtract multiples of 10 and 100 to/from 4-digit numbers
12	Mental multiplication and division (MMD); Written multiplication and division (WMD); Written addition and subtraction (WAS); Measurement (MEA)	Use expanded written subtraction and compact written subtraction to subtract pairs of 3-digit numbers (one 'exchange'); use expanded column subtraction and compact column subtraction to subtract pairs of 3-digit and 2-digit numbers from 3-digit numbers (one 'carry'); learn the 7x table and 'tricky' facts; use the vertical algorithm to multiply 3-digit numbers by 1-digit numbers
13	Mental multiplication and division (MMD); Fractions, ratio and proportion (FRP)	Use mental multiplication and division strategies; find non-unit fractions of 2-digit and 3-digit numbers; find equivalent fractions and use them to simplify fractions (halves, thirds, quarters)
14	Geometry: properties of shape (GPS)	Recognise and compare acute, right and obtuse angles; draw lines of a given length; identify perpendicular and parallel lines; recognise and draw line symmetry in shapes; sort 2D shapes according to their properties; draw shapes with given properties; draw the other half of symmetrical shapes
15	Mental multiplication and division (MMD); Written multiplication and division (WMD); Mental addition and subtraction (MAS)	Understand how to divide 2-digit and 3-digit numbers by 1-digit numbers using place value and mental strategies; divide numbers by 1-digit numbers to give answers between 10 and 25, with remainders; identify factor pairs and use these to solve multiplications and divisions with larger numbers; use Frog to find complements to multiples of 1000; use Frog to find change from £10, £20 and £50

Spring 2

Week	Strands	Weekly summary
16	Decimals, percentages and their equivalence to fractions (DPE); Number and place value (NPV); Written addition and subtraction (WAS)	Recognise, use, compare and order decimal numbers; understand place value in decimal numbers; recognise that decimals are tenths; round decimal numbers to the nearest whole number; divide 2-digit numbers by 10 to get decimal numbers; multiply decimal numbers by 10 to get 2-digit numbers; divide 3-digit multiples of ten by 100 to get decimal numbers; multiply decimal numbers by 100 to get 3-digit multiples of ten; add four digit numbers using written method with answers greater than 10,000
17	Mental addition and subtraction (MAS); Written addition and subtraction (WAS); Decimals, percentages and their equivalence to fractions (DPE)	Add amounts of money using written methods and mentally using place value and number facts; choose to add using the appropriate strategy: mental or written; subtract, choosing appropriate mental strategies: counting up or taking away (using counting back, place value or number facts); solve subtractions using a suitable written method (column subtraction)
18	Measurement (MEA)	Tell the time on a 24 hour clock, using am and pm correctly; convert pm times to 24 hour clock and vice versa; use 24 hour clock in calculating intervals of time; measure and calculate perimeters of rectilinear shapes where each side is labelled in cm and m; find missing lengths in rectilinear composite shapes; find the perimeters of rectilinear shapes with some lengths not marked; convert from one unit of length to another; solve word problems involving lengths including those involving perimeters
19	Number and place value (NPV); Written addition and subtraction (WAS); Mental addition and subtraction (MAS)	Understand place value in 4-digit numbers; partition 4-digit numbers; solve subtraction of 4-digit numbers using column subtraction (decomposition); choose an appropriate method to solve subtractions, either mental or written, and either column or counting up (Frog)
20	Written multiplication and division (WMD)	Use the vertical algorithm to multiply 3-digit numbers by 1-digit numbers; explore patterns; use mental strategies and tables facts to divide 2-digit and 3-digit numbers by 1-digit numbers to give answers between 10 and 35, without remainders; solve word problems

Notes:

Year 4: Summer 1

Week	Strands	Weekly summary
21	Number and place value (NPV)	Read, write and compare 4-digit numbers, writing numbers in between and placing them on a line; find 1000 more or less than any given number; read, write and compare 5-digit numbers; recognise what each digit represents in a 5-digit number; read, use and compare negative numbers in the context of temperature
22	Decimals, percentages and their equivalence to fractions (DPE)	Multiply and divide numbers by 10 and 100 including decimals (tenths and hundredths); read and write decimals (to 1 and 2 places), understanding that these represent parts (tenths and hundredths) of numbers; mark one and two place decimals on a line; count in tenths (0.1s) and hundredths (0.01s); say the number one tenth (0.1) and one hundredth (0.01) more or less than a given number; round decimal numbers to the nearest whole number
23	Mental multiplication and division (MMD); Written multiplication and division (WMD); Number and place value (NPV)	Learn 11 and 12x tables; develop and use effective mental multiplication strategies; use a vertical written method to multiply 3-digit numbers by 1-digit numbers; use rounding to estimate answers; use a written method to multiply 3-digit numbers, including amounts of money by 1-digit numbers; multiply 2-digit and 3-digit numbers by 1-digit numbers; understand how division 'undoes' multiplication and vice versa; divide above the tables facts using multiples of ten
24	Number and place value (NPV); Geometry: properties of shapes (GPS); Measurement (MEA)	Recognise and write Roman numerals to 100; begin to know the history of our number system including zero; calculate area and perimeter of rectangles and simple rectilinear shapes using addition and multiplication; recognise, name and classify 2D shapes identifying polygons, regular and irregular; sort 2D and 3D shapes according to properties including types of quadrilaterals and triangles; revise 3D shapes; look at 2D shaped sides on 3D shapes
25	Decimals, percentages and their equivalence to fractions (DPE); Fractions, ratio and proportion (FRP)	Understand, read and write two place decimals; compare two place decimals in the context of lengths; add and subtract 0.1 and 0.01; say a number one tenth (0.1) and one hundredth (0.01) more or less than a given number; revise equivalent fractions; write fractions with different denominators with a total of 1; recognise decimal and fraction equivalents

Summer 2

Week	Strands	Weekly summary
26	Mental addition and subtraction (MAS); Mental multiplication and division (MMD); Written multiplication and division (WMD)	Mentally add a 2-digit number to a 2-, 3- or 4-digit number; subtract 2-, 3-, and 4-digit numbers using counting up (Frog); derive factors of 2-digit numbers; use factors and doubling to solve multiplication mentally; solve division using mental strategies; understand division is multiplication with holes, i.e. $3 \times ? = 12$ therefore $12 \div 3 = ?$; understand that division and multiplication are inverse operations; solve word problems, including 2-step problems, choosing an appropriate method
27	Written addition and subtraction (WAS); Mental addition and subtraction (MAS)	Solve written addition of two 4-digit numbers; add amounts of money (pounds and pence) using column addition; solve 4-digit subtractions using written column method (decomposition) or counting up (Frog); solve 4-digit – 3-digit subtractions using written column method (decomposition); check subtraction using addition; solve word problems choosing an appropriate method
28	Geometry: position and direction (GPD); Statistics (STA)	Use co-ordinates to draw polygons; find the co-ordinates of shapes after translation; draw and interpret bar charts and pictograms; draw line graphs and understand that intermediate points have meaning
29	Written multiplication and division (WMD); Fractions, ratio and proportion (FRP); Decimals, percentages and their equivalence to fractions (DPE)	Use the vertical algorithm (ladder) to multiply 3-digit numbers by 1-digit numbers; find non-unit fraction of amounts, using 'chunking'; add fractions with like denominators, including totals greater than 1; divide by 10 and 100 (to give answers with 1 and 2 decimal places)
30	Written multiplication and division (WMD); Mental multiplication and division (MMD); Fractions, ratio and proportion (FRP)	Multiply 2-digit numbers by 11 and 12; look for patterns and write rules; multiply 2-digit numbers by numbers between 10 and 20 using the grid method; begin to use the grid method to multiply pairs of 2-digit numbers; use mental strategies and tables facts to divide 2-digit and 3-digit numbers by 1-digit numbers to give answers between 20 and 50, with and without remainders; find non-unit fractions of amounts

Notes:



Year 5: Autumn 1

Week	Strands	Weekly summary
1	Number and place value (NPV); Written addition and subtraction (WAS)	Read, write, compare and order 5-digit numbers, understanding the place value and using < and > signs; add and subtract multiples of 10, 100 and 1000 to and from 5-digit numbers; use written addition to add two 4-digit numbers; work systematically to spot patterns
2	Mental addition and subtraction (MAS); Number and place value (NPV)	Add and subtract 2-digit numbers mentally; choose a strategy for solving mental additions or subtractions; solve word problems
3	Decimals, percentages and their equivalence to fractions (DPE); Number and place value (NPV); Mental multiplication and division (MMD)	Understand place value in decimal numbers; multiply and divide numbers with up to two decimal places by 10 and 100; multiply and divide by 0 and 100; add and subtract 0.1 and 0.01; multiply and divide by 4 by doubling or halving twice; use mental multiplication strategies to multiply by 20, 25 and 9
4	Measurement (MEA)	Revise converting 12-hour clock times to 24-hour clock times; find a time a given number of minutes or hours and minutes later; calculate time intervals using 24-hour clock format; measure lengths in mm and convert to cm; find perimeters in cm and convert cm to m
5	Written addition and subtraction (WAS); Mental addition and subtraction (MAS)	Solve subtraction using a written method for 3-digit – 3-digit numbers and for 4-digit numbers; use counting up (Frog) as a strategy to perform mental subtraction; find change from a multiple of ten pounds using counting up

Autumn 2

Week	Strands	Weekly summary
6	Mental multiplication and division (MMD); Fractions, ratio and proportion (FRP)	Recognise which numbers are divisible by 2, 3, 4, 5, 6, 9 and 25 and identify multiples; find factors; compare and place fractions on a line; find equivalent fractions and reduce them to their simplest form
7	Number and place value (NPV); Written multiplication and division (WMD)	Use mental strategies to multiply and divide multiples of 10 and 100; use a written method to multiply 3-digit and 4-digit numbers by 1-digit numbers and estimate answers, divide 3-digit numbers by 1-digit numbers using a written method and express remainders as a fraction
8	Geometry: properties of shapes (GPS)	Use a protractor to measure and draw angles in degrees; recognise, use terms and classify angles as obtuse, acute and reflex; recognise that angles on a line total 180° and angles round a point total 360°; identify and name parts of a circle including diameter, radius and circumference; draw circles to a given radius using a pair of compasses; relate angles to turns, and recognise that a 360° angle is a complete turn; use angle facts to solve problems related to turn
9	Number and place value (NPV); Fractions, ratio and proportion (FRP); Decimals, percentages and their equivalence to fractions (DPE)	Place numbers to 100 000 and decimals up to two places on a line, round numbers to the nearest 10, 100 and 1000 and decimals up to two places to the nearest whole number; compare and order numbers with up to two decimal places; reduce fractions to their simplest form; know and recognise equivalent fractions and decimals to half, tenths and fifths
10	Number and place value (NPV); Mental addition and subtraction (MAS); Written addition and subtraction (WAS); Mental multiplication and division (MMD); Written multiplication and division (WMD)	Revise mental and written addition and subtraction strategies; choose to use a mental strategy or written method to solve addition and subtraction; choose to solve multiplication and division questions including 2- and 3-digit by 1-digit and 2-digit by 2-digit using a mental or a written method; identify the operation being used on numbers; understand that addition and subtraction are inverse operations multiplication and division; use function machines

Notes:



Year 5: Spring 1

Week	Strands	Weekly summary
11	Number and place value (NPV); Decimals, percentages and their equivalence to fractions (DPE)	Read, write and order numbers with up to 6 digits and understand the place value of each digit; place 6-digit numbers on a number line and find numbers between; solve place value additions and subtractions with 6-digit numbers; understand place value in decimal numbers as tenths and hundredths; multiply and divide by 10 /100/1000 using a place value grid; understand place value in decimal numbers to 2-decimal places; place decimal numbers on a line; round two-place decimal numbers to nearest tenth and whole number; say the number a tenth or a hundredth more
12	Mental addition and subtraction (MAS); Written addition and subtraction (WAS)	Rehearse mental addition strategies for decimals and whole numbers; use counting on as a strategy to perform mental addition of 2-place decimals to the next whole number; solve missing number sentences; use mental strategies to solve word problems; use counting up as a strategy to perform written subtraction (Frog)
13	Number and place value (NPV); Mental multiplication and division (MMD); Measurement (MEA)	Use rules of divisibility to find if numbers are divisible by 2, 3, 4, 5, 9 and 10; identify prime numbers; revise finding factors of numbers; find squares and square roots of square numbers; make and test rules; use mental multiplication and division strategies; relate mental division strategies to multiples of ten of the divisor
14	Geometry: properties of shapes (GPS); Measurement (MEA)	Know properties of equilateral, isosceles, scalene and right-angled triangles; find that angles in a triangle have a total of 180°; sort triangles according to their properties; use scales to weigh amounts to the nearest half interval; convert from grams to kilograms and vice versa, from millilitres to litres and vice versa, and from metres to kilometres and vice versa; read scales to the nearest half division; understand that we measure distance in kilometres and miles; use ready reckoning to give approximate values of miles in kilometres and vice versa; draw line conversion graphs
15	Written addition and subtraction (WAS)	Use a written column method to add amounts of money in pounds and pence; add 2-place decimals using written column addition; subtract decimal numbers using counting up (Frog)

Spring 2

Week	Strands	Weekly summary
16	Written multiplication and division (WMD)	Use a written method (grid) to multiply pairs of 2-digit numbers; use short division to divide 3-digit numbers by 1-digit numbers, including those which leave a remainder
17	Written multiplication and division (WMD); Fractions, ratio and proportion (FRP)	Find unit fractions and non-unit fractions of 3-digit numbers; use short multiplication to multiply 3-digit numbers by 1-digit numbers; begin to use short multiplication to multiply 4-digit numbers by 1-digit numbers
18	Geometry: properties of shapes (GPS); Measurement (MEA)	Understand what a polygon is; draw polygons using dotted square and isometric paper; revise terms obtuse, acute and reflex angles, perpendicular and parallel sides; recognise quadrilaterals as polygons and identify their properties; classify quadrilaterals; draw regular polygons and explore their properties; revise SI units of weight, capacity and length; understand that we can measure in Imperial units and relate these to their instances in daily life
19	Fractions, ratio and proportion (FRP)	Place mixed numbers on lines; count up in fractions using equivalence; convert improper fractions to mixed numbers and vice versa; write improper fractions as mixed numbers and vice versa; multiply proper fractions by whole numbers
20	Written addition and subtraction (WAS)	Solve subtraction of 4-digit numbers using written column subtraction (decomposition); add several numbers using written column addition; use column addition to solve problems and answer questions

Notes:



Year 5: Summer 1

Week	Strands	Weekly summary
21	Mental addition and subtraction (MAS); Decimals, percentages and their equivalence to fractions (DPE)	Mentally add 2-place decimal numbers in the context of money using rounding; add several small amounts of money using mental methods; mentally subtract amounts of money including giving change; calculate the difference between two amounts using counting up (Frog); solve word problems, including 2-step problems, choosing an appropriate method
22	Fractions, ratio and proportion (FRP); Written multiplication and division (WMD)	Multiply fractions less than 1 by whole numbers, convert improper fractions to whole numbers; use short multiplication to multiply 3-digit and 4-digit numbers by 1-digit numbers; use long multiplication to multiply 2-digit and 3-digit numbers by teens numbers
23	Decimals, percentages and their equivalence to fractions (DPE); Number and place value (NPV)	Read, write and compare decimals to three decimal places; begin to understand the third decimal place represents 1000ths; multiply and divide numbers by 10, 100 and 1000 using 3-place decimal numbers in the calculations; place 2-place decimals on a number line and round them to the nearest tenth and whole number; read, write, order and compare 3-place decimal numbers using a number line; understand and use negative numbers in the context of temperature
24	Geometry: position and direction (GPD); Geometry: properties of shapes (GPS)	Read and mark co-ordinates in the first two quadrants; draw simple polygons using co-ordinates; translate simple polygons through simple consistent changes to the co-ordinates; reflect simple shapes in the y-axis or in a line, noting what happens to the co-ordinates; translate simple shapes and note what happens to the co-ordinates; draw 2D shapes, regular and irregular, using given dimensions and angles; use the properties of 2D shapes, including rectangles, to deduce related facts; identify 3D shapes from 2D representations; create 3D shapes using 2D nets; draw 3D shapes
25	Written addition and subtraction (WAS)	Add 5-digit numbers using written column addition; subtract 5-digit numbers using written method (decomposition); check answers to subtractions using addition (written column method); solve subtractions of 4- and 5-digit numbers using written column subtraction (decomposition) or Frog (counting up)

Summer 2

Week	Strands	Weekly summary
26	Mental multiplication and division (MMD); Fractions, ratio and proportion (FRP)	Identify factors and multiples, find factor pairs; revise equivalent fractions; compare and order fractions with related denominators; add fractions with same denominator, then related denominators then convert answer into a mixed number; subtract fractions with same denominator, then related denominators; revise multiplying fractions by whole numbers
27	Written multiplication and division (WMD)	Use short division to divide 3-digit numbers by 1-digit numbers and 4-digit numbers by 1-digit numbers, including those which leave a remainder; express a remainder as a fraction; use long multiplication to multiply 3-digit and 4-digit numbers by teens numbers
28	Measurement (MEA)	Find the area and perimeter of squares and rectangles by calculation; estimate and find the area of irregular shapes; calculate the perimeter and area of composite shapes; use the relations of area and perimeter to find unknown lengths; begin to understand the concept of volume; find the volume of a cube or cuboid by counting cubes; understand volume as measurement in three dimensions; relate volume to capacity; recognise and estimate volumes
29	Decimals, percentages and their equivalence to fractions (DPE); Number and place value (NPV)	Understand what percentages are, relate them to hundredths; know key equivalences between percentages and fractions, use these to find percentages of amounts of money; find equivalent fractions, decimals and percentages; solve problems involving fraction and percentage equivalents; write dates using Roman numerals
30	Statistics (STA); Mental multiplication and division (MMD); Written multiplication and division (WMD)	Find cubes; draw and interpret line graphs showing change in temperature over time; begin to understand rate; use timetables with times written using the 24-hour clock: use Frog to find time intervals of several hours and minutes; solve problems involving scaling by simple fractions; use factors to multiply; solve problems involving rate

Notes:

Appendix 2

Lewknor Church of England
Primary School

Progression of Skills



KEY STAGE 1

Children in Years 1 and 2 will be given a really solid foundation in the basic building blocks of mental and written arithmetic. Through being taught place value, children will develop an understanding of how numbers work, so that they are confident with 2-digit numbers and beginning to read and say numbers above 100.

Addition and Subtraction: A focus on number bonds, first via practical hands-on experiences and subsequently using memorisation techniques, enables a good grounding in these crucial facts, and ensures that all children leave Year 2 knowing the pairs of numbers which make all the numbers up to 10 at least. Children will also have experienced and been taught pairs to 20. Children’s knowledge of number facts enables them to add several 1-digit numbers, and to add/subtract a 1-digit number to/from a 2-digit number. Another important conceptual tool is the ability to add/subtract 1 or 10, and to understand which digit changes and why. This understanding is extended to enable children to add and subtract multiples of 10 to and from any 2-digit number. The most important application of this knowledge is the ability to add or subtract any pair of 2-digit numbers by counting on or back in 10s and 1s. Children may extend this to adding by partitioning numbers into 10s and 1s.

Multiplication and Division: Children will be taught to count in 2s, 3s, 5s and 10s, and will relate this skill to repeated addition. Children will meet and begin to learn the associated $\times 2$, $\times 3$, $\times 5$ and $\times 10$ tables. Engaging in a practical way with the concept of repeated addition and the use of arrays enables children to develop a preliminary understanding of multiplication, and asking them to consider how many groups of a given number make a total will introduce them to the idea of division. Children will also be taught to double and halve numbers, and will thus experience scaling up or down as a further aspect of multiplication and division.

Fractions: Fractions will be introduced as numbers and as operators, specifically in relation to halves, quarters and thirds.

Year 1

	Mental calculation	Written calculation	Default for ALL children
Y1 +	Number bonds ('story' of 5, 6, 7, 8, 9 and 10) Count on in 1s from a given 2-digit number Add two 1-digit numbers Add three 1-digit numbers, spotting doubles or pairs to 10 Count on in 10s from any given 2-digit number Add 10 to any given 2-digit number Use number facts to add 1-digit numbers to 2-digit numbers e.g. <i>Use $4 + 3$ to work out $24 + 3$, $34 + 3$</i> Add by putting the larger number first		Pairs with a total of 10 Count in 1s Count in 10s Count on 1 from any given 2-digit number

Y1 –	Number bonds ('story' of 5, 6, 7, 8, 9 and 10) Count back in 1s from a given 2-digit number Subtract one 1-digit number from another Count back in 10s from any given 2-digit number Subtract 10 from any given 2-digit number Use number facts to subtract 1-digit numbers from 2-digit numbers e.g. <i>Use 7 – 2 to work out 27 – 2, 37 – 2</i>		Pairs with a total of 10 Count back in 1s from 20 to 0 Count back in 10s from 100 to 0 Count back 1 from any given 2-digit number
Y1 ×	Begin to count in 2s, 5s and 10s Begin to say what three 5s are by counting in 5s, or what four 2s are by counting in 2s, etc. Double numbers to 10		Begin to count in 2s and 10s Double numbers to 5 using fingers
Y1 ÷	Begin to count in 2s, 5s and 10s Find half of even numbers to 12 and know it is hard to halve odd numbers Find half of even numbers by sharing Begin to use visual and concrete arrays or 'sets of' to find how many sets of a small number make a larger number		Begin to count in 2s and 10s Find half of even numbers by sharing
Year 2			
	Mental calculation	Written calculation	Default for ALL children
Y2 +	Number bonds – know all the pairs of numbers which make all the numbers to 12, and pairs with a total of 20 Count on in 1s and 10s from any given 2-digit number Add two or three 1-digit numbers Add a 1-digit number to any 2-digit number using number facts, including bridging multiples		Know pairs of numbers which make each total up to 10 Add two 1-digit numbers Add a 1-digit number to a 2-digit number by counting on in 1s Add 10 and small multiples of 10 to a 2-digit number by counting on in 10s



	<p>of 10 e.g. $45 + 4$ e.g. $38 + 7$ Add 10 and small multiples of 10 to any given 2-digit number Add any pair of 2-digit numbers</p>		
Y2 -	<p>Number bonds – know all the pairs of numbers which make all the numbers to 12 Count back in 1s and 10s from any given 2-digit number Subtract a 1-digit number from any 2-digit number using number facts, including bridging multiples of 10 e.g. $56 - 3$ e.g. $53 - 5$ Subtract 10 and small multiples of 10 from any given 2-digit number Subtract any pair of 2-digit numbers by counting back in 10s and 1s or by counting up</p>		<p>Know pairs of numbers which make each total up to 10 Subtract a 1-digit number from a 2-digit number by counting back in 1s Subtract 10 and small multiples of 10 from a 2-digit number by counting back in 10s</p>
Y2 x	<p>Count in 2s, 5s and 10s Begin to count in 3s Begin to understand that multiplication is repeated addition and to use arrays e.g. 3×4 is three rows of 4 dots Begin to learn the $\times 2$, $\times 3$, $\times 5$ and $\times 10$ tables, seeing these as 'lots of' e.g. 5 lots of 2, 6 lots of 2, 7 lots of 2 Double numbers up to 20 Begin to double multiples of 5 to 100 Begin to double 2-digit numbers less than 50 with 1s digits of 1, 2, 3, 4 or 5</p>		<p>Count in 2s, 5s and 10s Begin to use and understand simple arrays e.g. 2×4 is two lots of four Double numbers up to 10 Double multiples of 10 to 50</p>
Y2 ÷	<p>Count in 2s, 5s and 10s Begin to count in 3s Using fingers, say where a given number is in the 2s, 5s or 10s count e.g. 8 is the fourth number when I count in</p>		<p>Count in 2s, 5s and 10s Say how many rows in a given array e.g. How many rows of 5 are in an array of 3×5? Halve numbers to 12</p>



	<p>2s Relate division to grouping e.g. <i>How many groups of 5 in 15?</i> Halve numbers to 20 Begin to halve numbers to 40 and multiples of 10 to 100 Find $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$ and $\frac{3}{4}$ of a quantity of objects and of amounts (whole number answers)</p>		Find $\frac{1}{2}$ of amounts
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LOWER KEY STAGE 2

In Lower Key Stage 2, children build on the concrete and conceptual understandings they have gained in Key Stage 1 to develop a real mathematical understanding of the four operations, in particular developing arithmetical competence in relation to larger numbers.

Addition and subtraction: Children are taught to use place value and number facts to add and subtract numbers mentally and they will develop a range of strategies to enable them to discard the 'counting in 1s' or fingers-based methods of Key Stage 1. In particular, children will learn to add and subtract multiples and near multiples of 10, 100 and 1000, and will become fluent in complementary addition as an accurate means of achieving fast and accurate answers to 3-digit subtractions. Standard written methods for adding larger numbers are taught, learned and consolidated, and written column subtraction is also introduced.

Multiplication and division: This key stage is also the period during which all the multiplication and division facts are thoroughly memorised, including all facts up to 12×12 . Efficient written methods for multiplying or dividing a 2-digit or 3-digit number by a 1-digit number are taught, as are mental strategies for multiplication or division with large but 'friendly' numbers, e.g. when dividing by 5 or multiplying by 20.

Fractions and decimals: Children will develop their understanding of fractions, learning to reduce a fraction to its simplest form, as well as finding non-unit fractions of amounts and quantities. The concept of a decimal number is introduced and children consolidate a firm understanding of 1-place decimals, multiplying and dividing whole numbers by 10 and 100.

Year 3

	Mental calculation	Written calculation	Default for ALL children
Y3 +	<p>Know pairs with each total to 20 e.g. $2 + 6 = 8$, $12 + 6 = 18$, $7 + 8 = 15$</p> <p>Know pairs of multiples of 10 with a total of 100</p> <p>Add any two 2-digit numbers by counting on in 10s and 1s or by using partitioning</p> <p>Add multiples and near multiples of 10 and 100</p> <p>Perform place-value additions without a struggle e.g. $300 + 8 + 50 = 358$</p> <p>Use place value and number facts to add a 1-digit or 2-digit number to a 3-digit number e.g. $104 + 56$ is 160 since $104 + 50 = 154$ and $6 + 4 = 10$ $676 + 8$ is 684 since $8 = 4 + 4$ and $76 + 4 + 4 = 84$</p> <p>Add pairs of 'friendly' 3-digit numbers e.g. $320 + 450$</p> <p>Begin to add amounts of money using</p>	<p>Use expanded column addition to add two or three 3-digit numbers or three 2-digit numbers</p> <p>Begin to use compact column addition to add numbers with 3 digits</p> <p>Begin to add like fractions e.g. $\frac{3}{8} + \frac{1}{8} + \frac{1}{8}$</p> <p>Recognise fractions that add to 1 e.g. $\frac{1}{4} + \frac{3}{4}$ e.g. $\frac{3}{5} + \frac{2}{5}$</p>	<p>Know pairs of numbers which make each total up to 10, and which total 20</p> <p>Add two 2-digit numbers by counting on in 10s and 1s e.g. $56 + 35$ is $56 + 30$ and then add the 5</p> <p>Understand simple place-value additions e.g. $200 + 40 + 5 = 245$</p> <p>Use place value to add multiples of 10 or 100</p>



	partitioning		
Y3 –	<p>Know pairs with each total to 20 e.g. $8 - 2 = 6$ e.g. $18 - 6 = 12$ e.g. $15 - 8 = 7$</p> <p>Subtract any two 2-digit numbers Perform place-value subtractions without a struggle e.g. $536 - 30 = 506$</p> <p>Subtract 2-digit numbers from numbers > 100 by counting up e.g. <i>143 – 76 is done by starting at 76. Then add 4 (80), then add 20 (100), then add 43, making the difference a total of 67</i></p> <p>Subtract multiples and near multiples of 10 and 100 Subtract, when appropriate, by counting back or taking away, using place value and number facts Find change from £1, £5 and £10</p>	<p>Use counting up as an informal written strategy for subtracting pairs of 3-digit numbers e.g. $423 - 357$</p> <p>Begin to subtract like fractions e.g. $\frac{7}{8} - \frac{3}{8}$</p>	<p>Know pairs of numbers which make each total up to 10, and which total 20 Count up to subtract 2-digit numbers e.g. $72 - 47$</p> <p>Subtract multiples of 5 from 100 by counting up e.g. $100 - 35$</p> <p>Subtract multiples of 10 and 100</p>
Y3 ×	<p>Know by heart all the multiplication facts in the $\times 2$, $\times 3$, $\times 4$, $\times 5$, $\times 8$ and $\times 10$ tables Multiply whole numbers by 10 and 100 Recognise that multiplication is commutative Use place value and number facts in mental multiplication e.g. 30×5 is 15×10</p> <p>Partition teen numbers to multiply by a 1-digit number e.g. 3×14 as 3×10 and 3×4</p> <p>Double numbers up to 50</p>	<p>Use partitioning (grid multiplication) to multiply 2-digit and 3-digit numbers by 'friendly' 1-digit numbers</p>	<p>Know by heart the $\times 2$, $\times 3$, $\times 5$ and $\times 10$ tables Double given tables facts to get others Double numbers up to 25 and multiples of 5 to 50</p>



Y3 ÷	<p>Know by heart all the division facts derived from the $\times 2$, $\times 3$, $\times 4$, $\times 5$, $\times 8$ and $\times 10$ tables</p> <p>Divide whole numbers by 10 or 100 to give whole number answers</p> <p>Recognise that division is not commutative</p> <p>Use place value and number facts in mental division e.g. $84 \div 4$ is half of 42</p> <p>Divide larger numbers mentally by subtracting the 10th multiple as appropriate, including those with remainders e.g. $57 \div 3$ is $10 + 9$ as $10 \times 3 = 30$ and $9 \times 3 = 27$</p> <p>Halve even numbers to 100, halve odd numbers to 20</p>	<p>Perform divisions just above the 10th multiple using horizontal or vertical jottings and understanding how to give a remainder as a whole number</p> <p>Find unit fractions of quantities and begin to find non-unit fractions of quantities</p>	<p>Know by heart the division facts derived from the $\times 2$, $\times 3$, $\times 5$ and $\times 10$ tables</p> <p>Halve even numbers up to 50 and multiples of 10 to 100</p> <p>Perform divisions within the tables including those with remainders e.g. $38 \div 5$</p>
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Year 4

	Mental calculation	Written calculation	Default for ALL children
Y4 +	<p>Add any two 2-digit numbers by partitioning or counting on</p> <p>Know by heart/quickly derive number bonds to 100 and to £1</p> <p>Add to the next 100, £1 and whole number e.g. $234 + 66 = 300$ e.g. $3.4 + 0.6 = 4$</p> <p>Perform place-value additions without a struggle e.g. $300 + 8 + 50 + 4000 = 4358$</p> <p>Add multiples and near multiples of 10, 100 and 1000</p> <p>Add £1, 10p, 1p to amounts of money</p>	<p>Column addition for 3-digit and 4-digit numbers e.g.</p> $ \begin{array}{r} 5347 \\ 2286 \\ + 1495 \\ \hline 121 \\ \hline 9128 \end{array} $ <p>Add like fractions e.g. $\frac{3}{5} + \frac{4}{5} = \frac{7}{5} = 1\frac{2}{5}$</p> <p>Be confident with fractions that add to 1 and</p>	<p>Add any 2-digit numbers by partitioning or counting on</p> <p>Number bonds to 20</p> <p>Know pairs of multiples of 10 with a total of 100</p> <p>Add 'friendly' larger numbers using knowledge of place value and number facts</p> <p>Use expanded column addition to add 3-digit numbers</p>



	<p>Use place value and number facts to add 1-, 2-, 3- and 4-digit numbers where a mental calculation is appropriate e.g. $4004 + 156$ by knowing that $6 + 4 = 10$ and that $4004 + 150 = 4154$ so the total is 4160</p>	<p>fraction complements to 1 e.g. $\frac{2}{3} + \frac{1}{3} = 1$</p>	
<p>Y4 -</p>	<p>Subtract any two 2-digit numbers Know by heart/quickly derive number bonds to 100 Perform place-value subtractions without a struggle e.g. $4736 - 706 = 4030$ Subtract multiples and near multiples of 10, 100, 1000, £1 and 10p Subtract multiples of 0.1 Subtract by counting up e.g. $503 - 368$ is done by adding $368 + 2 + 30 + 100 + 3$ (so we added 135) Subtract, when appropriate, by counting back or taking away, using place value and number facts Subtract £1, 10p, 1p from amounts of money Find change from £10, £20 and £50</p>	<p>Use expanded column subtraction for 3- and 4-digit numbers Use complementary addition to subtract amounts of money, and for subtractions where the larger number is a near multiple of 1000 or 100 e.g. $2002 - 1865$ Subtract like fractions e.g. $\frac{4}{5} - \frac{3}{5} = \frac{1}{5}$ Use fractions that add to 1 to find fraction complements to 1 e.g. $1 - \frac{2}{3} = \frac{1}{3}$</p>	<p>Use counting up with confidence to solve most subtractions, including finding complements to multiples of 100 e.g. $512 - 287$ e.g. $67 + \frac{1}{3} = 100$</p>
<p>Y4 x</p>	<p>Know by heart all the multiplication facts up to 12×12 Recognise factors up to 12 of 2-digit numbers Multiply whole numbers and 1-place decimals by 10, 100, 1000 Multiply multiples of 10, 100 and 1000 by 1-digit numbers e.g. 300×6 e.g. 4000×8 Use understanding of place value and number facts in mental multiplication e.g. 36×5 is half of 36×10</p>	<p>Use a vertical written method to multiply a 1-digit number by a 3-digit number (ladder method) Use an efficient written method to multiply a 2-digit number by a number between 10 and 20 by partitioning (grid method)</p>	<p>Know by heart multiplication tables up to 10×10 Multiply whole numbers by 10 and 100 Use the grid method to multiply a 2-digit or a 3-digit number by a number ≤ 6</p>



	<p>e.g. $50 \times 60 = 3000$</p> <p>Partition 2-digit numbers to multiply by a 1-digit number mentally e.g. 4×24 as 4×20 and 4×4</p> <p>Multiply near multiples by rounding e.g. 33×19 as $(33 \times 20) - 33$</p> <p>Find doubles to double 100 and beyond using partitioning</p> <p>Begin to double amounts of money e.g. $\pounds 35.60$ doubled is $\pounds 71.20$</p>		
<p>Y4</p> <p>÷</p>	<p>Know by heart all the division facts up to $144 \div 12$</p> <p>Divide whole numbers by 10, 100, to give whole number answers or answers with 1 decimal place</p> <p>Divide multiples of 100 by 1-digit numbers using division facts e.g. $3200 \div 8 = 400$</p> <p>Use place value and number facts in mental division e.g. $245 \div 20$ is half of $245 \div 10$</p> <p>Divide larger numbers mentally by subtracting the 10th or 20th multiple as appropriate e.g. $156 \div 6$ is 20×6 as $20 \times 6 = 120$ and $6 \times 6 = 36$</p> <p>Find halves of even numbers to 200 and beyond using partitioning</p> <p>Begin to halve amounts of money e.g. half of $\pounds 52.40$ is $\pounds 26.20$</p>	<p>Use a written method to divide a 2-digit or a 3-digit number by a 1-digit number</p> <p>Give remainders as whole numbers</p> <p>Begin to reduce fractions to their simplest forms</p> <p>Find unit and non-unit fractions of larger amounts</p>	<p>Know by heart all the division facts up to $100 \div 10$</p> <p>Divide whole numbers by 10 and 100 to give whole number answers or answers with 1 decimal place</p> <p>Perform divisions just above the 10th multiple using the written layout and understanding how to give a remainder as a whole number</p> <p>Find unit fractions of amounts</p>



UPPER KEY STAGE 2

Children move on from dealing mainly with whole numbers to performing arithmetic operations with both decimals and fractions.

Addition and subtraction: Children will consolidate their use of written procedures in adding and subtracting whole numbers with up to 6 digits and also decimal numbers with up to 2 decimal places. Mental strategies for adding and subtracting increasingly large numbers will also be taught. These will draw upon children's robust understanding of place value and knowledge of number facts. Negative numbers will be added and subtracted.

Multiplication and division: Efficient and flexible strategies for mental multiplication and division are taught and practised, so that children can perform appropriate calculations even when the numbers are large, such as $40\,000 \times 6$ or $40\,000 \div 8$. In addition, it is in Years 5 and 6 that children extend their knowledge and confidence in using written algorithms for multiplication and division.

Fractions, decimals, percentages and ratio: Fractions and decimals are also added, subtracted, divided and multiplied, within the bounds of children's understanding of these more complicated numbers. Children will also calculate simple percentages and ratios.

Year 5

	Mental calculation	Written calculation	Default for ALL children
Y5 +	<p>Know number bonds to 1 and to the next whole number</p> <p>Add to the next 10 from a decimal number e.g. $13.6 + 6.4 = 20$</p> <p>Add numbers with 2 significant digits only, using mental strategies e.g. $3.4 + 4.8$ e.g. $23\,000 + 47\,000$</p> <p>Add 1- or 2-digit multiples of 10, 100, 1000, 10 000 and 100 000 e.g. $8000 + 7000$ e.g. $600\,000 + 700\,000$</p> <p>Add near multiples of 10, 100, 1000, 10 000 and 100 000 to other numbers e.g. $82\,472 + 30\,004$</p> <p>Add decimal numbers which are near multiples of 1 or 10, including money e.g. $6.34 + 1.99$ e.g. $\pounds 34.59 + \pounds 19.95$</p> <p>Use place value and number facts to add two or</p>	<p>Use column addition to add two or three whole numbers with up to 5 digits</p> <p>Use column addition to add any pair of 2-place decimal numbers, including amounts of money</p> <p>Begin to add related fractions using equivalences e.g. $\frac{1}{2} + \frac{1}{6} = \frac{3}{6} + \frac{1}{6}$</p> <p>Choose the most efficient method in any given situation</p>	<p>Add numbers with only 2 digits which are not zeros e.g. $3.4 + 5.8$</p> <p>Derive swiftly and without any difficulty number bonds to 100</p> <p>Add 'friendly' large numbers using knowledge of place value and number facts</p> <p>Use expanded column addition to add pairs of 4- and 5-digit numbers</p>



	<p>more 'friendly' numbers, including money and decimals</p> <p>e.g. $3 + 8 + 6 + 4 + 7$</p> <p>e.g. $0.6 + 0.7 + 0.4$</p> <p>e.g. $2056 + 44$</p>		
<p>Y5</p> <p>–</p>	<p>Subtract numbers with 2 significant digits only, using mental strategies</p> <p>e.g. $6.2 - 4.5$</p> <p>e.g. $72\,000 - 47\,000$</p> <p>Subtract 1- or 2-digit multiples of 10, 100, 1000, 10 000 and 100 000</p> <p>e.g. $8000 - 3000$</p> <p>e.g. $60\,000 - 200\,000$</p> <p>Subtract 1- or 2-digit near multiples of 10, 100, 1000, 10 000 and 100 000 from other numbers</p> <p>e.g. $82\,472 - 30\,004$</p> <p>Subtract decimal numbers which are near multiples of 1 or 10, including money</p> <p>e.g. $6.34 - 1.99$</p> <p>e.g. $£34.59 - £19.95$</p> <p>Use counting up subtraction, with knowledge of number bonds to 10, 100 or £1, as a strategy to perform mental subtraction</p> <p>e.g. $£10 - £3.45$</p> <p>e.g. $1000 - 782$</p> <p>Recognise fraction complements to 1 and to the next whole number</p> <p>e.g. $1\frac{2}{5} + \frac{3}{5} = 2$</p>	<p>Use compact or expanded column subtraction to subtract numbers with up to 5 digits</p> <p>Use complementary addition for subtractions where the larger number is a multiple or near multiple of 1000</p> <p>Use complementary addition for subtractions of decimal numbers with up to 2 places, including amounts of money</p> <p>Begin to subtract related fractions using equivalences</p> <p>e.g. $\frac{1}{2} - \frac{1}{6} = \frac{2}{6}$</p> <p>Choose the most efficient method in any given situation</p>	<p>Derive swiftly and without difficulty number bonds to 100</p> <p>Use counting up with confidence to solve most subtractions, including finding complements to multiples of 1000</p> <p>e.g. $3000 - 2387$</p>
<p>Y5</p> <p>×</p>	<p>Know by heart all the multiplication facts up to 12×12</p> <p>Multiply whole numbers and 1- and 2-place decimals by 10, 100, 1000, 10 000</p> <p>Use knowledge of factors and multiples in multiplication</p> <p>e.g. 43×6 is double 43×3</p> <p>e.g. 28×50 is $\frac{1}{2}$ of $28 \times 100 = 1400$</p>	<p>Use short multiplication to multiply a 1-digit number by a number with up to 4 digits</p> <p>Use long multiplication to multiply 3-digit and 4-digit numbers by a number between 11 and 20</p> <p>Choose the most efficient method in any given situation</p> <p>Find simple percentages of amounts</p> <p>e.g. 10%, 5%, 20%, 15% and 50%</p>	<p>Know multiplication tables to 11×11</p> <p>Multiply whole numbers and 1-place decimals by 10, 100 and 1000</p> <p>Use knowledge of factors as aids to mental multiplication</p> <p>e.g. 13×6 is double 13×3</p> <p>e.g. 23×5 is $\frac{1}{2}$ of 23×10</p> <p>Use the grid method to multiply numbers with up</p>



<p>Use knowledge of place value and rounding in mental multiplication e.g. 67×199 as $67 \times 200 - 67$</p> <p>Use doubling and halving as a strategy in mental multiplication e.g. 58×5 is half of 58×10 e.g. 34×4 is 34 doubled twice</p> <p>Partition 2-digit numbers, including decimals, to multiply by a 1-digit number mentally e.g. 6×27 as 6×20 (120) plus 6×7 (42) e.g. 6.3×7 as 6×7 (42) plus 0.3×7 (2.1)</p> <p>Double amounts of money by partitioning e.g. $\pounds 37.45$ doubled is $\pounds 37$ doubled ($\pounds 74$) plus 45p doubled (90p) giving a total of $\pounds 74.90$</p>	<p>Begin to multiply fractions and mixed numbers by whole numbers ≤ 10 e.g. $4 \times \frac{2}{3} = \frac{8}{3} = 2\frac{2}{3}$</p>	<p>to 4 digits by 1-digit numbers Use the grid method to multiply 2-digit numbers by 2-digit numbers</p>
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Y5 <div style="font-size: 2em;">÷</div>	<p>Know by heart all the division facts up to $144 \div 12$</p> <p>Divide whole numbers by 10, 100, 1000, 10 000 to give whole number answers or answers with 1, 2 or 3 decimal places</p> <p>Use doubling and halving as mental division strategies e.g. $34 \div 5$ is $(34 \div 10) \times 2$</p> <p>Use knowledge of multiples and factors, as well as tests for divisibility, in mental division e.g. $246 \div 6$ is $123 \div 3$ e.g. <i>We know that 525 divides by 25 and by 3</i></p> <p>Halve amounts of money by partitioning e.g. $\frac{1}{2}$ of $\pounds 75.40 = \frac{1}{2}$ of $\pounds 75$ ($\pounds 37.50$) plus half of 40p (20p) which is $\pounds 37.70$</p> <p>Divide larger numbers mentally by subtracting the 10th or 100th multiple as appropriate e.g. $96 \div 6$ is $10 + 6$, as $10 \times 6 = 60$ and $6 \times 6 = 36$ e.g. $312 \div 3$ is $100 + 4$ as $100 \times 3 = 300$ and $4 \times 3 = 12$</p> <p>Know tests for divisibility by 2, 3, 4, 5, 6, 9 and 25</p> <p>Know square numbers and cube numbers</p> <p>Reduce fractions to their simplest form.</p>	<p>Use short division to divide a number with up to 4 digits by a number ≤ 12</p> <p>Give remainders as whole numbers or as fractions</p> <p>Find non-unit fractions of large amounts</p> <p>Turn improper fractions into mixed numbers and vice versa</p> <p>Choose the most efficient method in any given situation</p>	<p>Know by heart division facts up to $121 \div 11$</p> <p>Divide whole numbers by 10, 100 or 1000 to give answers with up to 1 decimal place</p> <p>Use doubling and halving as mental division strategies</p> <p>Use an efficient written method to divide numbers ≤ 1000 by 1-digit numbers</p> <p>Find unit fractions of 2- and 3-digit numbers</p>
Year 6			



	Mental calculation	Written calculation	Default for ALL children
Y6 +	<p>Know by heart number bonds to 100 and use these to derive related facts e.g. $3\cdot46 + 0\cdot54$</p> <p>Derive, quickly and without difficulty, number bonds to 1000</p> <p>Add small and large whole numbers where the use of place value or number facts makes the calculation do-able mentally e.g. $34\ 000 + 8000$</p> <p>Add multiples of powers of 10 and near multiples of the same e.g. $6345 + 199$</p> <p>Add negative numbers in a context such as temperature where the numbers make sense</p> <p>Add two 1-place decimal numbers or two 2-place decimal numbers less than 1 e.g. $4\cdot5 + 6\cdot3$ e.g. $0\cdot74 + 0\cdot33$</p> <p>Add positive numbers to negative numbers e.g. <i>Calculate a rise in temperature or continue a sequence beginning with a negative number</i></p>	<p>Use column addition to add numbers with up to 5 digits</p> <p>Use column addition to add decimal numbers with up to 3 decimal places</p> <p>Add mixed numbers and fractions with different denominators</p>	<p>Derive, swiftly and without difficulty, number bonds to 100</p> <p>Use place value and number facts to add 'friendly' large or decimal numbers e.g. $3\cdot4 + 6\cdot6$ e.g. $26\ 000 + 54\ 000$</p> <p>Use column addition to add numbers with up to 4-digits</p> <p>Use column addition to add pairs of 2-place decimal numbers</p>
Y6 -	<p>Use number bonds to 100 to perform mental subtraction of any pair of integers by complementary addition e.g. $1000 - 654$ as $46 + 300$ in our heads</p> <p>Use number bonds to 1 and 10 to perform mental subtraction of any pair of 1-place or 2-place decimal numbers using complementary addition and including money e.g. $10 - 3\cdot65$ as $0\cdot35 + 6$ e.g. $£50 - £34\cdot29$ as $71p + £15$</p> <p>Use number facts and place value to perform</p>	<p>Use column subtraction to subtract numbers with up to 6 digits</p> <p>Use complementary addition for subtractions where the larger number is a multiple or near multiple of 1000 or 10 000</p> <p>Use complementary addition for subtractions of decimal numbers with up to 3 places, including money</p> <p>Subtract mixed numbers and fractions with different denominators</p>	<p>Use number bonds to 100 to perform mental subtraction of numbers up to 1000 by complementary addition e.g. $1000 - 654$ as $46 + 300$ in our heads</p> <p>Use complementary addition for subtraction of integers up to 10 000 e.g. $2504 - 1878$</p> <p>Use complementary addition for subtractions of 1-place decimal numbers and amounts of money e.g. $£7\cdot30 - £3\cdot55$</p>



	<p>mental subtraction of large numbers or decimal numbers with up to 2 places e.g. $467\,900 - 3005$ e.g. $4.63 - 1.02$</p> <p>Subtract multiples of powers of 10 and near multiples of the same</p> <p>Subtract negative numbers in a context such as temperature where the numbers make sense</p>		
Y6 x	<p>Know by heart all the multiplication facts up to 12×12</p> <p>Multiply whole numbers and decimals with up to 3 places by 10, 100 or 1000 e.g. $234 \times 1000 = 234\,000$ e.g. $0.23 \times 1000 = 230$</p> <p>Identify common factors, common multiples and prime numbers and use factors in mental multiplication e.g. 326×6 is 652×3 which is 1956</p> <p>Use place value and number facts in mental multiplication e.g. $4000 \times 6 = 24\,000$ e.g. $0.03 \times 6 = 0.18$</p> <p>Use doubling and halving as mental multiplication strategies, including to multiply by 2, 4, 8, 5, 20, 50 and 25 e.g. 28×25 is a quarter of $28 \times 100 = 700$</p> <p>Use rounding in mental multiplication e.g. 34×19 as $(34 \times 20) - 34$</p> <p>Multiply 1- and 2-place decimals by numbers up to and including 10 using place value and partitioning e.g. 3.6×4 is $12 + 2.4$ e.g. 2.53×3 is $6 + 1.5 + 0.09$</p> <p>Double decimal numbers with up to 2 places using partitioning</p>	<p>Use short multiplication to multiply a 1-digit number by a number with up to 4 digits</p> <p>Use long multiplication to multiply a 2-digit number by a number with up to 4 digits</p> <p>Use short multiplication to multiply a 1-digit number by a number with 1 or 2 decimal places, including amounts of money</p> <p>Multiply fractions and mixed numbers by whole numbers</p> <p>Multiply fractions by proper fractions</p> <p>Use percentages for comparison and calculate simple percentages</p>	<p>Know by heart all the multiplication facts up to 12×12</p> <p>Multiply whole numbers and 1- and 2-place decimals by 10, 100 and 1000</p> <p>Use an efficient written method to multiply a 1-digit or a teen number by a number with up to 4 digits by partitioning (grid method)</p> <p>Multiply a 1-place decimal number up to 10 by a number ≤ 100 using the grid method</p>



	e.g. <i>36·73 doubled is double 36 (72) plus double 0·73 (1·46)</i>		
Y6 ÷	<p>Know by heart all the division facts up to $144 \div 12$</p> <p>Divide whole numbers by powers of 10 to give whole number answers or answers with up to 3 decimal places</p> <p>Identify common factors, common multiples and primes numbers and use factors in mental division</p> <p>e.g. <i>438 ÷ 6 is 219 ÷ 3 which is 73</i></p> <p>Use tests for divisibility to aid mental calculation</p> <p>Use doubling and halving as mental division strategies, for example to divide by 2, 4, 8, 5, 20 and 25</p> <p>e.g. <i>628 ÷ 8 is halved three times: 314, 157, 78·5</i></p> <p>Divide 1- and 2-place decimals by numbers up to and including 10 using place value</p> <p>e.g. $2·4 \div 6 = 0·4$</p> <p>e.g. $0·65 \div 5 = 0·13$</p> <p>e.g. $£6·33 \div 3 = £2·11$</p> <p>Halve decimal numbers with up to 2 places using partitioning</p> <p>e.g. <i>Half of 36·86 is half of 36 (18) plus half of 0·86 (0·43)</i></p> <p>Know and use equivalence between simple fractions, decimals and percentages, including in different contexts</p> <p>Recognise a given ratio and reduce a given ratio to its lowest term</p>	<p>Use short division to divide a number with up to 4 digits by a 1-digit or a 2-digit number</p> <p>Use long division to divide 3-digit and 4-digit numbers by 'friendly' 2-digit numbers</p> <p>Give remainders as whole numbers or as fractions or as decimals</p> <p>Divide a 1-place or a 2-place decimal number by a number ≤ 12 using multiples of the divisors</p> <p>Divide proper fractions by whole numbers</p>	<p>Know by heart all the division facts up to $144 \div 12$</p> <p>Divide whole numbers by 10, 100, 1000 to give whole number answers or answers with up to 2 decimal places</p> <p>Use an efficient written method, involving subtracting powers of 10 times the divisor, to divide any number of up to 1000 by a number ≤ 12</p> <p>e.g. <i>836 ÷ 11 as 836 – 770 (70 × 11) leaving 66 which is 6 × 11, giving the answer 76</i></p> <p>Divide a 1-place decimal by a number ≤ 10 using place value and knowledge of division facts</p>



